

## Chapter 7

### SUMMARY AND CONCLUSIONS

The present study is an exercise in futuristic geography that sought to foresee the likely metamorphosis of the landscape of the Chandigarh Periphery Zone by 2020. It is based on the premise that landscape dynamics largely center around rational, public and private, human decisions pertaining to organization of space. Accordingly, the emergent scenario has been projected along the parameters of population and land use with an understanding that one would impact upon the other. The main objectives of the study were to:

- (i) assess the effectiveness of the Chandigarh Periphery Control Act in retaining the rural character of the Periphery Zone, as visualized;
- (ii) look into the nature and extent of the violations of the Act, and to examine their impact on the landscape;
- (iii) project the population of the Periphery Zone on a yearly basis, in terms of rural-urban components, age composition and workforce size; and
- (iv) visualize the spatial scene of the Periphery Zone in 2020.

The study becomes critical in the light of the fact that the study area is more of a 'naturalized' or an 'officially instituted zone' rather than a 'natural' zone. This Periphery Zone was delineated soon after the conception of Chandigarh, to be preserved essentially as a rural tract. The intention was to provide a green envelope to the city of Chandigarh and protect it from the unsavory appearance of an urban sprawl. To achieve this end, an elaborate set of rules was framed under the title of the Punjab New Capital (Periphery) Control Act, 1952 and amended in 1962, to expand the jurisdiction of the Periphery Zone from the

original of 8 kilometers to 16 kilometers radius from the boundary of the then Chandigarh Project site. Envisaged by planners as a belt that would remain more or less static in terms of land use and population change, it defied plan projections and stipulations alike to exhibit an untrammelled transformation. How and why this occurred and what future course this transformation would take are questions germane to the present study. It was in the light of these questions that the following hypotheses were framed.

- (i) Under the prevailing populist political culture and indifferent commitment of the bureaucracy, the Periphery Control Act is likely to be violated and the intended rural character of the Periphery Zone would be difficult to sustain.
- (ii) The clause of the Periphery Control Act, under which once a village is upgraded to a town or merged by the government into an existing town goes beyond the purview of the Act, is likely to be exploited the most.
- (iii) Villages in contiguity with Chandigarh or other existing towns in Punjab and Haryana sub-zones are more susceptible to acquisition of their land for urban use.
- (iv) Attracted by employment opportunities, higher wages and better environment available in Chandigarh and its adjunct planned towns of S.A.S. Nagar (Mohali) and Panchkula, and finding cost of living higher in these places, many migrants would seek residence in their neighbouring villages. This would manifest itself in explosive population growth of these villages.
- (v) The demand generated for diverse kinds of physical infrastructure in the form of road and rail transport networks, water treatment, sewage disposal, educational institutions, health centres and recreation sites would put pressure on the land in the Periphery Zone thereby squeezing the area under cultivation, cultivable wasteland and forest, and bringing these under the urban carpet.

The requirements of the research theme guided the nature of methodology employed. Both secondary and primary sources were tapped for the requisite data. Individual villages and towns were the basic units for data analysis. Population as well as land use data was collected from the different volumes of Census of India, District Census Handbooks and Village and Town Directories, 1971 to 2001. Methods appropriate for projecting the population of smaller areas were used. These included ratio, growth differential, compound annual growth rate, extrapolation, and cohort component techniques.

In addition, data on the change of land use was obtained from Land Acquisition Offices of the Governments of Chandigarh, Punjab and Haryana. Information on the extent of land use violations was procured from the Departments of Haryana Urban Development Authority (HUDA), Panchkula, Punjab Urban Planning and Development Authority (PUDA), S.A.S. Nagar (Mohali) and Department of Town Planning, Chandigarh. The land use details of different towns were gathered from the Town and Country Planning Departments of the concerned governments in the Periphery Zone. The minutes of the meeting of the Coordination Committee, which deals with issues of common interest to the three sub-zones - Chandigarh, Punjab and Haryana, were sourced from the secretariat of the Union Territory of Chandigarh. To understand ground realities, villages on sample basis, located on the main roads radiating from Chandigarh, as also at a distance from these were visited personally. In the process, detailed interviews with the local community leaders, corporate houses, land developers and property dealers were conducted to understand the underlying dynamics of change. Discussions on the likely scenario of the Periphery Zone were held with the officials involved in the planning process.

