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SPATIAL OVERVIEW OF URBAN SYSTEMS

by

G Giridhar

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INDIAN INSTITUTE OF MANAGEMENT
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Spatial Overview of Urban Systems

G.G.ridhar

Some of the crucial demographic problems of the twentieth century are related not so much to the absolute size and rate of population growth but rather to the particular patterns of settlements and the increasing rate of growth and concentration in areas regarded as urban. Estimates show that the world's urban population (not considering the definitional differentials of "urban" between countries) was about 360 millions in 1920, 1,300 millions in 1970 and that by the end of this century, it may surpass 3000 millions (U.N., 1969, 1974). Such a dramatic transformation of human habitat has far reaching implications for the organization and development of factors associated with balanced development.

Essentially the current levels and changes in levels of urbanization may be explained with reference to five parameters, viz., (i) past levels of urbanization, (ii) fertility, (iii) mortality, (iv) migration and (v) the net reclassification of areas and their populations. Most policy makers and planners prefer to view urbanisation as occurring in an open system. This involves an attempt to see how the phenomenon of urbanisation is related to, interact with and is influenced by a host of other factors which determine fertility, mortality and migration differentials between urban and non-urban areas at both micro and macro levels of analysis. Among these five parameters, however, it is the migration component that has received least attention in the past. Therefore, it is on this component that focussed attention is given in this paper.

The conventional development theory held that given the conditions of "surplus" agricultural labour, development could be achieved only by shifting this surplus labour out of agriculture and into industry, where labour could be used more productively (Myrdal, 1968). Compatible with this theory is the increased efforts of countries like India to stimulate industrial growth and leaving the economic forces to determine the locations for industrial development in the initial stages. This strategy called for massive migration of the underemployed from rural areas to the cities in search of industrial jobs. Forces of forward and backward linkages in industry grew stronger over time while the process of chain migration gave further strength to what may be called a premature release of agricultural workers into the cities. While the industrial output had indeed grown, the anticipated trickle down effects did not occur. This led to a continuation of unemployment, underemployment and low productivity in both rural and urban areas. Since rural to urban migration is associated with a host of problems both at origin and destination, there is a need to devise programmes for changing or controlling migratory flows. India's 5-Year Plans have indicated an awareness of this situation at the planning level, even though the implementation leaves much to be desired.* This paper attempts to bring out some issues in understanding the processes and policies relating to internal migration within the broad framework of urban systems. First, the evidence of this awareness at the planning

* In his address to the nation on the eve of the Republic Day (Jan. 26, 1979), President Sanjeeva Reddy suggested that we have to plan not only to control massive rural to urban migration but work towards generating urban to rural reverse flows. This is an indication of the awareness of this problem with top administrators.

level is presented, followed by a discussion of a few spatial strategies of development. Development of urban systems and its symbiotic relationship with rural development is stressed along with some implications for policy and planning issues. Finally, a long term partial research plan for the urban systems Group is drawn up to form a basis for incremental improvements in focus and approach.

For demographers interested in spatial aspects of growth, the decade 1951-61 refers to a period of uncontrolled industrial development in the country. The first two-5-Year Plans (covering the period from Independence upto 1960) omit any systematic spatial or locational analysis or any discussion of the effects of national economic policy on the concentration of population in urban areas. It was in the Third 5-Year Plan (1961-66) that the national planners began to consider and emphasize the relationship between policies of industrial development and the growth of major cities. The first significant step in urban development in this plan is the inclusion in the central sector for 100% central assistance to the States for the preparation of Master Plans for selected "important areas". The Fourth plan reiterated the need for a more balanced spatial distribution of economic activity. The plan stated explicitly that among the important aspects of urbanization, "the most decisive are the patterns of economic development and the general approach to industrial location". The emphasis was on the need to prevent unrestricted growth of metropolitan cities and the need to have a regional approach to the problems of urban development by restructuring local areas and strengthening and reorganizing

the local administrative set-ups to enable them to cope with the growing problem. The plan gave steps to achieve "balanced regional development" through a deliberate policy of industrial decentralization. These are:

- (i) As far as possible, new industries should be established away from large and congested cities.
- (ii) In the planning of large industries, the concept of region should be adopted. In each case, planning should extend beyond the immediate environs to a larger area for whose development the new industry should serve as a major focal point.
- (iii) In community development projects or other areas within a district, the rural and urban components should be knit into a composite plan based in each case on schemes for strengthening economic interdependence between towns and surrounding rural areas (emphasis added).
- (iv) Within each rural area the effort should be to secure a diversified occupational pattern in place of the present extreme dependence on agriculture.

