

Chapter 14

DEVELOPMENT PERSPECTIVE

While enunciating a development perspective for Punjab, an essential prerequisite is to spell out a vision for the state – the kind of economy, society, polity, ecology and ideology envisaged for it, over a given period of time. This style of dealing with the issue is strikingly different from the usual style wherein the future agenda is set in the light of the evolving scene, particularly with reference to problems that have emerged on the way. The intention is to define and work out a feasible dream for the state and thus go beyond the conventional diagnostic and curative approach.

In its bare essentials, the state has to be not only efficient and progressive economically, just and harmonious socially, democratic and participatory politically, friendly and prudent ecologically, aesthetic and functional spatially, but also civil and sustainable systemically. In this light, one can envision Punjab eventually as a region which is sub-urban, displaying a continuum of rural and urban, agriculture and non-agriculture, with a hierarchy of settlements interlinked by a free-flowing transport network; thereby serving as a stage for what is envisioned. Herein, symbolically, the role of a development architect, social scientist and a professional practitioner gets entwined. Things would have been easy if Punjab were a clean slate to work on. Certainly it is not. This poses a real challenge. The evolved scene has to be redesigned and reconstructed rather than being built anew.

CONTEXT

Some salient features of Punjab may be recapitulated. It enjoys the highest per capita income in the country (Rs. 23,043 against the national average of Rs. 15,562 in 1999-2000), and is highlighted as a model of agricultural development. Here poverty is not an issue; achieving a higher level of economic well-being or becoming more affluent is! People can move to a greener pasture anywhere in the world if the opportunities at home are not attractive enough.

Such was the stimulus which motivated many a native of Punjab to migrate not only to other parts of India, as diverse as newly reclaimed agricultural lands, lucrative urban places or remote forested areas, but also to emigrate to several foreign countries including, the United Kingdom, Canada, United States, Australia and Middle East, among others. This exposed them to the ethos of the developed world. No wonder, the popular development perspective seeks transformation of the state in the mould of a western country. An oft-repeated self-question is: Why cannot Punjab be like the United States, or the United Kingdom, or like Israel, or Denmark, among the smaller countries? The state, of course, cannot go by such a paradigm. It has to fabricate its own model of development, consistent with ecological conditions, cultural ethos and sustainability parameters. Above all, any development perspective envisaged for the state has to be in the spirit of its interconnectivity with other parts of the country, particularly the neighbouring states.

One peculiar feature of the development process in Punjab may be underlined: As soon as a new growth activity is initiated, it picks up momentum, and reaches a plateau rather too soon. The green revolution is one such case. It made a beginning in 1966; by 1985, it had reached a saturation level and has been seeking a new direction, which is more remunerative than the wheat-rice rotation regime. Not much

success has been met on this count. Water depletion in the tubewell irrigated lands and waterlogging in the canal irrigated ones have emerged as serious problems. Likewise, the educational and health infrastructure expanded, excelling the national norms, but when the task of enhancing the quality of service emerged, the response was weak. Sustainability of the development process and providing new channels for its flow are now the crux of the matter. This cannot be ignored as a parameter of the development perspective.

A newly acquired economic well-being soon gets translated into an aspiration for living in an upgraded habitat. One of the most visible outcomes of the green revolution has been a remarkable transformation of village settlements, particularly by way of conversion of kutchha houses into pucca. In urban areas too, a well-designed house located within a modern locality, has become a priority. An urge to live in standard houses with clean and green surroundings has been ignited. Quality habitat, thus, claims inclusion as an imperative of the development perspective.

A statement on development perspective for the state will not be complete if we do not take care of the globalized psyche of its people. Punjab is an anomaly to the students of migration studies. Though well placed economically, it has been a net outmigration state for the last hundred years or more. Though not a coastal state, it has recorded large scale emigration too. Punjab is an extrovert entity, actively interacting with areas all over the world at large. This global dimension of the state has to find a place in any formulation of a development perspective for it.

Finally, as rightly perceived, Punjab is eulogized for the progressive outlook, great dynamism, and exceptional enterprise of its people. It has also a fairly laid out infrastructure base. Virtually any problem it faces, or any situation which constrains its development, can largely be attributed to a management failure. People believe that Punjab can be a model state simply if its political and administrative train is on the right track. Thereby, 'good governance' is underlined as the most critical aspect of its development scene. It is deemed basic to the actualization of all other development perspectives.

What should be the time frame for the realization of the development perspective visualized for Punjab? The faster it is the better for the people, but time targets have to be assigned. In the medium term, it could be placed at 1 November 2016 when Punjab would be celebrating the golden anniversary of its formation; on the short term, it can be placed at 31 March 2007 when the Tenth Plan gets completed; and as a relatively long term scenario, it can be dated as 31 December 2020, in the spirit of a new vision. These three datelines can adopt evolving development dimensions as their top priority: financial recovery as the necessary base (2007); human development (education and health) by 2016; and habitat (environment) by 2020.

PERSPECTIVE OF THE PLANS: 1966-2002

Let us review what has been the development perspective of the successive state plans (Government of Punjab, 1969-2002). Which were the sectors listed as its priority? Which strategies were deemed as most effective for the purpose? Answers to these questions are necessary, as the state has invariably played a pervasive and ubiquitous role in determining the content, pace and quality of the development process in Punjab. Intentions of the government, as evolving over time, can be discerned from the pages of plan documents.

Punjab was reorganized to its present form in 1966. This synchronized with the ushering in of the green revolution. By that time, the state had carried out consolidation of landholdings over its entire space, 59 per cent of the net area sown had been brought under irrigation, virtually all the villages had been covered by agricultural credit societies, the Mandi (Market) Township Act had come into force to facilitate the disposal of agricultural produce, and benefits accruing from research and extension activities of the Punjab Agricultural University, Ludhiana, had started making an impact. A stage had been set which put the state on a fast track to agricultural and rural development.

The years 1966-69 were a phase of Annual Plans, during which the state received special funds for its transformation into a veritable 'bread basket' for the country facing a prolonged and massive food-deficit. Two consecutive drought years of 1964-65 and 1965-66 had worsened the situation in India. This gave Punjab an opportunity to prove its mettle. It met the challenge and contributed 61 per cent of wheat and eight per cent of rice procured for the public distribution system at the national level in 1968-69.

The Fourth Plan (1969-74) document highlighted that the state could take pride in having saved the country from a grave food crisis; and for itself, having successfully stabilised the strides made in the green revolution. Its efforts at diversifying the economy towards industrialization were yet to make an impact. Inadequacy of finance, shortage of raw materials, and gap in power supply, to the extent of less by one-third of demand, were adduced as the factors responsible.

