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Housing for millions

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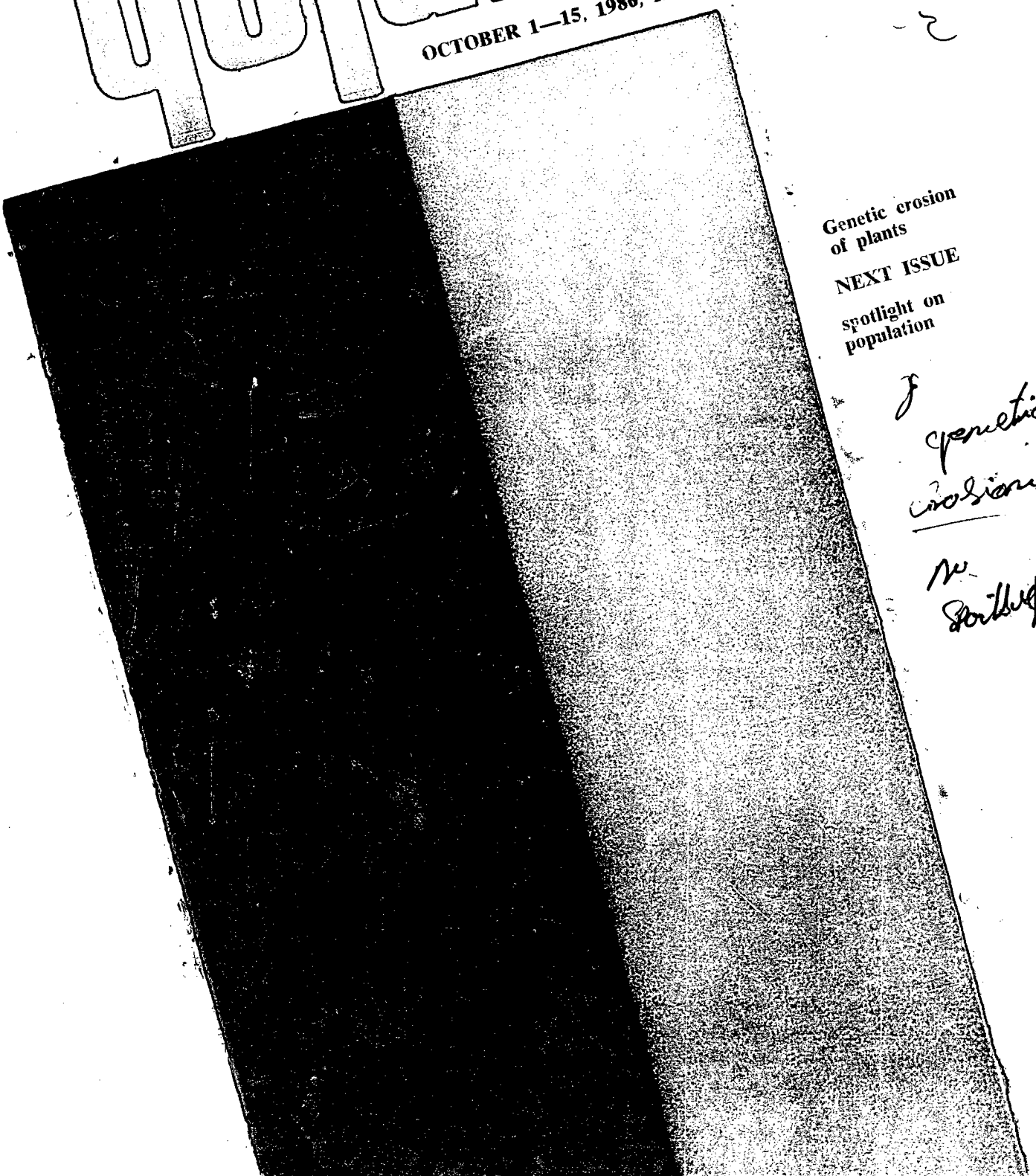

Genetic erosion of plants

NEXT ISSUE

Spotlight on population

The Twenty-Point Programme-1986

ACCORDING TO A STATEMENT made by Shri A.B.A. Ghani Khan Choudhury, Union Minister of Programme Implementation, in Parliament on August 20, 1986 the war on poverty is the first priority of the Government. In the past five years, more than ten crore of our poor have been raised above the poverty line. The goal is to remove poverty and create fuller employment.

The statement says the Twenty-Point Programme is the cutting edge of the plan for the poor. Now the Programme has been restructured in the light of the achievements and experiences and the objective of the Seventh Plan. The restructured Programme renews the commitment of the Government to : eradicating poverty; raising productivity; reducing income inequalities; and removing social and economic disparities, and improving the quality of life.

The major thrusts of the new Twenty-Point Programme-1986 will be :

1. Attack on Rural Poverty.
2. Strategy for Rainfed Agriculture.
3. Better use of Irrigation Water.
4. Bigger Harvests.
5. Enforcement of Land Reforms.
6. Special Programmes for Rural Labour.
7. Clean Drinking Water.
8. Health for All.
9. Two-child Norm.
10. Expansion of Education.
11. Justice to Scheduled Castes and Scheduled Tribes.
12. Equality for Women.
13. New Opportunities for Youth.
14. Housing for the People.
15. Improvement of Slums.
16. New Strategy for Forestry.
17. Protection of the Environment.
18. Concern for the Consumer.
19. Energy for the Villages.
20. A responsive Administration. □

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Challenges of Poverty Removal

Dr. Biswanath Ghosh

Strict enforcement of land reforms and revamping of credit institutions can provide, according to the author, the necessary assets and resources for the poor as well as promote a more equitable social structure. Social change can also be achieved, he feels, by greater participation of the poor through the elected institutions at the grassroots level and through their own organisations. In the Seventh Plan, the author says, the Integrated Rural Development Programme should be the king pin for poverty allevation. But the cost effectiveness and minimisation of the leakages should be the guiding principles in the implementation of this programme. The author also suggests some major thrusts in the poverty alleviation strategy.

THE 'ASIAN DRAMA' IS STILL WITH US. Despite the rise in average incomes over the past two decades, the incidence of rural poverty refuses to go away. Poverty in India, whether we measure it in terms of income or nutritional levels, is concentrated among certain occupational classes in both the rural and the urban sectors. Most of the rural poor are to be found among two groups : peasant cultivators with very small holdings and landless labourers. In the urban sector most of them are unemployed or underemployed people. According to the 'conventional wisdom' in development literature, as a country increas its income the benefits will trickle down to even the poorest members of society. This should happen through the creation of more jobs as the economy expands, better wages as the country earns more and higher prices for farm produce as towns grow. But all this may take time. Poverty cannot wait in an age of rising expectation.

Poverty removal

It has rightly been stated in the Seventh Plan that poverty alleviation programmes have to be viewed in the wider perspective of socio-economic transformation in the country. While the present strategy of direct attack on poverty through specific poverty alleviation programmes is justified because of insufficient percolation of benefits to the poor from the overall economic growth, it should be appreciated that the stategy of direct attack on poverty cannot be sustained and would not yield the desired results if the overall growth of the economy itself is slow and the benefits of such growth are inequitably distributed. First, the resources and capabilities needed for running such programmes cannot be generated in the system unless the economy itself is buoyant and there is a sustained increase in output. Secondly, the demand for goods and services produced by the poorer household enterprises rises significantly in response to the overall increase in incomes in the country so that the viability of these household enterprises depends critically on the sustained increase in national income. Thirdly, it is necessary to ensure that the pattern of overall economic growth itself is such as to generate adequate incomes for the poorer sections through its greater impact on employment generation and on the development of the less developed regions. The programmes for poverty alleviation should thus be regarded as supplementing the basic plan for overall economic growth in terms of generating productive assets and skills as well as incomes for the poor.

Social transformation

The economic betterment of the poorer sections cannot be achieved without social transformation involving structural changes, educational development, growth in awareness and change in outlook, motivation and attitudes. The social framework should be such as to provide opportunities for the poorer sections to display initiative and to stand on their feet. Moreover, such a framework can ensure that the benefits of poverty alleviation programmes really reach the poor and are not frittered away through various leakages. Strict enforcement of land reforms and revamping of credit institutions can provide the necessary assets and resources for the poor as well as promote a more equitable social structure. Greater participation of the poor through the elected institutions at the grassroots level as well as through their own organisations is another means to achieve social change. Improvement of literacy and education and the imaginative use of various mass media for communicating useful information and knowledge as well as for changing the outlook of the people by instilling in them the egalitarian spirit, the urge for and confidence in achieving self betterment through cooperative endeavour, are essential for speeding up the process of socio-economic transformation.

Population control

The Seventh Plan reiterates the goal of bringing down the percentage of population below the poverty line to less than 10 by 1995. Therefore, the special programmes for income generation for the poor through assets endowment and wage employment for them will be continued at an accelerated pace during the Seventh Plan period.

In the Seventh Plan the Integrated Rural Development Programme (IRDP) should be the kingpin for poverty alleviation.

IRDP, its effectiveness

Cost-effectiveness of the programmes and minimisation of leakages should be the two guiding principles in the implementation of poverty alleviation programmes. Economic viability should be understood primarily in terms of cost effectiveness, i.e. maximum income generation per unit of total expenditure incurred. The ability of a poorer household to cross the poverty line depends on its overall income.

To achieve the objectives of cost-effectiveness and minimization of leakages by imparting the necessary flexibility in the choice of activities and by achieving integration in the programmes, a three-pronged strategy is envisaged in the Seventh Plan. First, poverty alleviation programmes would be formulated and implemented in a decentralised manner with the participation of people at the grassroots level through village panchayats, panchayat samities, Zilla parishads, etc. Such an approach will contribute to the selection of projects suited to local conditions and to the integration of poverty alleviation programmes with area development. This framework will also help in the timely provision of services in their appropriate sequence and in ensuring that the benefits of such programmes really reach those for whom they are intended. The Working Group on District Planning constituted by the Planning Commission had recommended a gradual approach towards decentralisation for achieving the objectives of effective implementation of poverty alleviation programmes and balanced regional development. During the Seventh Plan, decentralisation of the planning process and full public participation in development will be pursued on the lines suggested by the Working Group.

Secondly, the launching of a large number of programmes has resulted in a multiplicity of organisations, leading to duplication of management efforts. The effective implementation of poverty alleviation programmes would call for better planning at the district level involving various disciplines, tighter organisational set up to ensure optimal use of resources and closer monitoring. A high-level Committee has been set up by the Planning Commission to review the existing administrative arrangements for Rural Development and Poverty Alleviation Programmes and to recommend an appropriate structural mechanism to ensure that they are planned in an integrated manner and effectively implemented.

Thirdly, keeping in view the limited absorptive capacity of the poorest households, the Approach to the Seventh Plan has also emphasised the need for taking up group-oriented activities for beneficiaries through the promotion of co-operatives, registered societies, informal groups etc., so that the economies of scale, inherent in some of these activities, are fully realised while at same time group initiative and effort of the poor are promoted. This is necessary to protect the beneficiaries from the adverse operation of market forces whether on supply of inputs or on the sale of their produce. For purposes of bringing about a greater degree of awareness among and participation of beneficiaries, a central scheme is proposed to be launched for the organisation of beneficiaries both in terms of group-oriented economic activities and increased consciousness.

Lacunae of IRDP

Many of the shortcomings of the IRDP stem from the fact that a programme of massive dimensions was launched with very little preparation. The Sixth Plan period thus can be called a period of trial in which the programme has gradualy come to be known, understood and even established. The gaps that have been revealed and the weaknesses that have been experienced in the process will be remedied in th Seventh Plan so as to make the IRDP an effective instrument of poverty alleviation.

The Programme will continue to aim at the poorest of the poor who will be identified by an annual household income of Rs. 4800, which is substantially lower than the cut-off income of around Rs. 6400 at the poverty line level. Towards achieving this end, much greater care will be exercised in the process of selection of beneficiaries. Considering the low absorptive capacity of the poorest among the poor, the adoption of the total household approach will be emphasised as a major plank of the Programme.

Productivity, how to raise it!

Due emphasis would be given to augmenting productivity through IRDP by taking up land-based activities like minor irrigation, dry farming, horticulture and even farm forestry. With the emphasis of IRDP on the poorest of the poor, this would imply largescale conjunctive activity with land reforms.

Concrete steps will be taken up to step up activity in the industries, services and business (ISB) sector. Realistic project profiles will be worked out for household enterprises and wherever possible larger group enterprises, in areas of traditional skills. These will take into account the need to provide balancing equipment and improvement of existing capital stock along with the provision of working capital to maintain continued income flows and asset development and renewal. In a number of other sectors of the economy like water supply and sanitation and improved agricultural implements, there is considerable scope for developing productive ventures for production and service of new technology-based equipments which will be exploited and developed to the maximum extent as part of secondary and tertiary sector activity under the IRDP. The absence of infrastructural support and backward and forward linkages which is a major area of weakness under the Programme will be given special attention :

Where the thrust is needed!

7. The National Rural Employment Programme will be continued in the Seventh Plan as an important component of the anti-poverty strategy. This will have to be viewed as an integral part of the total package which would imply that an effort would have to be made to direct and monitor the wage employment opportunities accruing through this Programme to members of the target group including those identified for assistance under the IRDP. The same principle would apply in the choice of projects which would have to provide reasonably long spells of employment during implementation directed towards poor, long-term income and employment generation potential, capacity to create a base for productive asset endowment and capacity for filling gaps in vital infrastructure. Based on this, priority will be accorded to works for the development of waste lands and marginal lands allotted under land reform measures, renovation of derelict tanks for large scale development of fisheries with the target-group orientation, social forestry including fuel and energy plantations, fodder and pasture development and roadside plantations with maximum involvement of the community groups in their management coupled with nursery development of target-group land-holders. Development of composite homestead projects for the shelterless in the form of housing complexes-cum-production estates would provide vital economic infrastructures like buildings for godowns, banks and workshops for target-group beneficiaries would be chosen.

2. Rural-Landless Employment Guarantee Programme (RLEGP) was introduced from August 1983 with the objective of (a) improving and expanding employment opportunities for the rural landless with a view to providing guarantee of employment to at least one member of every landless household upto 100 days in a year and (b) creating durable assets for strengthening the infrastructure so as to meet the growing requirements of the rural economy. An outlay of Rs. 500 crores to be fully financed by the Central Government was provided under this programme in the Sixth Plan. The implementation of the programme was entrusted to the States, but they were required to prepare specific projects for approval by a Central Committee. During 1983—85 the Central Committee approved 320 projects with an estimated cost of Rs. 906.59 crores. The target for employment generation in 1983-84 and 1984-85 was fixed at 360 million mandays against which 260.18 million mandays of employment was actually generated.

Mid-way during the Sixth Plan, the RLEGP was started with the dual objective of expanding employment opportunities in the rural areas and providing sharper focus on the landless labour household which constitute the hardcore of the people below the poverty line. Efforts would be made to implement a limited guarantee for providing 80 to 100 days employment to the landless labour households through this programme.

An outlay of Rs. 1250.81 cores has been provided for NREP in the Central Sector which will be matched equally by the States. The outlay of Rs. 1743.78 crores has been provided for RLEGP to be borne entirely by the Centre. Based on the average wage of Rs. 8.61 per day as in 1984-85 and a wage material cost ratio of 50:50, a total employment of 1445 million mandays under NREP and 1013 million mandays under RLEGP is likely to be generated during the Seventh Plan at an average rate of around 290 million mandays and 200 million man-days per annum respectively.

3. Drought-prone area programme. A rural works programme was started in 1970-71 in areas chronically affected by drought with the principal objective of organising permanent works to obviate scarcity relief and to generate adequate employ-

(Continued on page 30)

Twenty-Point Programme 1986

The following is the text of the new Twenty Point Programme as announced by the Union Minister of Programme Implementation, Shri A.B.A. Ghani Khan Choudhury in Parliament on August 20, 1986:

"THE WAR ON POVERTY is our first priority. In the past five years, more than ten crore of our poor have been raised above the poverty line. Our goal is to remove poverty and create fuller employment.

The Twenty Point Programme is the cutting edge of the plan for the poor. The programme has been restructured in the light of our achievements and experience and the objectives of the Seventh Plan. The restructured programme renews our commitment to :

- eradicating poverty
- raising productivity
- reducing income inequalities
- removing social and economic disparities, and improving the quality of life.

1. Attack on Rural Poverty

We shall :

Ensure that poverty alleviation programmes reach all the poor in every village;

Dovetail wage employment programmes with programmes for area development and human resource development and create national and community assets like school buildings, roads, tanks and fuel and fodder reserves;

Correlate the various rural development programmes to :

- improve productivity and production
- expand rural employment

Promote handlooms, handicrafts, village and small industries, and improve skills for self-employment;

Revitalise Panchayats, cooperatives and local bodies.

2. Strategy for Rain-fed Agriculture

We shall :

Improve the technology for conserving moisture and ensure better management of land and water resources;

Develop and distribute appropriate and improved seeds;

Reduce vulnerability to drought through suitable changes in drought-prone area and drough-relief programmes.

3. Better use of Irrigation Water

We shall :

Develop the catchment areas and improve drainage in basins and deltas;

Improve irrigation management in command areas;

Prevent water logging, salinity and wasteful use;

Coordinate the use of surface and ground water.

4. Bigger Harvests

We shall :

Revolutionise rice production in the Eastern Region and other areas of low productivity ,

Achieve self-reliance in edible oils;

Secure greater production of pulses;

Intensify the cultivation of fruit and vegetables;

Augment facilities for modern storage, processing and marketing of agricultural produce;

Help livestock and dairy farmers to increase productivity;

Develop fish farming and sea fishing.

5. Enforcement of Land Reforms

We shall :

Complete compilation of land records;

Implement agricultural land ceilings;

Distribute surplus land to the landless.

6. Special Programmes for Rural Labour

We shall :

Enforce minimum wages for unorganised labour in agriculture and industry;

Fully implement laws abolishing bonded labour;

Involve voluntary agencies in programmes for the rehabilitation of bonded labour.

7. Clean Drinking Water

We shall :

Provide safe water for all villages;

Assist local communities to maintain the sources of such water supply in good condition;

Pay special attention to water supply for Scheduled Castes and Scheduled Tribes.

8. Health for All

We shall :

Improve the quality of primary health care;

Fight leprosy, TB, malaria, goitre, blindness and other major diseases;

Provide immunisation for all infants and children;

Improve sanitation facilities in rural areas, particularly for women;

Pay special attention to programmes for the rehabilitation of the handicapped.

9. Two-child Norm

We shall :

Bring about voluntary acceptance of the two-child norm;

Promote responsible parenthood;

Reduce infant mortality;

Expand maternity and child care facilities.

10. Expansion of Education

We shall :

Universalise elementary education with special emphasis on girls' education;

Improve the content of education at all levels;

Promote non-formal education and functional literacy programmes, including promotion of skills;

Stimulate adult literacy programmes, with the participation of students and voluntary agencies;

Emphasise national integration and social and moral values and instil pride in our heritage.

11. Justice to Scheduled Castes and Schedule Tribes

We shall :

Ensure compliance with the constitutional provisions and laws for the Scheduled Castes and Scheduled Tribes;

Ensure possession of land allotted to Scheduled Castes and Scheduled Tribes;

Revitalise the land allotment programme;

Organise and assist special coaching programmes to improve educational standards;

Eradicate scavenging and undertake special programmes for the rehabilitation of Safai Karamcharis;

Provide better direction and adequate funds for the special component programmes;

Pursue programmes for the fuller integration of Scheduled Castes and Tribes with the rest of society;

Ensure the rehabilitation of tribals displaced from their habitat.

12. Equality for Women

We shall :

Raise the status of women;

Enhance awareness of the problems of women;

Create mass consciousness about women's rights;

Implement a national programme of training and employment for women;

Enable women to participate with equality in socio-economic development and nation-building;

Rouse public opinion against dowry and ensure effective implementation of anti-dowry legislation.

13. New opportunities for Youth

We shall :

Enlarge opportunities for youth in sports, adventure and cultural activities;

Promote physical fitness;

Involve youth on a massive scale in projects of national development such as :

- the cleaning of the Ganga;
- the conseravtion and enrichment of the environment;
- mass education.

Identify outstanding young persons in all fields to encourage and develop their talents;

Involve youth in promoting national integration, cultural values, secularism and the scientific temper;

Expand the network of Nehru Yuvak kendras;

Strengthen the National Service Scheme and the National Cadet Corps;

Encourage voluntary agencies working for the welfare of rural youth.

14. Housing for the People

We shall :

Make available house sites to the rural poor;

Expand programmes of house construction;

Lay special emphasis on construction of houses for Scheduled Castes and Scheduled Tribes;

Develop low cost building materials.

15. Improvement of Slums

We shall :

Restrict the growth of slums;

Provide basic facilities in existing slum areas;

Encourage planned house building in urban areas.

16. New Strategy for Forestry

We shall :

- Grow more trees and raise more forest, with the full involvement of the people;

Protect the traditional rights of tribal populations and local communities of access to limewood and forest produce;

Reclaim wastelands for productive use;

Plant appropriate vegetation in hill, desert and coastal areas.

17. Protection of the Environment

We shall :

Enhance public awareness of the dangers of environmental degradation;

Mobilise popular support for environmental protection;

Promote recognition that enduring development demands preservation of the ecology;

Ensure judicious site selection for projects and proper choice of technology.

18. Concern for the Consumer

We shall :

Bring essential consumption goods within easy reach of the poor;

Build a consumer protection movement;

Restructure the distribution system so that subsidies reach the most needy;

Strengthen the Public Distribution System.

19. Energy for the Villages

We shall :

Expand the supply of electricity for productive use in the villages;

Develop alternative sources of energy, particularly bio-gas;

Promote integrated area specific programmes for rural energy.

20. A responsive Administration

We shall :

Simplify procedures;

Delegate authority;

Enforce accountability;

Evolve monitoring systems from block to national level;

Attend promptly and sympathetically to public grievances." □

Twenty-Point Programme 1982

Given below in brief is the revised 20-Point Programme as announced by the late Prime Minister, Mrs. Indira Gandhi's Government on January 14, 1982.

1. Increase irrigation potential, develop and disseminate technologies and inputs for dry land agriculture.
2. Make special efforts to increase production of pulses and vegetable oilseeds.
3. Strengthen and expand coverage of integrated rural development and national rural employment programmes.
4. Implement agricultural land ceilings, distributed surplus land and complete compilation of land records by removing all administrative and legal obstacles.
5. Review and effectively enforce minimum wages for agricultural labour.
6. Rehabilitate bonded labour.
7. Accelerate programmes for the development of scheduled castes and tribes.
8. Supply drinking water to all problem villages.
9. Allot house sites to rural families who are without them and expand programmes for construction assistance to them.
10. Improve the environment of slums, implement programmes of house building for economically weaker sections, and take measures to arrest unwarranted increase in land prices.
11. Maximise power generation, improve the functioning of electricity authorities and electrify all villages.
12. Pursue vigorously programmes of afforestation, social and farm forestry and the development of bio-gas and other alternative energy sources.
13. Promote family planning on a voluntary basis as a people's movement.
14. Substantially augment universal primary health care facilities and control of leprosy, TB and blindness.
15. Accelerate programmes of welfare for women and children and nutrition programmes for pregnant women, nursing mothers and children, specially in tribal, hill and backward areas.
16. Spread universal elementary education for the age-group 6-14 with special emphasis on girls, and simultaneously involve students and voluntary agencies in programmes for the removal of adult illiteracy.
17. Expand the public distribution system through more fair price shops, including mobile shops in far-flung areas and shop to cater to industrial workers, students' hostels, and make available to students text-books and exercise books on a priority basis and to promote a strong consumer protection movement.
18. Liberalise investment procedures and streamline industrial policies to ensure timely completion of projects. Give handicrafts, handlooms, small and village industries all facilities to grow and to update their technology.
19. Continue strict action against smugglers, hoarders, and tax evaders and check black money.
20. Improve the working of the public enterprises by increasing efficiency, capacity utilisation and the generation of internal resources. □

ing of environmental problems affecting community health. In collaboration with public work departments, the planning departments and city and regional authorities, they may practically influence the decisions and approval of plans relating to water supply, sewerage and drainage systems, overcoming runoff and flooding hazards of surface water, etc. These services are so important for protection of public health that uptodate and complete information about them is essential for the operation and activities of public health engineering departments.

We need planning and regulations

About 45 years ago, C.E.A. Winslow, with his commentary on Hygiene of Housing of the American Public Health Association (APHA), established the basic principles of healthy housing. These have covered four major areas of concern : (1) the fundamental physiological needs, (2) the Psychological needs, (3) protection against contagion and (4) protection against accidents. In its first report, the WHO Expert Committee has outlined the similar principles covering four levels of planning : (1) the prevention of premature death, (2) the prevention of disease, illness and injury, (3) the attainment of efficiency of living, and (4) the provision of comfort.

The planning of healthful housing should include following major aspects :

(1) Provision of space for light air and recreation;

(2) Provision of adequate water supply and proper sewerage, drainage and solid waste disposal facilities;

(3) Freedom from accident hazard;

(4) Clean air;

(5) Freedom from unnecessary noise and disturbances;

(6) Insect, rodent and nuisance control; and

(7) A land use plan.

Presently, in some areas of development there has been a tendency to place many dwellings on small plots of ground, without any provision for children's play space nor sufficient room for adequate natural lighting, proper air circulation between dwellings and, more important, protection from fire hazards.

Every community needs space for small parks, play grounds etc., for children to play, for adult recreation, for mental stimulation and relaxation, and for other community activities which aid the total health of individual and the family.

Potable water, must

It has long been recognized that an adequate, safe potable public water supply is essential for public health and thus needs careful planning and designing. Generally, the lack of adequate quantity of water at various peak demand periods is one of the difficulties in a number of the big metropolitan areas. The lack of adequate water pressure in the municipal distribution system can cause inconvenience as well as serious health hazards due to contamination in the system by back-siphonage.

