**UNDERSTANDING URBAN MORPHOLOGY: INDORE CITY****Sehba Saleem\***

Department of Architecture, College of Science and Technology, Phuentsholing, Bhutan.

Article Received on 13/06/2019

Article Revised on 04/07/2019

Article Accepted on 25/07/2019

**\*Corresponding Author****Sehba Saleem**Department of Architecture,  
College of Science and  
Technology, Phuentsholing,  
Bhutan.**ABSTRACT**

In broad terms, the shift of population from rural to more developed urban areas is known as urbanization. Though this phenomenon found its roots in times of Industrial Revolution, the vehemence with which it captured the imagination and lives of people in recent times is noteworthy and unparalleled. Not long ago was land freely and readily

available which served as a gunpowder to trigger off widespread transformation of rural areas and also germination of new urban areas. The new urban areas acted as a magnet in inviting population from far and wide to come and settle, which sparked off a horizontal expansion which engulfed most of the rural hinterland lying adjacent to upcoming urban areas. The rural hinterland was forced to inculcate traits of its adjacent urban area in terms of concrete constructions and socioeconomic infrastructure. As a result of this the margins of the urban areas started to widen. They no longer remained constricted to specific area but instead started expanding horizontally as land and resources required for expansion was readily available. The rural hinterland began to act as a satellite to the main urban area covering up for the lack of space in the urban area. But these areas didn't altogether surrender their rural traits. They still had the rural character which was their own in some ways. With such transformations in hindsight, concepts like peri-urban areas and urban sprawl came into existence. This paper shall object to delineate the germination and the character of these concepts and throw light into relevance of these concepts in modern times.

**KEYWORDS:** Expansion, Peri-Urban, Quality of Living, Rural Settlement, Urban fringe.

Urbanization is not a new phenomenon. Though the traces of urbanization can be found ever since humans started to engage in secondary activities but it took its modern form for the first

time during the period of Industrial Revolution.<sup>[1]</sup> The primary driver of urbanization during the Industrial Revolution was the increased demand of labor at single locations caused by the onset of large scale manufacturing. This process of urbanization which started around 8000 years ago with the emergence of cities shall come to a halt by the end of 21<sup>st</sup> century with over 85% of the world population concentrated in cities.

Urbanization is a kind of process in which villages are transformed into cities that is the process of evolution and development of cities.<sup>[2]</sup> The term “urbanization” describes an increase in human habitation linked with increased per capita energy and resource consumption, and extensive landscape modification (McDonnell and Pickett, 1990). Urbanization refers to a growth in the proportion of a country’s population living in urban centers of a particular size (Abercombie et al., 1988). Mayhew, (1997) mentioned that urbanization synonymous with the increasing of population in cities or towns through migration from rural areas because of social and economic changes, or in other words, a transformation from a rural to urban-based societies. From a demographic point of view, the level of urbanization is measured by the percentage of the population living in urban areas (Davis, 1962). Darin-Drabkin (1977) mentioned that the basic trends in world urbanization are: (1) An increasing percentage of world population is living in urban areas, the largest cities having the fastest growth; (2) Employment within these metropolitan areas is becoming concentrated in the city center; and (3) Population growth is mainly occurring in the outlying regions of the metropolitan area.<sup>[4]</sup>

### **Urban Expansion**

The process of expansion is implicit in the concept of urbanization. Expansion in this case refers to physical enlargement of built up area. The dynamism of urban expansion also depend upon the nature of physical developments and the population densities they come up with. As put by Drabkin, population growth is indeed one of the defining characteristics of urbanization. This is so because urbanization can not happen without population growth owing to the sense of prosperity that’s attached to it. It is the sense of prosperity which lures folk to the urbanizing areas which in-turn accelerates the process of erection of structures within the urban areas in order to accommodate the influx. This intertwined process generates a demand for land owing to which expansion becomes a necessity for the urban area to survive. An urbanizing area, in most cases, can not survive without expanding its boundaries

to nearby areas. This annexation mostly turns out to be permanent and transforming for the areas lying within the immediate periphery of the urban area.