In addition to the schemes originally included in the fourth plan, a scheme was initiated in the Central Sector from 1972-73 to provide a minimum level of services like water-supply, sewerage, drainage, paving of streets and street lighting in the slum areas of 11 cities with a population of 8 lakhs and above. This scheme was later extended to 9 more cities, one in each state where no such large towns existed. Another scheme of considerable importance for the urban development sector for which additional non-plan funds

were subsequently found during the plan period was the scheme for integrated development of Calcutta Metropolitan area.* In spite of all these, the states do not seem to have made much headway in taking comprehensive action for adoption and implementation of the master plan. The narrow and singular emphasis on the extension and augmentation of civics services and amenities continued to siphon off both financial and organizational resources at the local level.

Fifth-5-Year Plan

There is a clear realisation at this stage that a complex and multiple strategy is necessary to meet the difficult and growing problems of urbanization. For example, more desirable and balanced spatial distribution of economic activity would need measures to attract industries to new urban centres and disincentives to discourage the flow of population to the large cities. Innovation in the administrative organization at the local level would be needed to adequately handle the type and size of urban activity likely to arise in future. In this context, there is a need to create institutions which will cut across the existing authorities and which will bring about the concept of horizontal planning as opposed to vertical planning. There is also a need to devise a system of devolution of funds to the local municipal authorities (Rural-Urban Relationship Committee Report). Devising complimentary Urban Land Policy is undoubtedly a necessary requirement because of the continuous and excessive rise in urban land values in and around urban centres

* The Calcutta Metropolitan Development Authority also raised some funds through new taxation and special non-plan assistance from the centre. Some of the programmes on CMDA were also supported by the World Bank IDA assistance.

The above strategies form the core of Fifth Plan objectives to augment civic services in urban centres, to look at metropolitan cities on a more comprehensive and regional basis and to promote the development of smaller towns and new urban centres to ease the pressure of concentrated urbanization. This is a complex problem for which research, development and training components are essential in identifying the missing links in the understanding of urban systems.

Having gone through the existing level of planning awareness in India as indicated in the 5-Year Plan documents, the major thrust of research should be to disaggregate the process linkages and to identify areas of study which would help translate the policy statements into manageable steps leading to implementation. The parameters of city growth are essentially a combination of natural increase (excess of births over deaths) and net migration (excess of in-migrants over out-migrants). * The latter component is a function of rural push factors and urban pull factors, the rural-urban income differentials and the potentialities of the informal sector in the urban areas to provide at least a stop gap arrangement for gainful employment of unskilled labour. The linkages are a function of selectivity of migrants and factors affecting rural - urban relationship. Spatial aspects in this latter component is discussed more in this paper.

Rural to urban migration is inevitable during the process of development in the Indian context. If we accept this fact then it can be acknowledged that availability of land for urban purposes is
 * Expansion of city due to reclassification of boundaries may also contribute to spatial city growth.

far from being in short supply. The real problem lies in a deficiency of adequately equipped urban centres capable of absorbing this continuing shift in population into the productive employment structure of the town. A corollary to this is a deficiency in the supporting capacity of the land in relation to the geographical distribution of the existing network or pattern of these towns or cities. It was demonstrated by Christaller (1951) that the hierarchy and pattern of settlement was the result of an agrarian economy in Germany and East England before the period of European Industrial Revolution. He observed a clear pattern of the network of villages and towns based on agrarian pursuits in their hierarchy of functions (marketing, collegiate, administration, port, craft industry etc.) and in their various sizes in relation to their ascending scale of dimension. In this context, each town had its own measurable sphere of influence with an interdependence with other towns for reciprocal marketing etc. in a hierarchy of size, function and travelling distance between centres. With industrialisation, this hierarchy gets distorted, since the process of continuity, efficiency and higher output capacity results in the extension of the original industry into a whole series of industrial establishments constructed close to each other.

