



ISSN 2278 – 0211 (Online)

Effect of Urbanization on Basic Environmental Components

Sehba Saleem

Assistant Professor, Jamia Millia Islamia, New Delhi, India

Abstract:

A country with a spread of only 2.4 per cent of the total land surface area of the world, India is home to 17.5 per cent of the world population. This fact is sufficient enough to delineate as well as simultaneously bring to fore the paradox which exists between land and human population. It is evident that the relation which exists between both is an unequal one where the latter has the ability to multiply self but the former remains constant. This unequal relation that exists has very significantly contributed to the depletion in the quality of land. This is because construction of every kind and nature has been forced on the land to assimilate the ever increasing population which has altered the not only the land but the environment which existed on the land. To get behind this alteration it becomes imperative to delve into concepts like urbanization, ecology and their amalgam viz. urban ecology. The concept of urban ecology doesn't only involve study of buildings, flora and fauna which exists in a given land space. It goes further into establishing a relation between construction on land and the consequent harm which the same is causing to the environment and environmental resources like air, water etc. This paper shall try celebrating concepts of urbanization, ecology and urban ecology in the light of relation which exists between man and nature.

Keywords: Asymmetrical growth, environment, urbanization, urban space

1. Introduction

The country, as it has come to be, is now land of cities brimming with concrete structures of various size and shapes. It is both causation and aftermath of an uncontrolled gigantic growth in population and migration, on a scale unseen and unparalleled in recent history. This development exerted an immense pressure on land as the demand of land for sustaining the growing population became enormous which affected the environmental fabric of the land ultimately resulting in an environmental chaos to the extent of being a conflict. Till the time land was readily available, its usage and construction on it was horizontal but with passage of time when the availability of land depleted the construction took a vertical direction giving way to the concept of high rises. But with course of time this has also been crippled owing to degradation and depletion of available land. Not only in quantity, but also in terms of quality of usage of land there is great a deal of apathy as most of construction which has been done is appallingly asymmetrical and lackadaisical the brunt of which has majorly been borne by the environment. That every city or state has a limited supply of land which should be judiciously used is a fact of significant pertinence.

1.1. Urbanization and the Concept of Urban Ecology

The concept of urbanization germinates from the Latin word *urbanus* which stood for a place where life is well organized and existence is amidst well established structures. Urbanization is concept which is more associated with transformation; transformation of an un-developed and un-built area into a well-built space. Not that primary activities are completely absent in the urban centers but certainly there is an abundance of secondary and tertiary activities in comparison to their primary counterparts which provides ample opportunities to enhance quality of life to its residents. This very characteristic of urbanization encompasses conversion of cropland, pastures and forest into urban or semi-urban areas which forms a major reason for inviting large scale migration from near and distant rural areas which swells up of the population of the urban centers almost uncontrollably. The process of transformation from rural to urban and the departure between the two appears more pronounced in developing countries than in the developed world and the transformation is arrestingly unorganized which invariably ends up harming the environment and often results in its degradation. In the recent decades, urbanization has been escalated to a status of a trend rather than just being a process and its reach has been worldwide. From an un-kept yet compact iso-diametric area to a more organized town or city and finally to a huge sprawling yet vehemently sporadic spider web like conglomeration, this process has taken grip of nations across the world. As a consequence of this, the relation between existing fauna within the urban land as well as those existing on its fringes, more often than not, stand intertwined as people having equity in the urban spaces and housing encroach upon those habitats which were earlier owned by agriculturists, forest dwellers. The relation between the two systems viz. the built environment and the existing natural environment is that of

conflict where the despots of the former are more powerful and authoritative than the constituents of the latter and this is where the study of urban ecology gains prominence.

Urban ecology, in a sense, endeavors to study the urban areas and the process of urbanization in the realm of consequent environmental changes and imbalances. Urban ecology dwells into the biological patterns that exist in urban areas as well as upcoming urban areas where people densely inhabit a well-constructed area. It includes the interaction of vegetation and the built environment and the faunal responses to the spatial heterogeneity which exists in urban centers. High density of population (to the extent of being over-populated) where built structures occupy majority of the land space is a characteristic of an urbanization and urban space. Going by the literature the urban ecology has two meanings. One is the scientific definition in which urban ecology is studied in reference to distribution and profusion of organisms in and around cities. The other definition of urban ecology stems from urban planning. According to this, the limelight of urban ecology is on designing environmental comforts for people and reducing the environmental impacts of urban regions. In this aspect of urban ecology, the urban ecosystems, as in other ecosystems, are set by watersheds, air-sheds but the mutability and interaction between the built and the natural environment are defined by the polity, research and biophysical factors.