Urban expansion takes places in substantially different forms. (Angel and Sheppard, 2005) In any city which is existing, the intensity of urban expansion may be same as those of the existing built-up area or may vary according to the nature of existing area. There may either occur redevelopment of the built-up area with greater density by filling up the remaining open spaces in the area or the hitherto un-urban areas may be put to use for development. The open area, in the latter case, may be, located in the immediate neighborhood or be located away from the existing urbanizing area, which is popularly known as “leap frog” development as it there exist a considerable under developed area between the upcoming urban area and existing built up area. This expansion can potentially encroach upon whatever is lying near and around the epicenter of urbanism that can either be wetlands, watershed, forests or other eco-sensitive conglomeration. *It can thus reduce, maintain or increase open space in and around the city.*

Employment opportunities which an urban area generate determines the nature of residence and residential areas. There are various possibilities which exists in a expanding urban area. The expansion can be constricted to a small location or can be spread over a completely new area. If the expansion takes place in the corridors (outskirts of the core urban area), it may result in star shaped or elongated city and if the expansion takes places in the areas closest to city, it results in the formation of circular city. The expansion can happen in an organized manner leaving adequate rights-of-ways for roads and other necessary infrastructure or in an un-organizedmanner leaving absurdly little or large space for roads and infrastructures.<sup>[5]</sup>

### **Urban Sprawl**

Urban living has always been associated with better quality of living which encompasses better access to health and education services, increased mobility and sociability and morepronounced cultural and political involvement. In today’s overwhelmingly urbanized world, more than half of the population reside in urban areas with substantial disparities in the level of urbanization. This whirlwind of urban growth has altered the relationship between urban and rural areas in countries across the globe. Urban and rural land uses in countries are no longer exclusive but the rather exist in a continuum where community types are more connected.

### Conceptions

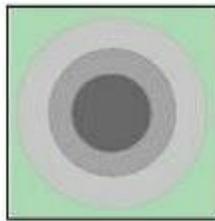
The term urban sprawl was coined by William Whyte (1958) and since then after much deliberation it has come to be defined as “the growth of a metropolitan area through the process of scattered development of miscellaneous types of land use in the isolated locations on the fringe, followed by the gradual filling-in of the intervening spaces with similar uses”. Burchell (2003) defines sprawl as a low density occupation leapfrog development characterized by unlimited expanses. In almost every case, this development is of low density leap-frogging over the development of another regions (such as farmland or at borders with other municipalities) and becoming established in a peripheral area whose location indicates that it is unlimited. For Burchell, urban sprawl is characterized by the dispersion of urban occupation which rapidly reaches rural areas and is qualified mainly by the low population density of these areas which extend beyond consolidated city centers.<sup>[6]</sup> Burchell when writing with Mukherjee perceive urban sprawl as any development residential or non residential that takes place in a relatively pristine environment.

Urban sprawl is pejoratively any urban development pattern which is undesirable. (Knaap: 2000). In the words of Bruegmann (2005) urban sprawl is a low density spatially extensive pattern of development that has become dominant in the current development patterns for at least 4 decades now. Sprawl has certain characteristics like a low density development with residential, shopping and office areas that are strictly fragmented, a lack of thriving activity centers and limited choice of travel routes. (Ewing; 2003).<sup>[7]</sup>

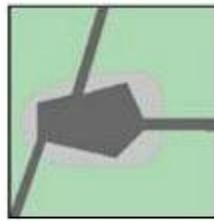
### Character

In the words of Shafer (2003), “in urban extension areas the landscape no longer lies before the city and the city no longer lies within the landscape”. The impact of urban expansion is so profound that the landscape which emerges bears in it not only functional and ecological changes but also morphological changes which stem from the imbalance in the relationship between man made and natural elements. The composite morpho-system generated by the phenomenon of urban expansion leads to consideration of landscape as a spatial interplay revolving between very different elements, structures, textures and patterns. Landscapes which evolve out of this expansion display wide variety of patterns that remind rural culture as well as urban culture. The hybrid landscape of expanded territories can be interpreted as “parallel landscapes” (Vanautgaerden, 2008) existing next to each other. But there are cases where the newly expanded urban area also overlap and interact with the core urban area. This