Urbanization is a social phenomenon and surely much more than a mere process. It incorporates several aspects, viz., rural to urban migration, change in occupational structure from agricultural to non-agricultural activities, increased interdependence and interaction between cities and changes in institutional structure, value systems and physical environment through a shift from low density to high density settlement

patterns. In an open economy, 3 or 4 or even more persons migrate to the city for every single job produced. These, in turn, have to be supported with consumer goods, finance, social services, housing etc. and the urbanization process continues to expand at an accelerated rate relative to industrial development. This urban industrialization is not able to expand and create employment opportunities or stimulate capital formation anywhere closer to the same rate as unskilled labour flowing into the cities. There is a need to guide this process of urbanization with programmes that tend to provide a more equitable distribution in levels of living. In the absence of the benefits percolating down the economic hierarchy, developmental policies should aim to benefit the poor directly. * Moreover, the extent of urban poverty in our country seems to be catching up with rural poverty and according to the government's own estimates, as much as 41% of the urban population lived below poverty line in 1977-78, compared to 48% in the rural areas.

In this context, an integrated look at the urban and rural sectors in terms of the determinants and consequences of rural to urban migration on places as well as on people involved in this process, policies on urban employment generation and equitable provision of urban amenities is important. Earlier, we have shown the existing awareness at the planning level in India today of the fact that unregulated migration does not facilitate national development goals. There is a need to devise some appropriate intervention policies based on a study of the causes and effects of population flows.

* The rural component of this poverty is the major concern of an action-research project at the Centre for Management in Agriculture of Indian Institute of Management, Ahmedabad. See Vyas, Moulik, Desai and Gupta, Rural Development for Rural Poor: Dharampur Project.

The Response to metropolitan growth

Rural over-population and poverty, rapidly expanding metropolitan areas and polarised regional development levels have been generally seen in India as major underlying problems in spatial development. Clearly, urban population growth did not create poverty; it has merely made poverty visible. The answer depends on a two-stage understanding, namely, how far the existing patterns of population flows affect the national developmental goals and how an intervention package be developed based on economic rationality of the migrants and operating through employment location and income changes. Major developmental strategies have spatial population distribution components whether such influences are explicitly or implicitly stated at the stage of strategic planning. For example, in the urban sector, the strategy could be to have dispersed urbanization or decentralized urban and regional development or centralised urban development etc. Similarly, in the rural sector, the strategy could be to increase agricultural productivity and rural incomes, to generate agro-industry employment in rural areas or to have alternative employment planning schemes for the rural people. * Investments in rural development and rural industrialization is one of the strategies advocated to stop migration at the source. The efficacy of this strategy in the immediate future needs to be evaluated. Another strategy is to build new towns and even new metropolitan concentrations to divert the stream of migration to alternative targets. This is also a call for decentralization of government departments, manufacturing industries and white

* Recently, the Government of India introduced various schemes to provide employment opportunities in rural areas. These include; Programmes of Small Farmers Development Agency (SFDA), the schemes for Marginal Farmers and Agricultural Labourers (MFAL), the Crash Scheme for Rural Employment (CSRE) and the like.

collar employment in order to create a better balance between regions. There is this fourth faction that wishes to declare a particular metropolis a closed city and thus regulate further population growth by force of law. The fifth and probably the largest of all is the group that advises doing nothing at all, because doing anything to migrants would only induce more of them to come. This last strategy has explicit negative implications since if it fails to stop migration then the city will rapidly degenerate and a potential asset of the city may be converted into a long-term liability. In the following discussion, we have collapsed these strategies under two broad categories-rural and urban development strategies since these two sectors have lot of commonalities and are mutually reinforcing.

Rural Development Strategy

The essential elements of rural development strategy contain various combinations of intensification of agricultural production and marketing, comprehensive rural development activities based on extension education aimed at behavioural changes, and efforts to bring new land under cultivation. While agricultural development may indeed be essential for sound urban growth and development is equally basic to agricultural development. The steady stream of migrants from rural areas to urban centres that influence the urban population to grow at a faster rate than the rural population has implication for development planning. In addition to the age selectivity of migration, often it is the better educated and able persons who move because their comparative opportunities are often better in the cities. The effect of this selectivity may be felt in rural areas through loss of young, abler and educated persons, leaving

behind a residue of conservative and less dynamic people. Attraction of employment generating activities within this residual group becomes more difficult due to the resulting increased costs. Also, the city receiving migrants may develop a somewhat unusual population composition as a result of structural inequalities. A substantial level of unemployment and Under-employment will result and in effect will merely replace disguised unemployment in agricultural areas. This, for all practical purposes may be viewed as a spatial transfer of unemployed labour force. Growth of slums and squatter settlements, excessive pressures on housing and urban amenities by the growing middle class population in urban areas are consequences of this transfer. But what is the impact of such rapidly growing cities on agricultural development?