Taking a cue from above, the Fifth Plan (1974-79) aimed at a bold programme of 'industrialization and development of infrastructure', so as to accelerate the pace of economic growth. Massive investment in power was deemed essential for the purpose. The assessment was that ultimately it was industry which could reduce the disparity in the development level of different parts of the state.

The Sixth Plan (1980-85) introduced a new idiom seeking transformation of Punjab into a 'model state' during the next ten years. The main components of such a vision included diversification of the economy in favour of industry; generation of jobs for the unemployed and underemployed; reduction in regional, rural-urban and caste-based disparities; and improvement in the overall quality of life. All this was to be achieved through an accelerated rate of economic growth, an efficient and honest administration, and a decentralized pattern of planning and development.

The Seventh Plan (1985-90) promised 'growth with justice'. A major thrust was envisaged for correction of distortions that may have crept in during the preceding plan periods. These included, for example, reclamation of degraded agricultural land, extension of irrigation in the submontane and other backward tracts, improvement in delivery of educational and health facilities, and promotion of industry, particularly in border districts. Augmentation of power supply and initiation of environmental improvement schemes were listed as priorities. The two annual plans, during 1990-92, carried forward the ongoing development schemes apart from initiating some new ones, as financed by the Central Government.

'Generation of additional employment' was adopted as the core concern of the State's Eighth Plan (1992-97). The three border districts of Gurdaspur, Amritsar and Ferozepur, which were the major victims of the statewide militancy during the eighties, were in special focus. Again 'promotion of industry' was identified as an effective route to the realization of this objective. Diversification of agriculture, in general, and of the cropping pattern, in particular; improvement of human resource through

education, health and training; and extension and modernization of basic infrastructure were among the other tasks listed. In respect of institutional reforms, decentralized planning at the district level was to receive a further impetus; private investment was to be encouraged in all sectors, and viability of the public sector undertakings was to be ensured.

The Ninth Plan (1997-2002) enumerated the following as the broad lineaments of its strategy: vigorous thrust to agriculture and rural development; a great push to irrigation and power sectors; improvement in quality of life in both villages and towns; creation of additional employment opportunities; and social justice for the disadvantaged. Micro-level planning was to receive special attention, more so in the border districts.

The Tenth Plan (2002-2007) strategy is virtually an iteration of what was contemplated in the Ninth Plan. Diversification of agriculture, as also of the cropping pattern, has been projected as the measure to meet the challenge posed by the stipulations of the W.T.O. Various development projects, such as Integrated Watershed, Health Care Systems, and Water Supply and Environmental Sanitation, aided by international agencies, are to continue.

An overview of the plan documents lead us to the following conclusions:

- Perspective and strategies indicated for various plans remained virtually the same: diversification of the economy towards industry, of agriculture towards non-farm activities, and of the cropping pattern away from the stubborn wheat-rice rotation; irrigation and power as the mother sectors; and unemployment as the main challenge.
- Theoretical underpinnings of the plan documents remained unspelt. Only the Sixth Plan projected a vision of making Punjab a Model State. The instrumentalities indicated were a reformed administration and decentralized planning, with a flavour of good governance.
- The successive plan proposals, by and large, echoed the issues highlighted at the national level. Specificity of the state level concerns was not projected in a bold manner. The plan documents were drafted with a bureaucratic ethos; the input emanating from the research institutions and university academics was meagre.
- Sub-plans for the backward areas, including the submontane tract, flood-plains and border districts found special place in the documents. This is as it should have been. It was, however, not clear as to how these sub-plans were integrated with micro-level planning.
- Expenditure exceeded outlay during most of the plan periods. The state could arrange additional resources from the Planning Commission, or was able to mobilize these at its own level. The Ninth Plan was an exception, when the expenditure incurred was only 77 per cent of the approved outlay. Irrigation and power accounted for about one-half to more than two-thirds of the expenditure under various plans. Ironically, both were losing sectors financially, under the twin effect of subsidies involved and pilferage.

The status of the sectoral developments of the state reflects and mirrors the implementation of plan provisions. It is necessary to review the situation in each case and to enunciate sector-specific development perspectives. This is precisely what is being attempted here. An iteration of some of the bold facts appearing in various chapters of this development report becomes unavoidable, at places, in any such exercise. Any information or data is duly acknowledged at the very outset.

SECTORAL PERSPECTIVES

Economic Growth and Regional Disparity

The most worrisome feature of Punjab economy today is the drop in its annual growth rate, from 5.3 per cent during 1980-81 to 1990-91 to 4.7 per cent during 1991-92 to 1997-98. By comparison, growth rate at the national level moved up from 5.6 to 6.9 per cent during the same period. In sympathy, the annual increase rate of the state's per capita income also came down from 3.3 to 2.8 per cent.

A further perusal of data shows a regular decline in the growth rate of agriculture in Punjab since 1985. The state's share in the contribution of wheat to the Central pool declined from 45 per cent in 1980-81 to 36 per cent in 2000-01, and that of rice from 73 to 58 per cent during the same period. The livestock sector, which was earlier having an upswing, has been decelerating since 1997. The same has been true of the manufacturing sector. Electricity generation rate also suffered a decrease after 1990. Construction, transport, and trade sectors did display some buoyancy. On the whole, the nineties emerge as a difficult phase for Punjab economy. Why did things come to such a pass?

The unhappy downward turn of Punjab economy can be traced to 1984-85, when it became a 'revenue deficit state' from the status of a 'revenue surplus one' (Government of Punjab, June 2002). The Government of Punjab attributes this to 'an ever increasing salaries and wage bill of the employees (particularly since implementation of the Fifth Pay Commission recommendations), mounting debt burden, heavily subsidized social sector (education and health) and economic services (irrigation and electricity), slow growth of revenue, and loss-making public sector undertakings' (Government of Punjab, March 2002). The difficult political situation during the eighties has adversely affected both the imposition and collection of taxes. This was more so during the prolonged phase of president's rule, when the caution was not to create any situation that could add fuel to the fire. During the tenure of elected governments, 'subsidies on populist lines' made their own contribution to worsening the situation. Meanwhile fiscal deficits of the public sector undertakings were also mounting and adding to the financial misery of the government. The recourse followed was to go in for public borrowing in a big way, instead of curing the malaise. Interest payment, as a percentage of revenue, moved up from 16.8 in 1990-91 to 29.4 in 2000-01. This was the highest for any major Indian State; the all-India figures were 13.1 and 17.6 per cent respectively. Investment on development suffered badly. The development expenditure, as a percentage of total expenditure, steeply fall from 71.9 in 1980-81 to 54.5 in 1997-98, and further down to 46.5 in 1998-99. Implications of all this for the state's economic growth rate are not difficult to understand.