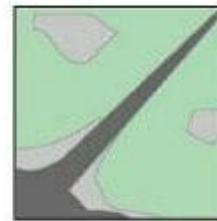
new type of urban landscape cannot be assessed with the same kind of tools as the “classic” urban landscape, because the new urban area which has come up need not necessarily have the same character as the area from which it developed. According to Stan.<sup>[10]</sup> *it's simply useless to operate in terms of Lynch concepts as nodes, paths or districts, because the new landscape scenography is more complex and includes/ accepts the ambiguity of scale, ambiance and shapes, the contaminations between elements coming from extremes different domains, the linear spatial intensification or mutation from an element to another.*



a) Low Density Sprawl



b) Ribbon Sprawl



c) Leapfrog Development Sprawl

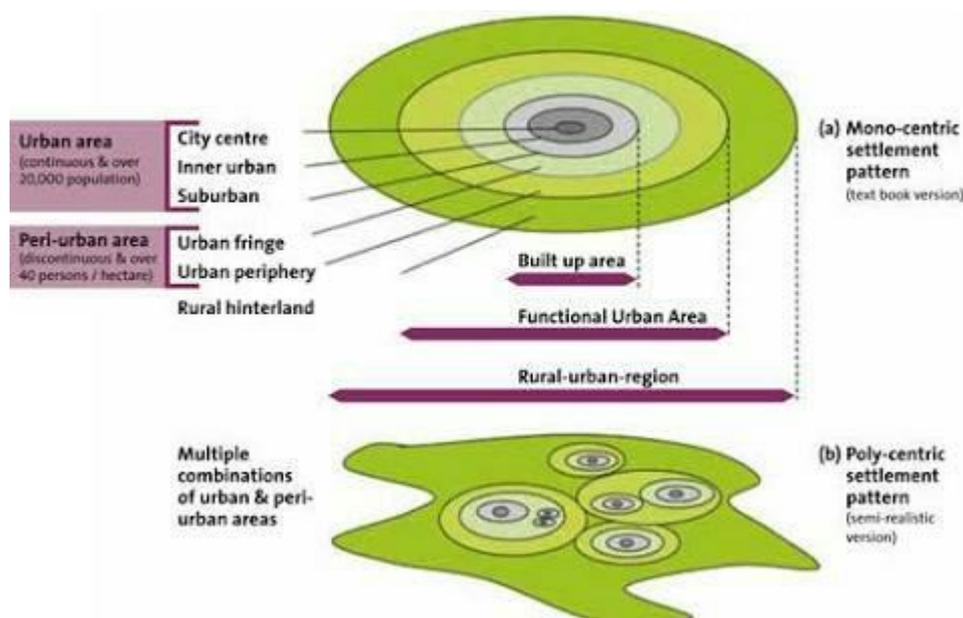
Source: CGIS at Towson University, 2010

Since urban sprawl is related to expansion, there are different kinds of sprawl which are found of which three are most commonly observed. The commonly found patterns are low-density, leapfrogging, distance to central facilities, dispersion of employment and residential development, continuous strip development (ribbon type development), large lot single-family residential, radial discontinuity, single land use or physical separation of land uses and widespread commercial development. The leap frog and continuous ribbon type development along the corridors were first espoused by Harvey and Clarke (1965). The leap frog development is a scattered form of urbanization which is characterized by fragments of urban land use interspersed with green patches. Undue terrain, presence of wetlands and water bodies or differential policies and jurisdiction are the main drivers of this kind of sprawl. Ribbon sprawl is a type of sprawl characterized by concentration of development along major transportation arteries, primarily roads. While development occurs on land adjacent to the major roads, areas without accessibility to the roads tend to remain as green areas, waiting for conversion into urban land uses when land values increase and infrastructure is extended from the major roads. Low-density continuous sprawl is a phenomenon caused by horizontal spread of low-density suburban land use as currently being experienced by many of cities across the globe as their population becoming bigger and bigger and there is no lack of land supply. This highly consumptive use of land for urban purposes is supported by extensions of basic urban infrastructure such as water, sewer, power and roads.

## Peri Urbanisation

It is commonly observed that urbanization spreads its wings, it engulfs much of the area lying in its vicinity and up to a considerable distance. The areas which are encroached upon exude a great deal of heterogeneity in their character, since a completely new set of land-use pattern with all its complications has been enforced on them yet they have not been able to shed their original character. These areas are popularly known as peri-urban areas. There is no single satisfactory definition of the word 'peri-urban' and different definitions are understood to apply in different circumstances (Brook and Purusthoman et al. 2003). But in its purest form, it denotes three concepts viz. a place, a concept and a process. That peri-urban area is a place and peri-urbanization is a concept and a process is largely accepted by scholars. Peri urban area is the place of occupation between well recognized urban settlement and well established agricultural land.