Every effort should be made in all metropolitan cities to develop a water carried sewerage system, with a provision for suitable treatment. Moreover the dangers of contamination of surface and ground water sources is frequent in the case of septic tank system. The domestic solid wastes disposal is also an important factor in metropolitan cities due to a rodent problem, fly and mosquito breeding, and other nuisance. Too often surface drainage problems are overlooked expecting the original drainage channel to perform this function.

Remove hazards

The planners should endeavour to see that for dwellings, especially those on highways and streets, such patterns are designed as minimise accidental injury or death. The programmes of overcoming existing hazards in substandard dwellings should be prepared by them because structural deficiencies are found in many of our older as well as newer dwellings. Consideration should also be given to the removal of accident hazards for children in residential streets.

and nuisance

New habitat should be located possibly in the far off places to protect people from industrial odours, gases, dust, and fumes. Existing air pollution problems should be tackled with the help of state pollution control boards or by shifting either industries or habitants, whatever is easy and economical in such cases.

Industrial noises particularly those from railroads, motor traffic and other sources which disturb comfort are all potential health hazards. For new housing programmes these aspects should be considered and corrective measures taken such as altering timing of various industrial operations in areas where disturbance is of serious character. Necessary steps for control of insects and rodent should also be taken to minimize the nuisance.

For a best housing environment, the environmental engineers/planners should cooperate in developing master plan or land-use plan for the entire area, stipulating future land-use for various public purposes. After housing plans have been completed by a development authority, it is essential that regulations and zoning methods are adopted which assure implementation of the recommendations for land use, thoroughfare, and community-facilities. Its enforcement can assure proper protection of housing areas from the factors detrimental to the community which may vitiate the utility of an area for housing purposes. In

notifying industrial areas, the planners should observe the additional regulations and consult other concerned government authorities.

Minimum standard should be adopted based upon principles of hazard-free housing as indicated in the WHO Expert Committees Report on Public Health Aspects of Housing. In the Soviet Union the mass housing programmes are carried out in accordance with All-Union Building Standards and Regulations which are revised periodically. All-Union Building and Hygienic Standards of the Soviet Union provide that the total noise levels of dwelling houses and public buildings should not exceed 35 decibles in the day time (8 A.M. to 10 P.M.) and 30 decibles at (10 P.M. to 8 A.M.). In all such cases the special abilities, experience and training of the environmental engineer can play an important role in the development of new codes, ordinances and enforcement procedures. It would be of great advantage if a clearing house could be established whereby a more effective enforcement could be assured.

Further, code enforcement can prevent the deterioration of housing facilities because of unapproved and substandard remodelling of dwelling units. Care must be taken, however, that all the principles of proper housing are fulfilled in such remodelling operations.

Appraisal

The appraisal of existing housing facilities and the need for improvement, can well be accomplished through the concentrated efforts of various governmental agencies under the leadership of well qualified and experienced environmental engineers. Census data are an important tool and key to understand the metropolitan housing problems. For an allout attack on the blight and the spread of deterioration of existing housing, a thorough analysis of entire community and its neighbourhood must be made. The US Housing and Home Finance Agency has recommended a following four steps for developing a programme for an attack on the blight :

1. Delineate the residential areas of the community by neighourhoods for study and planning purposes.
2. Determine the location, extent and intensity of blight in each neighbourhood.
3. Analyse each neighbourhood in terms of its condition and need for treatment.
4. Make recommendations for action-programme required to meet neighbourhood needs, such as code enforcement, public improvements, conservation, reconditioning, clearance and re-development.

It is essential that neighbourhoods be analysed as a whole and the condition of housing in terms of the general environment be considered. Also the pattern of land-use, traffic-flow, street arrangement and neighbourhood facilities and services may also be considered. Further, the APHA housing appraisal methods and techniques and the modified appraisal methods of the city of Detroit may also be consulted for valuable guidance. Such a study and analysis of data will sometimes indicate the need for complete removal of substandard housing in situations where corrective measures are found inefficacious. This practice may provide an opportunity to appraise the value of housing facilities of a community and to determine on a long-term basis the total liability in terms of substandard or dilapidated housing conditions.

Corrrective Steps

Appraisal of existing housing conditions is followed by suitable long-term planning for solution. In most communities, following four basic types of housing area are found :

(1) Areas which are essentially satisfactory and will require protective action only.

(2) Areas which show incipient blight or which are subject to adverse effects from conditions beyond their borders. These areas will require protective and corrective action.

(3) Substandard areas which are basically sound enough to be brought upto an acceptable standard by a comprehensive approach to their problems.

(4) Areas which are unsuitable for continued use and cannot be elevated to an acceptable standard economically because of poor quality of dwellings and environmental conditions. These areas will require redevelopment.

Programmes of improvement involve following three types of approach :

(1) Conservation : It requires retaining and protecting all satisfactory elements of the dwellings and their environments.

(2) Rehabilitation : It requires repairing, remodelling, renovating or supplementing basically sound dwellings and their environment.

(3) Redevelopment : It requires demolition of individual or groups of structures and planned reuse of individual premises.

Education and publicity

The key persons in each neighbourhood of community should be approached and their enthusiasm and interest aroused for correction of existing hazards. Civic organisations, groups of parents and citizens, clubs, etc. should be educated and exposed to the problems existing in the community. Simultaneously,

notifying industrial areas, the planners should observe the additional regulations and consult other concerned government authorities.

Minimum standard should be adopted based upon principles of hazard-free housing as indicated in the WHO Expert Committees Report on Public Health Aspects of Housing. In the Soviet Union the mass housing programmes are carried out in accordance with All-Union Building Standards and Regulations which are revised periodically. All-Union Building and Hygienic Standards of the Soviet Union provide that the total noise levels of dwelling houses and public buildings should not exceed 35 decibles in the day time (8 A.M. to 10 P.M.) and 30 decibles at (10 P.M. to 8 A.M.). In all such cases the special abilities, experience and training of the environmental engineer can play an important role in the development of new codes, ordinances and enforcement procedures. It would be of great advantage if a clearing house could be established whereby a more effective enforcement could be assured.

Further, code enforcement can prevent the deterioration of housing facilities because of unapproved and substandard remodelling of dwelling units. Care must be taken, however, that all the principles of proper housing are fulfilled in such remodelling operations.

Appraisal

The appraisal of existing housing facilities and the need for improvement, can well be accomplished through the concentrated efforts of various governmental agencies under the leadership of well qualified and experienced environmental engineers. Census data are an important tool and key to understand the metropolitan housing problems. For an allout attack on the blight and the spread of deterioration of existing housing, a thorough analysis of entire community and its neighbourhood must be made. The US Housing and Home Finance Agency has recommended a following four steps for developing a programme for an attack on the blight :

1. Delineate the residential areas of the community by neighourhoods for study and planning purposes.
2. Determine the location, extent and intensity of blight in each neighbourhood.
3. Analyse each neighbourhood in terms of its condition and need for treatment.
4. Make recommendations for action-programme required to meet neighbourhood needs, such as code enforcement, public improvements, conservation, reconditioning, clearance and re-development.

It is essential that neighbourhoods be analysed as a whole and the condition of housing in terms of the general environment be considered. Also the pattern of land-use, traffic-flow, street arrangement and neighbourhood facilities and services may also be considered. Further, the APHA housing appraisal methods and techniques and the modified appraisal methods of the city of Detroit may also be consulted for valuable guidance. Such a study and analysis of data will sometimes indicate the need for complete removal of substandard housing in situations where corrective measures are found inefficacious. This practice may provide an opportunity to appraise the value of housing facilities of a community and to determine on a long-term basis the total liability in terms of substandard or dilapidated housing conditions.

Corrrective Steps

Appraisal of existing housing conditions is followed by suitable long-term planning for solution. In most communities, following four basic types of housing area are found :

(1) Areas which are essentially satisfactory and will require protective action only.

(2) Areas which show incipient blight or which are subject to adverse effects from conditions beyond their borders. These areas will require protective and corrective action.

(3) Substandard areas which are basically sound enough to be brought upto an acceptable standard by a comprehensive approach to their problems.

(4) Areas which are unsuitable for continued use and cannot be elevated to an acceptable standard economically because of poor quality of dwellings and environmental conditions. These areas will require redevelopment.

Programmes of improvement involve following three types of approach :

(1) Conservation : It requires retaining and protecting all satisfactory elements of the dwellings and their environments.

(2) Rehabilitation : It requires repairing, remodelling, renovating or supplementing basically sound dwellings and their environment.

(3) Redevelopment : It requires demolition of individual or groups of structures and planned reuse of individual premises.

Education and publicity

The key persons in each neighbourhood of community should be approached and their enthusiasm and interest aroused for correction of existing hazards. Civic organisations, groups of parents and citizens, clubs, etc. should be educated and exposed to the problems existing in the community. Simultaneously,

the planners should be in close contact with the government bodies which are responsible for provision of public facilities. Another group of interest is of those who have a strong economic interest in such development, for example, businessmen, builders, real estate interests, mortgage houses, banks, etc. In the Ditriot Metroplitan Area, the Governor's office formed a so-called 'task force' composed of representatives of all interested groups. This task force, with officials from the various organisations have worked together and found most successful in its mission under the leadership of Chief Engineer of Environmental Health Division of the Health Department.

The application of health education techniques of housing can play an important role in the same manner as in the field of communicable disease control. For thorough understanding of problems of the people within an area, the sociologist and the educator may play an important role.

Mass education

The Mass education activity should include the production of numerous simply-worded, well-illustrated pamphlets, brochures and bulletins related to problems of rubbish disposal, rodent control, building maintenance, gardening, improvement of yards, open spaces, etc. which can encourage an individual for improving his home and its surroundings. The publicity must be coupled with demonstartion of ideal dwelling units and providing information relating to the efforts which can easily be made by themselves and financial aspects of improvements. Enthusiasm for community improvement may be developed through area-wide publicity, institution of awards, public recognition of individual efforts and inclusion of environmental studies in the schools syllabi.

There is an ever-increasing concern on the part of public health authorities about the need for rapid and effective action to stem the spread of blight which is constantly extending into neighbourhood particularly in metropolitan areas. The numourous examples can be noticed indicaing the direct interaction between sub-standard housing and communicable disease, mental health, chronic disease etc. Great rewards can be realised from improved housing programmes stated herein, through improved health, economic status and dignity of large number of the people of the country. □

Speed Post Services introduced

Speed Post Services have been started in the country from Augus 1, this year. This will help meet the increased expectations of the customers about speedier delivery of their documents and goods in keeping with the exigencies of trade and commerce. The Speed Service will be introduced in both spheres - Inland as well International. The Inland Speed Post Services will be introduced at New Delhi, Bombay, Calcutta, Madras, Ahmedabad, Hyderabad and Bangalore; while the International Speed Post Services will be available only at Bombay, Calcutta, Delhi and Madras. To begin with, the new service will be available for the United Kingdom, Federal Republic of Germany and Hong Kong. However, the services to United States and Japan are expected to be introduced shortly.

Any postal article that can be sent on registered post - letters, packets, parcels - can be sent as speed post items. For this service in addition to the normal charge, a speed post fee will have to be paid. But in the International Speed Post only a "Documents Service" is being introduced initially. Items booked on anyday would be delivered the very next working day (i.e., generally within 24 hours) by the Inland Post whereas the International Post would deliver the booked items generally within 48 to 72 hours in the major cities of the target countries.

In the event of non-delivery or delay in deliver of a speed post item, the fee charged for the servic would be refunded to the sender. □

Non–oil exports go up in 1985–8

India's non-oil exports during the financial yea 1985-86 amounted to Rs. 10,285.22 crore as agains exports worth Rs. 9,734.21 crore in 1984-85. Thi amounts to an increase of 5.7 per cent. The gros figures for exports for 1984-85 had included expor of crude oil worth Rs. 1563.17 crores whereas i 1985-86 crude oil worth only Rs. 135.15 crore coul be exported. This was because crude oil exports hav virtually stopped due to the development of domesti oil refining capacity.

The principal commodities falling under non-o exports are : chemicals, leather and leather manu factures, iron ore, gems and jewellery, readymad garments, coffee, rice, cashew-nuts, oil cakes and shel lac. An export target of Rs. 12,203 crore has bee fixed for the current financial year.

This growing shortage of housing !

—Francis Cherunilam

Housing is considered usually a major goal of family saving efforts. It is also recognised as a profitable investment. According to the author, the planned housing "can increase national productability, economise on urban space and minimise the cost of urban infrastructure." It also makes significant contribution to national income. The author feels that the rate of housing stock has been lagging behind the rate of growth of households thus resulting in increased housing shortage. He fears that this shortage which was 24.7 million in 1985 may go up to 28 million by 1990.

THE UNITED NATIONS HAS DECLARED 1987 as the International Year of Shelter for the Homeless. Acute shortage of shelter, particularly in the developing countries, is indeed the most conspicuous facet of housing. However, housing has much wider significance than providing one of the basic necessities. As the World Bank Sector Policy Paper on Housing observes, "housing is important to development in both economic and welfare terms. It typically constitutes 15 per cent to 20 per cent of household expenditure. For all but the wealthy it is usually the major goal of family saving efforts. Investment in housing represents upto 20 per cent to 30 per cent of fixed capital formation in countries with vigorous housing programs, and it is increasingly recognised as a profitable investment item, yielding a flow of income. For some of the self-employed, housing is also the place of work. In countries with substantial underutilised labour, material and financial resources, housing can make use of such resources at low cost. The import content of housing construction is usually relatively low, so that multiplier linkages tend to be substantial". Further, well planned housing "can increase national productivity, economise on urban space and minimise the cost of urban infrastructure. Improved location of dwellings in relation to jobs leads to reductions in traffic congestion and increased household take-home pay by reducing commuting expenses".

Housing—its objectives

The Planning Commission observed in the First Five Year Plan : "In fulfilling the basic needs of the population, housing ranks next only to food and clothing in importance. A certain minimum standard of housing is essential for healthy and civilised existence. The development of housing, therefore, must enjoy high priority in a poor society such as ours where housing amenities are far below the minimum standards that have been internationally accepted. Housing activity serves to fulfil many of the fundamental objectives of the Plan : providing shelter, raising the quality of life particularly of the poor sections of the population; creating conditions which are conducive to the achievement of crucial objectives in terms of health, sanitation and education; creating substantial additional employment and dispersed economic activity; improving urban-rural and interpersonal equity through the narrowing down of differences in standards of living and last but not least, generating additional voluntary savings".

Housing and national income

Housing makes significant contribution to national income. The contribution of housing to gross domestic product (GDP) at factor cost increased from Rs. 1357 crores in 1970-71 to Rs. 3562 crores in 1980-81 at current prices.

Although large majority of the population and dwelling units are in the rural areas, since the mid 1970s urban housing has been making a larger contribution than rural housing to the national income. This is due to the fact many urban houses are much better and costlier compared to rural houses in general. Further, the urban sector has been the major beneficiary of the public sector housing programme.

Data available for a number of years show that income from housing account for around 3.5 per cent of the GDP of India. However, the contribution of housing to States' GPD varies widely between States. It is comparatively high in States like Tamil Nadu, West Bengal and Uttar Pradesh but very low in States like Orissa, Assam and Manipur.

Another important aspect of housing is its share in the capital formation. Gross capital formation in housing (i.e., residential buildings only) at current prices was of the order of Rs. 962 crores in 1970-71, Rs. 2599 crores in 1977-78 and Rs. 3034 crores in 1978-79. These amounted to 13.4 per cent, 14.4 per cent and 12.8 per cent of the gross domestic capital formation in these years.

In 1980-81, construction accounted for over 40 per cent of the gross domestic capital formation. In some of the previous years this ratio was more than 50 per cent.

Housing property forms an important share of the total property of the households in India, in general. According to the study of 'Household Income and its Disposition' made by the National Council of Applied Economic Research, in 1975, housing property accounts for about 28 per cent of the total wealth of the households. In this respect significant variation between the urban households and rural households is noticed. While in respect of urban households this share is about 64 per cent it is less than 24 per cent in respect of rural households. Another important factor to be noted is that in the urban sector the share of household property in the total wealth of the household is comparatively higher for lower income groups and lower for higher income groups.

Helps generate employment

One of the important contributions of housing is the generation of employment. This is of particular importance to a country like India where unemployment is a very serious problem.

The number of workers in building construction increased from 1.15 million in 1961 to over 1.26 million in 1971 and to over 2.03 million in 1981. In 1981, workers in building construction formed 64.4 per cent of the total workers in construction activities and 1.14 per cent of the total workers of the country.

Housing however is a capital intensive industry. At 1977-78 wage rates, one crore rupees investment in housing (pucca) was estimated to generate a total of 923 man years of direct employment.

Besides residential houses in India serve a variety of purposes. In 1981, only about 70 per cent of the Census houses were used exclusively for residential purpose. Nearly two per cent of the houses were used as workshop-cum-residence including household industry. Little less than one per cent of the houses were used as shop-cum-residence; 2.43 per cent of the houses were used as shops excluding eating houses; 1.51 per cent as factories, workshops and work sheds 0.39 per cent as restaurants, sweetmeat shop and eating places; 0.78 per cent as places of entertainment; one per cent as places of workshop and 0.47 per cent as business houses and offices.

In rural area, well over 90 per cent of the households reside in own houses while in urban areas more than half of the households live in rented houses.

The useable housing stock in India is estimated to have increased from 68.3 million dwelling units in 1961 to 101.5 million units in 1981 and to 106.2 million in 1983.

Table 1

Growth of Useable Housing Stock

(in millions)

Year	Rural	Urban	Total
1961	57.1	11.2	68.3
1971	66.4	16.1	82.5
1981	77.4	24.1	101.5
1983	81.0	25.2	106.2

Source: NBO, *Handbook of Housing Statistics*, 1982-83.

Unserviceable structures

There is, however, a large stock of unserviceable houses in India which is excluded from the estimate of the useable housing stock. In 1971, there were about 10.4 million unserviceable dwelling units (8 million in rural areas and 2.4 million in urban areas) compared to the stock of useable dwelling units of 82.5 million. In other words, of the total stock of 92.9 million dwelling units only 88.8 per cent were useable and the remaining were unuseable. However, in 1981, there was estimated to be a stock of about 12.9 million unuseable dwelling units. Thus, only about 88.7 per cent of the total housing stock was in useable condition. However, it should not be assumed that these unserviceable structures which are regarded as unuseable are altogether abandoned. They provide 'shelter' to many who have no better alternative.

(Continued on page 31)

Houses for the millions! the Soviet way

Subhash J. Rele

Whereas most developed countries have neglected housing in their development plans, in the Soviet Union housing is a social necessity which has been raised to the status of a constitutional right. In this article the author gives first-hand information about the gigantic efforts being made in the Soviet Union to provide this basic amenity to its millions of people. Besides the lowest possible rents the author is fascinated by the "dwelling in the park" concept of the Soviet housing policy.

WHAT IMPRESSED ME most on my recent tour of the Soviet Union was the scale and pace of housing construction activity. Based on wrong and propagandist reports I had nursed several misgivings about housing in that country. My visit and subsequent study cleared many doubts. In Moscow, Leningrad, Kiev and several other places I saw gigantic cranes dotting the skylines with men and women excavating and busy in building townships. I was myself surprised to know that the Soviet Union builds more flats yearly than such European countries as Great Britain, France, West Germany, Sweden. Finland, Norway, Italy and Austria. Whereas most developed countries have neglected housing in their development plans, in the Soviet Union housing is a social necessity. It is not a marketable commodity as, say for example, in India, often sold at blackmarket prices. Houses are for people to live in and not to make money. The bulk of the expenses in supplying the population with housing is borne by the state, it organises and finances almost 80 per cent of the housing programme.

The housing programme is a major element of the Soviet State's social policy. The Constitution of the USSR was one of the first in the world to declare it as citizen's right. This right, says Article 44 of the Fundamental Law of the USSR, is ensured by the development and upkeep of State and socially owned housing, by assistance for cooperative and individual house building; by fair distribution under public control, of the housing that becomes available through fulfilment of the programme of building well-appointed dwellings, and by low rents and low charges for utility services.

Housing construction is developed on a genuinely scientific basis with no hanky panky business. According to the latest estimate the Soviet Union requires atleast 50 million flats to satisfy the requirements of housing for its people. About 10 million flats are to be built during the 11th Plan. How is this possible ? Every year 2 to 2.2 million flats are constructed. I was told that such rapid construction of an enormous number of flats is possible because the housing programme has a dependable materials and technical base; the building industry comprises 500 plants. The housing construction is organised on the principle of an assembly line: the pre-fab elements of dwelling houses and the accessories and equipment manufactured at the housebuilding and related enterprises are delivered by special transport means to the construction and are assembled as a rule, right from the "wheels". The Soviet Union was the first country to master the pre-fab technology and is the world's leader in the sphere of large element pre-fab housing construction. It accounts for 50 per cent of the housing which is built in the world with the use of this method. Engineers were enthusiastic when they told me that pre-fab technology cuts costs, improves the standard of work and doubles the speed of construction.

Lowest rent

All over the world the costs of construction have gone up considerably. So have the rents. But not in Soviet Union. It has the lowest housing rent in the world. That is one indication of the State's concern for the people's welfare. Rent is no burden for the family budget. It amounts to only 5 per cent of a family's monthly earning. For the use of unlimited quantities of water, both hot and cold, a family pays a little over one rouble per month; there are no water merets Electricity is available at the rate of 4 kopecks per kwh (about 40 paise); domestic gas 16 kopecks (Rs. 1.60 paise) per person per month. In the Soviet Union in the past two decades the cost of construction per sq. metre of housing space has gone up from 108 roubles to 170 roubles (about Rs. 1,080 to Rs. 1,700) but the rent is charged at the basic rate of 13.2 kopecks (about Rs. 1.32 paise) sq. metre per month. The basic rent rate for flats with all modern conveniences is 16.5 kopecks (Rs. 1.65 paise).

Cooperative housing

Not that there are no flats on cooperative basis in the USSR, but they are on a limited scale. Under the scheme, the State makes available to the cooperative society the land site free of cost as also 60 per cent of the funds to be paid back to the State in monthly instalments in 15 to 20 years. High building cooperatives are voluntary associations of citizens, set up to build residential accommodation at the expense of their members and with the aid of state credit. These blocks are constructed by state building organisations at the same cost as in state housing construction. The practice of financing the housing programme has undergone drastic changes in the recent past. Credit to individual and cooperative builders are now granted on new terms : the amount of the loan has been increased to 70-80 per cent and its repayment period from 15 to 25 years. The only thing that remained uncharged was the interest rate 0.5 per cent. By these additional benefits the State is stimulating the participation of citizens in the solution of the housing problem.

The USSR has a long-term housing goal. The maintenance of the high rate of building construction in the coming five years means that several millions of Soviet families will receive new, even more comfortable flats. Housing has been constantly made better. The growing construction activity has been accompanied by a rise in quality and greater convenience. Modern amenities are provided by the builders. Flats are designed with an eye to each member having his own room. The high level of creature comforts is combined with the high quality of the environment with maximum comfort outside the blocks of flats. The entrance hall has a built-in cupboard, the kitchen has a cooker, usually a gas-stove, with several rings, and there is also a sink with hot and cold water. The norms of building work provide for exhaust ventilation for kitchen, bathrooms and toilets. The flat is heated by metal radiators or built in heating panels.

"Buildings bloom, not mushroom", said a builder while taking me round a new residential site. The new residential districts that are coming up are well-planned and are integrated with children's parks, gardens and forest areas. I discovered that the Soviets do not believe in disturbing natural terrain, build roads at a low level and line them with trees, flowers, grass, minimum use of street lights, building of residential flats away from the roads at a higher level. Engineers and builders whom I met expressed confidence that in the near future every Soviet family will have a modern flat. The day is not far off when the housing problem will be fully solved.

I was intrigued by the new concept of a "dwelling in the park". A lady technician explained this to me graphically saying that the Soviets want their dwelling as close as possible to the natural environment. They are anxious to place the dwellings in the park and not to plant the park near the dwelling. Thus many new towns are virtually lost in verdueve. New models of residential buildings are now being tested on experimental sites. They are more consistent in observing the principle of functional zones in premises and better engineering and communal services.

Soviet cooperation

Can we learn something from the Soviet experience ? In the past 50 years Soviet scientists and construction workers have accumulated much varied experience in building, which they are sharing with many countries. They are helping them to develop and industrialise housing construction. Over a year ago, a group of Soviet specialists visited India. On their return, a detailed programme for cooperation in building one—and two—storeyed houses was drawn, taking into consideration the experience of house-planning in various regions of both countries. We have had successful and fruitful cooperation agreements with the Soviet Union in various economic and other vital fields. Why should we be chary of entering into cooperation agreement in housing construction ? Not many doubt that, we as a nation, will stand to benefit immediately from such a cooperative endeavour. If "vested interests" and racketeers are putting obstacles in the way the Government should deal firmly with them. The strength of the Government lies in firm action and not in tall slogans like "houses for the millions". The Soviet Union has shown the way as to how houses for the milions can be built without mouthing slogans. We can emulate the Soviet example. □

Stop this loss of plant genes!

Bharat Dogra

Now when the euphoria over the "Green Revolution" seems to be ebbing, many farmers have found to their horror that they cannot revert to the traditional varieties for their seeds are no more available. This, the author says, is due to our unplanned craze for the High-Yielding Varieties that has resulted in the loss of invaluable plant genes. He does not find the establishment of "gene banks" adequate enough to check the dangers posed by this genetic erosion to the flora, especially in the third world countries like India. The author cautions it is high time the Government acted to check this erosion of germ plasm, and the genetic material made accessible to the farmers whenever required by them.