Primarily, growth of cities provides a market for the agricultural products of the periphery. As cities grow, this cash market for agricultural commodities grow up at least as fast as the growth of city population. Opportunity for new employment and new business increases and with it the problems of marketing, transportation, processing, storage etc. The impact of this growth on the nature of agriculture in terms of additional inputs, specialised cropping pattern to optimally exploit the market and related developmental requirements are important linkage points between the rural and urban sectors of the economy. The cities also provide income, education and all other attractions of bright lights. The backwash effect of this phenomenon in terms of pulling away the productive elements from the agricultural sector is an important challenge to management of rural development. Also when the rural poor migrate

to the city, they often acquire a political power they lacked in the rural areas. Linkages between these two sectors grow stronger due to a systematic flow of capital from urban to rural areas in the form of remittances to the family members left behind in the form of remittances to the family members left behind in the rural areas. The efficacy of this capital pumped into rural areas to stimulate the rural economy is an important aspect of fostering healthy rural-urban linkages. Moreover, there may be a process of return migration induced by the rural developmental activities which may go against the policy of helping the rural poor (target population) because these return migrants may have greater chances of getting these jobs due to their erstwhile association with the urban sector. Identifying and strengthening these linkages are essential aspects of coordination of agricultural development and urban growth at the local, state, and regional levels. At all these levels, agricultural development and urban growth should be considered as interrelated and complementary and not separate and competitive.

Agricultural development is, however, only a sub-set of rural development. Focus on increased agricultural productivity needs to be supported by viable programmes of rural development. These include: labour intensive agricultural development, small-scale labour intensive light industry established in and around rural areas, generation of local self-help and participating in decision-making and development of urban hierarchy supporting rural development efforts (Waterson, 1974).

In this context, International involvement in integrated rural development seems to fall in three major strategy profiles (Rondinelli, 1978). The World Bank approach tends towards strategies to evolve functional coordination with objectives of increased agricultural output and income in rural areas, providing human needs, services, and diversifying the economic base of rural communities. The United Nation's approach tends towards strategies to bring about rural modernization with objectives of transforming rural regions from subsistence to commercial agriculture, increased per capita incomes and reducing the outflow of population from rural to urban areas. The USAID approach tends towards strategies to foster integrated rural development with objectives of increased participation in developmental efforts, integrating agricultural, industrial and commercial development and creating linkages between rural and urban centres. These three models are far from being mutually exclusive or exhaustive. Efforts to optimally combine these strategies to suit a particular national situation will form an important research area in rural and urban development.

Urban Development Strategy

A combination of integrated rural development approach with rural service centres, market town and small cities is the basic requirement of this approach. It focusses on a network of central places serving rural areas as linkages to the rural development activities. Some of these links are through providing markets for agricultural production (within or outside of the rural regions), increasing rural employment

opportunities and reducing rural out-migration. Dispersed urbanization is one of the strategies of urban development. The focus here is to optimise the dispersal of urban towns or service units instead of concentrating opportunities and services in a few large cities (weitze, 1973) and providing a forum for occupational mobility. This concept is closer to the decentralized urbanization strategies aimed at redirecting the migrants from large metropolitan areas to smaller intermediate-size cities. This might involve the promotion of a metropolis at a considerable distance from the primate city in a region. The pay-off is that since action is taken near the top of the hierarchy, we may alter the relative agglomeration pull of metropolitan areas with the long-term result of new regional urban hierarchies developing in and around the counter magnet.

Some authors have suggested a middle ground approach between centralized and decentralized urban growth strategies. According to Hansen (1975), centralized decentralization strategies would be effective in stimulating the growth of smaller cities to integrate rural and urban population into the processes of development. Starting from the premise that city is the engine of the development, this approach calls for a guided development of an urban hierarchy to foster the potential links between the cities and the hinterland. Growth centre approach is a case in point here.

In the original formulation, Perroux (1949) defined a growth pole as a set of industries generating dynamic growth in the economy as a result of input-output interdependencies around a leading industry.