What emerged through data analysis and field visits was the glaring fact that the violation of the Chandigarh Periphery Control Act was initiated by the government itself. Ignoring all protestations by Corbusier, who had conceptualized the Periphery Zone, the Government of India acquired vast rural

land to lay out the Chandimandir Military Cantonment. The Hindustan Machine Tools Factory, a Government of India enterprise, was also set up in its proximity around the same time.

The next blow was dealt in 1966 with the trifurcation of the state of Punjab. Henceforth, while the Periphery Zone would remain the 16 kilometers belt around the city, its administrative control would get distributed over the three governments of Punjab, Haryana and Union Territory of Chandigarh. This unforeseen situation gave a free hand to the governments of Punjab and Haryana to carry out changes they desired by manipulating the provisions of the Act. Thus while the blueprint for the city remained sacrosanct, this privilege could not be extended to its periphery.

The perspective on the Periphery Zone changed from environmental to commercial, the approach from preservation to utilization and the landscape from rural to urban. The existence of three independent administrations that took land use decisions in their individual and often competitive interests in place of common one, largely contributed to this scenario.

The race to reap maximum advantage from Chandigarh began with the creation of S.A.S. Nagar (Mohali) and Panchkula towns, one after the other adjacent to the city of Chandigarh. Neither the emergence of S.A.S. Nagar (Mohali) and Panchkula, nor the setting up of the cantonment conformed to the original conception of the Chandigarh Periphery Zone. Obviously, the main constraints to the management of the Periphery Zone were essentially political rather than technical.

This process perhaps took seed in the plan for the city itself which did not cater for the residential needs of the informal sector comprising construction workers, personal service providers, rickshaw pullers and others of the kind, nor their low levels of affordability that would disable them from raising houses within the city. They were constrained to settle in the villages and towns of the Periphery

Zone. Moreover, the impact of Chandigarh as a growth pole that would bring buoyancy in its surroundings was also underestimated. It is in fact inconceivable that the periphery of a dynamic city like Chandigarh could escape such an effect. This is now an irreversible process. Chandigarh, along with the satellite towns of S.A.S. Nagar (Mohali) and Panchkula has assumed the form of an extended compact urban conglomerate with its collective impact on the periphery Zone. The violation of the Periphery Control Act was inevitable

The truth is that politicians, planners and people at large have all contributed alike to the defiling of the Periphery Zone. Whereas the role of the first and the last is more visible in the Punjab Sub-zone, planning bodies themselves have been more active in the case of Haryana and Chandigarh Sub-zone. As a result, the land use and population change in the Haryana and Chandigarh Sub-zones is better structured and organized than in the Punjab Sub-zone

A notable feature of population dynamics within the rural periphery was a rapid movement of villages from lower size class categories to higher ones. There wasn't a single village having a population of at least 5,000 persons in 1971; however, by 2001, there were 16 such villages. What came as a surprise was the lack of any relationship between the population size and growth rate of villages. Contrary to expectation, smaller the size of the village higher was its compound annual growth rate. This is explained by the initial presence of the relatively small villages in close proximity of Chandigarh. The city was superimposed on an agriculturally backward area with low density of population.

Indeed the factors of distance and matters of connectivity were most critical in determining the growth rate of individual villages. The hypothesis that a large share of migrants would seek residence in the neighbouring villages of Chandigarh, S.A.S. Nagar (Mohali) and Panchkula, due to availability of employment opportunities, higher wages and better environment vis-à-vis higher cost of living in these cities, stands validated. The rural population in the 0-4 kilometers distance annule measured from Chandigarh recorded a

compound annual growth rate of as much as 5 per cent during 1971 -2001. The comparable figures for the 4-8, 8-12 and 12-16 kilometers annules were 3.0, 2.3 and 2.1 per cent respectively. Thus, the growth rate of villages decreased with an increase in the distance from Chandigarh.

The scene differed at the sub-zonal level. Since all the villages in the Chandigarh Sub-zone were located within the 0-4 kilometers distance annule, the growth rate of the rural population at 6 per cent in its case was the highest among that of all sub-zones. The Haryana Sub-zone recorded a growth rate of 3.3 per cent while its different distance annules did not display a consistent pattern. The presence of the Panchkula Urban Estate in contiguity with Chandigarh disturbed the expected pattern. In the case of Punjab Sub-zone, the growth rate is high in the 0-4 kilometers distance annule, moderate in 4-8 and 8-12 kilometers distance annules and comparatively low in 12-16 kilometers distance annule. At the sub-zone level, the role of distance and land use get mixed up in influencing surface trends.