SOME REPORTS FROM INDIA and other countries suggest that several farmers after growing widely publicised "Green Revolution" High Yielding Varieties (HYVs, whose most important property was to tolerate heavier fertilising, and as a result of this, it was claimed they give higher yield of grain) now find them unfavourable due to a number of reasons and want to revert back to their traditional varieties. But in this they face a number of problems, the most exasperating of which is that the seeds of many favoured traditional varieties are just not available. In the initial high expectations regarding the "Green Revolution HYVs", vast acerages were planted to these new varieties and at that time farmers did not realise the importance of continuing to grow some of the traditional varieties or preserving their seeds.

A loss too serious

This aspect of genetic erosion of plants at least comes into notice, but with the destruction of forests —due to large-scale commercial felling operations, construction of dams or other projects and numerous other reasons—several varieties of plants which give us fruit, fodder, grain, medicine, fibre, etc., are lost for all time without, in many cases, anyone becoming even aware of this.

This genetic erosion of plant wealth is extremely tragic, for the varieties which vanish, knowingly and unknowingly, could have provided the much-needed germ plasm to plant-breeders for improving the yield of crops, or increasing their pest and disease resistance, or adding to the flavour or other qualities of some foods. While some genetic erosion has probably always taken place, in recent decades it has taken place on an unprecedented scale on account mainly of the very rapid pace of deforestation and the large-scale spread of green revolution HYVs, often of a narrow genetic base.

"Gene Banks" inadequate

Recognition of this danger of gene erosion has prompted worldwide efforts for collection of germ plasm and its storage in 'Gene Banks'. The Rome-based International Board for Plant Genetic Resources (IBPGR) attempts to co-ordinate the regional work in this field undertaken by eight international crop research stations. There are over sixty nationally controlled "Gene Banks" whose work the IBPGR considers. The IBPGR, the stations and the banks are supported by the United States based National Seed Storage Laboratory (NSSL) which "maintains" material as a base collection for the United States

and for the global network of genetic resource centres. Compared to the NSSL is the Vavilov Gene Bank in the Soviet Union. In India the National Bureau of Plant Genetic Resources has been established to take care of this important task. The Seventh Plan document states that the Botanical Survey of India will organise at least four Seed Banks of Non-Agricultural Economic Plants as also Tissue Banks of endangered|threatened species of plants. Yet, on the whole, the efforts to protect genetic erosion through the setting up of "Gene Banks" is considered inadequate, specially in third world countries like India.

However, even if the collection work in "Gene Banks" is considerably improved, it cannot be adequate by itself. The period for which plant resources, once destroyed in their natural habitats, can be preserved in "Gene Banks" is itself a subject of controversy. Thus there is always the risk of these stored plants being destroyed by accidents or the less visible harm done by inadequate or wrong documentation of the preserved plants. According to an expert, "After weighing all available measures for preserving endangered species under controlled conditions, we are repeatedly forced to the conclusion that the only reliable method is in the natural environment."

A mismanaged campaign

Judging from several recent statements and claims of the Indian Government in this regard, it would appear that it is quite alert to its responsibilities in this regard. According to the Seventh Plan document preparatory work has been done for setting up "Biosphere Reserves" in a few carefully selected and identified areas which have "enormous, pristine genetic diversities" (such as Nilgiri, Namdapalsa, Nanda Devi), and the implementation of the Biosphere Reserves Programme will start in the Seventh Plan with the Department of Environment acting as the nodal agency.

But apart from embarking on such expensive, often foreign-funded projects, the government and its various departments and officials have in general been following policies and practices which speed up genetic erosion. While publicising the spread of Green Revolution HYVs of narrow genetic base, often by making exaggerated claims on behalf of these varieties, extensions officials have generally not advised or cautioned farmers to continue to grow some crop of traditional varieties or to preserve seed of these varieties.

Forests known for their rich genetic wealth have been destroyed or simply submerged, often much in excess of real need for dams and other projects. Contractors, smugglers and corrupt officials have been allowed a free hand in large-scale felling of trees and smuggling of forest produce. Forests have been clear-felled on a vast scale and re-planted with Commercially profitable species of trees. As the Sixth Plan document admitted, "The natural ecosystems may represent our only hope for finding the basic material for restoring the health of completely devastated landscape such as much of the Himalayan hill slopes. The forests under management have been treated from the very narrow viewpoint of production of commercial timber and pulpwood so that they have been rapidly converted to stands of teak, pine or eucalyptus with no thought given for even the maintenance of species producing valuable minor forest produce".

Serving the farmer

If these trends are not checked, merely the collection and preservation of germ plasm in "Gene Banks" or even the creation of a few Biosphere Reserves cannot compensate for the genetic erosion caused by these factors. Moreover, from the point of view of ordinary farmers, of what use is the preservation of some traditional varieties if these are not made readily available to them when required by them. Generally the experience of farmers in their interaction with the government's extension staff is that while Green Revolution HYV seeds can be readily obtained, there is not even any mention of this fact that if and when necessary, seeds of locally lost traditional varieties can be obtained from the government by the farmers. In the way that the government publicises its Green Revolution, 'modernisation of agriculture' and other such achievements, it has seldom been informing farmers of the availability of seeds of traditional varieties with it, and how farmers who wish to benefit from this collection can do so. □

Comprehensive pollution control measures around power and coal projects

The Ministry of Energy is taking positive measures to strengthen environmental requirements and control pollution around power and coal mining projects. A sum of Rs. 320 crore has been provided for the augmentation, retrofitting and installation of electrostatic precipitators in 25 power houses. The expenditure incurred on afforestation and rehabilitation of the area around the power and coal mining projects would become a part of the project cost. Instructions have been issued for taking up afforestation work during the preliminary stages of the projects.

An integrated approach has been adopted to harness non-conventional energy along with pollution reduction, prevention of environmental degradation and preservation of ecosystem. Two major programmes have been launched : one relating to biogas development to provide methane gas for cooking; and the other relating to improved and smokeless chullhas to improve efficiency of combustion of fuelwood in scientifically designed chullhas with smoke elimination. □

Harnessing human resource for faster progress

Dr. A. N. Dutta

Human resource is basic input in any development process. Human resource management has so far been given a low priority in our country. The author here feels that time has now come to give it utmost importance and consider human input as an asset and not a secondary factor. The creation of a Ministry of Human Resource Development according to him is a novel step in the right direction to mobilise qualitatively the latent human resource available in the country to accelerate our march towards the 21st century.

A MAJOR QUANTIFYING premise is that the country will have a projected demand by 1990 something about 200,000 trained computer professionals a year against about 4,000 being produced now. Of this, a certain proportion would have to be scholars, researchers, consultants and teachers of a high calibre by international standards. The same requirement exists in almost all the frontier areas of modern science like bio-technology, nuclear and space science, plasma physics, and even agriculture. Modernisation alone would not yield the desired results unless there is a simultaneous upgradation of management techniques, standards of work organisation and task planning. Several studies undertaken by the World Bank and our Government have brought to bear the fact that by simply reorienting the administrative and management techniques is it possible to achieve a 200 per cent to 300 per cent improvement in performance. A thorough grasp of the fundamentals of human resources organisation both as a system and an accounting tool appears imperative in this context. This article seeks to explore into the fundamentals both as an accounting instrument and a working concept.

The creation of a separate Ministry for Human Resource Development at the Centre and an initial allocation of Rs. 1,500 crores to start with, despite a number of financial constraints at once bespeaks the Government's concern for infusing a dynamic performance into all human involvement programmes which will adequately respond to the country's challenging future needs. This is a highly novel approach to mobilise qualitatively the latent human resource available so that on the one hand, the growing manpower is sufficiently trained up to accelerate the country's forward march towards modernisation and, on the other, the country's ability to absorb faster the most modern technologies at the basic levels. Both the objectives set qualifying standards to our various manpower programmes in the context of the global march to high technology within the time frame of the next 15 years.

Why human resource development ?

For optimising the expected gains out of a massive programme it is necessary at the very outset to have a selective approach, in other words, a re-vitalisation is possible only when all such investments on human resource mobilisation are linked to returns. As a first step, different levels of employment embodying various categories and degrees of skill are directly linked with education, both at the academic and the professional level. A very sophisticated and scientific approach which could equate at different operational levels the three parameters of education, training

programme and career opportunities inter se can make the entire effort successful. The Seventh Plan rightly makes this idea the locus of a new programme approach for attaining the avowed objectives.

At the grassroots level, the scientific bias operates itself through three basic postulates. First, there should be proper training and organisation to make the idea feasible and workable although including various intermix of morale, motivation and behaviour. Second and much more important is the accounting approach, in other words, optimising the return-investment relationship which will justify expansive operations on a broader scale both over time and with a comprehensive job coverage, with limited resources available. An effective measurement of the basic demand constitutes the vital strategic step for deciding the appropriate manpower input and then matching it with the specific needs and requirements at the unit or micro level. This entails such measures as :

(1) expansion, installation of new plants, stepping up capacity and/or diversification of operation,

(2) rationalising the technology bias through innovation and modernisation but in strict conformity to the standard operation,

(3) estimating production and sales targets,

(4) estimating personnel turnover through recruitment, retirement, promotion and transfer, and

(5) marking the environmental status, market competition and government policy. Since all these parameters are more or less changing, a working balance between demand (operating through technological changes and expansion programmes) and supply (training, development of manpower, recruitment) must be struck. Thus a balance between the external and internal forces is obtained at different sequential stages of operation.

At the macro level, the need for proper training of personnel gets the first priority. Specific training programmes have to be arranged to meet the requirements of different public sector industries (same would be applicable to private corporate sector industries), leading among these being electronic trade and technology sectors where a vast pool of qualitative personnel has to be built up. The newly established 'Department of Public Sector Enterprises' can ideally cater to all this and may have a thinking in this direction. The three core divisions of training, research and, consultancy could organise research work on typical problems and conduct case studies related to public sector projects while the consultancy division will be responsible for developing an operational infrastructure to advise public sector units on technical, commercial and, administrative problems and related issues.

And utilise innovative potential

How do human resource management administration along these lines help manifest a typical programme approach ? Contrary to traditional approach which only makes motivation and morale functions reactive to financial incentives alone, the new approach will tend to generate feasible solutions to solve some qualitative problems which are discrete, specific and sensitive to this type of system management. A proper direction of the resource-conversion process through a business enterprise will automatically synchronise with the objectives and the corporate organisational goals, through its own operational debottlenecking character. The three basic skills that are the product of the system are :

(1) technical related to the person's knowledge and proficiency to handle production-technical processes ;

(2) human resources management referring to the person's ability to interact effectively with people for work related matters ; and

(3) conceptual dealing with long range planning.

What is basically wrong with the business organisation management is to assign a *low priority treatment* to develop this human resource management skill and over-emphasise other functional skills which is the usual management practice. Time has now come to reverse the managerial flow and treat with utmost emphasis the renewed human resources management approach which considers human input as assets and not a secondary factor. Since people are primarily motivated by challenges and opportunities for development and activity, the main task of management thus becomes to ensure that HRM (Human Resource Management) develops both enabling and innovative capabilities to play a vital productive role. And that is the basic objective of the newly set up Ministry of Human Resource Development in a more concretised form.

In a systems analysis, implementation of goals or desired objectives can be attained through realising certain discrete ends. This requires designing an inventory of approaches, methods and, media most appropriately suited to generating alternative solutions. Then some evaluative criteria are required for testing the output in the light of the objectives set earlier. In case certain objectives are not met, the approaches are scrutinised, objectives are re-examined and the system is tried for internal validation once again. Lastly, a follow-up plan is designed to collect data on the performance of executives which they demonstrate while working in the real situations. A summative evaluation is thus arrived at through a number of simulative steps.

Human resource accounting

It is interesting to have a look at the following table which lays a categorywise distribution of human

resource in the organised sector of our country in March 1978, as an illustration :

Table

Category	Percentage to Total
1. Administration	0.5
2. Technical and Professional	6.5
3. Clerical	17.9
4. Production Process	20.5
5. Unskilled and Others	54.6
	100.0

Traditionally, accountants have paid greater attention to physical inputs in firm accounting contrasted to human resource. No part of the cost of human resource was shown as computerised item and recorded as an asset on a balance sheet. Too much emphasis on control systems like standard costing and budgetary controls without recording their impact on human behaviour has precipitated unexpected future of technically well designed control systems. HRA is a new developing branch of accountancy yet remains a least definitive aspect of management.

The assumption that the cost of human resource will rise in future is primarily based upon data showing the increasing importance of productivity (and income) differentials attributed to skills and knowledge acquired in informal education. Another factor in the increased cost of human resource is the rising level of education received prior to employment. Acceleration of technological and other developments that render the existing knowledge obsolete within a relatively short time span is yet another element in this context, whose importance however is gradually increasing. This is true, especially because a segment of the labour force will be subject to such changes since the routine jobs will become automated.

Its impact on economy

What will be its impact on a growing economy like ours ? In a dynamic economy, the results will be more pronounced. The net effect will tend to be discretely felt in a growing firm on a micro scale and, generally, in a sensitive mature economic where some firms or industries regularly expand while some others stagnate or decline, this will become increasingly manifest over time. In such cases, with the emergence of new products, newer vistas of production functions, cyclical and structural shifts which the famous economist Kuznets attributes all to a swiftly advancing economy and with new technology tie-ups on an ascendancy the relevant factors such as the pace of advancement, inter-industry shifts, changes in the structure of the labour force and substitution of capital for labour in manufacturing, along with the rise of services in the economy as a whole will expose a strong sensitivity to the varying differences between costs of human resources and benefits accruing therefrom over time The quantum of benefit which is closely relatec to the nature and magnitude of investment in a total Plan outlay of Rs. 3,22,365 crores will be tremendous indeed.

Finally, mobility within the firm, if planned, appears one of the benefits attributable to human resource investment. Through a logic based on inter-firm mobility, it may be safely assumed that the individual's mobility is largely under management control.

Investments in the human organisation are also less affected by the mobility among the firms than are investments in individual training and development. A high quality organisational climate is highly conducive to framing such decisions as to remain within the firm, which would tend to lengthen the useful life of this type of investments.

and benefits

Summing up, human resource accounting has already generated proficiently a series of useful information quanta fundamental to the potential use of various types of managements concerned. The principal suggested benefits are : first, an increased awareness of management of human resource aspects of business organisations resulting in better management of such resources ; secondly, inclusion of investments in human resource providing a more adequate basis for appropriately deciding allocation of resources such as, budgeting, capital expenditure decisions, etc.; and thirdly, inclusion of human resource managements yielding a more complete and total picture of performance management.

The trend towards increased social responsibility sets he stage for consideration of human resource in the context of the overall concern for people. The trend has positive implications in so far as it shifts the emphasis from physical to human resources. It is also possible however, that the overwhelming concern with responsibilities related to public expectations may detract attention from human problems within the corporation. As Marrow (a leading contemporary management expert) observes, "What most executives seem to miss.....is that business can begin discharging its social responsibilities by humanising its managerial practices". □

Using fluoride, a health hazard!

Dr. A.K. Susheela

Fluoride in excess of permissible limits in water, food, etc. is a great health hazard. It causes various kinds of fluorosis. India abounds in fluoride. A staggering majority of our States, as many as thirteen, are rich in fluoride sources thus putting millions of our populace to the potential risk. Fluorosis can occur even to a child still in the mother's womb. In this article the author throws light on various aspects of fluoride-its prevalance, mode of action and the dangers posed by it to health. The author feels Indians do not need fluoride particularly in tooth paste, as most of our land is already endemic with fluoride. She suggests various measures to chcek the growing menace of fluoride.

A FLUORIDE IS a salt of an element called fluorine. Fluorine is the most highly reactive element of the so called Halogen family (which include chlorine, Bromine, Iodine, etc.). Fluorine is estimated to be the 18th most abundant element in the earth's crust. As fluorin ies highly reactive it generally occurs in combination with other elements (say calcium, copper, lead, phosphorus, etc.) as fluorides. Fluorides are abundant in earth's crust.

Sources of fluorides

A. Earth's crust : The three most common sources of flouride minerals are, (i) Flourspar (Calcium Fluoride), (ii) Apatite and rock phosphate—a calcium, phosphatefluoride complex, and iii) Phosphories.

Fluorspar Fluorspar occurs in, (i) Lime stone, (ii) Sand stone, (iii) Granite, (iv) Quartz, (v) Calcite, and (vi) Barite The major deposits of the above are found in nine states: Gujarat, Rajasthan, Andhra Pradesh, Bihar, Himachal Pradesh, Jammu & Kashmir Madhya Pradesh, West Bengal and Tamil Nadu.

Apatite and Rock Phosphate : The two major apatite States in India are Bihar and Andhra Pradesh. Minor occurrences have been reported from other States, viz., Gujarat, Tamil Nadu, Orissa, Rajasthan and West Bengal.

Phosphorites : The third major source of fluoride is the phosphorites—the sedimentary phosphate deposites. The two regions in India with abundance of phosphorites are : North-West of India, comprising the States of Uttar Pradesh, Jammu & Kashmir, and Rajasthan; and Tamil Nadu. There are a few minor occurrence in other Sates also.

Secondary dispersion of fluorides is known to occur in soil, river water, ground water and atmosphere. The secondary dispersions correlate well with primary occurrence of fluoride containing minerals.

B. Water : Analysis of water samples from rivers, streams and sources of surface and ground water (open wells, tube wells) from 12 States have shown that it is contaminated with fluorides ranging from 0.2 to 38.0 parts per million (ppm=mg|litre). And these waters are used for irrigation, live stock and human consumption besides other routine uses of water.

C. Food : As the soil and water are contaminated with fluorides agricultural crops and foder of livestock have high affinity to absorb fluoride containing salts. Fluoride is stored in different parts of the plant. Different plants are known to behave differently. Some plants store fluorides in leaves, fruits, grain, stem and tubers.

Various items of food, viz., cereals, vegetables, spices, oil, soft drinks, fruits, fish meat, sugar, salt, dry fruits and a variety of other items have been analysed and fluoride-content has been studied by various scientists and data reported from Madras, Hyderabad, Bombay, Calcutta and from North India. *It is hard to find an item which has no fluoride in it.* The fluoride content is more in cooked food compared to uncooked food. It is common knowledge that Indian food is highly spiced, and the commonly used spices have a very high fluoride content. Although the rural Indian population can ill afford to use expensive spices, they invariably consume a hugh quantity of fluoride in the form of chewing either the areca nut betal leaf or tobacco, which have a higher fluride content. As there is movement of food grains and other agricultural products between different States within the country, there is considerable possibility that even in non-endemic States health problems exist due to excess ingestion of fluorides.

D. Drugs : Fluorine reinforces the action of many chemical molecules and this aspect has made the element useful in pharmaceutical industries. The efficacy of a drug frequently depends on how soon the body metabolizes the molecule and terminates its action. By inserting fluorine at the weak point in the structure of a drug, chemists have made cetrain pharmaceuticals more resistant to breakdown in the body, thereby reinforcing their action. Some of the most popular fluorine-containing medications are : fluorosteroid, fluorouracil, fluorine containing antihistaminics, tranquilizers, anaesthtics and diuretics. Besides, sodium fluoride, either by itself or in combination with calcium, vitamin D and estrogen are prescribed for patients of osteoporosis and the treatment continues for 1—12 years with a dose of 50-80 mg of sodium fluoride per day. Sodium fluoride therapy for otosclerosis is also common. For Dental Caries (cavity formation) Fluorine tablets, fluoride mouthrinse, fluoride varnish and fluoride containing tooth pastes are also prescribed and used.

Permissible limit of fluoride

Permissible limit of fluoride is often based on the fluoride content of drinking water (potable water). The amount of fluoride that is permissible for tropical countries is quite different from the amount that is permissible for temperate countries where the temperature is in the cold/milder range.

In India, the permissible limit of fluoride is 0.5-1.5 ppm (parts per million) or 0.5-1.5 mg per litre. However, as agricultural crops and other food items are getting increasingly contaminated with fluoride, there is growing concern and the permissible limit of fluoride in India should be reduced to 0.5 ppm (or 0.5 mg per litre) and not beyond.

Dangers of excessive fluoride

Fluorides when ingested or inhaled in excess can cause several health problems. Some individuals are extremely sensitive to fluorides and may suffer from mild or severe manifestations. An individual may suffer either from non-skeletal manifestations or skeletal fluorosis or dental fluorosis or a combination of these manifestations.

Non-skeletal manifestations : The following non-skeletal manifestations due to ingestion of fluoride in excess are known to occer :

—Neurological manifestations
(nervousness, depression, tingling sensation of fingers/toes, excessive thirst and tendency to urinate frequently and excessively);

—Muscular manifestations
(muscle weakness, stiffness, muscle spasm and pain in the muscles);

—Allergic manifestations
(allergic manifestations can be of various nature; very painful skin rashes which are peri-vascular inflammation has been reported to be common among women and children);

—Gastro-intestinal manifestations
(diarrhoea, constipation, acute abdominal pain, nausea and vomitting)

A word of caution in this context is necessary. It should not be misunderstood that the above non-skeletal manifestations are always due to Fluoride Toxicity. Fluoride is one of causative factors. Fluoride was never considered as a causative factor until recent years when researches in the field have provided ample evidence to suggest that fluoride can cause non-skeletal health problems of the nature mentioned above.

Skeletal Fluorosis : Skeletal Fluorosis affects young and old alike. Fluoride ingested by a mother can accumulate in the skeleton of the growing foetus as there in no placental barrier for fluoride. There are reports revealing infant mortality shortly after birth with calcification throughout the blood vessels. Fluoride is known to induce calcification of soft tissues, viz., ligaments, muscles, tendon and blood vessels.

In India, in endemic States, children at the age of 5 or 6 have revealed classical manifestations of Fluorosis. The major clinical manifestations are severe pain in the backbone (vertebral column), joints and pelvic girdle (hip region). Calcification of ligaments of the backbone and joints leads to stiffness of the vertebral column and immobile and painful joints respectively. Deposition of fluoride in the form of calcium fluoroapatite in the skeleton leads to increased girth, thickening and density of the bone. One of the serious repercussions of thickening of bone is construction of intervertebral foramen (opening in the sides of the vertebral column through which the nerves travel to the extremities) thus exerting excessive pressure on spinal nerves leading to paralytic condition. There is no treatment or cure for this disease but it can be prevented.

Dental Fluorosis : In Dental Fluorosis, it is possible to identify white or yellow glistening patches on the teeth which may eventually turn brown. The yellow and white patches when turned brown present themselves in horizontal streaks. The brown streaks may turn black affect the whole teeth and may get pitted, perforated and chipped off at the final stage.

Dental Fluorosis is prevalent in children who are born and brought up in an endemic area for Flourosis. However, if an individual during adolescence moves from a non-endemic area to an endemic area for Fluorosis, it is unlikely that he|she may get afflicted with Dental Fluortsis, but may get afflicted with Skeletal Fluorosis and may also suffer from non-skeletal manifestations.

Dental Fluorisis not only poses cosmetic problems but has sericus social problems too. Madras Dental College, Madras, has been treating fluorosed teeth by capping with plastic moulds--a technique which is so well perfected that it is not possible to differentiate between a good natural teeth and the one prepared with the aid of a mould. This has been considered as a boon by many a victim of Dental Fluorosis. The problem in this approach is that the capital cost involved is considerable and that the patient afflicted with the disease has to visit the hospital for capping. Lately, Madras Dental College has also introduced laminated veneering of teeth so that the ugly looking brown and black teeth is plastered and look pretty. This approach has certain advantages over capping as this technology can be taken to the homes of the afflicted and service rendered at the doorstep with least capital cost involvement.

How does fluoride act?

Fluoride is known to act with body tissues in a number of ways :

Fluoride when ingested or consumed has a tendency to accumulate in almost all the tissues. The highest amount of fluoride is known to be deposited in one variety of bone—cancellous bone (spongy bone) than the other cortical variety.

Fluoride is known to inhabit protein synthesis theerby hampering the production of proteins in the body.

In the tooth and bone, which are hard tissues, the matrices are made up of a special fiber known as collagen protein, on which calcium ions get deposited in a special manner. Fluoride distorts the structure of collagen protein and the process of calcium deposition becomes abnormal and the bone and tooth also become abnormal in their structure and function.

Fluoride is known to inhibit great majority of enzymes (which are biological catalysts) and derange the metabolism, as a result many chemical substances are produced in less quantity than that is required. It is also true that certain intermediary products begin to accumulate which is also not a healthy process.

The chemical machinery of the body is disturbed and the body functions are disturbed too.

Vulnerability (susceptibility) to fluoride toxicity. Level of haptoglobin (Hp) in blood provides information on the susceptibility of a particular individual to the disease. High Hp content in blood is suggestive that the individual is vulnerable to fluoride toxicity. If the Hp is low, the individual may not have clinical manifestations, even if high fluoride content is ingested or inhaled.

Male members normally have high Hp as male sex hormone stimulates its production. Female sex hormone inhibits its production. Because of this disparity in Hp production and level in blood it has been observed that greater number of males are afflicted by the disease compared to females. There are also females with greater Hp content and they are afflicted by the disease.

There are possibly other ways in which fluoride acts in the body which we do not know at present. Only future investigations may throw light.

Prevalence of Fluorosis in India [Statewise report]

Attempts have been made to enumerate the incidence of the disease in different States, which will not only reveal the widespread occurrence of Fluorosis but also the gravity of the situation.

Andhra Pradesh : In Andhra Pradesh, the well (open well and tube well) water samples are very highly polluted by fluoride. The maximum fluoride recorded so far is 25 ppm. The Nagarjuna Sagar Dam construction has brought some relief to people in obtaining water with permissible limits of fluoride. But the efforts are grossly inadequate.