Boudeville (1966) later gave a spatial flavour to this by suggesting that the set of dynamic industries might be clustered over space. When this cluster is located in an urban area, the focus should be on the spill-over effects in the surrounding hinterland rather than in the economy as a whole. This approach is appealing to policy makers (as indicated in the Indian context earlier) because it appears to offer opportunities for integrating industrial policy, physical and economic planning and has an in-built thrust for reducing spatial inequities in growth. This strategy may help in filling gaps in the national urban hierarchy and to build a rational urban system capable of defusing developmental impulses and innovations from the core to the periphery. There are some critical questions regarding the size, number, timing, and process of implementation of these growth centres. If in the initial stages this strategy produces negative spill-over effects (for example, draining off the productive elements from the hinterland), what is the lag-time period before favourable spread effects are created? What are the necessary parallel investments (transportation, road network etc.) required for the success of this strategy? What is the opportunity cost of such investments?

In an interesting analysis of possible strategies for regional development, Rondinelli and Ruddle (1976) observe that basic structural imbalances are the primary obstacles to achieving growth with equity. After looking at the range of strategies that focus on development at various points in the rural-urban continuum, they conclude that full integration of urban functions into rural development is necessary and that this requires a well-articulated spatial structure with linkages

between development centres of all sizes. They note that this can be achieved by "careful location of productive investments and social services at strategic points in the spatial system". Major strategic points are market towns at the lower end of the hierarchy and intermediate size regional centres towards the upper end of the hierarchy. There is a considerable potential for upward mobility within this hierarchy and the migration flow is likely to continue at a high rate relative to the urban population base. The poverty of the rural areas may be reflected in the cities which face a long run absorption problem. Intervention policies are usually of the responsive type designed to cope with rapid urbanization specially in the areas of urban land use, services/amenities and job markets. The second type of policies are of the influencing type designed to manipulate urban and industrial development.

There is considerable disagreement regarding the desirability of current rates of rapid urbanization and massive rural-urban migration. Some see these trends as effectively speeding up national processes of socio-economic development while others believe their consequences to be largely undesirable and argue that both trends should be slowed down. Those taking the negative view point out that most developing countries are over-urbanized in the sense that urban growth rates have greatly out-distanced rates of industrial development and economic growth. In spite of substantial gains in industrial production, new jobs do not appear at anywhere near the rate required to employ a significant portion of the growing urban labour force. In spite of impressive improvements

in urban housing, food availability, educational and transportation services, slums seem to proliferate, demand for services seem to be much higher than their supply, and traffic congestion seems to be increasing. Huge sums of money are earmarked for developmental and regulatory activities adding up to the total urban development cost. Supporters of the current pattern of urbanization look at the modernizing benefits and the improved well-being of most rural-urban migrants. Migration usually brings forth an increase in individual income and an opportunity to build up on human capital. Moreover, return migrants become very effective change-agents in the rural areas, and the rural economy may be stimulated by the money remittances to the family living in the rural areas. These situations offer interesting socio-economic and cultural challenges to management of urban systems.

Within this broad spectrum of subjective thinking, there are a few policies in India which influence internal migration in a way that has implications for spatial planning. Four explicit migration goals are considered here for which there may be a variety of policy options (Sally Findley, 1977). These are: (1) Slow/decrease rural out-migration, (2) Channel urban migrants to selected destinations, (3) Responsive policies to cope with urban in-migration, (4) Restrict migration to metropolitan areas. Agricultural and rural development activities have been the major thrust in slowing rural out-migration. The agricultural mechanization to improve productivity and increase rural income levels on the one hand and small farm development to keep optimum levels of labour employment opportunities on the other, location

of commercial banks to encourage rural savings and attempts to eliminate factor-price distortions have been some of the explicit policies in India influencing migration patterns. Changes in production technology, land reforms, rural public works projects, development of rural infrastructure, industrial decentralization, price supports etc. are some of the required accompaniments of integrated rural development policies. Two of the policies that have not always succeeded economically are the development of industrial estates in decentralized rural locations and attempts to expand cottage industries. Strategy to redirect rural out-migrants recognises that there is going to be some rural to urban migration irrespective of the policy interventions. This could be done by providing road networks including educational and social programmes and generating opportunities for anticipated demand for employment.