Despite the merger of several fast growing villages in neighbouring towns or their urban status, the rural population in the Periphery Zone recorded a compound annual growth rate of 3 per cent during 1971-2001. The rate of natural increase averaged 2 per cent. Evidently, one-third of the increase in rural population could be attributed to the factor of migration. In-migration was of higher order in villages within Chandigarh Union Territory. This was the outcome of a twin process: migrants to Chandigarh settling in these villages and some Chandigarh residents raising residence in these villages. In addition, villages in proximity of Derra Bassi, Kharar, Zirakpur, Pinjore and Kalka towns, and those situated along the National Highway-22 connecting Chandigarh-Pinjore-Kalka and those finding a location close to the Haryana-Himachal Pradesh border also attracted in-migrants in large numbers. These sites had the locational advantage of being in proximity to Chandigarh, S.A.S. Nagar (Mohali) and Panchkula, as also of better connectivity conducive for commuting. Private developers also found these localities lucrative for raising residential colonies legally or illegally.

Out-migration, on the other hand, was typical of villages located at a distance from Chandigarh, especially in the Punjab Sub-zone. Low agricultural productivity associated with undulating topography, soil erosion and inadequate irrigation had impelled out-migration. It was directed largely to villages located in the proximity of Chandigarh, S.A.S. Nagar (Mohali) and Panchkula. A redistribution of population within the Periphery Zone is, thus, indicated.

Over the years, towns in the Periphery Zone grew in their number, population size and physical spread. The hypothesis that the process of upgradation of a village into town or its merger into the existing towns through acquisition is likely to be exploited the most, stands validated. The state governments discovered this system as an easy way of circumventing the Act. At the time of inception, the Periphery Zone had only four towns, the number of which increased to 12 by 2001. The rapid pace of urbanization herein could be attributed to the emergence of new towns and physical expansion of the existing ones onto the adjacent villages besides the rapid increase of population in all towns without exception. The Punjab Sub-zone witnessed the emergence of six new towns and Haryana of two towns since the enactment of the Periphery Control Act. Consequently, the urban area increased from hardly 10 square kilometers to no less than 140 square kilometers during this period. This impressive transformation of the Periphery Zone from rural to urban could be attributed to the dynamism and magnetism of Chandigarh as also to the incapacity and indifference of the governments to administer the Periphery Control Act.

The growth behaviour of towns in the Periphery Zone has been opposite to that of Chandigarh. In the initial years, the city was having a shadow effect on the growth of towns in the proximity but its own growth rate was rapid, the compound annual urban growth rate being 7.5 and 5.8 per cent during 1961-1981 respectively. The scenario got reversed since 1981. The compound annual urban growth rate of Periphery Zone was almost 2.5 times of that of the

city during 1981-2001; the two rates being 3.2 and 7.6 per cent. The city was now exercising a spread rather than backwash effect. New towns that emerged were of great variety: S.A.S. Nagar (Mohali) being an industrial town, Panchkula a service centre, and Chandimandir a cantonment.

The factor of escalating land values and rents in Chandigarh is critical to the expansion of towns in its vicinity. Initially these towns absorbed the intensifying pressure on housing in Chandigarh. The state governments of Punjab and Haryana were also keen to capitalize on the proximity of their territory contiguous to the City Beautiful, famous for its environmental beauty and quality of life. This was not without some positive impact on the Periphery Zone as it was kept reasonably free of unauthorized developments. The main adverse effect of S.A.S. Nagar (Mohali) and Panchkula has been the squeeze of the agricultural land and imposition of industrial landscape around. Such satellite towns depend heavily on Chandigarh for education, health and recreational facilities.

Contrary to what was envisaged the Periphery Zone will gradually lose its rural character to get urbanized at an astonishing pace. The urban population in the Periphery Zone is expected to increase from 0.46 million in 2001 to 1.24 million in 2020, an increase of 167 per cent in 20 years at an annual compound growth rate of 5.03 per cent. This will account for nearly two-thirds of the total population of the Periphery Zone. The share of the rural population in the meanwhile will decrease from 55 per cent in 2001 to 35 per cent in 2020. The combined population of all urban centres would cross the one million mark by the year 2016. The existing towns would grow physically bringing, more and more villages within their municipal limits. The overgrown villages in the Periphery Zone would acquire the status of urban centres.