Though the peri urban area is an independent entity of its own but more often than not it comes up as an amalgam of both rural and urban areas displaying and bearing characteristics of both the dwelling systems. To better understand the heterogeneity of peri-urban areas it is essential to identify the various layers of human habitation which constitute an urban agglomeration.



Urban Core – This layer constitutes the Central Business Districts and other civic centres. It's the layer of the agglomeration which decides as well as regulates the nature of the agglomeration.

Inner Urban area – This layer of the agglomeration houses the maximum number of population. This area is a high built up area and the architecture found in this area is residential in nature.

Suburban area - In this stratum residential built up is more acute and dense and the quality of architecture of residences despite being of an inferior quality than its predecessor is very much attached to it. Here the distance between houses is not more than 200 meters.

Urban fringe – This refers to a zone adjacent to the built up area inhabited by a lower density of population. This zone acts more like a transport hub or is used for warehousing purposes as this area is marked by presence of large open space since it is located in the boundary of an urbanely inhabited area. Unlike its predecessors, this area presents a scattered look.

Urban periphery- This is a zone which surrounds the urban area. It is less populous than the urban area but acts as a satellite to it.

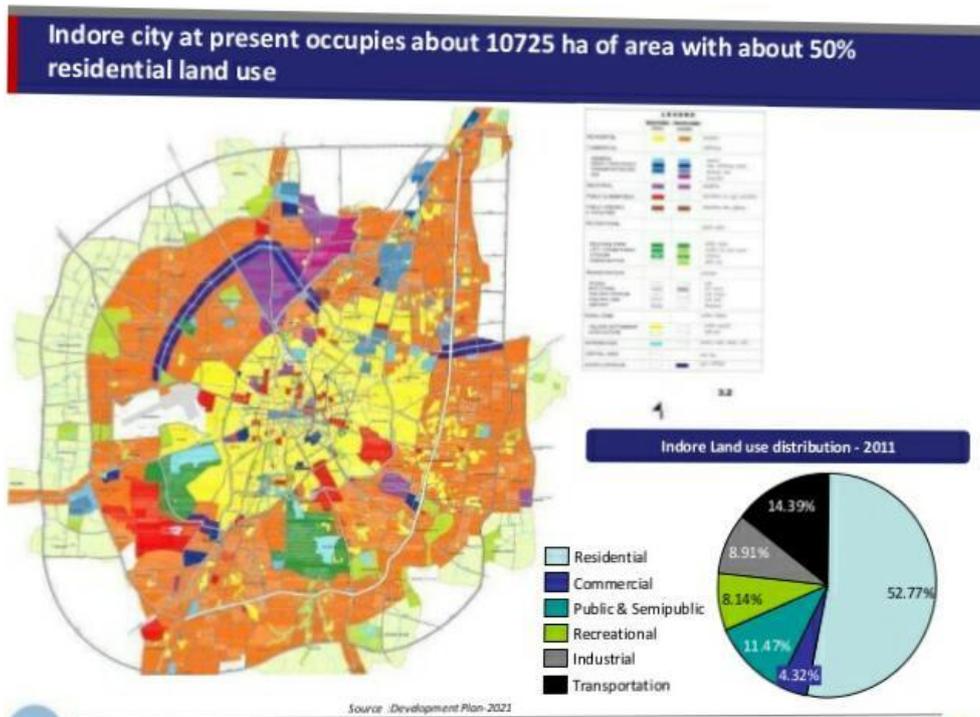
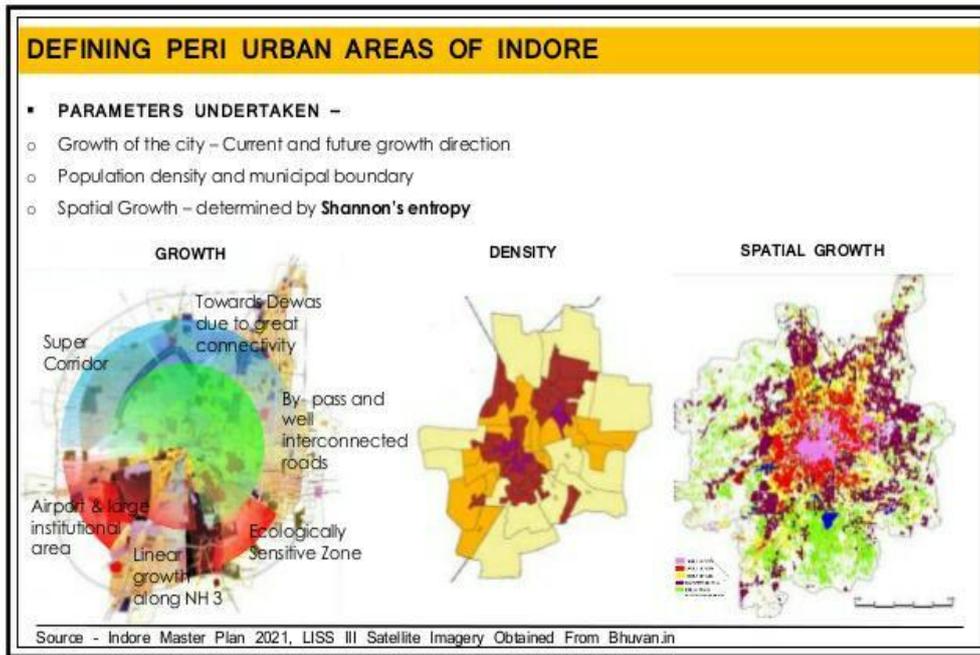
Rural hinterland- These are areas which exists near the urban areas but are largely unaffected by them. The peri-urban area includes traits of both urban fringe and urban periphery.