The fiscal programme of the Punjab Government envisages an annual economic growth rate of 5.5 per cent during the Tenth Plan, at constant prices. With the current population increase rate being about 1.8 per cent, the annual rise in per capita income would be of the order of about 3.7 per cent. The Planning Commission expects Punjab to achieve a higher annual growth rate of 6.4 per cent (agriculture 4.1%, industry 8.1% and services 8%). This calls for a greater effort than the state has assigned to itself. The government proposes to stimulate the economy by correcting the fiscal imbalance, and thereby making available a larger share of the budget for development. Major steps contemplated include: reforms in the area of sales tax; revision of user charges of transport, irrigation, higher / professional education, secondary / tertiary health care, and drinking water supply; and gradual privatization of public sector undertakings.

In any situation, economic growth rate is a function of three factors: investment level, incremental capital–output ratio (investment required for an additional per unit production), and rise in the value added (difference between output and input per unit of production). In India, gross fixed investment in the economy is about one-fourth of the gross domestic product; of this, 28 per cent is by the public sector. For want of separate information about Punjab, we may assume that a similar situation prevails here. The relevant message for our purpose is that, notwithstanding the crucial role of public sector investment in development (particularly infrastructure and social services), the private sector is more critical in terms of its share and spread of investment. Private sector investment, however, is selective of those locales which are free from law and order problems, offer quality infrastructure, and provide skilled labour imbued with a strong sense of work culture. Any scheme of putting Punjab economy on an expressway has to address itself to these issues. As far as 'incremental capital– output ratio' and 'value added' aspects are concerned, technological upgradation and efficiency promotion emerge as the main prerequisites.

Mercifully, the picture of Punjab as a relatively prosperous and progressive state still persists in the popular mind. As noted earlier, there are valid reasons for it. This must not lead one to believe that there are no regional disparities within; these are rather striking, as measured by any set of economic and social indicators (Gosal and Krishan 1984). In specific, the central belt of Punjab, covering Amritsar, Kapurthala, Jalandhar, Ludhiana, Fatehgarh Sahib and Patiala districts, is relatively the most developed. It is characterized by a very progressive agriculture, significant concentration of industry and a high level of urbanization. The Amritsar-Delhi railway track and the Grand Trunk road form the economic back bone of this zone and provide it with the necessary dynamism. The northeastern zone, comprising Gurdaspur, Hoshiarpur, Ropar and Nawanshahr districts, is comparatively the least developed. This is attributed to its dissected and undulating topography, small size of landholdings, and relative isolation of some of its parts. The scene is, of course now changing for the better, with the World Bank sponsored Kandi Area Integrated Watershed Development Project being under way, industry coming in a significant manner in Hoshiarpur and Ropar districts, and infrastructure getting greatly strengthened in areas around Chandigarh. The southwestern zone, comprising Firozpur, Moga, Muktsar, Faridkot, Bathinda, Mansa and Sangrur districts, are acquiring new dimensions of development. It has made noticeable progress in agriculture. Industry is also picking up. The most important factor accounting for its agricultural advancement has been the relatively large size of landholdings, promoting mechanisation. Industrial development is facilitated by the availability of agricultural raw materials, particularly cotton and rice.

Within this broad framework of regional disparities in Punjab, the government has identified three kinds of backward areas in the physical structure of the state: the hilly and foothill Kandi tract; the flood-plains of the Ravi, Beas, Satluj and Ghaggar, and the border belt. Each of these suffers from its own specific physical and locational problems. The Kandi tract has an undulating and degraded topography; the flood-plains are not free from the fury of river-waters during the rainy season; and the border belt with Pakistan is the most distant from the state capital and a typical periphery. Special attention to such problematical areas is in order.

Rural Development and Agriculture

Among the Indian States, Punjab holds place of pride for its outstanding achievements in rural development. A healthy mix of environmental, institutional and technological factors explains this situation, evolving since independence and picking

up pace after the state's reorganization in 1966. The most striking feature of the Punjab model is the government's manysided participation in the development process (Chadha, 1986, p.338). Imbedded in the scheme of things was the adoption of agriculture as the lead sector, not only in consonance with the physical attributes of the state, but also as a response to the national demand for food. With political power in the state having been consistently rural based and drawn from a farming background, rural development and agriculture have remained a priority. What is more, a right sequence of policies was followed for the purpose. Beginning with consolidation of landholdings, followed by reclamation of new agricultural lands and synchronous extension of irrigation through Bhakra canals, and the process being further strengthened by the green revolution strategy of biochemical inputs (high yielding variety seeds, chemical fertilizers and irrigation) and mechanical inputs (tractors, threshers and harvester-combines), Punjab agriculture continued making rapid strides over the years. The agrarian structure characterized by middle level peasantry, with landholdings of two to four hectares, and predominance of owner cultivators, was no less important a factor for the success of this process. Exogenic factors also played a role in the modernization of Punjab agriculture. Exposure of the state to external influences through emigration to foreign countries, migration to other parts of India, and tradition in army service, had at least a three pronged effect: brought in remittances which were used for augmenting agricultural infrastructure at the household level; reduced pressure on agricultural land, thereby saving the landholdings from getting very small; and stoked a tendency towards achieving higher levels of opulence,

Most important to the whole process was the government's thrust on rural-agricultural development. The main components of the strategy included: extension of irrigation, rural electrification, rural link roads, rural focal points providing a variety of services, closely spaced agricultural market centres and, above all, an assured provision of credit and agricultural inputs. Widespread infrastructure, which could boost agriculture, was made available. As part of national policy, the minimum support price for wheat and rice, the state's two major crops, played a significant role in sustaining agricultural development, and thereby raising rural incomes. In 1999-2000, only six per cent of rural households in Punjab were below the poverty line, as compared with 27 per cent in rural India.

The emerging scene of rural Punjab, and within that of agriculture, is not free from some serious concerns. Notwithstanding a commendable quantitative expansion of a variety of services, notably schools/colleges, dispensaries/hospitals, veterinary centres, electrification, link roads, and focal points, the quality of service provided in every case is far from satisfactory. Schools and dispensaries do not function properly, electricity suffers frequent breakdowns, link roads are not properly maintained, and several of the focal points are non-functional. Upgradation of quality in service provision is now the greatest challenge for any effort to improve the situation in rural Punjab.