Such an urban scenario of the Periphery Zone would be a critical element of its management. The Periphery Zone, under the tripartite control of Punjab, Haryana and Chandigarh governments is already facing the problem of coordination among these administrating bodies. After the enactment of the 74<sup>th</sup> Constitutional Amendment in 1992, these towns are under the purview of elected civic bodies, such as municipalities or *nagar panchayats* on a regular basis. This makes the task of coordination still more difficult, and might complicate the already mismanaged urbanization process. The involvement of internationally reputed institutions for managing Greater Mohali Development Plan might give a direction to the process of urbanization in the Punjab Sub-zone but then the other two sub-zones would remain uncovered.

A significant change in the land use pattern of the Periphery Zone was a natural outcome owing to the demand generated for diverse kinds of physical infrastructure in the form of road and rail transport networks, water treatment, sewage disposal, education and health institutions and recreation sites. The two most noticeable features in the land use change in the Periphery Zone were the decrease in the forest area and increase in the share of land not available for cultivation. The forest cover got denuded by six per cent points and 'land not available for cultivation' increased by 7 per cent points during 1971-2001. The forest cover was completely wiped away from 42 out of 50 villages where it existed in 1971. This phenomenon was more typical of the villages falling in the Punjab and Chandigarh Sub-zones. The decline in the net sown area and cultivable wasteland was marginal during 1971-2001.

The process of urbanization in the Periphery Zone was concomitant with a gradual transformation of the agricultural land into urban use. The premise that villages in contiguity with Chandigarh or other existing towns in Punjab and Haryana Sub-zones are more susceptible to acquisition of their land for urban use stands validated. During 1991-2001 itself, as many as 20 villages were merged into the adjacent towns and five had their status upgraded as towns.

The villages located adjacent to S.A.S. Nagar (Mohali) and Panchkula townships have lost a large chunk of their land to large scale construction activities herein. All kind of land, cultivated, cultivable or forest here is under heavy onslaught of encroachment. Virtually the same is true of villages located around other towns in the Periphery Zone. A lot of fertile agricultural land has been lost to residential colonies, farm houses, commercial establishments, godowns and other such uses in many a village.

The metamorphosis of the rural land into urban use was most conspicuous in villages located along the Chandigarh-Rupnagar, Chandigarh-Kharar-Landran-Banur belt, Chandigarh-Kalka and Chandigarh-Zirakpur-Derra Bassi highway. This development comprised of both large scale authorized and unauthorized constructions. The illegal structures outnumbered the legal ones. The Government of Haryana detected as many as 8243 unauthorized structures in its sub-zone. Only 38 among these could be authorized by some possible manipulation of the provisions of the Periphery Act.

For reasons more than one, the Punjab Sub-zone was witness to more frequent violations of the kind. It enjoys contiguity with the Chandigarh Union Territory on three sides of north, west and south. It is well connected through direct roads, and is relatively well-off economically speaking. Unlike in Haryana Sub-zone, violations here were getting regularized periodically. This was not without its snowballing effect. Unauthorized structures were raised in other villages also in the hope that these would be legalized sooner or later. One of the convenient ways of authorizing them was to bring them in the fold of the extended territorial jurisdiction of the existing towns. While reprieving, no distinction was made with regard to the nature of violations whether these were in residential localities, commercial belts or industrial area or on forest or agricultural land. This led to regularizations of thousands of illegal structures overnight most of which were substandard. Working behind the scene was the lobby of a motley group of

stakeholders, politicians, bureaucrats, land developers and others. They gained more by keeping the land market fragmented and dealings non-transparent. While some thrived on this bargain, the Periphery Zone was losing its green hue to grey.

By comparison, the land use changes in Haryana Sub-zone were comparatively more on planned lines. These were primarily in the form of land use acquisition for extension of the Panchkula town. This is not to deny the mushrooming of several unauthorized structures along the main highways in Haryana Sub-zone. In Chandigarh Sub-zone, acquisition of agricultural land for carving out new sectors or for relocation of slum localities has been the most noticeable feature.