### **Case Study: Indore**

The city of Indore derives it's name from the Hindu deity Indreshwar, was initially known as Indur. The establishment of the city dates back to 400 years. Till the end of the 15<sup>th</sup> century its original nucleus was a riverside village, which occupied the bank of river Saraswati. This area is now known as a Juni Indore. The village grew as a halting place for the pilgrimage traveling between from Mahakaal at Ujjain on river Shipra to Omkareshwar on the river Narmada and further to Rameshwaram. The city boasts of a rich Maratha history but it gets its modern shape with the advent of British rule. The educational institutions it set up paved way to flourishing of city as an institutional and industrial hub.<sup>[13]</sup>

Indore essentially developed as a trading center and due to its strategic location serves as a hub of trade and commerce for the entire west part of India. Rapid spread and densification of the Indore city took place over a period of time. It experienced an increase in the residential, commercial, institutional areas. Residential segregation is experienced because of 3 main reasons.

- Growth of city and evolution of housing.
- Development of residential segregation which was a result of individual decisions within the context of rapidly expanding population.



Process of residential differentiation which was also influenced by the development of commercial and industrial areas within the city that imposed constraints on the nature of residential development.

The inner city of Indore is known as RAJWADA and it is the hub of all commercial activities. It is also the place which is subjected to maximum population pressure, maximum intensity of building and movement of traffic services. There exists three main Industrial units within the city viz. Sanwar Road, Polo Grounds and Udyog Nagar. There exists two main Industrial areas outside the Municipal limits. One is Pithampur which is about 25 KMS South of Indore. The Indore SEZ is being developed here and the other is Dewas which houses approximately 120 large and 480 small and medium scale units.

## CONCLUSION

That urbanization has had a clean sweep in terms of occupancy of land is a well established fact. Not only has it occupied land spaces it has categorically altered the land use pattern of the land it encroaches upon. It is in this light that the concept of peri-urbanization gains currency. Peri-urbanization is not a concept. It is a process under which a completely rural landscape gets converted to completely urban settlement. This process is a dynamic and a multi-faceted process which has myriad of implications on both the land and people.

## REFERENCES

1. The Metropolitan City: OECD.
2. The Problem of Urbanization in India and its Solutions: S.R. Solanki.
3. Urbanization and Urban Expansion in Nigeria: Robin Bloch.
4. Study on Impact of Urbanization And Rapid Urban Expansion In Java And Jabodetabek Megacity, Indonesia: Andrea Emma Pravitasari.
5. The Dynamics of Global Urban Expansion: Shlomo Angel, Stephen C. Sheppard and Daniel L. Civco.
6. Urban Sprawl and Challenges for Urban Planning: Mauricio Polidoro, Jose Augusto de Lollo.
7. Urban Sprawl : A view from Developing and Developed Countries – Ebnezer Adakin
8. World Urbanization Prospects.
9. Urban – Rural connections: A Review of Literature – Elizabeth Mylott.
10. Morphological Patterns of Urban Sprawl Territories - Angelica I. Stan.
11. Urbanization and Urban Sprawl - Haregewoin Bekele.
12. Periurbanization in India –Vishal Narain Pooja Anand and Poulomi Banerjee.
13. Indore CDP.
14. Urban Growth Trend Analysis of Indore City (2005-14): Ankit Gutpta, Sarita Swain.