On the agricultural front, the persistence of wheat-rice rotation, despite efforts at promoting diversification of the cropping pattern, is causing a serious damage to the state's natural resource base. Rice, in particular, is a water-intensive crop and is not eco-friendly for Punjab. Its popularity, however, could not be contained, because it is not only a lucrative crop but also of assured returns. The consequence is there for every one to see: water-table depletion in tube-well irrigated areas and waterlogging in canal irrigated ones. The question remains: How to wean the Punjab farmer away from the wheat-rice rotation? A serious effort to this effect was made as early as in 1986. The situation evolved to the contrary, with the rice area increasing from 17 to 26 lakh hectares, and wheat area from 32 to 34 lakh hectares during 1985-86 to

2000-2001. Short-term private economic gains are ignoring the long-term public ecological cost.

'Precision diversification based on agro-ecological zones of Punjab', is now being recommended. In precise terms, rice is to be shifted from tracts 'where sandy and loamy soils predominate'. Production of basmati rice, which is less water-intensive, should be encouraged through assured support price. At least 20 per cent of the area under wheat and rice should be shifted to some other crops, such as maize, oilseeds, sugarcane and fruits/vegetables or other farm enterprises (Johl and Ray, 2001, p.251). The corporate sector, in linkage with farmers' associations, should be asked not only to improve quality of agricultural products, but also promote agro-processing industry.

Despite a visible improvement in the quality of life in Punjab villages, particularly by way of conversion of kutcha_houses into pucca ones, much remains to be done for environmental improvement of the rural habitat. Introduction of 'Unnat Gram' scheme by the Punjab Government, during the Eighth Plan, was one creditable effort in this direction. Pavement of streets, construction of drains, disposal of sullage water, metalling of phirnis, and provision of water borne latrines in each house were the main planks of this scheme. Shortage of funds permitted only a limited success. In that context, the old abadi part of every village is invariably very congested, poorly maintained and ecologically deficient. A culture of healthy living needs to be promoted. Upgradation of the quality of rural habitat remains an unfinished agenda item on the development chart of the state. An effective course would be to pool the available funds under all the district level schemes and disburse these by following a policy of 'one village, one scheme' at a time. As at present, funds are spread too thin to cover a number of schemes in a village.

Towards that goal, it is suggested that a scheme of planned rural residential colonies be formulated and implemented at the focal points, to begin with. Each of these colonies could be designed for about 250 or more housing units of varying sizes depending upon the demand at each site, with provision for expansion in future. The locality must become a model in house design, provision of services, and overall maintenance. A component of commercial outlets could be included as part of the scheme, and thereby cross-subsidize the residential component. The scheme is visualized as self-financing.

It may not be known to many that the proportion of the Scheduled Caste population in the total is the highest in Punjab—around one-third—among Indian States. This section of society is characterized by a significantly higher birth rate, lower literacy rate, and less incomes/wages. The pregnancy rate, that is, the percentage of eligible women pregnant at any time, is 6.1 in the case of Scheduled Castes as compared with 3.5 for the rest of the population. Most of them may be above the poverty line, but in comparison with other sections of society, their economic upliftment remains a task to contend with. Family planning, education and health are the major issues in their case.

Putting things together, enhancement of the economic well-being already achieved, upgradation of the quality of life, improvement of the habitat, care of the Scheduled Castes, and preservation of the natural resource base, emerge as the main assignments in the context of rural Punjab, which accounts for almost two-thirds of the state's population. The precise tasks can be defined as diversification of the rural economy for employment generation, in particular; diversification of the cropping pattern, with focus on water and soil management; improvement in the quality of service provision, especially in respect of health, education, water, electricity and

transport; and upgradation of the habitat, partly by raising planned residential colonies, on a demonstration basis.

Active involvement of the corporate sector and non-government organizations (NGOs) can be an effective measure for this purpose. Both can play a role in generating awareness about the development programmes and schemes launched by the government; imparting training to the youth for self-employment; managing natural resources; and promoting education. The corporate sector can, in addition, assist in marketing agricultural produce, and providing employment to the youth trained by them for a given vocation.

Above all, an effort can be made, on organized lines, to involve non-resident Indians (NRIs) for the development of their native villages. Emigration from several parts of Punjab has been an ongoing process for long, and many emigrants have garnered big fortunes in their new abodes. The willing ones among them can be encouraged, facilitated and given incentives for adoption of their native places for upgradation into 'model villages'.

Urban Development and Industry

With 34 per cent of its total population living in towns/urban agglomerations in 2001, as compared to 27.8 per cent at the national level, Punjab is one of the more urbanized states of India. The state's 83 lakh urban population is distributed among 157 towns/urban agglomerations-139 statutory and 18 census ones. Fourteen towns/urban agglomerations have a population of at least one lakh each, and together account for 58.4 per cent of the total urban population. The urban growth rate of Punjab, 37.6 per cent during the nineties, was significantly higher than 29 per cent at the national level. International experience suggests that urbanization gets a momentum in regions after they become 30 per cent urban and simultaneously achieve a per capita income of US \$ 500. Punjab has been one such case since 1991. Projections are that the state would become urban majority by 2020. This would reverse the popular image of Punjab as a predominantly rural entity. The implication is that urban issues are going to gradually assume greater importance. A change in the thrust of policy would be inevitable.

Some redeeming features of Punjab's urbanization are worthy of note. Towns are almost uniformly distributed and closely spaced; their average spacing is about 20 km and this figure is the lowest for any state, barring Kerala and Goa. The impact of agricultural development and associated agro-based industry is evident.

As an outcome of this, Punjab is distinguished by a strong urban-rural linkage and a narrow urban-rural gap. In fact, average assets per household in rural areas were recorded as double those in urban places. The proportion of population below the poverty line, at around six per cent, is virtually the same in rural and urban areas. An urban-rural continuum has been taking shape, which is most manifest in the corridor development along the roads connecting big cities, such as Ludhiana, Jalandhar and Amritsar. A tendency has been among several agricultural landowning households to raise an additional establishment in a nearby town to avail of better facilities and services is observed. This is giving rise to a class of people whose economic interests are partly rural and partly urban.

Despite some efforts at control, much of the physical growth of towns has been taking place in a haphazard manner. Not only cities but also small and medium towns are subject to this malady. A change in the morphology of all types of towns has become necessary to meet the increased demand for space for new land uses, to

relocate facility points to alternative sites, and to cope with the fast increasing number of motor vehicles on the road. The response is visible in the emergence of new residential colonies, re-siting of old grain markets and bus stands, and laying out of bypasses to divert inter-town traffic.