Delhi : The municipal water supply being grossly inadequate, the residents of Delhi in certain zones depend to a great extent on tube well water. Fluorosis, both Skeletal and Dental forms, have been recorded in the metropolis. The incidence of Fluorosis in the villages around Delhi is high. Out of 339 inhabitants examined in a village near Delhi, Fluorosis was found prevalent in 80 per cent of the adults and 60 per cent of the children. The tubewell water contaminated with fluoride and used for agricultural purposes and livestock enhances the magnitude of the problem.

Haryana : The potable water of Dayalpur, Atali, Chhainsa, Machgar and Sotai villages have fluoride content ranging from 1.89 to 3.83 ppm. At Sotai village, where the fluoride content of water is 3.83 ppm, 98 per cent of the children suffer from Dental Caries and 77 per cent from Flourosis. It is evident that in spite of higher fluoride content in water, the incidence of Dental Caries is greater. In Machgar village where the fluoride content of the potable water is 0.64 ppm, 65 per cent of the children suffer from Caries and 13 per cent suffer from Dental Fluorosis.

Gujarat : In Lilya and Lathi taluks in Amreli district with total population of 1.54 lakhs, the fluoride content of water samples from the available sources—open wells, tube wells, ponds and wells on river banks ranged from 0.4 to 8.0 mg/litre. The most severlly affected villages are Hathigadh, Haripur, Sajantinba, Gundran, Eklera, Asodar, Kutana, Khara, Antalia and Dhangla. Those affected are unable to get up from the bed or from sitting posture by themselves and depend on a rope tied to the roof of the room/house for support. This is a very common sight in the affected villages in Gujarat and Rajasthan States.

Karnataka : In Mudargi, Kirapur, Kalakori and Musukeppa villages of Dharwar district in Karnataka potable water has Fluoride in the range of 5.4 to 12.8 mg/litre and Fluorosis, Dental and Skeletal froms, is prevalent.

Punjab : In Bhatinda, Sangrur and Ferozpur districts in Punjab, endemic Flourosis has been known to be a serious health problems and it is estimated that 33 per cent of the population in these districts is exposed to the risk of endemic Fluorosis. In fact some of the classical reports on endemic Skeletal Fluorosis in literature have focussed on the patents in the Punjab State.

Rajasthan : The affected areas in Rajasthan are Jodhpur, Bhilwara, Jaipur, Nagur, Bikaner, Udaipur, Barmer and Ajmer. These areas have been nicknamed "banka patti" meaning bent strips—as most of the villagers have turned into hunchbacks. An analysis of 5000 samples of water by the Defence Research laboratory revealed that 91 per cent of the water samples in Rajasthan is unfit for human consumption.

Tamil Nadu : In the distrits of Salem, Tanjore, South Arcot, Dharmapuri and Kanyakumari high levels of fluoride in water have been reported and Fluorosis is a serious health problem. It has also been noted that in areas with low fluoride that disease does reveal severe manifestations. They may possibly be due to two factors. High fluoride content of food or/and low calcium and high alkalinity of water besidse fluoride.

Uttar Pradesh : In an epidemiological survey of Khanjapur, Ujera, Sikri, Madheya Khan Ka Parva villages, Teotia found that fluoride content of potable water ranged from 0.62 to 25.0 mg/litre and that the incidence of Dental and Skeletal Fluorosis is high. A prevalence rate of 24 per cent and 30 per cent of Dental Fluorosis exists in two villages of Varanasi (Banaras). In Uttar Pradesh it is observed that Dented Fluorosis was prevalent even at fluoride level of 0.64 mg/litre in domestic water supplies. The fluoride content of cooked and uncooked food items attributed to the fluoride burden of the body.

Incidence of Dental and Skeletal Fluorosis have also been detected and recorded from Maharashtra, Madhya Pradesh, Bihar and Orissa States.

Fluorosis—A global problem

India is not the only country which is facing a serious health problem from fluorides being in excess in the environment. In Algeria, the problem of Fluorosis exists. China has severe food borne Fluorosis. In Argentine (in the province of La Pampa) the ground water is highly contaminated with fluorides. Kenya has severe problems with Fluorosis affecting the great majority. Kenya is the only nation in the world which has banned fluoride tooth paste advertisement on television and radio under the Pharmacy and Poison Act. The Ministry of Health of Kenya has also issued a directive forbidding the use of fluoride tooth paste by children in Kenya. In Tanzania, the potable water has fluoride content ranging from 3.2 to 92 ppm.

Certain parts of Japan and Thailand also have water borne Flurorosis. South Sea Islands also face health problems due to excess fluoride in drinking water. Fluorosis is prevalent in Keolack in Senegal. in Morocco, Fluorosis exists. In Kizilcaroren, region of Turkey fluoride in potable water ranges from 3.8 to 4.9 ppm and endemic Fluorosis is prevalent.

Industrial Fluorosis is a serious health problem facing the highly industrialized and developed nations. This list is by no means complete.

Technology Mission on safe drinking water

It is highly rewarding to note that adequate emphasis has been laid on removal of excess fluoride from drinking water under the Technology Mission for providing safe drinking water to rural India. Two States—Haryana and Andhra Pradesh—have been identified for tackling fluoride problem during 1986-87. All available methods for removal of fluoride will be experimented upon and people's acceptance will also be sought. The operations in each of the States will be closely associated with health education programmes. All India Institute of Medical Sciences is involved in the implementation of this programme in Haryana and is totally committed to it.

Does India need fluoride tooth paste?

The problem that a substantial part of our population faces is due to excess ingestion of fluoride hrough a number of sources. The fluoride burden of the body is ever increasing and the health problems are also on the increase. Efforts are being made for curtailing the major sources of fluoride intake. It is in this context that AIIMS has been arguing for a ban on fluoride tooth paste in India. Fluoridated variety of paste is known to have fluoride in the range of 800-1000 ppm! It is enormously high in a country like India where fluoride is already excessively present in the environment. It is very gratifying to note that the Ministry of Health has already taken action and the Drug Controller of India is to get the fluoride content

in different brands of tooth paste ascertained and the content to be brought down to permissible level. The fluoride content is to be inscribed on tooth paste packaging as well. If the fluoride content in drinking water and tooth paste is brought under control it would provide enormous relief to the people.

Preventive measures

(1) Every source of potable water in the country, whether in an endemic or non-endemic State, should be checked for fluoride. Water with fluoride more than 1.5 ppm should not be used for consumption either for human or livestock or agricultural purposes.

(2) Existing tube well water if contaminated with excess fluoride, by digging the same well deeper it is likely that water with permissible limits of fluoride may be obtained.

(3) Indigenous defluoridation technology has been developed in the country which can be implemented at the community level or at the domestic level for obtaining water with permissible limits of fluoride.

(4) If the symptoms of Fluorosis are detected at the very early stages, the best possible remedy is to avoid the major source of fluoride totally.

(5) If the source of fluoride is withdrawn and intake of fluoride is negligible, the bone while undergoing remodelling, can rectify the damage caused and during early stages the individual may get completely relieved of the harmful effects of fluoride.

(6) Ingestion of vitamin C or ascorbic acid can cause considerable relief. It is also important that the diet should have adequate daily intake of calcium so that absorption of fluoride into blood circulation is minimum.

(7) All possible source of high fluoride content, viz., food, water, drugs and tooth paste should be avoided.

(8) Pain in the backbone, joints and hip region should not be dismissed. Hospital intervention should be sought. □

(Courtesy : AIIMS Public Lecture)

Non-conventional energy sources tapped

More than six lakh biogas plants have been set up in the country for generating energy for domestic purposes. This amounts to an annual saving of more than 25 lakh tonnes of wood valued at Rs. 100 crore and providing fertilizer output of 1.20 crore tonnes valued at Rs. 100 crore annually.

Five demonstration wind farm projects with an aggregate capacity of 3.3 MV have been established. A pilot plant based on incineration of urban solid waste with a capacity of 3.75 MV is under construction in Delhi. A 50 KW solar thermal power plant is also being installed Electric power for street lighting and community purposes through photovoltaic systems has been provided to more than 250 villages.

Though the exact cost of power generation from renewable non-conventional energy sources differs from site to site, it would on an average generally compare favourably in real terms with the cost of generation from hydel, thermal and nuclear systems.

World food assistance for Rajasthan projects

India is to get food assistance amounting to US $ 25.8 million (equivalent to Rs. 32.3 crore) from the World Food Programme (WFP) for two socio-economic development schemes in Rajasthan.

Under the two agreements signed in New Delhi recently, 41,200 tonnes of commodities valued at US $ 12 million, will be committed to forestry project and 55,700 tonnes of commodities, costing US $ 13.8 million, are earmarked for Indira Gandhi Nahar Project in Rajasthan.

In the Rajasthan forestry projects, food commodities will be distributed at subsidised rates to forestry workers in the tribal areas of Banswara, Bhilwara, Chittorgarh, Dungarpur, Kota, Sirohi and Udaipur districts for a total of 25 million workdays.

Food will also be provided at subsidised rates to workers on the Indira Gandhi Nahar Project (IGNP). It is expected that WFP will extend to 31 million workdays of employment over a period of three years.

(continued from page 5)

ment through labour-intensive schemes such as major, medium and minor irrigation works, soil conservation, afforestation and village and district roads necessary to open up the area for agricultural production. In the Fourth Plan, this programme was re-designated as Drought Prone Area Programme and reoriented as an integrated area development programme with the objective of developing the land, water, livestock and human resources of these areas. The programme has been in operation in 511 blocks of 70 districts in 13 States.

The strategy adopted in the Sixth Plan for DPAP will continue during the Seventh plan which would inter-alia include increased stress on activities which can contribute directly to the restoration of the ecological balance and increasing the per capita income through the effective development of land and other natural resources including efficient utilisation of scarce water, conservation of scanty rainfall and arresting its run-off in drought-prone area. Accordingly, the Programme, as at present, would continue to be implemented as an integrated area development programme rural than as a programme merely for creating increased employment opportunities.

4.LAND REFORMS. Land reforms have been recognised to constitute a vital element both in terms of the anti-poverty strategy and for modernisation and increased productivity in agriculture. Redistribution of land could provide a permanent asset base for a large number of rural landless poor for taking up land-based and other supplementary activities. Similarly consideration of holdings, tenancy regulation and updating of land records would widen the access of small and marginal landholders to improved technology and inputs and thereby directly lead to increase in agricultural production.

A land reform policy with a five-fold objective was continued in the Sixth Plan. The objective envisaged, (i) abolition of intermediary tenures, (ii) tenancy reforms aimed at security of tenure, regulation of rent, and conferment of ownership rights on tenants, (iii) ceiling on landholdings and distribution of surplus land, (iv) consolidation of holdings and (v) compilation and upgrading of land records. Land reforms in the Seventh Plan would be looked upon as an intrinsic part of the anti-poverty strategy.

In addition of the Central programmes, some of the State Governments have their special employment programmes in rural areas. But, unfortunately, the West Bengal Government has no schemes of its own to eradicate poverty in rural areas. □

Oilseeds production raised in Seventh Plan

Under a special programme oilseeds production is to be raised from 131.00 lakh tonnes in 1984-85 to 180.00 lakh tonnes by the end of the Seventh Plan. This will be further stepped up to 250 lakh tonnes by the turn of the century. The target for the year 1986-87 is 148.00 lakh tonnes. Of this 139 lakh tonnes will be edible oils. Groundnut accounts for about 55 per cent of total oilseeds production.

One hundred eighty districts spread over 17 States, already having sizeable area under oilseeds crop or having great potential for it, have been selected for a special thrust for oilseeds production. The programme to increase oilseeds production is estimated to cost Rs. 170 crore during the Seventh Plan, the share of the Central Government being around Rs. 100 crore. □

Record export of garments

Export of garments from India has recorded a growth of 74 per cent in the last three years. From a level of Rs. 629 crore in 1982-83, exports have touched a figure of Rs. 1096.72 crore in 1985-86.

The rising trend is continuing during the current year and it is estimated that during January to June, 1986, exports of readymade garments have been about Rs. 72 crore higher than exports during the corresponding period of 1985. The emergence and growth of garments as an export sector in India has been phenomenal considering that even in 1970-71 export of this item was of the order of only Rs. 12 crore.

The major buyers of Indian garments are USA, the Soviet Union, EEC, Japan and Canada. Garments are among the 14 thrust items identified for intensive promotion in the Government's current export strategy. □

More iodised salt to be produced

The Government has decided to give subsidy, effective from August 1, this year to iodised salt manufacturers and to supply potassium iodate free of charge. Over 400 entrepreneurs have been given permission to set up iodised plants. So far 91 units with an installed capacity of 17 lakh tonnes have gone into production in the States of Gujarat, Rajasthan and Tamil Nadu. The Government has decided to iodise the entire edible salt by 1992. This would mean that the current level of 3 lakh tonnes of iodised salt production will have to reach 52 lakh tonnes by 1992.

Presently, 14 crore people in our country are exposed to severe iodine deficiency disorders and these figures may touch a startling 20 crore if immediate steps are not taken to eliminate this deficiency. □

(*Continued from page* 16)

TABLE 2
Growth of Households

(in million)

Year	Rural	Urban	Total
1951	60.6	12.8	73.4
1961	68.6	14.9	83.5
1971	78.0	19.0	97.0
1781	73.5	29.1	122.6
1983	98.4	30.7	129.1

Source: NBO, *Handbook of Housing Statistics* 1982-83.

The rate of growth of housing stock has been lagging behind the rate of growth of households with the inevitable result of increasing the housing shortage. The housing shortage increased from about 9 million units in 1961 to about 24.7 million in 1985 and is estimated to cross 29 million by 1990. □

Vigours measures to eradicate leprosy

The Multi-Drug Therapy (MDT) for leprosy is to be extended to 76 highly endemic districts in the country during the Seventh Plan. The other 125 districts moderately affected by the disease will be brought under the scheme in the Eighth Plan.

Today four million people suffer from leprosy in our country, of which nearly one-fifth are children. Every one out of four affected children gets deformities rendering him handicapped. As a result the Leprosy Control Programme has undergo a significant qualitative change. The emphasis now is on leprosy eradication in a time-bound manner.

Centrally sponsored National Leprosy Eradication Programme, covers about 92 per cent of the patients in the country. So far, two million cases have been fully cured. There are 403 leprosy control units, 661 urban leprosy centres, 6986 survey education treatment centres and 190 district leprosy units in the country today. In addition, over 100 voluntary organisations are working in this field.

It is expected that leprosy will be controlled successfully before the end of the century. □

Urban Development Ministry forms a Scientific Advisory Committee

An eight-member Scientific Advisory Committee has been constituted for the Ministry of Urban Development to advise on development of integrated and coordinated scientific and technological programmes. It will take steps for a systematic interaction between the users and the Research and Development institutions concerned with the activities of the Ministry.

It is also to advise on policies and programmes to develop indigenous capabilities in scientific and technological research and to evolve short-term and long-term objectives and plans for upgradation of technology in areas related to the activities of the Ministry. □

Record procurement of Jute

A record quantity of over 28 lakh bales of raw jute was procured by the Jute Corporation of India in the jute year July 1985—June 1986 as against the average yearly procurement of 8 to 10 lakh bales Almost all the jute that was offered for sale by the farmers was bought at the minimum support price. The previous maximum was 17.61 lakh bales in 1981-82.

For the first time, the statutory minimum price of raw jute and Mesta was announced before the sowing of crop in March, this helped the farmers to take a view on the extent of sowing.

The large procurement also led to increased hiring of storage capacity for jute and recruitment of additional hands, thus increasing employment. JCI has geared itself for another massive price support operation during the current jute year (July 1986—June 1987), which was launched in July in West Bengal.

A scheme of buffer stock of raw jute has been stated this year to ensure availability of raw jute to the mills at reasonable prices and to help farmers in the long run by ensuring stability in raw jute price. Initially, nearly 6 lakhs bales are being kept as buffer stock with the mills.

The Government is taking a number of steps to safeguard the interests of jute industry against competition from synthetic substitutes. It has been decided to introduce compulsory use of 100 per cent new jute bags by cement industry. In addition, the Railways have been asked to withdraw their earlier order for packaging salt in synthetic bags so that jute bags may be used for this purpose.

Besides higher rates of cash compensatory support, additional measures are presently under consideration of the Government to boost exports of jute goods. In spite of competition from synthetics, the domestic consumption of jute goods during 1985-86 was one of the highest in many years and regular government orders to jute mills for sacks are believed to have prevented large scale closure of jute mills during the lean season (April-July) last year. □

BOOKS

Planned development

Essay on Economic Progress and Welfare in honour of I.G. Patel. Edited by S. Guhan and Mona Shroff, Published by Oxford University Press, Bombay, Calcutta.

A dozen and more essays in the book covering the period between 1949 to 1982 throw a floodlight of reason on topics about planned economic development of India.

The thinking on planning and progress has gone through many phases in the last thirty years. The Mahalanobis model, the economic crisis in the mid-1960s, the change in policy mix and the Green Revolution, the realisation that poverty cannot be removed by growth alone and the recent move to liberalise economic policies and market incentives greater play. Dr. I. G. Patel, to whom the book is dedicated, was one of the most influential participants at the policy-making level in the long span of Indian experiment.

These essays, offended by a distinguished group of economists, civil servants and politicians are addressed to diverse issues raised by Indian experiences, planning techniques, plan performance, the public sector, feed and role of exports, relations with the IMF, the debt problem. The first plan document in 1951 drew attention to the long-term aspirations of the people and provided a framework to ministries of the Government to look beyond the new budget. The mood was one of confidence and hope.

As the First Plan progressed, there was recognition of planning being a long-term process. The planners conceived a scientific model for the Second Plan under the guidance of Prof. B. C. Mahalanobis. The intellectual basis of planning was to emerge only with the formation of the Second Plan (1956—61). Many foreign planners like Frisch, Galbraith, Kaldor and many others were heard. A second group of contributions relate to wider issues of development theory. V. V. Bhat seeks to an institutional framework for promoting public sector performance from an alaysis of a wide set of country experiences. Deena Khatkhata deals conceptual and data problems connected with the measurement of real interest rates, the maintenance of which is an issue of practical importance. Paul Strrien's easy explore ways outdo the fundamental dilemma based by the policy makers in maintaining food prices at levels that are "remunerative" to producers and fair to consumers. Food aid becomes relevant in this connection and Jagadish Bhagwati enamates the wider welfare effects of aid in this form.

Amrtya Sen relates wellbeing to functioning achievements and positive freedom. Partha Dasgupta and Debraj Roy argue poverty can be as much consequence as a cause of malnutrition. The third group is addressed to external environment within which developing countries face problems of adjustment and growth. In these essays the contribution by T. N. Srinivasan, Jean Baneth and Sidney Dell are noteworthy. It concludes with a symposium in which former Finance Minister, like C. Subramaniam and H. M. Patel and senior civil servants like B. K. Nehru, L. K. Jha and S. Boothalingam reflect the role of professional economists in the Government.

S. Banerji

Econometrics

Introduction to Econometrics—Principles and Applications (Second edition 1983). By G. M. K. Madrani. Published by Oxford & IBH Publishing Company, New Delhi, Pages 412. Price Rs. 45.

Economics is accepted as a Social science in its own right. The basic theorems and tenets explain the relationships between different economic variables as to what would happen when certain conditions prevail. These conditions, however, are not unchangeable, more so, when random changes in variables occur. In such situations, the branch of the discipline called econometrics combines economic theory with statistical and mathematical tools and tries to evolve relationships which are empirically tested and used for forecasting, thus improving its utility for future events. It is, however, a matter of concern that econometrics has not reached wider understanding in our country. The author has brought the book, which serves the basic requirements for its popularisation.

The book is designed in two parts, viz., the first part delineating basic concepts in statistical theory, probability, distributions and inference; the second part deals with econometric principles, covering definitions of basic terms, explaining simple and multiple regression analysis, estimation of parameters, tests, etc. There is a masterly exposition of functional forms of regression models besides lucid discussions on problems of bias, lagged variables, identification problems, etc.

The author builds up from scratch as it were and builds up an awareness and imparts the knowledge in a clear and lucid style. The book ends up with statistical tables, test statistics, and bibliography be-

sides an Index. One only wishes that part one of the book is expanded to incorporate other basic mathematical concepts like matrices, inverses, integration, etc., and part two provided with solutions/answers to important assignments, as this would make the book an all-in-one. Even as it is, this book could very well be considered as a masterpiece, enabling any serious student to become a practising econometrician. The book, priced reasonably, adds to its utility.

R. C. Srinivasan

Planning for tribals

Planning Strategy for Tribal Development. By M. L. Patel. Published by Inter India Publications, WZ-96-V, Raja Garden, New Delhi. Pages 191. Price Rs. 180.

Tribal development as part of our planning strategy is of recent origin. It took the Government full two decades to realize the plight of scheduled tribes, that this class also could contribute towards the overall development process; and that tribals also form an important social group. In the Fifth Five Year Plan some headway was made towards this direction and a tribal sub-plan was formulated within the broad framework of Integrated Tribal Development Programme. As part of the strategy a tribal sub-plan area is to be delineated on the basis of tribal concentration, "so that special deal may be given to it not only in choosing the economic and social development programme but also in funding the resources from various sources such as inflow of funds from state plan sector, special central Assistance, Central sector, Centrally sponsored programmes and financial institutions". One such area is Mandla district of Madhya Pradesh which also happens to be the area of field study and doctoral work of the author of the present book. Mandla district has 60.58 per cent tribal population. Therefore, it comes under tribal sub-plan area, the requirement for which is 50 per cent or above tribal population.

The author in his present work has sought to evolve a strategy for tribal development on the basis of his study of weekly markets and annual fairs which is a traditional feature of tribal culture in Madhya Pradesh. He has made an extensive survey of 85 markets and 28 annual fairs. After analysing the data collected, he identified 8 growth Centres, 16 service centres and 26 growth points to arrive at growth foci system for Mandla District. While formulating his strategy, the author discusses the theories of regional planning namely, the central place theory, theory of special diffusion, and the growth pole theory. Having discussed the rationale of each of them in chapter 6 and working out the centrality scores in each case he found each theory a misfit in the case of Mandla. However, these have helped him evolve a growth foci system based on optimally located market centres. Towards the end of the book he gives the example of the successful implementation of his growth model in the case of Tribal sub-plan strategy for Mandla Tribal district.

There are several places in the book which would evoke discussion especially in chapter 7 when the author discusses Gunnar Myrdal's concepts of "backwash effects" and "spread effects". These effects start originating the moment development process gets off the ground. In this context he throws open some unanswered questions for further research and study.

At first glance the book would appear to be a study of market surveys and annual fairs. To some extent it is true also. At times one may find repetition of one idea at several places, also some erroneous construction of sentences, etc. These flaws notwithstanding, the book forms a significant contribution to planning strategy for tribal development.

Aditya Kumar Trivedi

Essays on rural development

Rural Development in India—A Multi-Dimensional Analysis. Edited by : T. K. Lakshman and B. K. Narayan. Published by Himalaya Publishing House, Bombay. Pages 325. Price Rs. 190.00.

In this book containing 27 essays written by different contributors, a vast ground has been covered on the subject of rural development in India. The book has been dedicated to Prof. K. Venkatagiri Gowda, once a Professor of Economics in Bangalore University.

In his essay on some neglected factors, V.K.R.V. Rao suggests that the task of integrated rural development is hampered by not having a policy of an economically viable minimum agricultural holding. This policy should be extended to the maximum possible extent to the existing marginal and sub-marginal farmers. It will make Indian agriculture a more worthwhile occupation for the vast number of cultivators who now account for such a small proportion of the total agricultural output. He goes on to suggest that landless labourarers should be placed in a position where their wages would give them an income that bring them above the poverty line instead of keeping their number at a level which keeps them perpetually below the poverty line.'

Prof. P. R. Brahmananda discusses the theme of rural wages. He is of the view that the rural areas may not be in a position to have significant industrial centres on a competitive basis if factory-type organisations are planned. But if the incremental wage payment for equivalent work is reckoned in terms of use of idle labour-time of self-employed and not full-time employed labour in rural areas.

the real wage equivalence difference will perhaps become a little more favourable to the rural areas. P. R. Dubhashi delineates on problems of rural development and focusses on the need for linking rural development with a vast network of rural institutions, including local government institutions, cooperatives, rural banks and so on. G. Thimmaiah discusses the topic of district level planning at length to bring home the plont that the science of its formulation and the art of its implementation need to be improved quite a lot.

Some other issues dealt with in the book pertain to areas like rural education, land reforms, technological changes, multinational corporations, infrastructural development, and so on. The editors in, in their preface, maintain that the fruits of development have not reached the urban and the rural poor, particularly those living below the poverty line. They quote from Myrdal's Asian Drama to substantiate their thesis. On the issue of IRDP they observe that it is an attempt to attack poverty, though the static growth of the rural areas and the worsening of poverty among the weaker sections have caused increasing concern among the social scientists, planners, administrators and policy-makers.

It would have been better if the editors of this volume had given a brief summary of what the contributors say in their respective essays. Also, there is no bibliography in the book.

Incentives for reducing transmission losses

It has been decided to institute an Incentive Award Scheme to help reduce transmission and distribution losses. In the current year, an amount of one crore rupees would be earmarked for giving incentives to Electricity Boards which bring about a substantial reduction in transmission losses and power thefts.

In case the incentive scheme contributed in bringing about better results, the Ministry of Power would be prepared to not only double the amount of incentive award but even increase it fourfold.

The transmission and distribution losses are a matter of grave concern. The transmission losses are not entirely because of technological factor but also on account of theft of electricity.

In 1985-86, the total electricity generated in the country was 170 billion units. With one per cent reduction in the transmission and distribution loses, the saving would amount to Rs. 78 crore, besides making available 1572 million units of power to consumers. Among the basic steps to remove these losses were the identification of weak areas, formulation of suitable steps to reduce these losses, installation of capacitators and use of transformers. □

Attention Readers!!!