15. Indore City Resilience Strategy for Changing Climatic Scenarios.
16. Kiran Rajashekariah, "Impact of Urbanization on Biodiversity".
17. Challenges of Urbanization in India – 12th Plan; Planning Commission.
18. Harini Nagendra, "Biodiversity and the City",
19. Dinesh Mehta, "Emerging Challenges of Urban Planning in India".
20. Peter Lang, "Shrinking Cities: Effects on Urban Ecology and Challenges for Urban Development".
21. M.J. McDonnell and S.T.A. Pickett, "Ecosystem Structure And Function Alongurban-Rural Gradients: An Unexploited Opportunity For Ecology".
22. Gordon. M. Heisler and Anthony. J. Brazel, "The Urban Physical Environment: Temperature and Urban Heat Islands".
23. Rob Northrop, "Reducing Conflicts Between Urban Infrastructure And Trees".
24. Alex Zuniga Vega, "An Urban Ecology for the Developing World".
25. S.T.A.Pickett, "Urban Ecological Systems: Linking Terrestrial Ecological, Physical, and Socioeconomic Components of Metropolitan Areas".
26. Rama Shankar Sinha, "Urban Forestry: Urbanisation and Greening of Indian Cities- Efforts for Green Delhi".
27. C.M. Lakshmana, "Population, development, and environment in India".
28. World Urbanization Prospects –United Nations Report.
29. Dr.Isher Judge Aluwalia, "HPEC Report and Recommendations".
30. Urban Infrastructure in India – FICCI.
31. India's urban awakening: Building inclusive cities,sustaining economic growth – CII.
32. Xizhe Peng, "Urbanization and its Consequences".
33. NeelmaniJaysawal, SudeshnaSaha, "Urbanization in India: An Impact Assessment".
34. Mrs.Vimala.M, "Urbanization –Impacts".
35. Impact of Urban Expansion on the Agricultural Land Use a Remote Sensing and GIS Approach: A Case of Gondar City, Ethiopia.
36. Habitat iii issue papers, 10 – urban-rural linkages, New york, 31 may, 2015.
37. Urban expansion and its effects on peripheral farming communities: the case of hosanna town, hadiyazone, snnpr, ethiopia , M.a.thesis by Teketel fekadu zerihun.
38. Urbanization and Urban Sprawl, Author: Haregewoin Bekele.
39. Urban Sprawl: Definitions, Data, Methods of Measurement, and Environmental Consequences by Reza Banai University of Memphis and Thomas De Priest, University of Tennessee at Martin.

40. The Environmental Impacts of Sprawl: Emergent Themes from the Past Decade of Planning Research by Bev Wilson \* and Arnab Chakraborty
41. Understanding Sprawl: A Citizen's Guide by David Gurin.
42. Land Use Planning For Sustainable Development Of Peri-Urban Zones by *Jelena Živanović Miljković*<sup>1</sup>, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia, *Tijana Crnčević*, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia, *Igor Marić*, Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade, Serbia.
43. On the Edge of Sustainability: Perspectives on Peri-urban Dynamics By Fiona Marshall, Linda Waldman, Hayley MacGregor, Lyla Mehta and Pritpal Randhawa.
44. Periurban area: a review of problems and resolutions by ar. Manita saxena, associate professor soa ips academy, indore india, ar. Suman sharma, assistant professor soa ips academy, indore india.
45. Periurban Area: A Review of Problems and Resolutions.
46. On the Edge of Sustainability: Perspectives on Peri-urban Dynamics.
47. Urban Sprawl: Definitions, Data, Methods of Measurement, Definitions, Data, Methods of Measurement, and Environmental Consequences.
48. Urbanization -Linking Development Across the Changing Landscape.
49. Urbanization and Urban Sprawl: Department of Infrastructure Section of Building and Real Estate Economics Kungliga Tekniska Högskolan.