Illegal encroachment on land is a pervasive malady in all towns. The affected localities could be commercial, residential, institutional, industrial, for that matter any. One manifest expression of this tendency is the proliferation of slums, mostly on public land. In 2001, the slum population accounted for about one-fifth of the total living in towns, each with a population of 50,000 plus.

While slums are an index of scarcity of formal housing at an affordable price, inadequacy of several other basic urban services is no less glaring. Even in the four municipal corporations of Ludhiana, Amritsar, Jalandhar and Patiala, nearly one-third of the population has no access to safe water supply and more than one-half have to go without the facility of sewerage. In 32 nagar panchayats, safe water supply is not available to more than one-half of the population and 95 per cent are not covered by sewerage facility. No less than 40 per cent of roads and streets in Punjab towns require extensive repairs. This is the picture of the quality of life in the towns of the most prosperous state of India!

Financial crunch, which the urban local bodies are facing, is at the root of this sorry state of affairs. An extremely low recovery rate of user charges is one major cause of this situation. The aggregate income of urban local bodies from water supply and sewerage charges during 1996-2001 was only Rs. 201 crores as against the projected figure of Rs. 1353 crores, that is hardly around 15 per cent. Even if only the operation and maintenance cost were taken into account, this percentage would have risen to just 47. Actual expenditure on provision of all obligatory services was found to be only around 40 per cent of what was projected, with serious implications for both quantity and quality.

What is the way out? Quality of life in the towns of Punjab demands immediate attention. This requires not only a massive input of financial resources, but also serious reform in management. Effective implementation of the Nagarpalika Act is imperative to achieve that goal. Devolution of decision making and financial powers to urban local bodies has so far been hesitant and piecemeal. Parallel functioning of the state apparatus and the elected body in managing urban affairs is replete with problems of co-ordination in every town.

Urgent reform in the management of municipal finances is called for. Most essential is to rationalize rates of user charges and improve their collection. Selective involvement of the private sector on the lines of the water supply and sewerage project at Tirupur (Tamil Nadu); maintenance of streetlighting, solid waste removal and local transport, etc., at Rajkot (Gujarat); solid waste management at Hyderabad; and preparation, distribution and collection of bills at Ludhiana, can help in reducing the administrative and financial burden on urban local bodies, in addition to improving the quality of the service provided. 'Floating of municipal bonds to finance urban infrastructure, as has already been done by Ahmadabad, Bangalore, Hyderabad and some other municipal corporations', is still another way of augmenting the financial resources of urban local bodies. Involvement of community-based organisations is also valued today as an effective strategy towards the coverage and quality of service provision.

Perspectives on urban development vary. Some express their preference for aesthetics of the city, by way of its beautification in diverse ways. Another paradigm

shifts in favour of healthy cities, providing high-quality services. Still another view cherishes cities as dynamic economic entities, attracting a variety of activities, generating employment and incomes, and yielding revenues for their proper maintenance. A perspective for Punjab towns can be on similar lines: well designed in physical lay-out, equipped with a delivery system of quality services, and promising ready employment, through industry in particular.

The industrial structure of Punjab has remarkably expanded in size, diversified in composition, and dispersed over space since 1966. Even during the politically difficult eighties, the state did not lose its industrial momentum. A long-term view of 1966-2001 shows that the number of small-scale units multiplied more than 25 times, from 8,023 to 2,00,603; and large and medium scale units by more than five times from 122 to 638. The growth of food processing, cotton ginning, hosiery knitting, metal processing, machine tools, transport equipment, and furniture production units has been phenomenal indeed. Both small and large/medium scale units have been dispersing not only to less industrialized parts of the state as a positive response to institutional incentives, but also to rural areas wherever infrastructure and accessibility posed less problems. Around 60 per cent of the large/medium scale units in Punjab today find a village location, especially along the trunk rail and road routes and around big cities, such as Ludhiana, Jalandhar, Amritsar, and the Chandigarh Union Territory.

Nevertheless, regional disparities in industrialization persist and their degree varies by the type of industry. Ludhiana, Patiala and Ropar districts account for one-half of the industrial production in the state. Industries using bulky raw materials, such as steel reolling and metal products, or requiring specialized skill, such as hosiery, silk textiles and transport vehicles, showed a weaker tendency to disperse. On the other hand, direct consumer goods industries, such as food processing, electrical items, and furniture have dispersed widely. Notably the eastern part of the state today is overshadowing its western counterpart, which previously was more industrialized. This is a reversal of an established spatial pattern explained, among other factors, by the presence of a sensitive international border on the west and the location of the state's capital to the east.

Punjab cannot be described as industrially backward as was the refrain some twenty-five years ago, but there can be no slowing down on this front; rather, what is needed is acceleration. This is necessary for hastening the shift from agriculture to non-agriculture, by generating new employment opportunities, and also for reducing regional disparities. What is required is a further strengthening of backward and forward linkages of industry with agriculture.

Such a scheme of things requires a 'SWOT' (strength, weakness, opportunity and threat) analysis of the industrial scene of Punjab. The state is strong in agricultural raw materials, infrastructure base, skilled labour, dynamic entrepreneurship, and high-income/consumption level of the people. On the other hand, its weakness lies in its location on the border with an unfriendly country, a peripheral position distant from major national markets, absence of minerals, and relatively low industrial wage rates associated with the predominance of unorganized small scale units. A sizeable section of industrial labour here is migrant from the low income states, such as Uttar Pradesh and Bihar. They agree to work on low wages, and thereby establish an income threshold which does not find favour with the local labour. This is one of the reasons which discourages the local unemployed from seeking an industrial job. None the less, opportunities for industry are rightly being extended through a variety of government incentives and concessions. But then, the stipulations of WTO have

recently emerged as a threat to industry in the state. Punjab's industry is now facing serious competition not only from within India, but also from other countries.

Hence, as a perspective for an appropriate framework for accelerating the process of industrialization in Punjab, three measures have become essential: (i) identification and prioritization of those industries for which the state is more advantageously placed; (ii) modernization of the managerial style and upgradation of the technological level of industry, presently entrenched in the culture of unorganized small-scale industry; and (iii) provision of special impetus to information technology, both as a strategy for employment generation, and for information dissemination for usage in industry at large. Industries for which the state is favourably placed include: 'liquor and malt, dairy products, leather goods, blankets, carpets and rugs, hosiery and readymade garments, cotton ginning, cotton textiles, chemicals, paper items, and wood processing'.