Reserved for Readers

From November 1—15, 1986 issue of YOJANA, we will have a regular column **"Reserved for Readers"**. We propose to present this column as a forum of views of our readers on current issues of public interest. We would also welcome genuine comments on the contents of the journal, not exceeding 200 words, by ORDINARY POST addressed to : Chief Editor, YOJANA, Room No. 508, Yojana Bhawan, Parliament Street, New Delhi-110001.

More assistance for rural housing

RURAL HOUSING is an integral part of the Minimum Needs Programme of the Government. During the Sixth Plan a scheme for Rural House Sites-cum-Construction Assistance was in operation as a part of the Minimum Needs Programme. The total number of landless families which were provided house sites under the Sixth Plan is estimated at 13.07 million. However, the analysis has revealed that there are still 0.72 million landless families to be provided with house sites. As regards construction assistance, 19 lakh families were assisted against the target of 36 lakh.

During the Seventh Plan the remaining 0.72 million landless families will be covered on a priority basis. For this a sum of Rs. 36 crore has been earmarked. Along with allotment of house sites, the scheme also provides assistance for construction. During the Plan, efforts would be made to provide construction assistance to those families already provided house sites. A target of 2.71 million families has been fixed for provision of construction assistance at a total cost of Rs. 541 crore. The amount of assistance per family has also been revised upwards : it is proposed to provide assistance to the extent of Rs. 500 per family for provision of developed house site of 100 sq. yards each, against the current provision of Rs. 250. Similarly, for construction assistance, it is proposed to increase the amount to Rs. 2000 per family against the provision of Rs. 500 at present.

Besides the provision of Rs. 577 crore made in the Plan for Rural Housing under Minimum Needs Programme, an amount of Rs. 240 crore would also be made available during the Seventh Plan from institutions like HUDCO and General Insurance Corporation.□

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Housing during Seventh Plan

IN FULFILLING THE BASIC NEEDS of the population, housing ranks next only to food and clothing in importance. According to the Seventh Plan document, the development of housing must enjoy high priority in a poor society like ours where housing amenities are far below the minimum standards that have been internationally accepted. The National Buildings Organisation (NBO) has estimated that in 1981 there was a shortage of around 21 million dwelling units which rose to 24.7 million units at the beginning of the Seventh Plan—18.8 million in rural areas and 5.9 million in urban areas. Apart from the existing backlog in housing, the increase in population between 1985—1990 would generate roughly an additional requirement of housing units to the extent of 16.2 million, of which 12.4 million will be in rural areas and 3.8 million in urban areas. Thus the magnitude of the housing problem is gigantic.

The document asserts that there is a need for radical orientation of all policies relating to housing. The most important among these are : the provision of finance for house construction on a large scale, development of suitable land sites in urban areas, provision of house sites in rural areas, developing and applying low-cost technology in house construction and policies relating to rent control.

While all sectors of the economy—the Government sector, the public sector, the cooperative sector and the household sector—would have to participate in housing activities in a coordinated manner, the major responsibility for house construction, according to the plan document, would have to be left to the private sector.

The document further says that the poorer sections of the society would need subsidization and also assistance in house construction from the public sector. In this context the role of the public sector should be three-fold : First to initiate steps to mobilise resources for the housing sector on an adequate scale; second to continue the efforts to provide subsidised housing to segments of the rural poor and to other economically weaker sections (EWS) of the community like slum dwellers and dock and plantation workers; and third to undertake land acquisition and development in urban areas and provide house sites in rural areas.□

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Yojana

Focus on population growth

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Genetic erosion of plant wealth

NEXT ISSUE

Spotlight on energy

Health for all by 2000 AD

INDIA, BEING SIGNATORY to the "Alma Ata Declaration" (1978), is committed to achieving "Health for All by 2000AD". The programmes initiated and executed over the last three decades have strengthened the health care system in the country and yielded considerable dividends, particularly in the field of communicable diseases. Measures have been initiated to correct the regional imbalances prevalent within the system, to improve referral services and to augment health-care services in the rural areas through the Minimum Needs Programmes (MNP).

Life expectancy at birth has gone up from 27.4 years of the 1941-51 decade to an estimated 54.71 years in 1985-86. The infant mortality rate has come down from 146 per thousand live births during the fifties to 110 in 1981. The health infrastructure has been strengthened considerably. The country has presently about 83000 sub-centres, 11000 primary and subsidiary health centres and 650 community health centres.

The per capita expenditure on health incurred by the state has gone up from about Rs. 1.50 in 1955-56 to Rs. 27.86 in 1981-82. Plague and smallpox have been eradicated. One of the most significant steps taken during the Sixth Plan was the adoption of the National Health Policy by Parliament.

During the Seventh Plan primary health care will be further augmented. In the overall health development programme, emphasis will be laid on preventive and promotive aspects and on organising effective and efficient health services which are comprehensive in nature, easily and widely available, freely accessible, and generally affordable by the people. The Minimum Needs Programme would continue to be the sheet-anchor for the promotion of the primary health measures, with greater emphasis on improvement in the quality of services rendered and on their outreach. These will be backed up by adequately strengthened infrastructural facilities, and establishment of additional units where they are not available.□

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India's population: the worsening scenario

Thomas Mathew

"If the present annual exponential population growth rate of 2.25 per cent continues for the remainder of this century", then according to the author, "by 2001 India will have a population of about 1074 million. And in about 45 years from now India's population will be roughly double its present size." He therefore feels that "an effective strategy for tackling the population crisis should embrace not only efforts at **prevention** *of substantial increase but also attempts at* **adjustment,** *through democratic and developmental measures".*

THE DEMOGRAPHIC POSITION OF INDIA today presents a dismal picture even for the most optimistic analyst. And the spectre of a steadily ballooning population in the coming decades is looming large over us. The 1981 Census recorded a population of over 685 million. At the time of Independence India's population was estimated to be about 341 million. In less than four decades India's population has more than doubled. Indians born after Independence form well over 75 per cent of India's present population. India's current population constitutes almost one sixth of mankind.

The major part of India's population growth has taken place in the past few decades. This is clear from Table 1 which shows the trends in India's population through the decades of this century and its salient demographic characteristics.

Record growth

The 1971—81 decal growth rate, according to official statistics, is 25 per cent. The population addition as recorded between the censuses of 1971 and 1981 is however, over a period of 119 months Adjusting for this one-month difference, the 1971—81 decadal growth rate works out to a whopping high of 25.21 per cent—a record growth rate. During this decade, India's population increased, in absolute terms, by 137 million. The magnitude and intensity of the recent population explosion can be measured from the fact that this decadal increase of 137 million persons was more than the total addition to India's population over half a century from 1901 to 1951 during which period population increased by only 122.6 million.

Offsets economic growth

The increasing population has been eating into the gains of economic growth. While the net national product at constant prices increased by 165 per cent during the three decades of economic planning, the per capita income went up by only 45 per cent. That this yawning chasm between the growth of national product and per capita income is the direct result of the prolific increase in population needs no elaboration.

Almost all the population projections made in India have turned out to be underestimates. As recently as 1979, the Expert Committee on Population Projections appointed by the Planning Commission had projected India's population in 1981 to be 672 million—13 million short of the actual census count. India's population growth processes have probably defied the expertise of many an expert.

While India's population growth rate is as high as 2.25 per cent, the growth rate of China, the most populous state in the world today, is at comparatively

Table 1
India's Population : Trends and Characteristics

Year	Population (millions)	Decadal variation (%)	Annual average exponential growth rate (%)	Density per sq. km.	Sex Ratio	Ur Pop ..tion (%)	Literacy Rate (%)
1901	238.3	..	..	77	972	.10.8	5.4
1911	252.0	5.75	0.56	82	964	10.3	5.9
1921	251.2	—0.31	—0.03	81	955	11.2	7.2
1931	278.9	11.00	1.04	90	950	12.0	9.5
1941	318.5	14.22	1.33	103	945	13.9	16.1
1951	361.0	13.31	1.25	117	946	17.3	16.7
1961	439.1	21.51	1.96	142	941	18.0	24.0
1971	548.2	24.80	2.20	178	930	19.9	29.5
1981	685.2	25.00	2.25	216	933	23.3	36.2

Source: 1. Census of India 1981, Series-1 India, Paper-2 of 1983, *Key Population Statistics Based on 5 Per Cent Sample Data*
2. Census of India 1981, Series-1 India, Paper-1 of 1984, *Population Projections for India 1981-2001*
3. Census Centenary 1972, India, *Pocket Book of Population Statistics*

much lower level of only 1.5 per cent. Though India ranks second in terms of population size, due to the glaring differences in the growth rate, India ranks first in the world in terms of the annual addition to population. Worse still, if the present trends continue, before the middle of the 21st century India will be ominously outpacing China in terms of population size as well, notoriously leading the march of the overpopulated nations. And according to projections, by 2100 AD India will have 1.8 billion people—400 million more than China !

Breeds disparities

While the aggregate size of the population is rather alarming, it must be remembered that the aggregate figures often mask enormous disparities among regions and states. There are enormous inter-state variations regarding size, density and several other crucial demographic parameters. Uttar Pradesh (U.P.), the most populous state of India had, in 1981, a population of nearly 111 million while the state of Sikkim had only a little over three lakhs. Were it a separate political entity, U.P. would have ranked as the eighth most populous country in the world. Density of population varies from seven persons per sq km for Arunachal Pradesh to 655 persons for Kerala. The literacy rate varies from 70.42 per cent for Kerala to 24.05 for Rajasthan. The mean age at marriage of females varies from 21.85 for Kerala to 16.09 for Rajasthan. The average birth rate during 1977—79 ranked from 25.6 for Kerala to 40.1 for U.P. and the death rate ranged from 7.1 for Kerala to 18.5 for U.P.

The growth rates also exhibit significant variations over time and space. The intertemporal variations are clear from Table 1. Till 1921 which marks a watershed in the history of India's population growth, the population grew at a very low rate. During 1921-51 the growth rate picked up but remained well below 1.50 per cent annum. In the following decades it kept on steadily accelerating from 1.96 in 1951—61 to 2.20 in 1961—71 and 2.25 in 1971—81.

There are also significant differences in the growth rates among various states during the same time span. Table 2 presents the growth rate, in last two decades, for the fourteen larger states (excepting Assam) with a population of over 10 million in 1981.

Among these fourteen larger states, the 1971—81 decadal growth rate varied from 17.50 for Tamil Nadu to 32.97 for Rajasthan. While the intercensal growth rates for 1971—81 were lower than that for 1961—71 in many states, and particularly in the states of Kerala, Tamil Nadu and Orissa where it was significantly lower, the growth rates went up in quite a few states including U.P. and Bihar both of which put together constitutes 26.38 per cent of the total population of India.

TABLE 2
Decadal Growth Rates, Statewise

	Growth Rate		% of India's population, 1981
	1961-71	1971-81	
INDIA	24.80	25.00	..
Andhra Pradesh	20.90	23.10	7.82
Bihar	21.23	24.06	10.20
Gujarat	29.39	27.67	4.97
Haryana	32.23	28.75	1.89
Karnataka	24.22	26.75	5.42
Kerala	26.29	19.24	3.71
Madhya Pradesh	28.67	25.27	7.62
Maharashtra	27.45	24.54	9.16
Orissa	25.05	20.17	3.85
Punjab	21.70	23.89	2.45
Rajasthan	27.83	32.97	5.00
Tamil Nadu	22.30	17.50	7.06
Uttar Pradesh	19.78	25.49	16.18
West Bengal	26.87	23.17	7.97

Source: Census of India 1981, Series 1 India, Paper 1 of 1982, Final Population Totals.

The differences in the growth rate are, by and large reflective of the variations in the death and birth rates prevailing in the various states. Table-3 presents the combined rude death rate and birth rate for the fourteen states, for 1977—79.

Based on the death rates and birth rates shown in Table-3 one may categorise the states into four different groups : 1. States where both death rates and birth rates are high. This is the most problematic group. Uttar Pradesh, Madhya Pradesh and Rajasthan typify this group. 2. States where death rates are relatively low but birth rates continue to be high. Haryana falls in this category. 3. States where death rates are high but birth rates are relatively low. States like Orissa would come under this category. 4. States where both death rates and birth rates are low. Kerala typifies this group. Maharashtra and, to a lesser extent, Punjab and Karnataka also can be put into this group.

TABLE 3

Death and Birth Rates, Statewise

	Death Rate 1977—79	Birth Rate 1977—79
Andhra Pradesh	13.4	32.5
Bihar	12.5	30.8
Gujarat	13.5	35.9
Haryana	12.6	34.8
Karnataka	11.2	28.1
Kerala	7.1	25.6
Madhya Pradesh	16.0	37.7
Maharashtra	11.3	26.7
Orissa	15.3	31.7
Punjab	10.8	29.9
Rajasthan	14.4	34.7
Tamil Nadu	12.9	28.9
Uttar Pradesn	18.5	40.1
West Bengal	NA	NA

Source: *Sample Registration Bulletin*, December 1980 (Registrar General)

The Strategy needed

The type of policy intervention needed varies from group to group. In the first category a frontal attack has to be made on both death and birth rates. Reduction in the death rate may, in the short run, increase population growth and therefore the need to pursue family planning with all the more vigour becomes clear. In the second category attention can be focussed only on the birth rate. The third category is easier to manage since intervention in the field of mortality control has always been easier and more successful than in the field of fertility control. In the last category the situation is quite satisfactory so long as the situation remains stable or the trend continues. The need for disaggregation in data analysis and differentials in policy approach, among the states and regions, is all too evident in India.

Targets for 2000 AD

Though there has been a significant decline in the death rate over the past few decades, the decline in the birth rate is a rather recent phenomenon and the pace of decline has been comparatively modest. We have set ambitious goals for the death rate, birth rate and the Net Reproduction Rate (NRR). Table-4 shows the wide gulf existing between the present levels of attainment and the 2000 AD targets on these three crucial parameters. If we are to attain the 2000 AD target of reducing the birth rate to 21 and death rate to 9, this is an uphill task. And it is rather doubtful whether we will attain by the turn of this century, the replacement level total fertility rate of about 2.3 births per woman.

TABLE 4

Indicators of Demographic Profile

	Present Level	2000 AD Target
Crude Birth Rate	33.3 (1978)	21.0
Crude Death Rate	14.2 (1978)	9.0
Net Reproduction Rate	1.51 (1980-81)	1.0

Source: *The Sixth Five Year Plan* 1984-85 (Govt. of India, Planning Commission)

Replacement level fertility means, in simple terms, that, on an average, each couple replaces itself in the next generation. To attain the NRR of one by the turn of the century it has been estimated that 60 per cent of the couples in the reproductive age group 15—44 would have to be effectively protected by the year 2000. However, as of March 1983, the number of couples effectively protected was only 25.9 per cent of the estimated 121.4 million eligible couples in the country. It implies that we have still a long way to go before reaching the replacement level.

It must be pointed out that even the attainment of this would not automatically lead to an immediate halt in the population growth. Nearly 40 per cent of India's population are children below the age of 15. The current cohort of children will be the parents of tomorrow. Because of this large number of persons who will be entering the reproductive age in the coming years, the population will continue to grow owing to the built-in momentum of population growth.

Migration and urban Slums

India still continues to be a land of villages. Urbanisation has been, in India, a slow process and still

76.69 per cent of the people are rural dwellers. Urbanisation in the West was viewed auspiciously since it was often a concomitant of industrialisation, modernization and economic progress. However, in India, it has attained a sinister significance in so far as it has almost come to connote merely the increasing influx of people into the big cities. Seeking relief from the morass of rural poverty vast masses of people continually migrate to the major cities like Bombay and Calcutta putting additional strain on the city's civic services which are almost bursting at the seams. Calcutta with a population of 9.2 million and Bombay with 8.2 million, as per the 1981 census, are among the thirty giant cities of the world. Calcutta is often said to be the last word in urban decay and Bombay is moving on the same disastrous path. The wanton growth of slums and squatter settlements stemming from the perennial inflow of people in search of greener pastures would eventually lead to crises of unmanageable proportions. Sandwiched between Mahim on the west and Sion on the east lies the sprawling Dharavi, Asia's biggest slum (or is it the world's ?), where nearly three and a half lakh people live in an area of one square mile so that the total geographical area available per person is only about eighty square feet. And the per capita living space may hardly be fixve feet by three—less than that of a grave !

There are two things revealed by the 1981 Census which are really welcome signs : 1. the decline in fertility in the seventies, and 2. the improvement in the sex-ratio.

Falling fertility rate

Though population growth has peaked in the seventies there are hopeful signs of falling fertility. This is clear from the fact that the proportion of children in the age group 0—9 has declined from 29.47 per cent in 1971 to 26.66 per cent in 1981. Table-5 gives the proportion of population in the lower age groups of 0—4, 5—9 and 10—14, in 1971 and 1981. The quantum of decline was higher in the lowest age group 0—4 compared to that in the age group 5—9 which implies that fertility decline was steeper in the second quinquennium of the seventies. It is of course theoretically possible that the proportion of population in the 0—9 age group can decline if there is an increase in the infant and child mortality or mortality in the age group 5—9. But since infant and child mortality rate as well as the overall mortality rate have been falling, one has to attribute the decline in the proportion of people in 0—9 age group to the decline in fertility.

It is also worth making an inter-state comparison of the proportion of population in th eage group 0—4. Table-6 gives the proportion of population in the age group 0—4 in 1971 and 1981 for India and the fourteen larger states. A look at the table shows that the proportion has declined in all the states. The decline was highest in West Bengal, followed by Kerala, and lowest in UP, followed by Bihar. As of 1981, among the 14 states, the proportion of population in the age group 0—4 was lowest in Kerala, the state that has registered a remarkable decline in fertility in recent times, followed by Tamil Nadu. And the proportion was highest in Rajasthan, a rather problematic state from the demographer's point of view.

Table 5

Proportion of Population in Lower Age Groups

Age group	Proportion	
	1971	1981
0—4	14.51	12.59
5—9	14.96	14.07
10—14	12.55	12.88
0—14	42.02	39.54

Source: Census of India 1981, Series-1 India, Part-II Special, *Report & Tables Based on 5 per cent Sample Dat*

Table 6

Proportion of Population in 0—4 Age Group, Statewise

	Proportion	
	1971	1981
INDIA	14.51	12.59
Andhra Pradesh	13.83	12.16
Bihar	14.59	13.37
Gujarat	14.45	12.42
Haryana	85.72	13.34
Karnataka	14.91	12.50
Kerala	13.38	10.77
Madhya Pradesh	16.04	13.59
Maharashtra	14.39	11.98
Orissa	14.24	11.86
Punjab	12.98	11.84
Rajasthan	15.51	14.13
Tamil Nadu	13.09	11.17
Uttar Pradesh	14.67	13.51
West Bengal	14.57	11.50

Source: Census of India 1981, Series-1 India, Part-II Special, *Report & Tables Based on 5 per cent Sample Data.*

Sex-ratio improvement

The 1981 Census also showed an improvement in the sex ratio (females per 1000 males) which has been steadily falling throughout the previous decades. If the improvement continues it is certainly an encouraging trend. But only the 1991 Census will reveal whether it is a trend, a mere freak or a statistical artifact. The excess of males over females over the decades can be attributed, in great part, to the higher mortality level among females, particularly during the infant and childhood stages and during the prime reproductive period when maternal mortality also tends to be high. Surprising as it may seem, the

(continued on page 14)

Tackling the menace of population explosion

Bipin Kumar Gupta

A population equivalent to that of Australia is being added every year to India! Unbelievable but true. This alarming increase in population continues despite all-out efforts by the Government to stem it! The factors responsible for population explosion are mostly socio-religious. So the alternative that remains with us, according to the author, is to provide health care, improve femal literacy, include sex education in school and college curricula, more job opportunities for women and introducing system of incentives and disincentives and, above all, notiwate priests and religious preachers.

DEMOGRAPHERS AND THINKERS all over the world today are concerned over the growing human population. The world population at present (1986) is about 5 billion and is expected to grow in coming 35 years to about 7.8 billion and upto 2100 A.D.—10.5 billion. Each year 2.5 per cent world population increases and is expected to rise, at this rate, to about 4.4 per cent by the end of this century. If we take up this problem in the context of India, the situation appears even more worsening and disappointing.

This alarming growth

India is the second most populous country in the world and fifth in land area. The population of India recorded in April 1986 was 785 million and is projected to reach 1.63 billion by 2100 A.D. (By Thomas W. Merik, President P.S.G. Washington). Besides, with 2.4 per cent of land area, India is consisting 15 per cent of the global population. And every year a population equivalent to that of Australia is added to the demographic landscape of India. Moreover, if the present trend of 44 births a minute is not brought down substantially,—without much loss of time—India will certainly overtake China by 2100 A.D. and besides, it will have to face several economic, social, health as well as environmental problems that will consequently hamper the growth and development of India rather worsen them.

Family Welfare is a process by which a couple can successfully control the size and improve the happiness of its family thus enabling the national resources to help speed up all round development of this country. Actually, Family Welfare or population control is deemed to be a development programme. With this point of view the government has attached greater importance to making the programme a people's movement. It means it can give more fruitful results if it could be embarked upon as a mass-movement in India. It not only helps in controlling the number of children of a couple but also regulates the time interval between two successive births, commonly known as birth spacing. This programme also serves the aim of promoting the health and happiness of a family and community as well as individual excellence to a greater extent.

Why limit family?

The economic reasons result in the practicing of birth control by a couple to limit its family or to space the births. It also helps a man to be a better provider for his family. Another important reason for practising birth control is the protection of health of mother and child and child's education. Higher

education requires a lot of expenditure nowadays. In a small family, education for each one of the children can be arranged without facing any financial constraint and appropriate attention given to each of them.

To meet national goals

Family Welfare is thus not only a way of helping the country for attaining its national goal to limit the numbers but also a help in preventing over population, mass poverty and starvation as well as providing a better quality of life. New types of seeds and technical methods of farming are no doubt increasing the food supply but for every increase in the yield many more mouths appear to consume it! To provide suitable employment and to fight the problem of unemployment, it is necessary to minimise the size of every family. Birth control is an important tool in limiting the size of a family. It helps in providing the couple more leisure and more opportunity to enjoy the bliss of married life. It also improves sexual adjustment as couples do not fear unwanted pregnancies. Moreover, it permits married women to know more of the outside world and yet have a normal family and happy married life.

A study of a working group on the family welfare programme in India reveals that it has played a progressively useful role in protecting the women from conception and averting the births. Only because of this programme couple protection rate has risen from 22.2 per cent in 1980 to 32 per cent in March, 1985 and expected to reach 42 per cent by the end of the Seventh Plan. With the help of this programme, from 1980 upto March, 1984 approximately 609 lakhs births were averted (India 1984, Page 134). Due to effectiveness of this programme, for the first time, the number of women using pills has also risen from 5.5 million in 1983-84 to 9.3 million in 1984-85 (India Today, July 31, 1985 Page 139).

Reducing birth rate

Family welfare Programme (then family planning) in India gained the real momentum in 1966-67 as it was made a time-bound and target oriented programmes with vastly increased funds. However, it failed to produce the desirable results during the Fourth and Fifth Five Year Plan periods. The aim of the Fourth Five Year Plan was to reduce the birth rate from 39 per thousand to 32 per thousand. But the birth rate could fall only to about 35 per thousand by the end of the plan period. Out of an estimated 120 million eligible couples about 40—42 million (January 10, 1986, THE ECONOMIC TIMES) couples could be protected against the risk of conception upto the end of the Sixth Plan. And only about 25 million couples had been protected achieving a birth rate of 33 per thousand by the end of the plan. So during the Sixth Five Year Plan period birth rate remained nearly stable, i.e., 33 per thousand against the previous plan's target of 33.33 per thousand and was stable at 32.6 per 1000 in the year 1984-85. It is all because of the fact that we still fall to provide adequate medical, educational and family planning services or facilities to the masses especially to women. Due to these inadequacies in medical care and family planning services, about 40 million couples in the reproductive age group are not practising any contraception although they don't want more children. This astounding fact is revealed in a recent survey (March 10, 1986. 'THE PIONEER' —One Child Family Norm for India' by Radhakrishna Rao).

From a study of the trends of population growth in the past, it may be concluded that India at present is in the stage of 'POPULATION EXPLOSION'. Over a fairly long period before Independence, population crisis was certainly grave in absolute term but it did not grow at a faster rate during 1901—21. It means it is little known that prior to the year 1950, India's population was increasing at a very slow speed. In the year 1901 India's population was about 24 crores which reached 34.7 crores in 1947 and 36 crores in 1961. It shows that in the first 50 years, population increased only by 12 crores while in coming 30 years, i.e., upto 1981 it increased by 32 crores or became nearly double the size of 1947. Hence, it is evident from the above that in one decade (1971—81) there was an increase of about 14 crores in India's population. But in the following period of 30—35 years (1951—81 to 1985), it has increased by about 90 per cent. Hence, if this, explosive trend is not arrested or checked soon, the full benefits of the socio-economic development will not reach the common people.

Fewer deaths

During the post-Independence period the Government undertook several measures to improve the medical and health facilities which contributed to a decline in death rate from 27.4 per thousand in year 1951 to 12.5 per thousand in 1981 and 11.9 per thousand in 1984-85. This death rate is expected to come down to 8.2 per thousand by the end of the Seventh Plan. The life expectancy at birth has gone-up from 32 years in 1951 to 54 years in 1981 and 56 years in 1984-85, that is expected go upto 60 years by the end of the Seventh Plan.