Recently, the process of urban development and associated land use changes have assumed a faster pace in the Periphery Zone in response to buoyancy of economy and increasing investment in housing, education, health, recreation, transport, trade and industry, among others. The hypothesis that the intended rural character of the Periphery Zone is difficult to sustain and is likely to be violated under the prevailing populist political culture and indifferent commitment of the bureaucracy stands validated. Farmland owners in connivance with land colonizers and Departments of Punjab Urban Planning and Development Authority (PUDA) and Haryana Urban Development Authority (HUDA), are making land use decisions in the context of a lucrative economic environment and urbanizing landscape. The last few years have witnessed increased state-level involvement in the name of countering the negative impacts of haphazard urban growth. The urban setting has consumed almost 130 km<sup>2</sup> of rural land since the inception of the zone; 1991-2001 decade alone accounted for 87 km<sup>2</sup>. This process is intensifying under the impact of not only Chandigarh but also of its adjunct fully planned towns of S.A.S. Nagar (Mohali) and Panchkula. The provisions of the Periphery Control Act are being

circumvented and the original green and serene landscape of the Periphery Zone has been swept under the carpet of urban sprawl.

The Periphery Zone is being gradually transformed from rural to urban; thereby making 'the Periphery a peripheral issue'. This is the price to be paid for urban-led growth strategy. The Act which was enacted with an intent to control the population growth in the Zone by placing restrictions on the change of land use has failed dismally in achieving its objective.

The demographic dynamism of the Periphery Zone has been no less vigorous than the land use transformation. There has been a phenomenal increase in its population from 276,538 to 1,037,041 within a span of three decades, 1971-2001. The population of the Periphery Zone is projected to almost double itself to 1.91 million in 2020. This gives an increase of 85 per cent in 20 years at an average annual compound growth rate of 3.1 per cent. This would be accompanied by a rise in population density from 756 to 1402 persons per square kilometers. Life expectancy in the Periphery Zone is expected to increase from 67.1 in 2001 to 69.4 years in 2020 for the male population and from 71 to 74.2 years in case of female population. Emerging scenario on fertility and mortality is indicative of ageing of its population. The median age of the total population is expected to rise from 23 to 33 years during 2001 -2020.

The population growth in the Periphery Zone is likely to be propelled more by in-migration than by natural increase taking into account the dramatic fall in the fertility rate and saturation level having been achieved in mortality rate. The proportion of population in the school going age of 5-14 years is expected to decline from 23 to 14 per cent. The future population growth in the zone is likely to be concentrated in the working age group of 15-59 years. With a projected fall in the total fertility rate from 2.77 in 2000 to 1.8 in 2020, and with attainment of replacement level of 2.1 per cent in 2009, the future population growth in the

Periphery Zone will gradually be a product mainly of net in-migration. It is a moot point whether the Periphery Zone will continue offering the requisite and lucrative employment opportunities to the growing size of labour force. Nonetheless the administration of the three governments in the Periphery Zone need to spruce up their act and get ready for infrastructure development and its maintenance on a massive level.

The social infrastructure, including housing, transport, communication, electricity, water supply, sewage, schools, hospitals and other community support services is to be planned for in advance, in particular. This is possible only if the three main stakeholders, that is, the Government of Punjab, Haryana and Chandigarh coordinate their activities towards the accomplishment of this objective. This requires envisioning of the desired future landscape of the Periphery Zone, preparation of a Master Plan, and its committed implementation. Accomplishments of all this may call for a special institutional framework. One possible way is to render statutory status to the Coordination Committee already in function, and to convert Chandigarh and its Periphery Zone into a composite planning unit on the pattern of the National Capital Region.

The present study stimulates a number of research questions for future research. It would be worthwhile to compare the development experience of the Periphery Zone to that of the peripheries of other planned state capitals like Bhubaneshwar at the national level and Islamabad at the International level. This would help in understanding whether or not the urbanization of the periphery is inevitable. Secondly, the impact of the government policies in the form of delineating Free Enterprise Zone or involving corporate sector in land development calls for a critical hard look . Similarly, the likely fall out of the proposed Special Economic Zone at S.A.S. Nagar (Mohali) should be subjected to a detailed prognosis. Finally, in the context of the emerging scenario of Chandigarh, S.A.S. Nagar (Mohali) and Panchkula having assumed the form of

an extended urban conglomerate, it may be worthwhile to go in for a New Periphery Zone around the tricity. What should be its physical limits and which criteria should be adopted to define it? Only a research exercise can provide an authentic answer. After all, the present Periphery, through the spatial diffusion of the urbanization process, has already become a part of the Core.