Beyond this general overview, there are several other critical areas which call for attention. The foremost is to work for a co-ordinated development of large, medium, small and tiny industries. This can take several forms: '(i) small scale industry producing component parts, as in bicycle industry, to be refurbished and assembled by large scale industry, or the other way round, as in the case of computer assembling; (ii) large industry helping the small industry in technological upgradation and human resource development, by providing training facilities; and (iii) both large and small industries co-functioning in industrial parks, equipped with modern infrastructure facilities with both going in for cooperative marketing and ensuring strict quality control and both jointly running professional courses for training the educated unemployed'.

The corridor industrial development, proliferating along the trunk routes, calls for special attention. Although welcome as a dynamic feature of industrialization, it is not without some attendant problems, particularly those pertaining to transport mobility, environmental quality, and service provision. Industry, along the transport routes, should be made to grow in the form of a cluster rather than a ribbon. Such clusters can be developed on planned lines, in proximity of railway stations on the route of the corridors. Each cluster can specialize in a particular kind of industry.

Finally, the basic issue is: How to make Punjab investment-friendly for industrial development? On strategic lines this question can be rephrased as: How to attract the prospective industrialist to the state? Involved here are not only factors of location of an industry, but also considerations of the quality of life at the place which may attract the industrialist. Therefore, the most effective strategy would be to raise new planned industrial towns in the proximity of Ludhiana, Jalandhar, Amritsar, Bathinda and Patiala. These should be equipped with first rate infrastructural facilities for industry and quality services for daily life. An uninterrupted flow of electricity is vital for such a scheme of things.

Employment

Providing gainful and high-quality employment to the unemployed and new entrants to the labourforce is one of the main targets of the Tenth Plan. Though relatively the most progressive and prosperous state of India, Punjab is not free from the twin maladies of unemployment and underemployment. A sizeable section of the agricultural population is being rendered surplus due to a regular decline in the size of landholdings, along with the rapid growth of population. The rural service and artisan castes are finding their vocations inadequate and less rewarding. Educated among the rural youth are generally keen to get an urban job. Matters are no better in

urban areas, where an increasing number of local unemployed is being joined by unemployed migrants from rural areas. The size of registers at employment exchanges is swelling.

The employment context of Punjab significantly changed after its reorganization in the present form in 1966. Agricultural migration to newly reclaimed lands in other parts of India, which has been continuing since the closing decades of the nineteenth century, virtually came to a halt. Recruitment in defence forces was regulated on the basis of the share of the eligible population in different states in 1974 and this was to the disadvantage of Punjab. The number of ex-servicemen, seeking re-employment, is much larger than the new entrants to the defence forces. Meanwhile, avenues of emigration to other countries remain regulated.

The National Sample Organisation recorded the unemployment rate of Punjab at 4.2 per cent in 1999-2000, as against 7.3 per cent in India. By that token, there are around four lakh unemployed persons in Punjab. The number of the underemployed is placed at another five lakh, going by the percentage of marginal workers at 5.4, as recorded by the 2001 Census.

The compound annual growth rate of employment in Punjab, during 1997-2002, was only 0.7 per cent, against the growth rate of the labourforce at 2.3 per cent. This growth rate of employment was the lowest for any State of India, and much below the national average of 2.4 per cent. A rule-of-thumb- estimate would suggest that the economic growth rate, should be three times the population growth rate, if unemployment were to be taken care of. The annual economic growth rate of Punjab had been in the vicinity of 3 per cent during the nineties while the population growth rate had been around 1.8 per cent. That explains the rise in unemployment rate over the years, although at a moderate pace. It also suggests that the state must aim at an economic growth rate of at least 6 per cent, if the stock and flow of unemployment is to be managed.

Unemployment in Punjab is essentially educated in nature, 61.6 per cent being matriculates or above. Nearly one-fourth of them are technically, or professionally trained, being diploma holders, engineers, trained teachers and doctors. Educated unemployment is growing faster in rural than in urban areas. How to generate jobs and how to prepare the educate youth for self-employment, is the question to reckon. The typical recommended line of action is diversification of agriculture to dairying, pom-culture, bee keeping and fishing. There is a fervent achieve to emulate Denmark which during the ninetieth century swiftly shifted from grain farming to dairying, figgery and poultry, as soon as Europe got flooded with grains from North America, Argentnia and Baltic States (Kahlon, 2001, p.89).

As matters stand, it is most desirable that the pace of industrialization should be accelerated. Incentives on this count have produced positive results and need to be continued. Small-scale industry is to be preferred in view of its labour-intensive character. With 20 per cent of total industrial investment, it accounts for 80 per cent of industrial employment in the state. As detailed above, its integration with large/medium scale industry is also very necessary.

For this, industry must find its rightful place in district planning. This requires a meaningful co-ordination between different government departments. For example, planting of trees by the Forest Department could be linked with promotion of furniture manufacturing by the Industries Department, for their utilization in local schools by the Education Department.

Though in an incipient stage today, the Information Technology (I.T.) industry has all the potential of rapid growth and can provide quality employment in large numbers. 'The manpower requirement for this industry during 2002-2007 has been projected at 90,000. Now it devolves upon the Government of Punjab to provide for training this number of high quality manpower, within a span of five years.

Construction is another activity which can generate jobs in bulk in both secondary and tertiary sectors. It would be most advisable to go in for a 'new city' project. This should preferably be located in the Doaba region but in close proximity to Ludhiana. It could attract large investment from the NRIs, offer jobs in thousands, apart from reducing the pressure on Ludhiana. Revival of the dormant proposal of Ranjitnagar as the site could be considered.

In addition, we might explore some additional avenues of employment in other spheres and in different ways. Considering the relative prosperity and life-style of the people of Punjab, there is considerable scope for promoting fast-food joints on modern lines. The private sector can additionally be harnessed for the provision of security, maintenance and local transport services on organized lines. In the primary sector, introduction of planters, transplanters and (potato) diggers may tempt even educated youth to join their family vocation. For females, we could encourage part-time employment in such divisible jobs, as office work, teaching, and health services.

Above all, employment exchanges should not remain simply registration centres of the unemployed. They must do the job of data analysis of the qualifications of the job-seekers and the kind of placements they are looking for. On the other hand, the unemployed youth must have greater access to information about the kind of jobs available in the market, the level of education required in each case, and the facility of loan if one opts to go in for self-employment. One potential skill in which the educated unemployed youth can be trained is 'rural marketing'. Creation of additional jobs in teaching will also help.

Education

That Punjab, which ranks first in per capita income, is the tenth among Indian States in terms of literacy, is a socio-economic anomaly. Here is a case of incongruity between economic and social dimensions of development. In the 2001 Census, 70 per cent of Punjab's seven-plus population was recorded as literate as compared with 91 per cent in Kerala and 77 per cent in Himachal Pradesh. The all-India figure was 65 per cent.