Infant mortality rate dropped to 106 per 1000 in 1981 and again reached to 112 in 1984-85 as against 146 per thousand in the year 1951-61; and it is estimated to come down to 60 per thousand by the end of the Seventh Plan. Thus we see that commendable improvements have taken place in the health indices of the country during the last three and a half decades. On the other hand, the birth rate is almost stable for the last two decades, i.e, the decline has been very slow. It has declined from 41.7 per 1000 in 1951 to only 33 per 1000 in 1981 and 32.6 per 1000 in 1984-85. As a result, the

gap between the birth and death rate has increased from 14.3 per 1000 in 1951 to 20.7 per thousand in 1984-85. Moreover a fall in death rate without a corresponding fall in birth rate has become a major cause for 'POPULATION EXPLOSION' in India during this period.

The hurdles

The major impediments in the stimulation of community participation or 'Mass-movement for the family welfare programme have been the socio-religious conservatism rather than economic. The fear of infant mortality or child death, female illiteracy, inefficiency and indifferent attitudes of the medical staff towards family welfare programme, inadequate medical facilities and low work participation for women as well as traditions and superstitions are some of the major factors responsible for the high fertility rate (152|1000) in India. The present empirical study has shown that there is a strong correlation between these factors and higher birth rates. Therefore, unless these factors are strongly identified and attitudes changed in favour of the small family norm, birth control measures can never become effective instruments for offsetting the 'Population Explosion'. In our country about 60 per cent male and 70—75 per cent female population are still illiterate.

Failure of the Family Welfare Programme is an obstacle in the socio-economic progress of the country. Increase in the population adversely affects the economic development of India. The balance between the working and dependent population, when upset, results in low standard of living of the masses.

Population is also directly associated with the food insecurity or hunger and low percentage of those affording nutritive food. Agriculture, being the main occupation of the people of India, population growth increases pressure on land resulting in low agricultural yield which, in turn, creates food shortage and malnutrition.

The per-capita availability of foodgrains in the country in the year 1971 was 542 gms|day which had gone down to 478.5 gms|day in the year 1979. It was further reduced to 459.5 gms|day in the year 1981 and 436.4 gms|day in the year 1983. Even today estimates of drastic malnourishment vary from 50 per cent to 70 per cent. On the other hand 178 kg. per annum foodgrains consumption per man was recorded in the year 1984-85. According to a projection, consumption of foodgrains is increasing. It will be 193 kg. in 1989-90 and 215 kg. in 1999-2000. But due to sluggish fall in the birth rate, which is projected to be 23.1 per thousand by 2000 A.D., foodgrain availability is decreasing despite the fact that foodgrains production during the period 1960-61 to 1984-85 increased from 82 million tonnes to 146.5 million tonnes. So, if the population is not drastically checked in time, as appears from the above discussion, foodgrain consumption would increase, per capita availability would decrease and there would be serious problem of overall hunger with us by 2025 A.D.

The repercussions

School and medical facilities will also fall short and the increasing requirement of housing will become acute and critical and the per capita availability of industrial products will decline. Fertility control is, therefore, necessary if we want to achieve a faster rate of economic development and welfare in the society. Birth control is thus a complex phenomenon that cannot be achieved only by an isolated biological approach, but by strongly tackling the socio-economic, religious and other problems.

What we aim?

The Government, therefore, has fixed the targets of bringing down the birth, death and infant mortality rates in the Seventh Plan, from 32.6 per 1000 (1984-85) to 21 per thousand, 11.9 to 8.2 per 1000 and 106 to 60 per 1000 respectively. Further Seventh Plan targeted 31 million conventional contraceptives with a view to achieving the couple protection rate of 42 per cent from 32 per cent in 1984-85 and thus reducing the population growth rate from 2.15 per cent to below 2 per cent. The maternal and child health care programme has, therefore, been made an integral part of the family welfare programme to further obtain the couple protection rate of 60 per cent by 2000 A.D. as it is a socio-economic device.

However, if we want to make the family welfare programme more effective to check the population growth, we will have to popularise the small family norms under the following strategies and suggestions :

Thealter native Strategy

Because of the socio-religious attitudes, the emphasis will have to be shifted from terminal methods (Sterilization etc.) and the birth control devices. Therefore, the alternative strategy for population control should be : better health care of mother and child, improvement in female literacy, inclusion of sex and population education in school and college curriculum irrespective of age group, raising the employment opportunities for women, provision of social security measures, emphasis on improving the living conditions in the rural sector and providing adequate health infrastructures. Restructuring of the administrative apparatus for efficiency and sufficient educational facilities for reducing child labour and introducing the system of incentives and disincentives, backed by a strong political will and determination should also form a part of the strategy. The important thing is to carry the message and services to the

(*Continued on page* 14)

For a balanced urbanisation

(Case Study of Uttar Pradesh)

N. N. Tewari

Based on a study carried out by the Institute of Town Planners, New Delhi, the author here highlights the growing urbanisation in Uttar Pradesh and the consequential need for developing small and medium towns to prevent overcrowding of big towns. The author feels small and medium towns should play a critical role in the future urbanisation policy of the country. But they have to be economically viable units and help in equitable distribution of the urban population. The author also points out lack of civic amenities in the towns, such as drinking water, health services, sanitation, literacy, especially amongst adults, etc.

DEVELOPMENT OF THE SMALL AND MEDIUM towns have for some time been recognised as a fundamentally good strategy for channelising and directing the trend of urbanisation in the whole country. Governments have been motivated by the policy questions not only about how to cope up with the rising demand for services in capital cities and capping city growth by channelising future growth to other less concentrated urban areas of the State but also by other social and political goals like greater inter-relationship between the rural-urban areas, creation of employment opportunities and greater balance between regions.

High urban growth

The State of Uttar Pradesh reflected a very high rate of growth of urban population between 1971—1981 which was 4.9 per cent per annum in comparison to the all-India urban growth rate of 3.85 per cent per annum. The average migration rate constituted about 1.7 per cent per annum in the urban areas of the State. Growth has been most in Class IV to Class VI category of towns which had 507 urban centres in its fold, out of a total of 659 urban centres in the State (including urban agglomerations).

Some 366 new urban centres were added during the decade 1971—81 exhibiting a high structural change in the economy which were pushing rural people further on to the urban areas of the State in both agriculturally prosperous and agriculturally stagnant regions. In 1971, 22 Class I towns (including 22 urban agglomerations) held about 57 per cent of the total urban population of the State. During 1981, in comparison, 30 Class I towns (including 26 urban agglomerations) held only about 51 per cent of the total urban population. There is thus a significant regional balancing force afoot in the whole of the State in recent times.

The regional gaps

There are, however, significant gaps between the five regions of the State in terms of development with the western region being most economically advanced followed by central region, eastern region, hill region and Bundelkhand region. The western region contained roughly 46.9 per cent of the total urban population in the State followed by 22.4 per cent in the eastern region and 20.8 per cent in the central region (of which Bara Banki is a part).

In view of the wide rural-urban gaps as well as rapid spurt of urbanisation, it is apparent that efforts at the regional diffusion of economic benefits must be built around urban-inspired models. New trends exhibited by the agriculture sector is one of the responses to new technology, whereby a multiplier effect can be expected in the expansion of both the industrial as well as tertiary sectors. As an urban development strategy, the development of the small and medium towns at the regional and sub-regional levels merit serious attention.

Economic viability

It is apparent that the small and medium towns would have to play a critical role in future urbanisation policy of the country. In order to play this role the towns need to be economically viable units for development programmes. The basic question here is not only of economic re-generation as in the cases of Class I big cities but one of economic generation.

Profile of small and medium towns

The trends exhibited during the last decade 1971—1981 reflect the rising importance of small and medium towns in the field of urban population distribution. Compared to a proportion of 57 per cent of urban population held by Class I cities in 1971, the latter decade shows that they were holding only 51 per cent in 1981. Added to this, there was a significant rise of number of urban centres during 1971—81 which were mostly in the Class IV to VI categories of towns. This implies that there has been a major shift in structural economy of the rural areas which were pushing rural people to the nearby urban centres. In the light of the above, the role of small and medium towns assumes a critical position in the equitable distribution of the urban population over the State.

Historically, these small and medium towns have developed mainly as administrative centres and were not equipped to play strong economic roles. The 674 (as delinked from urban agglomerations) small and medium towns though designated as towns still remain a mixture of rural and urban characters, which could be preferably called Rural settlements. An overwhelming number of these towns are either notified areas or town areas having weak administrative set-ups. Out of 674 towns in this category, only 187 towns had administrative structure, like a Municipal Board. This shows clearly the limitations of the local bodies in terms of capacity for planning and management. Adequate linkages have been a maior problem for these towns. Out of 674 towns in this category, only 276 towns, i.e. 40 per cent of the towns were adequately linked with railways and another 12.3 per cent partially linked with railways. Thus nearly 50 per cent of the small and medium towns do not have proper linkages with railways. On the physical plane the availability of metalled roads per unit area goes down as the size class of towns get smaller. While class I towns are served by 635 kms. of pucca road per 100 square kms. area, Class II towns are served by 356 Kms of pucca road length, touching the lowest availability mark of 92 Kms in Class VI towns. It is evident that the road infrastructure in most of these towns is made up of kachcha roads serving as access roads for the residents. On the other hand, the water supply position in most of these towns reflects a significant dependency on the tanks and wells as a source of water supply. In a study conducted in 1971, it was found that even in Class II towns which were served by piped water supply, in as many as 14 out of 30 towns per capita water supply was much less than what was minimally required.

Lack of cure amenities

The situation with regard to urban sanitation presents a dismal picture. On the whole, only 7.04 per cent of the small and medium towns had sewerage facilities of some sort. There are 606 towns where there is neither any sewerage nor any works are in progress. According to the survey carried out by the Central Board for the Prevention & Control of Water Pollution, New Delhi, in 20 towns (Class II of Uttar Pradesh) the following points were made clear :—

(1) The proportion of sewered and unsewered population is 20.94 per cent and 79.06 per cent respectively ;

(2) 25.94 per cent of the waste water produced is collected through sewerage ; and

(3) No treatment is given to waste water generated.

As per Census of 1971, out of 334 small and medium urban areas in the State, there were 149 urban areas which had pit tanks and 53 others had septic tanks. It can be said that pit tanks and open surface drainage were most commonly accepted method of waste water disposal. The most common method of sewage disposal in Class II towns is by sewage farming and disposal to water courses without prior treatment, which adds to the land and water pollution.

In many towns the night soil is carried on head for disposal owing to non-existence of sewerage facilities. Open surface drains and pit tanks are spread over a majority of the urban population. Open surface drains provide an excellent breeding grounds for germs, flies and mosquitoes, fleas, etc., thereby causing highly unhygienic conditions.

Poor health care

In general, small and medium towns are poorly served by health facilities. Average number of hospital varies between 4.4 hospitals per town for Class II

to roughly 0.5 hospital per town in Classes V and VI towns. There are roughly 5.5 dispensaries on an average for each Class I town. In contrast the average number of dispensaries drops to 1.1 for Class II towns and continues to drop with the decline in the size class of towns touching 0.4 dispensaries in Classes V and VI towns. Most of the towns of less than 20,000 population are served by Primary Health Centres which also cater to the medical needs of the surrounding rural areas.

Only 108 Family Planning Centres serve the needs of 636 Class III to Class VI categories of town. Likewise, 35 T.B. Clinics cater to the needs of these 636 towns. Apparently, therefore, these towns are quite poorly served by essential health services as would be evident from the following table :—

Table

Use of Medical facilities at other places by towns not having these facilities

No. of towns	Types of Medical facilities	Number of towns where the medical facilities mentioned in column 2 are not available at distance of :				Total of cols. 4-6
		5 Kms	5-10 Kms	10-20 Kms	20 Kms	
1	2	3	4	5	6	7
30	Hospital	—	—	—	1	1
	Health Centres	—	—	4	11	15
	Nursing Home	—	1	—	19	20
38	Dispensary	1	—	1	5	7
	Health Centres	3	—	3	16	22
	Family Planning Centres	2	—	—	—	2
	T.B. Clinics	3	—	—	10	13
	Nursing Homes	3	—	—	29	32

Literacy level

The literacy level of the towns declines generally with the reduction in the size class of the towns. There is particularly gap in the female literacy which is a major concern in these areas. Most of these small and medium towns serve as Centres for higher studies for the surrounding rural areas. Thus, apart from the needs of the town itself the needs of the catchment area reflect deficiencies in the number of educational centres in these towns. Roughly, one matriculation or secondary standard of school is serving a population of 20,000. Likewise, one intermediate College was serving a population of about 30,000 including the needs of the catchment area.

In general, small and medium towns have very low income profile. They also contain a large percentage of the scheduled castes and backward classes. Among these groups, and, therefore, in the town itself, the following numerous problems can be singled out :—

Endemic Problems

(1) Poverty and Unemployment :

Although traditionally the small and medium towns have a fair share of the artisan class, yet their access to organised marketing channels are very much restricted leading to low productivity of labour and consequent seasonal employment|under-employment|unemployment.

(2) Unhygienic Environment, Inadequate Drainage & Sanitation :

Sanitation is one of the weakest links in these areas—for instance, sanitary means of excreta disposal are practically non-existent in these urban areas. Due to rapid growth in these urban areas, open spaces which were earlier used by the people for defecation, are now progressively being covered with new housing colonies. As a result men, women and children are generally found defecating under the cover of darkness along road-sides, pavements, parks, rail tracks and in surface drains.

The open drains provided on the road-sides carry sullage from kitchen and bath rooms. During the wet season, they also act as carriers of storm water. In some towns, washing of bucket latrines are discharged into these drains. The drains smell foul, encourage mosquito breeding and are a health hazard (particularly for the children who play in the streets).

(3) Irregular supply of low quality water :

In the context of extreme poverty and high illiteracy resulting in poor sanitation and personal hygiene, water related diseases continue to be leading killers of infants and children.

(4) Limited access to appropriate family welfare services and inadequate adult care for infants and children specially for working mothers.

(5) Single parent household headed by women whose necessary absence from home to earn money often separate the children from any adult care and training.

(6) Infant and child mal-nutrition due to early discontinuance of breast feeding, diarrhoea due to poor health and environmental conditions and lack of cash income to maintain minimum levels required.

(7) Weak institutional structure and lack of finance for carrying out supportive programmes among

the low income areas. Municipal administration structure is also very weak to support basic urban services which would involve a large degree of community development works.

(8) Low literacy and school enrolment rates and high development rates.

Major deficiencies remain in the field of female literacy. □

(*Continued from page* 7)

age-specific death rates shown by the Sample Registration System (SRS) reveal that the higher mortality rate among the females in the early ages is reversed after the age of 40. There is nothing unusual about the sex ratio at birth in India, and it falls within the usual limits observed world wide. While differential mortality levels and the alleged undercount of females can be plausible explanations for the excess of males over females at any given point of time, so far no one has been able to provide any convincing explanation for the steady deterioration in the sex ratio throughout the century except the last decade. It is certainly illogical to maintain that in successive censuses with more and more sophisticated approach and scientific methodology the undercount could have become more pronounced.

But the growing misery!

The population problem has so far been portrayed in terms of numbers. But the problem is not a matter of mere statistics. While the quantitative aspects are quite alarming, the problem has also serious qualitative dimensions which often tend to get bogged down under the sheer magnitude of the population size. It is true that advances in preventive medicine and improvements in sanitation have led to a remarkable decline in the death rate and enhanced the prospects of human survival. But between the extremes of death and life there is a twilight zone of illness, hunger and human misery which cannot be adequately captured through statistics. According to the Planning Commission estimates (Sixth Plan) 48 per cent of India's population was below the poverty line in 1977-78. And with increasing population nibbling away the meagre gains of development immiserization of a good chunk of India's population appears rather inescapable.

If the present annual exponential growth rate of 2.25 per cent continues for the remainder of this century by 2001 A.D. India will have a population of about 1074 million. And in about 45 years from now India's population will be roughly double its present size. Even if the family planning programmes do make some headway, it can be safely concluded that, by the turn of this century, India's population will be over one billion unless there is some sudde nand drastic turn of events.

Need for effective Strategy

In any event, population is bound to keep on swelling as we approach the 21st century and in the years ahead. Therefore an effective strategy for tackling the population crisis should embrace not only efforts at prevention of substantial increase but also attempts at adjustment, through democratic and developmental measures, to the inevitable increase that India will have to live with in the coming years.

(*Continued from page* 10)

doorstep of every household, particularly in the country side and in the slums where 80 per cent of the population lives. These are some of the decisive measures and suggestions which can help control the population growth to a considerable extent.

In addition to these measures and strategies as suggested above, particularly for the country like India, if there is motivation of the priests and preachers by some special incentives or any other means, they can play a very effective and successful role in bringing down the population growth. Then there will be no reason as to why the 'Population Explosion' cannot be reversed.

Steps taken to promote deep-sea fishing

Steps are being taken to promote deep-sea fishing with a view to achieving a substantial increase in the production and exports of marine products. An export target of Rs. 700 crore is to be achieved by 1990 for the marine sector. Out of this Rs. 200 crore per annum is expected to be earned through exports of deep-sea fish.

The marine potential of India's exclusive economic zone (EEZ) is around 4.5 million tonnes, out of which 2.5 million tonnes consists mainly of prawns and shrimps in the inshore waters and 2 million tonnes in the deep sea region. So far it is mainly the inshore resources that have been exploited and the share of exports from deep-sea sources in the country's total marine exports of around Rs. 398 crore in 1985-86 was only Rs. 17.15 crore.

Development of deep-sea fishing will help diversify and expand exports of fish and fish products from our country. The government has given all facilities to 100 per cent export-oriented units (EOUs) to take up marine exports and deep-sea fishing.

It has been decided that 100 per cent export-oriented units will be permitted to acquire deep-sea fishing vessels and that fully tested and certified second hand vessels will also be allowed subject to appropriate restrictions on resale.

An assault on rural poverty

Dr. L. K. Jha

The 20-Point Programme 1986 was announced in Parliament on August 20, 1986. Here the author, former Adviser to the Prime Minister on economic reforms, says that the first and the foremost objective of the present programme is to make an assault on the rural poverty. Land reforms, he feels, will have to be pushed through with greater vigour. "For the rural labour there should be some special programmes to see that they are not exploited, that at least they get minimum wages". But for all this, he points out, administration has to be responsive and ensure that all the programmes are fulfilled according to schedule and within the resources available.

THE 20-POINT PROGRAMME 1986, presented to Parliament on August 20, 1986, which happened to be the birthday of the Prime Minister, Shri Rajiv Gandhi is indeed a document of tremendous importance. The value of making an assault on poverty was first emphasised by Smt. Indira Gandhi in her election campaign, when she gave the call of 'Garibi Hatao'. This was followed by the 20-Point Programme she had formulated in 1975. Another 20-Point Programme she introduced in the light of the experience gained in 1982. The programme that has been presented now is a continuation of the same basic thrusts but taking into account all that has been achieved as well as the shortcomings and weaknesses which are there. What are these points? First and foremost there is the assault on rural poverty. The people of India live in the rural areas and it is there that the special efforts are needed to see that the deprivation and poverty are things of the past. The urban areas have done reasonably well over the past three decades and a half. But, to bring about this transformation there has to be a strategy for rejuvenating agriculture particularly, in the rain-fed areas where they live at the mercy of the monsoons, which always play truant or result in a deluge which creates problems of its own. Side by side there must be efforts to make better use of irrigation water. We have made massive investments in dams and other irrigation projects in order to free the agricultural economy from dependence on the monsoons. But, so far in its utilisation, we have not done as well as we should have because the creation of new capacity has not been matched by the utilisation of the capacity which has been created. So, there is a backlog of potential which exists, but has not been tapped and it is now proposed to take special steps to make use of that water resource. This will inevitably lead to bigger harvests which will mean more income to the farmer as well as more food for him and the people of India as a whole to consume. But in order that this higher production is achieved with full sense of social justice, the land reforms programme has to be pushed through with greater vigour. Even today there are areas where the cultivator of the land does not own it. He is in fact only a labourer. Such a situation does not bring out the best either in terms of output or in terms of psychological satisfaction and the land reforms programmes, therefore, will be given a very special thrust in the coming months as a result of the policy paper presented today. Of course, this will mean that for the rural labour there should be some special programmes to see that they are not exploited, that at least they get minimum wages and all too often because there are no trade unions in rural

areas. They work on wages which are far below even the barest needs of existence.

Drinking Water

The supply of clean drinking water has been a major part of the anti-poverty programme and here again the progress has not been as good as it should have been. It is now the intention to allocate enough resources and put behind enough administrative skill to ensure that there is availability of drinking water within reasonable distance in every village instead of people having to walk miles to fetch it. Drinking water is an important element in preserving the health of the people and health programmes also are to be intensified particularly in the rural backward areas where the facilities are below what they should be.

Population explosion

Then we have to remember that all the efforts which we make to improve the standard of living of the people, can be eroded if the population goes on increasing with the rapidity that it has been. With health improvement people live longer today and, therefore, the rate of survival has gone up. In keeping with that it is but appropriate that two-child norm should become a way of life, socially accepted, not imposed by the Government, but accepted by the society in its own good sense and to which all voluntary efforts will have to be dedicated.

Education for the weak

With the smaller child population, education will have to be expanded and this must be done. But, in doing so and indeed in all other matters, special attention will have to be paid to the weak and vulnerable sections of the society. They include the Scheduled Castes and Scheduled Tribes. They also include women who don't enjoy equality and therefore, have to lead a life of dependence on their husbands and if a woman gets widowed or divorced or abandoned, then she is really helpless. So equality for women is an important element in the 20-Point Programme. The youth, of course, are shapers of our future and we must always give priority to see that they have ample opportunity to work, to strive, to grow. This again is an element which will receive very special attention.

Housing

Then turning to the needs of the people. While in the matter of food and clothing we can claim to have produced enough, there is a tremendous shortage of housing and it has resulted in some areas in slums of a most horrible character. So, we must emphasise and lay importance on housing because it will provide shelter and because also it will generate so much employment and give income to the poor, and side by side we must improve the living conditions in the slums so that there is a sense of equity and we do not really make two classes of people—those who are well-housed and those who continue to live in very unhealthy and immoral conditions.

Improving ecology

The next area of attention would be what I would broadly call the environment, a special element in it would be forestry. Trees are important, not only because of what they do visibly but even more because good dense forests help in the precipitation of moisture and maintenance of rains. Unfortunately, there have been wanton destruction of our forests, partly for fuel, partly for commercial purposes with the result that there is every danger of green fertile areas turning into desert. So, a very special effort will be made to improve forestry with fresh plantations and conservation measures and along with that, other measures to protect the environment, such as from industries which cause pollution to air and water will also be taken in hand.

Consumer protection

Concern for the consumer is another important plank in this programme with the development of Industries in conditions of protection and without adequate competition often the consumer is held to ransom. It is sellers' market in which shoddy goods, inferior quality goods, adulterated goods are sold. Apart from the measures which Government takes to prevent this, there steps will have to be taken to organise a movement in which the consumers themselves take part and resist the kind of exploitation which at present takes place.

Going back again to the villages they must have energy. Our record in this sphere is not as bad as people think. I have seen figures which indicate that in 1933 the United States had 90 per cent of its villages without electricity and the level of electrification we have attained now, is on a par with what U.S. achieved only after World War II. But, still we must do better and by the end of the decade we should see a really dramatic change in the situation.

Responsive administration

Now, to bring about all this the administration has to be responsive. The administration in this country plays a great role. It exists not only in the capital cities but, also in the rural areas and has to see to it that all the programmes are fulfilled according to schedule and within the resources available. Now, there are many archaic procedures and concepts which hamper good administration and therefore improvement of administration will be an integrated part of the programme which has been launched now.

Save third world from this genetic plunder !

Bharat Dogra

Once rich in genetic wealth the third world today depends on the charity of the developed world to prop its agriculture. In this article the author reveals how meticulously the "haves" have been plundering the plant genetic wealth of the "havenots" in the name of collection and preservation of the genes in Gene Banks. He says the Green Revolution too serves the interests of the multinationals as it provides a vast market for their chemicals, fertilizers, machines, etc. The author cautions against the far-reaching economic-political consequences of this genetic erosion and the consequent dependence on the developed world.

Genetic erosion of their plant wealth due to deforestation and indiscriminate spread of green revolution's high-yielding varieties has emerged as a serious prolem in most Third World countries including India. On the face of it, developed countries and organisations dominated by these countries are offering the Third World countries financial aid and know-how to overcome this problem. But several factors indicate that this aid is only a cover for the developed countries to pursue their own (and that of the multinational companies based there) self-interest, and that too in a way which in fact accentuates the problems of the Third World relating to gentic erosion.

Due to various reasons relating to topography, climate, agricultural practices, etc. many of the present day developed countries also happen to be the areas of 'genetic poverty'. This can be traced right back to the 'ice age' when the vegetation of the temperate zones assets was frozen but in the tropical zones it grew in rich genetic diversity. The nature's bounty was supported by the efforts of farmers spread over several centuries to grow diverse varieties of crops to provide insurance against various natural hazards such as drought or epidemics. As international contacts grew, the present-day developed countries naturally found it helpful to benefit from the genetic wealth of the Third World and obtained from there plant varieties that would help them to increase yield, obtain protection from pests and disease or overcome various other problems. According to J.B. Kendrick Jr., writing in 'California Agriculture' "of the 1000 major crops harvested each year in North America, only Jerusalem artichokes, sunflowers and cranberries can properly claim this continent as home."

So far so good. It is only proper that those of Mother Earth's areas which have been devoid of genetic diversity substantially due to natural factors should be helped to overcome this weakness by areas more favourably endowed in this respect by nature. Nothing wrong with this of course. But questions have to be raised when powerful interests in these developed countries try to actually deprive the third world countries—the same countries from which they took the genetic material for their agricultural prosperity—of open access to the genetic material that is their own wealth. But before we answer how this is happening we should first try to snswer why it is happening.