Directing migrants to selected destinations requires development of growth poles at intermediate-size cities and the development of a balanced urban hierarchy with a variety of urban destinations. Such a spatial redistribution of cities could be achieved by deliberate planning of industrial location (as evidenced by ^{our} 5-Year Plans) providing necessary infrastructural and other fiscal supports for decentralizing industrial growth and by exploiting and mobilising natural resources as a basis of city development. Since economic forces seem to dominate the decision of locating an industry in the city, the focus should be to strengthen the links between city and the hinterland. This will, infact, provide a leverage point to cope with

the increasing deviation between a city's absorptive capacity and the demand on its job market. An indication of the existing sensitivity to this way of thinking comes from the concept of Standard Urban Areas adopted for the first time in the 1971 census of India. This policy should be supported by rural development activities, i.e. capital intensive development of agriculture may squeeze poor farmers out of land. Again, if the jobs are concentrated in a very few cities, then redirecting migrants would be difficult. This synergy between components of rural and urban growth should be an important concern of spatial development.

Responsive policies involve programmes which promise to absorb migrants. Rapidly growing urban population strains health and education budgets, complicates the reduction of unemployment levels and exacerbates problems connected with the provision of adequate housing, food, energy supplies, transport, water, and sanitary services. This accumulating demand due to urban growth and increased consumption arising out of increased per capita incomes needs to be met in the short run, while long run preventive policy action is being initiated. These long run policies are: (1) reducing rural out-migration by providing alternative rural destinations and by expanding rural economic and social options, and (2) reducing migrants to big cities by redirecting them to market towns, regional growth centres or intermediate size cities. In the short run, since location of infrastructure and services is key to guiding growth, they should be properly rationalized to reduce spatial imbalances. Restricting migration to metropolitan

entry permit system. Is this feasible in a country like ours? If yes, what are the indications in a city that might justify such an action? If not, what are the alternatives? These are some very broad questions that are just raised here without attempting to provide answers.

Possible Future Directions

Given the wide range of policy options and gaps in the knowledge of the dynamics of urban systems, it is imperative that research should concentrate on this aspect of management of population implosion within the country. In this context, the Urban Systems Group in IIMA has important inputs to offer through a planned phasing of research activity. What follows is a demographer's perspective of such a research agenda to be considered as a basis for further refinement in USG's future directions of research. The idea is to project USG as a focal point for research in the Urban Sector so as to foster the involvement of several related disciplines and functional areas. This topical agenda is only indicative and the author looks forward to refining or redefining it as evolving out of a series of discussions and comments. While the order of listing does not have any specific relevance, the topical areas are carefully chosen to generate cases and other teaching materials for seminars/courses in urban systems.

1. Within the context of studying the determinants and consequences of rapid urbanization, there are three major components that could provide a better understanding of urban systems. These are: demographics of rapid urbanization, its socio-economic developmental

aspects and the resource-service demands that the process generates. Specifically, we need to know whether high fertility or high rural-urban migration is the principle cause of urban growth. How do the urban biased industrialization and the agricultural and rural development activities comprehend as a policy package? Are the major cities/agglomerations too large in terms of demanding disproportionately large share of national resources and services? Is the problem one of urban size or urban growth management or both? What are the consequences of monetary remittances, return migration and rural employment generation?

2. Focus is needed on the analysis of city size, structure, and functions, the distribution of city sizes and their relevance to the design and implementation of national urban growth strategies.

3. Implicit and explicit urban development policies and their relative effectiveness as spatial policy instruments, decisions on industrial location, employment generation by sectors and their impact on rural-urban migration or urbanization needs to be studied.

4. Research is needed on integrated planning for urban service delivery. Sectors included in this could be housing, transportation, educational facilities, water, and sewerage. Probably, we can think of an index of disequilibrium in urban services over space. We need to study the process of planning, implementing and evaluating urban development programmes and projects. Planning may include corporate planning, budgetary planning and integration of resource planning with land use planning. Implementation would cover target setting, methods of execution and problems therein that are relevant to management.

Evaluation includes development of reporting and information systems and monitoring of programmes and the environmental changes.

5. The efficacy of a developed urban hierarchy in providing a network for the social, institutional and technological change over the national space economy needs to be understood. The focus will be on the symbiotic relationship between rural and urban areas.

6. Urban systems may be identified through population flows, commodity flows and money flows; i.e. within the urban areas of a country, there may be urban sub-systems which indicate relatively more homogenous structures, changes and public policy effects. The size and influence of the sub-systems have a regional component. Such a regional sub-system is a function of distances between urban areas, potential and existing urban employment generation capacity and the three flows mentioned above. State political boundaries are not good cut-off points for such a sub-system. We need to establish and use a framework of functional urban areas to give a better understanding of the impact of public policies on population distribution and economic development.