A snapshot of education in Punjab is as follows:

- Practically every village in Punjab has a primary school, a middle school within 2 kms, a high school within 2.5 kms, and a senior secondary school within 7 kms, thus exceeding the norms set by the Government of India. Of the nearly 40 lakh school children, 80 per cent attend government schools, highlighting the contribution of government to the spread of education. No less than 78 per cent of the children, who join a school, drop out by the time they reach senior secondary level, and one-half of those who appear in the matriculation examination, as regular students, fail to pass. This is a colossal waste of educational effort on any count!
- The fast growing popularity of private English medium schools, more so in rural areas, puts a question mark on the quality of education provided by government schools.

- With six universities (two general, one technical, one medical, one veterinary, and one agricultural) and 287 colleges of all types, the state is well served by higher level educational and professional institutions. One-third of the colleges are located in rural areas. The number of graduate and post-graduate students approaches two lakh, with females exceeding males. Scheduled Caste students account for about one-tenth of all students in colleges/universities, whereas the Scheduled Caste population around one-third of the total.
- Government colleges account for only about one-fifth of the 223 general category colleges in the state. Most of the engineering colleges are run by the private sector, and medical colleges by government.
- As much as 99 per cent of the primary education budget goes towards disbursement of salaries. The corresponding figures are 90 per cent for secondary education, 71 per cent for college/university education, and 66 per cent for professional institutions. Paltry sums are left for infrastructural facilities.
- The state outlay on education was 7.2 per cent of the total under the Fourth Plan (1969-74). It declined to 2.9 per cent in the Ninth Plan (1997-2002). In an effort to redress the aggravating situation, the Tenth Plan (2002-2007) proposals provide an outlay of 6.1 per cent for education.

Improvement in the quality of school education, particularly in rural areas, is the most crucial item in the sphere of education in Punjab. The state is saturated, as far as the distribution of schools is concerned; it is the quality which is in short supply. The Punjab Education Policy 2000: Programme of Action indicates that the government is aware of the gravity of the existing situation. A variety of necessary proposals to strengthen the infrastructure, upgrade the quality of teachers, and improve management of school education has been listed. This augurs well for the reform of school education in Punjab.

We may, however, review here a moot suggestion made as part of the state's new education policy. While the decision to restructure the present four levels of school education (primary, middle, high and senior secondary) to two levels (elementary and secondary) is most welcome, the proposal to upgrade every primary school to elementary school does not appear feasible. The purpose of education would be better served if a policy of consolidation rather than of expansion, as at present, was followed. At the first stage, it would be advisable to upgrade only centrally located primary schools to the level of elementary schools, each of which is surrounded by three already existing primary schools. Only at a later stage, the decision about upgradation, or continuation, or closure of the remaining primary schools could be taken, in the light of the experience gained.

Under the new dispensation, it would be advisable if the elected bodies, that is, the village panchayats and nagarpalikas, were asked to regularly monitor the functioning of the schools. The policy document is silent on this issue. Mention has been made of the village- and town-level education development committees; absence of any reference to the elected local bodies is rather intriguing. In all fairness, involving the existing institutions is always better than creating new ones.

Punjab is no less happily placed in terms of the number of institutions of higher education, both general and professional. Again, while proximity is no issue, quality certainly is. Involved here are matters relating to infrastructural facilities, professional commitment of the teachers, and the desired culture of management. Faced with a severe resource crunch, the state government has recently been extending wide

space for the entry of the private sector into higher education, more so in the professional field. To what extent is increasing privatization of higher education desirable and what will be its eventual outcome? This is not easy to predict. Should we assume that there is little room for reforming higher education and making it cost-effective within the public sector? In any case, management of privatization, particularly in higher education, is a serious obligation of the government. Equally important here is to understand that the quality of higher education and that of school education are interlinked. Teachers, of all disciplines and status, have to come through the channel of higher education and its quality is a function of the kind of students which school education produces. It is the 'quality of the teacher' which ultimately determines the quality of the entire system.

Health

On almost all parameters, the health infrastructure in Punjab has expanded phenomenally since 1966. 'A new hierarchy of health outlets, including referral hospitals, community/primary health centres, sub-centres, mother and child care units, and family planning clinics has evolved in both rural and urban areas, through public sector'. Besides, universities and public sector undertakings too provide health facilities to their employees.

No less spectacular has been the expansion of the private sector in health services. 'Its participation is no longer confined to individual private clinics but extends also to hospitals, polyclinics, diagnostic centres, nursing homes and specialty premises'. The organized private sector, in addition, caters to the health needs of its employees.

A perusal of data and information about the health sector in Punjab brings out the following facts:

- During 1966-2001, the number of health institutions in the public sector multiplied 4.5 times, from 496 to 2,229. This rate of increase was three times faster in rural areas than in the urban. Most rapid growth took place during 1973-83, when a large number of sub-centres were opened all over the state. A kind of plateau was reached by 1985. The establishment of the Punjab Health Systems Corporation in 1996-97, through World Bank assistance, is a major development of recent years in this context.
- The availability of medical and paramedical personnel also recorded an impressive increase: The number of doctors per unit of population became twofold, midwives six to eight times, and nurses five times.
- Ironically, the quality of health services provided by the government has gone down drastically over the years. Only one-third of the outdoor patients now opt for a public health outlet, as compared with nearly one-half in India. It is a case of management failure. While the popularity of the public sector suffered, the private sector started flourishing. Under the evolved scenario, a new responsibility devolves upon the government. It should make every effort to regulate the private sector in terms of registration, facilities provided, and fees charged.
- The average cost of outdoor treatment per occurrence of illness in the private sector is one-third higher than that in the public sector. The cost of hospitalized treatment is 2.5 times more expensive. The average cost of treatment per occurrence of illness in the public sector is roughly one-third higher in Punjab than at the all-India level.

- The birth rate of Punjab, at 21.5 per thousand in 1999-2000, was three times the death rate at 7.3 per thousand. A continued thrust on family planning is necessary to stabilize the size of the population.
- Some dimensions remain worrisome in the sphere of reproductive and child health: Maternal mortality rate of 369 per lakh women is four times that of Kerala; still-birth rate at 10 per thousand is higher than the national average of eight; about 60 per cent of the deliveries take place at home; and nearly one-fourth of the children born are underweight. No less than 41 per cent of the women suffer from anemia. Punjab's infant mortality rate, at 52, is fortunately lower than India's 68.
- On nutrition, 15 per cent of adults in Punjab have been reported as obese. This percentage is 30 in the case of women, the highest for any state in the country. On the other hand, per capita calorie intake in the state declined by almost one-third during 1972-94, while it remained static in India. Protein intake has come down, but fat intake has risen.