Vested interest in Green Revolution

Till just about two to three decades back, farmers in a big, predominantly agricultural country like India used very little fertilisers, pesticides or farm machinery that could provide a marketing outlet for agribusiness concerns in the developed countries. All this changed with the advent of 'green revolution',

the new agricultural technology which emphasised the use of chemicals and machinery in agriculture and whose spread was promoted by foundations allied to leading business interests in the developed world (also aid agencies promoting largely the same interests). Soon the market for agri-chemicals and farm-machinery multiplied several-fold in Third World countries like India, and business boomed for foreign companies selling agri-chemicals, equipment, plants and knowhow to them. All this was brought out essentially by a change of seeds—from the traditional varieties of crops to the new green revolution HYVs promoted by agribusiness (and foundations, aid-agencies and research centres allied to it).

Carrying their thinking further along the same line, some agri-business representatives have been thinking of the further possibilities of the use of seeds to increase the market for their agri-chemicals. "The Global seed study", a $ 25000 prospectus brought out by L. Towels and Company, a business consulting firm, notes the potential for ".....seed coating and Pelleting, utilizing the seed as a delivery system for chemicals and biologicals to the field". If giant agri-chemicals firms can also control the supply of seeds they can link breeding programme and the production of seeds to the sale of their agri-chemicals. As Dr. Lewantin of Harvard says, "..... there is legitimate reason to suspect that chemical companies will link chemical research to plant varieties they are developing." Already notorious cases of this kind have been reported. for example, the report of University of Florida tomato breeders biasing their breeding programmes to produce a tomato which would ripen only when sprayed.

Sowing seeds of dependence!

Then carrying this line of reasoning further, from the point of view of firms trying to integrate various aspects of agribusiness—from seeds to chemicals to crops—to processed foods—companies would also like to promote seeds that are more suitable for large-scale mechanised harvesting and processing and more acceptable (in terms of colour, appearance etc.) to elite consumers. They would also like to promote those hybrid seeds which bring farmers again and again to the seeds market, thereby enhancing greatly the sales of the seeds companies.

Already there has been a lot of evidence of several chemical companies dealing in fertilisers, pesticides and petroleum products showing increasing interest in the seeds business and entering it. A large number of smaller seeds companies in the west have been bought over by the bigger companies in recent year.

Several big companies have built up their own substantial genetic collections. The FAO reported some time back that United Brands has about two-thirds of the world's banana germ plasm in storage. These companies have also been gradually incorporating invaluable collections of individuals and universities in their own. The reluctance of several companies to provide information about their genetic collections has also been noted.

However, the economic motive of gaining control over seeds, significant as it is, may start appearing as relatively less important when compared to the possible political and strategic motives. In this age of biological warfare, of using food as weapon, control over seeds can even be used as a means of destroying a nation's or region's crops and compelling it into submission. But even without going into this aspect of this question, it may be said that the economic profits which the seeds trade can bring constitutes by itself an important enough motivating force for efforts to be made to manipulate its control and related information.

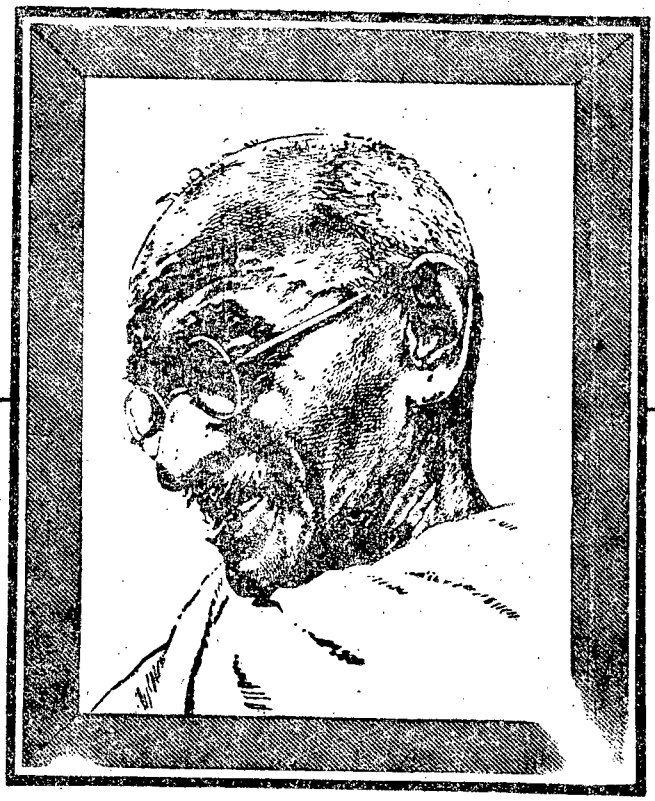
From kings to paupers

On the face of it, the system of collecting plant varieties appears to be quite an innocent one, in the sense that only a few samples are taken which can be stored adequately in the country of origin before being sent outside to the international network of germ plasm collection. In practice, several Third World countries have been discovering to their dismay that the germ plasm of now extinct plants can be obtained only from the gene banks of developed countries In a widely quoted book on this subject, "Seeds of the Earth", its author Pat Roy Mooney has written, "By 1970 the US Deptt. of Agriculture boasted material from 27 nations, only five were not in the Third World. American gene banks had stored more wheat varieties than were in identified collection in sixteen of the 27 countries. Fourteen countries—all Third World—had none of their own native material in storage. Put another way, as Afghanistan, Egypt and Korea watch the natural diversity of their agriculture become increasinly uniform, they will discover that virtually all of their rescued indigenous wheat varieties can only be obtained from the United States. In fact, according to the U.S. National Academy of Science, collection-programmes are currently oriented to the needs of the developed countries."

In fact instances have been reported, from Kenya and Libya for instance, of plant varieties being taken out to the developed countries, and later, when the indigenous varieties had become extinct in their home countries, these countries having to pay for obtaining their seeds in a commercial purchase!

Is this merely incidental, the result of an oversight or could it be that organised efforts are also made to deprive the Third World countries of control over seeds-material, present and future? Information which Pat Roy Mooney has provided about the international network of germ plasm collection and storage indicates how heavily it is controlled by a few developed countries, and also has representation

(*Continued on page* 28).



BAPU'S RELIGION

"My religion has no geographical limits.
My religion is based on truth and non-violence.
My religion forbids me to hate anybody.
Religion is not for separating people —
It is to bind them."

That was the Mahatma's religion

True Religion of Love and Tolerance

dawp 86/226

What we gained: what remains

Prof. Bipin Chandra

Every nation has its successes and failures, so do we have. In this article the author assesses our achievements and failures 39 years after Independence, in various fields: economic, education, social, national integration. He feels the going is good though we have large areas of failures to be overcome. He is specially all praise for having contained the multinationals, and reposes full confidence in the immense capacity and strength of the mute Indian masses who can mould their own destinies.

AFTER THIRTY NINE years of independence it is the time for national stock-taking; for celebration of achievements and for taking a critical look at failures and tasks, left-unachieved. The Indian people have, during the last 39 years, certain massive achievements to their credit, as also, several glaring failures. Let us take a look at different areas of our endeavour.

By the very nature of things, the wresting of political power from the colonial state was an event; the accomplishing of economic and cultural independence and development had to be a prolonged process. Moreover, while the ideological basis for economic and cultural independence was laid by the movement for freedom its realisation in concrete terms would require hard and continuous efforts.

Our achievements

Large steps in the direction of economic development and self-reliance have been taken with the beginning of Five Year Plans in the early 1950s. Today, India is self-sufficient in food; a large capital goods or machine sector has been built up; Indian economy is one of the most diversified in the world; India possesses a large, though not sufficient, trained scientific and technical force; and, most of all nearly all the basic industrial, transport, power, commercial and financial sectors of the economy are under Indian control—whether through public sector or through private sector. There is hardly a single country, outside the socialist countries, where multi-national corporations play such a small and non-controlling role in the economy. Foreign capital, for example, constitutes less than 3 per cent of India's national income. India's dependence on foreign borrowigs is minimal, if not marginal in terms of production worldwide comparison. India is largely self-sufficient in defence though it still purchases certain highly sophisticated defence equipment. In other words, while still a poor and developing nation, India has successfully avoided the digits and pitfalls of neocolonialism. It has emerged as an independent economy, though a structured part or world capitalist economy.

. . .and failures

Our failures, in the economic realm, lie basically in the fields of income distribution or sharing of the national produce. We set out to build a socialist society but have failed to build even an equitable capitalist society. Our society is grossly unequal, unjust and inequitable in terms of its social and class structure. The abysmal poverty of the lower 30 percent of our population brings shame to every sensitive Indian. The Jhuggi Jhompri component of our cities are a living enough of the inhumanity we are willing to tolerate

around us. Every day the material, social and cultural quality of life in our large cities deteriorates. Nearly all of them are dying cities at one stage or the other of the dying process. Our environment is daily deteriorating, even in the villages. We have failed to build a work culture which could sustain a modern industrial and agricultural economy. Even our centuries old ethics of work, mutual cooperation and social responsibility are in rapid decline.

The building and sustenance of a democratic and civil libertarian polity is a major achievement of independent India. We have already sustained this polity for 39 years; this is an achievement which is equalled by few modern nation-states.

Jawaharlal Nehru was fond of saying that India is trying a task unattempted by any other country, that is, to develop economically, or to take off as some economists would put it, under conditions of democracy and enjoyment of civil liberties. Almost all developed countries underwent their basic industrialisation under conditions of some sort of authoritarianism and certainly in absence of trade union rights. Post-47 India has, by and lare, though with aberrations and weakness, lived up to the high ideals of democracy and civil liberties which the generations of freedom fighters bequeathed to us.

The basic weakness in this respect has been at the level of people's participation in the democratic process. This participation, though real, has been often confined to elections or occasional popular movements. We have failed to create structures and institutions through which the pepole—the common masses-can make their voice heard in an effective and continuous manner. Panchayat Raj and other meaningful institutions have not worked successfully. Moreover, corruption,, money power, casteism, communalism and regionalism continuously pervert the democratic processes and institutions. A very sad, negative development has been the gradual deterioration of political parties, which are after all a basic pillar of a democratic and civil libertarian political order. Even so, while these negative features may be taken as warning signals, they need not take away from pride in our massive achievment. We are one of the freest political societies in the world today.

The social scene

In the social sphere too, we have achieved a lot. Building on the work of the freedom struggle, our Constitution abolished discrimination on grounds of caste, sex and religion. While our success in reaching minimum education to our pepole has certainly been limited, women and suppressed castes have made immense gains in access to these limited educaional opportunities. Women's participation in politics and professions is deficient but compares favourably with most other countries. But large part of the social liberation as also its consciousness is still confined to the middle class women. Similarly, the dalits or persons belonging to suppressed castes have been increasingly standing up. They no longger accept their social condition and fight for their inherent rights. At the same time, we have still a long way to go. What is worse, we have failed to organise effective struggles against the castes system and the unequal condition of women. The wide prevalence of crimes against women, scheduled caste and tribal people are a proof both of their continuing oppressed social condition and their increasing refusal to tolerate this social condition.

Status of education

A massive school, college and university system has been developed in the last 39 years. For example a single college in Delhi, Kanpur or Vijaywada produces more graduates in a year than whole of India did in 1880. Similarly, 90 per cent children have now an elementary school within a walking reach. Yet our educational system suffers from some massive weakness. Firstly, majority of our people, including those born after 1947, are illiterate. Majority of children do not pass the 5 year primary course. Our social sciences and perhaps even physical sciences are still woefully dependent in a colonial manner on the imperialist countries, though this often occurs in the name of international science. This is one field where the attraction of the foreign still holds sway. This is also true of many other large fields of our culture. In fact,, those who are constantly looking for dependence and confredorism in Indian might usefully look in these directions.

. . .and national integration

Our anti-imperialist movement initiated the complex and difficult process of the welding Indian people into a nation. Even during the freedom struggle, this process met large and continuous hurdles and took a zig zag course which was though constantly spiralling upward. This has been true of the post-47 period also. Despite our large size and immense linguistic, cultural religious and ethnic diversity we have held together and the feeling of being one people, of beloging to one nation has been strengthened. But by its very nature, this is an on going process which is nowhere near completition. It develops especially in the context of rapid social change through contradictions and crises which have to be constantly faced and overcome. Unfortunately, after the achievement of independence there was a certain slackening off conscious effort in this regard. This has been particularly true at the grass-roots level where considerations of national consolidation have often been ignored in favour of short-term political gain. Today, it looks as if India is under seige by communalism, casteism and regionalism. The happenings in Punjab, Delhi Ahmedabad, Hyderabad and Bihar and U.P country side tend to turn the most persistent optimists into pessimists. Only conscious, persistent and courageous

(Continued on page 32)

Our land revenue system, then and now

Dr. Krishna Mohan Prasad

In this interesting paper, the author surveys the system of land revenue that has been in existence in India from time immemorial to date. In conclusion, he says that "the position of land revenue and agricultural income tax together confirm the fact that the contribution of land taxes has been very limited in financing the State plans and it has consistently shown the declining trend ....This indicates that in comparison to non-agricultural sector, the agricultural sector is undertaxed."

LAND REVENUE HAS BEEN IN EXISTENCE since time immemorial. It has been present in the world in various forms right from the very beginning of the human civilization. In ancient times, land revenue was treated as land tax associated with certain occasional levies or surcharges. Generally land revenue is a levy imposed by the state or its agent on the ownership on use of land.

In the yore

Land revenue, as stated above, is a very old tax and from the beginning of the human civilization, it has been the major source of revenue to the Government. From very ancient times, the states in India claimed a share of the produce of the land from the cultivators. The earlier land taxes were assessed either in terms of the land area—as for example, the taxes on 'Jugera' in Rome and 'Danegild on hides' in feudal England or in proportion to the produce—as in the case of 'Title' collected by eastern sovereigns in ancient times. In India the king used to receive as his due about a fourth part of the gross produce of all privately held land. In ancient times, generally, land taxes were imposed on the basis of area or land value or annual revenue or income from land.

The descriptions of Manu mention land rent from one-sixth to one-twelfth of the gross produce. The proportion might rise to one-fourth in times of war and other emergencies. In the Vedic period, there was individual ownership, on land and a compulsory levy called 'Bali' was realized by the king or chieftain from individual peasant proprietors. 'Bali' was payable in kind (grain or cattle) as a part of gross agricultural produce.

The most comprehensive and detailed account of ancient land revenue system is found in Kautilya's Arthasastra written during the reign of Chandragupta Maurya in about 323 B.C. Land revenue was fixed at one-sixth of gross agricultural produce. Megasthenese, the Greek ambassador to the Court of Chandragupta Maurya, corroborates what Kautilya had stated for this period. The inscription of Rendradaman (C. 150 A.D.) mentions the same traditional technical terms such as Bali, Bhaga, Kara, Sulka, Vishti and Pranaya (benevolences).

A systematic effort

The institutes of Timur represented the first systematic attempt in the direction of commuting the state's share of the produce into money. The next attempt was made by Shersah (1540-45), but his labour remained incomplete owing to the shortness of his reign. The third and the most famous settlement was made under the great Mughal emperor Akbar's reign by his able Finance Minister Todar Mal. Land was measured and divided into four classes. The Government

share was fixed at the rate of one third of the gross produce. The mughals did not introduce any fundamental change in the ancient revenue system of the Hindus, but merely reduced the customary and unwritten usages of the Hindu administration to a coherent system. They introduced regular records and revenue accounts for the purpose of gaining definite knowledge about the financial resources of the state. There is nothing important about Mughal Land revenue system prior to the reign of Akbar. Sher Shah (1540-1545), however brought about notable improvements in the method of assessment of land revenue. Standard yields of each staple crops were calculated separately for three classes of land-good, middling and inferior. Then the average of these figures was derived and one-third of the average was realised as revenue from each unit of area, which was paid in kind by cultivators. Standardization of units of measurement was also brought about. 'Ilahi Guz' was made a unit of measurement which consisted of 41 fingers. Its modern equivalent varies from 29 to 32 inches. The land revenue was fixed with regard to the productive capacity of different lands. There were four types of land, i.e., Polej, Perauti, Checher and Bunjar, Polej was the best quality of land and was cultivated throughout the year. Perauti was left uncultivated for the time being just to regain the lost fertility. Checher was left fallow for 3 to 4 years and Bunjar was the worst type of land and cultivated after 5 years.

Polej and Perauti were divided for purposes of assessment into 'good', 'middling' and 'bad' lands. The produce of a bigha of each sort of land was collected and the mahsul or the average of the aggregate produce of the three kinds of land was calculated so as to estimate the average produce of a bigha of land. The state share was claimed as one-third of the mahsul.

Later Mughal changes

In the later Mughal period, the land revenue system of the Great Akbar was avoided. Lanka Sundaram points out that "under the later Mughals, the spirit of Akbar's land revenue policy was totally avoided. Though innovations were introduced for the worse by the descendants of Akbar, the system was to smoe extent preserved. But with the death of Aurangzeb, the system thoroughly collapsed, and it required half a century for it to reclaim its recognition under administration of early British Governor-General of India".

The later Mughal period was a very bad phase of land revenue system in India. The level of assessment was raised from one-third to one-half of the gross produce or even more. Shah Jehan raised the land revenue from one-third to one-half and in the time of Aurangzeb one-half became the standard.

And then under the British

The British conquest of India in the eighteenth century presented the new rulers with the task of effectively re-establishing this land tax system, the essential basis of government revenue and, hence, of power. The East India Company, after the acquisition of 'Diwani' of Bengal, Bihar and Orissa in 1765, appointed Collectors for the purpose of determining the amount of land held by Zamindars and the rent which the cultivators should pay to them. But this system failed and Collectors were terminated and local Collectors were entrusted with the task under the supervision of six provincial committee. Warren Hestings, however, abolished this committee and appointed a metropolitan committee of revenue in their place.

Lord Cornwallis introduced the 'permanent settlement 'in 1793 in India under which three types of land revenue system were established, i.e., (i) Permanent Settlement, (ii) Ryotwari, and (iii) Mahalwari.

Permanent system

The permanent settlement system of land revenue was set up in Bihar, Bengal and Orissa in the late eighteenth century. This system not only recognised the existing institution of tax farming but went ahead and established tax farmers or Zamindars. The Zamindars were responsible to collect revenue from farmers. The existing level of the land tax assessment was declared as fixed for all times at 10|11 of the current net rental receipts of the Zamindars in Bengal in 1793, for example.

The second was ryotwari system. In the ryotwari system the tax assessment was temporary, supposedly based on net produce, and arranged between the state and the peasant cultivator himself. The period during which the assessment was fixed varied from fifteen to forty years.

The third system was mahalwari system. In this system the assessment was based on net produce. In mahalwari system assessment was made on the village as a whole rather than on the individual cultivator.

Land revenue receipts constituted 69 per cent of total central and state revenue in 1793-94, 36 per cent in 1891-92 and 16 per cent in 1938-39.

Land revenue since Independence

Land revenue is one of the direct land taxes which will be analysed in the light of its position in the state budgets. As regards the contribution of land revenue, "it is difficult to compare over a long period the yield of land revenue because of the changes from time to time in the unit comprising state governments in the Indian Union and those comprising provinces in British India before Independence. Legitimately, any proper study of variations in land revenue is possible in respect of state

Government as a whole only from 1950-51. Thoungh an attempt may be made to account land revenue from 1938-39 to cover a long period for their understanding of the variations during the pre-independence and post-independence periods.

Table No. 2.1 below shows the position of land revenue in the state finance of the country with their actual position and percentage coverage of the total state tax revenue in India upto 1947-48 i.e. in the post-Independence period. As per the Table No. 2.1, land revenue contributed Rs. 25.9 crore in 1938-39 which was 42.7 per cent of the total state tax revenue but in the years afterward, the revenue in quantity increased, but the coverage in relation to total state tax revenue declined.

Table No 2.1

Contribution of land revenue and its percentage to the total State's revenue in India in the Post-Independence Period

(Rs. in crores)

Year	Total Revenue from state Taxes	Total land revenue	Percentage of land revenue to total State revenue
1938-39	60.6	25.9	42.7
1943-44	121.3	30.2	24.9
1946-47	167.9	30.1	17.9

Source: Radha Raman Singh, Agricultural Income Tax in Bihar Since 1937, Ph.D. Thesis, Bihar University, Muzaffar pur, 1974, p. 92

Table No. 2.1 shows that land revenue had coverage of 42.7 per cent in the total state tax revenue in 1938-39 which came down to 24.9 per cent in 1943-44 and further to 17.9 per cent in 1946-47 which was the year of Independence of the country. Among the causes of the declining trend of percentage coverage of land revenue, important ones are : increasing proportion of other taxes, deficiencies of the administration, political interference in imposition and collection and absence of built-in flexibilty due to lack of progression in the rate of the tax.

Land reforms

After Independence, the Government of India abolished the zamindari system which automatically terminated the system of intermediaries in between the government and the tenants. The abolition of Zamindari system established direct relationship between the government and the cultivators. This step of the government along with other land reform measures accompanied by modifications in land tenure systems thwarted from the land revenue yield a favourable impact and consequently, its yield increased considerably after independence which is apparent from table No. 2.2.

Table No. 2.2

Receipt of Land Revenue to State Governments and its percentage in relation to total Tax Revenue and total Revenue of State Governments in India

(Rs. in crores)

Year	Land revenue receipts	Percentage of land Revenue to total tax revenue of States	Percentage of land Revenue to total revenue of the state
1951-52	48.0	17.08	12.12
1955-56	78.0	21.91	14.07
1960-61	97.2	15.51	9.58
1965-66	111.9	10.01	6.05
1970-71	112.6	4.93	3.20
1974-75	124.3	3.93	2.51
1980-81	145.5	1.39	0.88
1981-82 (R.E.)	181.1	1.46	0.98
1982-83 (B.E.)	182.1	1.28	0.88

Source: Reserve Bank of India Reports on Currency and Finance, for the years 1956-57, 1961-62, 1965-66 and 1971-72. Reserve Bank of India Bulletin, September 1976, September 1982.

Table No. 2.2 shows that the receipt from land revenue was Rs. 48.0 crore in 1951-52 which increased to Rs. 78.0 crore in 1955-56, to Rs. 97.2 crore in 1960-61, to Rs. 111.9 crore in 1965-66, to Rs. 124.3 crore in 1974-75 and further to Rs. 145.5 crores in 1980-81. The revised estimate of revenue receipt was equal to Rs. 181.1 crores in 1981-82 and the budget estimate of 1982-83 was equal to Rs. 182.1 crores. This clearly indicates that in terms of revenue, it increased during the post-independence period. But the real position of land revenue can be assessed only when we look at it in relation to its coverage in the total state tax revenue of the states which has also been shown in table No. 2.2.

The decline

The Table No. 2.2 further shows the receipts from land revenue in relation to total tax revenue and total revenue of state governments in India since 1950-51 to 1982-83. It is clear from the Table that land revenue has been falling rapidly as a proportion of total tax revenue and total revenue in India. Land revenue formed 17.08 per cent of the total tax revenue and 12.12 per cent of the total revenue in 1951-52. In 1955-56 its proportion increased to 21.91 per cent of the total tax revenue and 14.07 per cent of the total revenue of India. But the proportion of land revenue began to decline from 1955-56 and in 1982-83 its proportion was only 1.28 per cent of the total tax income and 0.88 per cent of the total income. This rapid decline in the land revenue was due to the growth and increased impor-

tance of new forms of taxation such as income tax, customs and excise at the centre and sales tax and several other taxes in the states. Another cause of decline is the exemption of small holdings from land revenue by some state governments from time to time.

Table No. 2.3 shows the place of land revenue and agricultural income tax, the two major direct land taxes, in the state- revenue from 1951 onwards that the contribution of land taxes has been very limited in financing the state plans and it has consistently shown the declining trend. It is really a travesty that in a country like India where more than 70 per cent population depends upon agriculture and about 50 per cent of the national income comes from this sector, the tax revenue from this tax constitutes merely 2 per cent of the total tax revenue of the states. This indicates that in comparison to the non-agricultural sector, the agricultural sector is under-taxed. □

Table No. 2.3

LAND REVENUE AND AGRICULTURAL INCOME TAX IN STATE TAXATION IN INDIA DURING PLAN PERIOD

(Rs. in crores)

Period		Land Revenue	Agricultural Income Tax	Total Revenue from State Taxes	Land Revenue as per cent of total State Tax Revenue	Agriculture Income Tax per cent Total State Tax Revenue
First Plan	Annual Average	65.34	4.82	251.42	25.9	2.0
Second Plan	" "	91.00	8.50	379.58	24.00	2.0
Third Plan	" "	114.06	9.78	667.98	17.0	1.4
Annual Plan	" "	102.36	10.97	1074.44	9.6	1.1
Fourth Plan	" "	110.28	12.28	1740.80	6.3	0.7
Fifth Plan	" "	182.88	28.86	3690.37	5.0	0.8
1978-79		188.30	80.30	4970.30	3.6	1.4
1979-80		151.90	58.30	5669.10	2.7	1.0
1980-81		145.50	46.40	6616.00	2.2	0.7
1981-82 (R.E.)		181.10	41.10	8070.00	2.2	0.5
1982-83 (B.E.)		182.10	42.10	9425.00	1.8	0.4

Source: Dr. P.K. Bhargave and O.S. Srivastave, "Taxing Farm Incomes: Neglected Possibilities", Eastern Economist 21 June 1974, R.B.I. Bulletins, Various Issues.

plan-wise. Both land revenue and agricultural income tax have rapidly fallen as a proportion of the state taxes. While land revenue formed an average of 25.9 per cent in the First Plan, during the Fifth Plan period it fell to only 5.0 per cent and the budgets for 1982-83 to just 1.8 per cent. Similarly, agricultural income tax which was 2.0 per cent in the First Plan, fell still further during the Fifth Plan and was only 0.4 per cent in the budget of 1982-83. The proportion of these direct land taxes varies from state to state also which is apparent from table 2.4. The illustration of the position of land revenue and agricultural income tax together confirm the fact

Chemical exports net Rs. 868 crores

Chemicals and related products have emerged as an important sector of India's non-traditional exports with the total exports of such items having reached Rs. 868 crore during the last financial year.