7. Regional development involves activization of interdependencies between regions. What is the current level of such interdependency and how can they be strengthened? The composition and volume of a migration stream provides a surrogate for answering this question. Demand for labour in a given place is a demand for inputs in particular occasions; and a difference between two regions in labour demand indicates their relative levels of development and absorptive capacity.

This could be a follow-up on identifying functional areas as indicated in point 6.

8. Research on characteristics of urban centres and their spread effects will indicate if a particular type of urban centre seems to be having greater spread effects to the rural periphery. If so, such urban centres may be developed through proper policy interventions to maximum spread while minimising of time. Standard Urban Areas of the 1971 census of India provide readymade data for such a study. We are in the process of finalizing some work done on such areas. Cities should be viewed as a series of nodes within a total urban system and between these nodes, there is a constant flow of goods, information and people along the given channel. These channels offer good examples of where urban corridors develop over time. This comes closer to the study of medium-size cities in an attempt to decentralized growth.

9. Rather than studying the concept of optimal city size, it can be more productive to undertake research on threshold city sizes for cities performing different functions — rural service centres, manufacturing towns, growth centres, regional metropolises etc. We need to note what types of city size distribution offer best compromise between the hierarchy needed for the production and distribution of goods and services and that required for the transition and continuation of growth impulses and innovations.

10. Since our last four 5-year plans have given clear attention to the growth of cities and the polarisation such a growth can create in the national economy, a study can be based on the realisation of

such policy orientations. More focus is needed to identify particular problems of implementation of policies.

11. Study of urban settlement patterns might indicate the role of rural to urban migration in the proliferation of slums and squatter settlements. This has relevance to the capacity of urban/municipal finance and revenue generation since these settlements use the municipal services but do not pay for them.

Management inputs

Dynamics of urban system are closely related to the process of economic development and population redistribution over space. This is a very broad dichotomous division and would remain to be broad and nebulous if specific activities, either responsive or influencing are not identified with a focus on process linkages. For example economic development does not necessarily mean increasing per capita income only but includes equitable distribution of such income. One could identify projects and programmes leading to this objective, but the process will fail if these activities are not managed properly. The managerial perspective would include planning, monitoring, control and evaluation at each stage of this process. Responsive problem-solving is one basic approach in this process where there is a tendency to act only when undesirable disfunctions are perceived to exist in sufficient amounts to demand corrective action. This involves assessment of the problem, identifying alternative approaches to scale down the problems to acceptable proportions and choosing among these alternatives. The focus is on present problems and reacting to processes of the past.

A slightly future-oriented version of this is to project the present trends and devising regulatory mechanisms to modify the trends in ways that preserve existing values into the future while avoiding the predicted future problems. The third approach akin to the corporate planning model is to perform analysis not to identify future problems but to seek new growth opportunities. Irrespective of the style of strategic planning for urban development, some kind of activity goals need to be set and the movement towards achieving goals properly monitored. Organisational control and evaluation depend on the structure of organisation; their functional styles and their willingness to foster inter-organisational linkages. For example, there are several organisations involved in provision of urban services and they need a common understanding of the target population, say the urban poor. While services such as housing, water, drainage, roads, schools and health facilities may be entrusted responsibilities of different organisations, an integrated planning involving these organisations will result in a common perspective and not each one pulling in different directions.

The second broad category of population distribution involves decisions on location of investments and employment creation, monitoring the growth of complementary service sectors over space and time. Timing is important here in two ways- 1) there may be identifiable stages in the process of urbanization calling for differential strategies at each stage and 2) urban development policy must be supported by judiciously selected complementary policies in the area

of rural development. If development of small scale industry in a linking pin then the "development of well selected towns from various tiers and regions would be a feasible method of building closer linkages, and bridging the gap between villages and the metropolises". (Ford Foundation 1963). Management orientation will provide important inputs for sustaining local growth if marketisation of local goods is improved and appropriate production and investment help is provided for optimal use of manpower and financial resources in rural areas. To this extent it is appropriate that management schools get involved in such dynamics of urban systems and gain an initial comparative advantage by providing management inputs into one of the serious national concerns.

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