The above discussion confirms that the situation is not happy on the health front in Punjab. The public sector is not delivering the services on the desired lines. There is increasing disenchantment with its performance. The private sector is proving effective, but is expensive for the poor. Preventive and emergency health services remain the domain of the public sector.

Affordability does not seem to be a major issue in the sphere of health care in Punjab. It is the access to and quality of service which is more critical. The public and private sectors need to define their respective roles in that light. A system can be evolved wherein 'the public sector concentrates more on primary health care, health education, sanitation, immunization, emergency services and specialized treatment and the private sector is encouraged and facilitated to take care of curative services'. Equally crucial for the government is to manage the private sector properly through its mandatory registration, service monitoring, and fees regulation.

Infrastructure

As a base and concomitant of the development process, infrastructure is fairly well organized in both rural and urban segments of Punjab. On the score of infrastructure rating, the Centre for Monitoring Indian Economy has placed Punjab on the top; with an index which is almost twice the national average. No less than 94 per cent of the net area sown here is irrigated, 75 per cent by tube wells and 25 per cent by canals. Virtually all the 12,729 villages are not only electrified but also linked by pucca road. The 144 regulated markets, for disposal of agricultural produce, are spaced at an average distance of 20 km from each other, and are attached to 519 sub-yards distributed all around. Over 40 per cent of the 2,575 bank branches in the state are located in villages. As many as 597 rural focal points are being developed to provide a variety of services to rural populace.

In overall terms, per capita consumption of electrical energy, at about one thousand kwh, in Punjab is the highest among all the states. The total consumption in 2000-2001 was 2717 MW; one-half thermal, one-fourth hydel, and the remaining one-fourth purchased from the national grid. Agriculture shared 29 per cent of the total consumption, industry 42 per cent, and domestic and other uses 29 per cent. Eighty seven per cent of the households in the state have electricity connection. Demand for power is growing by seven per cent annually. Transmission and distribution losses are placed at 17 per cent and non-technical losses at another nine per cent. Losses of this nature, hidden in the free supply of electricity to agricultural sector, are

not included in this assessment. Revenue per unit is Rs. 2.07 against the cost of Rs. 2.93, representing a subsidy of over 40 per cent.

Punjab is well served by a dense network of roads: 1.1 km for every one sq km as compared with 0.4 at the national level. Road length, which was only 6,000 kms in 1965-66, had increased to 55,000 kms by 2000-01. Intrastate mobility is primarily by road; the most distant town is within six hours of bus journey from the state capital. High speed trains connect Punjab with all parts of the country. Since intracity mobility by rail is of modest order, it is all the more necessary to strengthen complementarity between rail and road transport in Punjab. Notably the state does have an international airport at Amritsar and a domestic one, at Ludhiana.

About 26,000 public call/straight trunk dialling offices connect Punjab not only within but also nationally and globally. The 13 lakh connections give a telephone/population ratio of 5.5 per thousand persons as compared with 3.6 at the all-India level. Practically every panchayat in the state is connected by telephone.

All this is highly creditable. This quantitative scene is, however, not backed up by a quality culture. Electricity breakdowns are not infrequent; electricity in villages is available only for seven hours in a day; and electricity losses in transmission and distribution are huge. During the nineties, while the number of motor vehicles multiplied two times to almost 30 lakh, the road length got extended by hardly 20 per cent. Several roads require immediate widening, or repairs, or both. By comparison, while the quality of telephone service has vastly improved over the years, its quantitative coverage is far from complete. The waiting list for a phone runs into thousands.

Natural Resource

The natural resource base of Punjab - land, water and vegetation - is under great stress. No less than 85 per cent of the state's geographical area is under cultivation, of which 94 per cent is irrigated. Cropping intensity is as high as 186.

Around 40 per cent of the land is said to be degraded in varying degrees. Included herein are the gully or ravine lands in the northeastern hilly and submontane region; soil-fertility depleted pockets in the central zone; water-logged tracts in the southwestern region; and marshy land along rivers and streams. Nearly 11 lakh tube wells (85% in the rural and 15% in urban areas) regularly suck underground water for irrigation, domestic, industrial and other uses. Nearly one-half of the development blocks (especially in the central zone where water table has gone down by five to ten metres during the last 25 years) report over-exploitation of subsoil water. Hardly three per cent of the total area is under actual forest cover. Such a situation is a sad commentary on what is happening in an agriculturally progressive state, dependent highly on soil and water. Added to all this is the fact that almost 70 per cent of Punjab is prone to floods.

The Government of Punjab is putting in considerable effort to redeem the situation. Watershed development projects have been undertaken in parts of the Kandi or submontane tract; wetlands are being raised on systematic lines in highly flood-prone areas; and water-logging is being tackled in all seriousness in the southwestern region. Depletion of underground water and fall in soil-fertility are worsening in the wheat-rice rotation region, which covers almost one-half of the state's total area. Diversification of the cropping pattern is certainly a remedy; the feasibility of developing tube well and canal irrigation, as complementary to each other in the same area, should also be explored. Flood-proneness of a large part of Punjab is

paradoxical, but understandable, when one realizes that roads and canals at several places have been constructed against the grain of the land and thereby obstruct the natural flow of water. The drains, which are meant to flush out the rain-water, are often poorly maintained, get choked and cause floods. These drains should not only be cleared of any obstructive material on a regular basis, but also be provided with check dams placed across at a reasonable distance from each other. This will help in harvesting the rain-water, and thereby recharging the underground water.

Finally, to compensate for the gross inadequacy of forests in Punjab, agro-forestry and social forestry continue to be a viable proposition. Agro-forestry should be encouraged in flood-prone and water-logged areas; and social forestry on panchayat lands. Government should prefer plantation of sheesham over eucalyptus along roads. Since many saplings, planted by government agencies, get uprooted due to lack of proper care, it is essential to involve the local population in this task. Farmers, whose lands adjoin the plantation sites, may be asked to provide necessary care. Strategies, of course, will vary in accordance with local conditions.

Concluding Remarks

On the whole, Punjab emerges as a grand success story. Despite the constraint, inherent in its location on an international border with an unfriendly country and the challenge posed by militancy during the eighties, it has the highest per capita income in the country, was the first to work out the green revolution, and is now heading towards a phase of large-scale agro-industrialization. Evolving in the mode of a 'culture of competition', the state is taking time to acquire a 'culture of co-operation', Human development is yet to reach the expected level. For that matter, Punjab has not been in a position as yet to realize its full potential.

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