Total exports in the chemicals sector during 1985-86 stood at Rs. 868 crore as against Rs. 806 crore in 1984-85, showing an increase of Rs. 62 crore. The annual export target for 1985-86 was Rs. 869 crore. With the inclusion of some additional exports effected through minor ports and land routes, the target set for the year has been almost fully achieved. The target fixed for the current year is Rs. 1003 crore. □

Why resort to administered pricing ?

Kewal Varma

True to his promise made during the budget session of Parliament this year, the Union Finance Minister presented last month a discussion paper on the administered pricing, spelling out the Government's thinking on the subject. This paper, according to the author, advocates for the philosophy of price intervention, not politically motivated but designed to achieve clear cut social and economic objectives. The author feels that the approach in the paper is correct that the instrument of administered pricing should be to build up pressure for reducing cost and increasing productivity. He, however, resents keeping prices stable for long and then increasing them in a big jerk.

EARLY THIS YEAR THE GOVERNMENT increased prices of some items which are administered by it. It provoked noisy protests from both members of the ruling party, including some Ministers, and the opposition parties. It is, perhaps, a reflection on the class bias of our polticians that the most vocal protests were made against the increase in prices of cooking gas rather than of wheat and rice. Even though, the government had a good economic case for increasing the prices in view of a serious resources constraint and a yawing trade gap, it retreated partially in the face of the so-called popular protest. The Finance Minister also promised that the government would come out with a long term policy on administered prices. He fulfilled his promise and presented to Parliament a discussion paper on the administered prices, spelling out government's thinking on the subject.

Discussion paper

The discussion paper on administered price policy has rejected the philosophy of "magic of the market forces" and is based on the philosophy of price intervention, which would not be politically motivated but would be designed to achieve clear cut social and economic objectives. The social objective is manifested by reiteration of the government's determination to "provide the basic necessities of life to the poorest sections at subsidised prices." The paper emphasises that the prices of items like rice, wheat, sugar, edible oils, cloth cannot be allowed to be fixed wholly by market forces. It also upholds the mechanism of "dual pricing" as part of a strategy for ensuring a greater degree of equity by providing items like sugar and cement to target groups at cheaper prices than market prices. This reiteration was overdue as some of the postures of the government had given rise to misgivings that there would be full play of market forces in most of the economic activities, like pricing, investment and income. Infatuated by the magic of the market price, the Janata government in 1978 decontrolled sugar. For one year sugar sold at three rupees per kilo but later the price shot up to eight rupees per kilo. Also later the government had to resort to import of sugar. However, a statement of policy is one thing, but its implementation is another. The Farm lobby is so strong in Parliament and in political parties.

There is much vocal demand to raise the price for the producer than to protect the interest of poor consumers. It is to be seen how the government will tame this lobby and strike a balance between the interest of the producer and the poorest sections.

How far can it go?

Of other items, whose prices are administered by the government, the paper makes out a strong case against direct or indirect subsidies. It does not advocate fixation of prices by market forces. The exception has been made in the case of shortage situation and where the black market operates. In such a situation instead of unscrupulous sections or some lucky consumers, the industry, particularly the public sector undertakings, should make a profit. The paper could have been more explicit that instrument of administered prices should also be used to moderate the demand of items like petroleum from the foreign exchange point of view as also of conspicuous consumption, including, for instance, air travel. It has been the experience that a stiff increase in consumer prices results in curbing of demand. In such cases, you kill two birds with one stone. You raise resources as also reduce the burden on foreign exchange. The era of shortages has been left behind, in most cases. What is to be done in those cases where there are no shortages? If the choice is between higher administered prices and increased budgetary deficits resulting in general inflation and cuts in developmental expenditure, the first option is better but upto a point. It becomes counter-productive if this covers up far too long inefficiency of the concerned undertakings.

Political will is needed!

The paper spells out a correct approach that it is time that the instrument of administered prices should be used to build pressures for reducing costs and increasing productivity. From the operative point of view, the paper spells out four important points : first, prices should cover long-run marginal cost of production or the normative prices. Second, quick, which should mean more frequent adjustments of prices should be made in response to changes in input costs. Third a review of norms which form the basis of price fixation should be undertaken every three or five years taking into account the latest technological advances. Fourth, the system of retention prices should be phased out. The import-parity principle in fixing prices has not been given high importance. It only says that the bureau of industrial costs and prices "should also be guided by prevailing levels and trends in international costs and prices." The principle of long-run marginal cost of production or normative prices means that the prices should be fixed on the basis of average input cost of an industry with a provision that adequate surpluses are generated to modernise the plant to achieve the best level of efficiency. This principle should ensure that industrial units will be induced to undertake replacement and modernisation and reduce the input costs. It could also be used to achieve objectives of the plan, for instance, steel prices could be fixed to provide for quicker modernisation than a non-priority industry. From the economic point of view, the principles spelt out for fixation of prices are sound. But the question is whether government will have the political will to implement it. Take the case of retention prices. Sugar industry is covered by it and prices are fixed zonal-wise based on the average sugar recovery in a zone. Can the government face the wrath of cane-growers in the low recovery zone by abolishing retention prices for the sugar industry ? Similarly take the case of quick adjustment of prices. The fares of Delhi Transport Undertaking were not revised for more than five years, because of various reasons. As a result, six months ago, the fares had to be doubled. This led to a big resentment. There is no virtue in keeping prices stable for a longer period, and increasing them in a big jerk. It is, however, encouraging that the government has at least started thinking on the right lines. Let's see whether the action will follow.

[Courtesy : Spotlight, AIR]

(*Continued from page* 18)

of corporate interests. Concludes Mooney, "Important as gene banks may be, it would seem unwise for the world to put all its eggs in one basket. The Third World, on the other hand, is being invited to put all its eggs in someone else's basket."

The dirty game

It may be said that such fears are unfounded, as it should be possible for the scientists of a Third World country to guard against this sort of deprivation and ensure that genetic material being sent outside is stored adequately in the country. Theoretically this argument may be correct, but in practice many scientists, bureaucrats and technocrats of most Third World countries occupying crucial positions have been so much corrupted by the high salaries and other careerist opportunities provided by various organisations of the developed countries (or organisation dominated by them) that it is possible for vested interests to get away with amazing acts of manipulations and cheating.

In India Dr. R. H. Richaria, an eminent rice scientist, had developed an invaluable collection of disease and pest resistant rice varieties at the Raipur based Madhya Pradesh Rice Research Institute (MPRRI) headed by him. When news of this spread, scientists and messengers were sent to obtain this genetic wealth for the international network of gene banks dominated by a few. When Dr. Richaria resisted these high-handed efforts, saying that he will give material only after he had studied it, then other methods were used to obtain this. A multilateral aid agency closely allied to the Western business interests promised to donate generously for a rice development scheme in Madhya Pradesh, but made this donation conditional on the closure of MPRRI. The institute was closed, Dr. Richaria's team broken up, his papers taken away and, above all, vested interests gained access to the material they were after. □

Structure and growth of central government employees

—T.R. Mahajan

Based on the census conducted by the Central Statistical Organisation about the Central Government employees from time to time, the author here brings out interesting facts regarding their structure and annual growth. The study brings out interesting facts about cadre of regular and non-regular groups, their pay range structure, city-class location, their proportioned spread out in various states and their number and wage bills.

LIKE THE DECENNIAL CENSUS of population or quinquennial census of livestock, annual census of Central Government employees made its debut in 1951 and it was conducted by the Central Statistical Organisation. It had a break in 1952 and then continued uninterrupted till 1959 under the same aegis. This work was allotted to the Directorate General of Employment and Training, Ministry of labour, Government of India, in 1960 and the first of the series was released in 1961. Central Government Employees' census is conducted with a reference date of 31st March of the year when a stock of regular and non-regular employees is taken.

This continuous series of census of Central Government employees depicts the picture of their yearly growth, Ministry/Department-wise location, cadre of regular and non-regular group classification, pay range structure, city class location and and spread out of their proportion in the various States and Union Territories of India.

The Census of Central Government Employees covers all persons holding, on the date of Census, a civilian post in and under the Central Government whose pay and allowances, honorarium or any other remuneration, etc. are paid out of the consolidated Fund of India. This includes whole or part-time employees in Indian embassies and Missions abroad.

After the initiation of Five Year Plan Era, there has been a lot of focus on development programmes and as a consequence more employees are being added to the number every year. The yearly increase in the number of employees since 1961 upto 31st March 1982 is shown in Table 1.

TABLE 1

Trend of Increasing Strength of Central Government Employees: 1961-1982

As on March 31	Number of employees in thousands	Percentage increase over the previous year	Index of employment growth
1	2	3	4
1961	2,094		100.00
1962	2,156	2.96	102.96
1963	2,349	8.95	112.18
1964	2,536	7.96	121.11
1965	2,637	3.98	125.93
1966	2,710	2.77	129.42
1967	2,746	1.33	131.14
1968	2,793	1.71	133.38
1969	2,807	0.50	134.05
1970	2,851	1.57	136.15

1	2	3	4
1971	2,921	2.46	139.49
1972	3,056	4.62	145.94
1973	3,158	3.34	150.81
1974	3,220	1.96	153.77
1975	3,272	1.61	156.26
1976	3,343	2.17	159.65
1977	3,393	1.50	162.03
1978	3,477	2.48	166.05
1979*	N.A.	*	—
1980	3,678	5.78**	175.64
1981	3,763	2.31	179.70
1982	3,845	2.18	183.62

NB. * Tabulation of 1979 data had been skipped.
** Percentage increase over the two year period: 1978-80.

Among the regular Central Government Employees, the distribution by group of post for the latest three years available is shown in Table 2.

Spread of employees in the various ministries and departments shows that the Ministry of Railways is the largest single employer (45.3 per cent) followed by Ministries of Communication (17.6 per cent), Defence-civilians (15.1 per cent), Home Affairs (7.6 per cent), and Finance (4.61 per cent). These five Ministries together accounted for over 90 per cent of the total regular Central Government employees. The distribution of employees, Ministry and department-wise is shown in Table 3.

TABLE 3

Distribution of Regular Central Government Employees by Ministry/Department as on 31st March, 1982

Sl. No.	Ministry/Department	Number of regular employees (Thousands)	Percentage of Total
1	2	3	4
1.	Agriculture	17.6	0.51
2.	Atomic Energy	22.9	0.66
3.	Cabinet Secretariat	0.2	0.01
4.	Commerce	7.8	0.23
5.	Communications	612.7	17.62
6.	Defence (Civilian)	523.5	15.05
7.	Education & Culture	9.3	0.27
8.	Electronics	0.7	0.02
9.	Energy	5.9	0.17
10.	External Affairs	4.9	0.14
11.	Finance	161.6	4.65
12.	Health & Family Welfare	20.6	0.59
13.	Home Affairs	264.7	7.61
14.	Indian Audit & Accts. Dept.	55.9	1.61
15.	Industry	6.9	0.20
16.	Information & Broadcasting	23.0	0.66
17.	Labour	9.9	0.28
18.	Law, Justice & Company Affairs	3.7	0.11
19.	Petroleum, Chemicals and Fertilisers	0.6	0.02
20.	Planning	6.7	0.19
21.	Railways	1575.0	45.28
22.	Rural Development	1.7	0.05
23.	Shipping & Transport	5.8	0.17
24.	Space	9.5	0.27
25.	Steel & Mines	13.3	0.38
26.	Supply & Rehabilitation	13.7	0.39
27.	Science & Technology	17.2	0.50
28.	Tourism & Civil Aviation	17.9	0.51
29.	Works & Housing	45.0	1.29
30.	Social Welfare	0.6	0.02
31.	Civil Supplies	0.7	0.02
32.	Environment	2.5	0.07
33.	Irrigation	8.8	0.25
34.	Other Departments	6.9	0.20
	TOTAL	3477.9	100.00

Concentration of employees by class of city in the country would also reveal their dispersal.

The classification of city is as per adoption of decennial census for the latest available year on 31st March, 1982.

TABLE 2

Distribution of Regular Central Government Employees by Group of post: 1980-82

(Number in thousands)

Group of Post	1980		1981		1982	
	Number	% age of Total	Number	% age of Total	Number	% age of Total
A	43	1.30	45	1.32	47	1.35
B	73	2.20	78	2.29	82	2.36
C	1,820	54.80	1,888	55.43	1,952	56.12
D	1,371	41.28	1,384	40.64	1,383	39.77
Details not available	14	0.42	11	0.32	14	0.40
Total	3,321	100.00	3,406	100.00	3,478	100.00

TABLE 4

City-wise Location of Employees

Class	Name of the City	Number of employees '000'	%age
I. A	1. Ahmedabad	24.1	0.69
	2. Bangalore	40.5	1.17
	3. Bombay	212.2	6.10
	4. Calcutta	182.4	5.24
	5. Delhi	220.7	6.35
	6. Hyderabad	48.3	1.39
	7. Kanpur	63.1	1.181
	8. Madras	118.0	3.39
	9. Pune	69.1	1.99
	Sub-total	978.4	28.13
II.	B-1	199.9	5.75
III	B-2	633.4	18.21
IV C	Class C	896.3	25.77
V	Others	769.9	22.14
	GRAND TOTAL	3477.9	100.00

It is seen that 28.13 per cent of Central Government employees were stationed in 'A' Class cities and 25.77 per cent were posted to Class C towns. Among A class cities the maximum being in Delhi 6.3 per cent followed by Bombay 6.1 per cent and Calcutta 5.2 per cent.

As per the existing scales prevalent in the Central Government, without referring to the recommendations of the Fourth Pay Commission, the employees were categorised into 16 pay ranges and their distribution is shown for the two years 1981 and 1982 as below.

TABLE 5

Distribution of Central Government Employees By Pay Range

Pay Range (Rs.)	Number of employees (Thousands) 1981	%age	Number of employees 1982 (Thousands)	%age
1	2	3	4	5
Less than 200	194.2	5.70	196.7	5.66
200—249	1225.5	35.97	1235.6	35.53
250—299	574.4	16.86	594.7	17.10
300—349	400.00	11.73	407.9	11.74
350—399	298.6	8.77	305.1	8.77
400—499	306.4	8.99	315.5	9.07
500—599	183.5	5.39	189.7	5.46
600—699	81.4	2.39	84.0	2.42
700—799	51.3	1.51	52.9	1.52
800—899	27.2	0.80	28.6	0.82
900—1199	34.0	1.0	35.6	1.02
1200—1499	16.0	0.47	16.7	0.48
1500—1999	9.5	0.28	10.2	0.29
2000—2499	3.2	0.09	3.3	0.09
2500—2999	1.1	0.03	1.1	0.03
3000 and above	0.3	0.01	0.3	0.01
Total	3406.6	100.0	3477.9	100.00

It could be seen that there is fractional decrease of employees in lowest two pay range brackets : Rs. less than 200 and Rs. 200 to Rs. 249. All other pay range had marginal rise in 1982 over 1981.

Another important issue emerging from this Census is the State|Union territory-wise location of regular, Central Goernment employees. In this context it is beset with the difficulty that the area jurisdiction of establishments and source of major ministries like Railways and Communication extended to more than one state. To overcome this the entire staff has been included in the state where the reporting establishments are located.

TABLE 6

Distribution of Central Government Employees by States

'000

Sl. No.	State/Union Territory	No. of Employees 1982	%age 1982
1	2	3	4
1.	Andhra Pradesh	191.0	5.49
2.	Assam	95.4	2.74
3.	Bihar	212.4	6.91
4.	Gujarat	132.8	3.82
5.	Haryana	32.4	0.93
6.	Himachal Pradesh	21.9	0.63
7.	Jammu & Kashmir	2.70	0.78
8.	Karnataka	122.1	3.51
9.	Kerala	72.9	2.10
10.	Madhya Pradesh	209.7	6.03
11.	Maharashtra	513.2	14.76
12.	Manipur	3.9	0.11
13.	Meghalaya	18.6	0.53
14.	Nagaland	4.7	0.13
15.	Orissa	55.5	1.59
16.	Punjab	86.6	2.49
17.	Rajasthan	710.8	4.91
18.	Sikkim	0.3	0.01
19.	Tamil Nadu	252.2	7.25
20.	Uttar Pradesh	470.6	13.53
21.	West Bengal	479.2	13.78
22.	Tripura	10.4	0.30
	UNION TERRITORIES		
23.	Andaman & Nicobar Islands	0.9	0.03
24.	Arunachal Pradesh	1.4	0.04
25.	Chandigarh	15.7	0.45
26.	Delhi	265.6	7.64
27.	Goa, Daman & Diu	4.6	0.13

1	2	3	4
28.	Mizoram	0.4	0.01
29.	Pondicherry	4.1	0.12
30.	Outside India	2.0	0.06
	TOTAL	3477.9	100.00

Maharastra accounts f[illegible]e maximum concentration of regular Central G[illegible]nment employees followed by West Bengal and Uttar Pradesh.

While noticing the rising strength of the regular Central Government employees it encounters the idea of the rising bill of the exchequer every year as pay and allowances of those employees. These are presented as :

TABLE 7

Number of Central Government Employees and their wage-bill

Year	No. of Regular Employees '000	%age growth	Expenditure Pay and allowances (Rs. 'million)	%age growth
1	2	3	4	5
1975-76	3044.7	100.0	18858.7	100.0
1976-77	3101.4	101.9	19265.8	102.2
1977-78	3171.3	10.4.2	20189.9	107.1
1978-79	3234.7	106.2	21542.2	114.2
1979-80	3321.1	109.1	23472.8	124.5
1980-81	3406.6	111.9	26747.0	141.8
1981-82	3477.9	1.4.2	30719.8	162.9
1982-83	3544.2*	116.4	34698.5	184.0
1983-84	3620.8*'	118.9	40718.3	259.9
1984-85	3698.0*	121.5	46435.6	246.2
1985-86	3778.9*	124.1	51894.0@	275.2

*Estimated
@Revised □

(*Continued from page* 22)

efforts by the political Indians can turn the tide. Our record of the last 100 years can be the basis of hope.

There is one last field, I would like to mention in which our record for the last 39 years is more or less consistently positive. It is the field of foreign policy. Conceived by the leaders of our freedom struggle and then by Jawaharlal Nehru after 1947, the Indian people have gradually evolved an independent foreign policy based on peace, non-alignment and anti-colonialism which has stood the test of time, served our national interest in the political and economic fields, and acquired a certain stability and solidity as also an abiding character.

Faith in the people

Our freedom struggle was based on the confidence in the people's capacity to fight the mightiest imperialist power of the day. The framers of our Constitution shared this belief that our people can also generate the energy to overcome our centuries old backwardness. Despite the problems we face today and the apparent or real situation of crisis before the nation, it is necessary to continue to maintain this faith. For all that we have achieved so far, is the product of our peoples energies and their capacity to throw up the necessary leadership. The failures have often been, in the end, due to our incapacity to create structures and institutions through which our peoples energies could find expression, and be harnessed, for development, and in defence, of the basic values of independence, democracy, socialism, secularism and social equality; values which we inherited from our freedom struggle and which are enshrined in our Constitution

Trade unions to help family welfare programme

The family welfare programme has helped avert 76 million births at a cost of Rs. 340 per birth. The present birth rate is 34 per thousand and the goal is to bring it down to 21 per thousand. This involves motivating 140 million eligible couples. The thrust of the revised family welfare strategy will be to increase community participation. In this context the trade union leaders have been requested to help the Ministry in its efforts to reduce the population pressure. The Ministry has emphasised the need for maintaining records of the eligible couples in the industrial plants.

The Labour Ministry will consider amending labour laws to include family welfare as a specific programme in its welfare schemes. The Ministry has also agreed to provide audio-visual aids to help union workers understand the family welfare programmes.

Plastics for packaging

The National Committee on use of Plastics in Agriculture (NCPA) is to undertake field trials in the use of plastic crates for packaging of apples. It could be most economical and effective if modalities for multiple trips and returnability could be worked out. The field trials for the use of prototype polypropylene crates for collection, storage and retailing of vegetables and fruits under trial marketing programme has proved a great success.

The committee feels that even just one per cent of the requirement of apple boxes if switched over to plastics for trials and the data so collected could form the basis for large application and further commercialisation. This would help in protecting environment and conservation of forests.

Attention Readers ! ! !

Reserved for Readers

From November 1—15, 1986 issue of YOJANA, we will have a regular column **"Reserved for Readers"**. We propose to present this column as a forum of views of our readers on current issues of public interest. We would also welcome genuine comments on the contents of the journal, not exceeding 200 words, by ORDINARY POST addressed to : Chief Editor, YOJANA, Room No. 508, Yojana Bhawan, Parliament Street, New Delhi-110001.

Self-employment programme for urban poor

Self-employed persons in the urban areas will now get subsidised loan up to Rs. 5000 without security for the first time under a new scheme for Self Employment Programme for the Urban Poor (SEPUP). This has been done with a view to eradicating poverty from the urban areas. The scheme came into effect from September 1, 1986.

Under the scheme loans will be provided through the banking system for the self-employed such as rickshaw pullers, cobblers, washermen, hawkers, cartpullers, etc. It will also cover persons engaged in certain professions for e.g., safaiwallahs, who can take loans to enable them to change their traditional profession and improve their economic condition.

The scheme, to be applicable in all cities and towns not covered by the IRDP, will be implemented by the selected branches of the public sector banks. Under the scheme, a borrower will be eligible for a loan up to Rs. 5000 at an interest rate of 10 per cent per annum. The Central Government will provide capital subsidiary of 25 per cent to the banks. The repayment of loan will be in 33 equal monthly instalments after a grace period of three months. □

Cheap cloth scheme in handloom sector

The scheme for production of low priced blended cloth in the handloom sector ("Susman" scheme), which has recently been introduced by the Government, is to be implemented by the States from October, 1986.

In order to gear up handloom weavers for the scheme, it has been decided to set up about 110 cooperative polyester weaving centres during 1986-87 in different States in collaboration with the National Cooperative Development Corporation (NCDC) and Petrofils Cooperative Ltd. About 24 training programmes for weavers in the weaving of polyester and polyester blended cloth will be organised during the current financial year.

It may be recalled that low-price blended cloth scheme was introduced earlier in the National Textile Corporation (NTC) sector under the name of "Sulabh". This is now being extended to the handloom sector.

In the context of the year of modernisation in the handloom sector being observed during 1986-87, a target of modernisation of 30,000 looms has been raised from the existing Rs 2500 to Rs. 4000. □

Textile Workers' Rehabilitation Fund set up

THE GOVERNMENT HAS STARTED a Textile Workers' Rehabilitation Fund Scheme which came into force from 15th September, 1986. The Fund aims at providing interim relief to workers rendered unemployed as a consequence of permanent closure of textile units. While alternative employment in the textile sector and concessional finance for self-employment or employment may provide relief to some of them, there would still be a large number of workers who may not be able to get relief through these measures. Such persons would need a period of transitional adjustment to enable them to settle in another employment.

Under the scheme, any worker who has been engaged in a closed textile unit on the date of its closure continuously for five years or more and earning a wage equivalent of Rs. 1600 per month or less and has been on the records of the Provident Fund Commissioner of the state concerned, is entitled to get relief.

Relief under the scheme is available for 3 years on a tapering basis but will not extend beyond the date of superannuation of any worker. The worker will be entitled to get relief : (a) to the extent of 75% of the wage equivalent in the first year of the closure of the unit; (b) to the extent of 50% of the wage equivalent in the second year; and (c) to the extent of 25% of the wage equivalent in the third year.

The fund is to be administered by the Textile Commissioner through his regional offices.

The Textile Policy of June 1985 had laid down that the interest of labour in the event of permanent closure of non-viable units would be fully safeguarded. The Rehabilitation Fund, with a provision of Rs. 10 crore, has been introduced primarily to provide assistance to such workers.□

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Family Welfare in the Seventh Plan

THE FAMILY WELFARE PROGRAMME, according to the Seventh Plan document, plays a crucial role in human resources development and in improving the quality of life of our people. The programme forms an essential and integral part of the new Twenty-Point Programme, 1986, which lays stress on Two-Child norm, when it says that, "We shall bring about voluntary acceptance of the two-child norm."

The 1981 Census showed that India's population was 685 million, almost double the figure (342 million) at the time of Independence. India happens to be the first country in the world to have a government-level programme of family welfare and planning. It became an integral part of economic planning right from the First Five Year Plan (1951—56). Limiting the growth of population was one of the main objectives of the Sixth Plan. It was reiterated that the Programme would not be the sole responsibility of any one department of the Government but the responsibility of the Government as a whole.

Against a target of 24 million sterilizations by the end of the Sixth Plan, a little over 17 million sterilizations had been carried out. In the case of IUD insertions, against a target of 7.9 million, about 7 million insertions were carried out. Against a target of 11 million CC users for the terminal year 1984-85, about 9.31 million CC users were enrolled in the programme during the year 1984-85. The couple protection rate (CPR) achieved by March 1985 with the above performance is 32% as against the Sixth Plan target of 36.6 per cent.

In the light of the progress made in the initial years of the Sixth Plan, the health policy targeted a Net Reproduction Rate (NRR) of one by the year 2000 A.D. The Family Welfare Programme envisages the following goals for the year 1990 :

(i) Effective couple protection rate—42%
(ii) Crude birth rate per thousand population—29.1%
(iii) Crude death rate per thousand population—10.4%
(iv) Infant mortality rate per thousand population—90%
(v) Immunisation—Universal coverage
(vi) Ante-natal care—75%

To reach the above targets, particularly 42% CPR, the Seventh Plan stipulates 31 million sterilizations by 1990, 21.25 million IUD insertions and, during the terminal year, 14.5 million CC users.□

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