1.2. Constituents of Urban Ecology

To delineate components of urban ecology it is empirical to understand the ways in which an urban ecology can be distinguished as urban ecology is also a spatial science almost akin to geography. There are three different scales in which an urban ecology can be studied viz. micro scale of neighborhood; meso-scale of the district and macro scale of the total urban area. The first scale includes the built up character of the area, the second one assesses the combination of different types of land use and the last one delves into the urban area in totality.

One of the major constituent of urban ecology is the **biodiversity** which exists in the urban area. This includes both botanic and the animal diversity. It has been frequently observed that in the process of urbanization the native species of both flora and fauna tend to get extinguished and a new species comes up in their places which are more adept to the character of urbanization. Till few decades ago, the urban area was considered a biological dead land, a notion, which has changed in the course of time though not uniformly. Today urbanization both nurtures as well as endangers biodiversity of an area depending upon the character it bears and the polity in which it exists.

The **climate** of an urban area is a major driving force of urban ecology. Climate effects like rise in sea level change in temperature and air movements and phenomenon like storm surge affects all infrastructures in the vicinity with spiral impacts. Climate of an urban area is much affected and decided by the land use pattern of the area, the emissions that occur in the area and land to population ratio.

Demography, besides being an important constituent of urban ecology, is also the factor which decides the scale to which a place offers the scope to which urbanized. The nature and the size of the demography exerts a great influence on the above mentioned other two constituents of urban ecology. Demography of an area is decided by many factors like literacy, migration which includes migration within an urban area and migration from near or far off rural areas.

But the driving force of an urban agglomeration is the **economy** on which the urban ecology is based. More often than urban ecology is characterized by the presence of industrial economy where secondary and tertiary sectors are ubiquitous than their primary counterparts. But with passage of time it is observed landscape of an urban ecology is more being used by the tertiary sectors in rendering high ranking services.

The most incomprehensible part of the urban ecology is the **architecture** or the buildings which exist in an urban area. Architecture includes both built and unbuilt structures like parks and open spaces and also mechanisms which are essential in keeping the urban ecology going like drains, landfills etc.

In India, the parameters for an area to be classified as urban are that the population of the area should be more than 5000 with a density of population density of 400 persons per square kilometer and where 75 per cent of population is engaged in non-agricultural activities. India, as compared to other developing nations of the world has experienced urbanization and its ramifications much more rapidly and sporadically. In the light of these two facts, it becomes imperative that there has been a gigantic growth in urban population of the nation which has led to conversion of many rural areas into major urban area and in some cases an urban hinterland. This transformation has had a telling impact on the natural functioning of the ecosystems. The nature of relation which human now has with environment is more of a conflict than harmony. One of the major reasons for such change in the nature of the relationship is the gigantic rise in the population. This meteoric rise in population can be attributed to shift from less equitable and stagnant agriculture to more profitable urban occupations which spurs of migration on a scale which swells up the urban population almost limitlessly. This swelling up of population alters the land use pattern of the area since the size of the agglomeration expands both vertically and horizontally thereby encroaching upon green spaces with the area and also on the fringes of the urban area. This is how the nature of relation between human and environment changes from harmony to that of conflict.

The concept of urban ecology encompasses both urban development and also its consequent environmental alterations which make it imperative to view as well as assess urbanization and urban development in the purview of the ecology in which it is mushrooming in order to get a near immaculate picture of the life that exists in the city and also that of urban agglomeration. The character of urbanization and urban ecology in India is vociferously heterogeneous as the urbanization that has occurred is basically because of combination of urban-pull and rural-push factors whereby urban opportunities have been concentrated in few areas which invited rural

population resulting in concentration of population in few large cities without any proper industrialization or strong economic base. This dysfunctional urbanization combined with lopsided urban planning has damaged and punctured the environment of the urban areas a great deal polluting almost every inch of land and every ounce of water and air that exists in the area. Hygiene, sanitation, slum and shanties, filth, sewerage and drainage are all issues which plague cities and are gradually depleting the quality of human and natural life that exist in the cities. A few examples in this regard may help in clarifying the picture.

- A. Courtesy the uncontrollable swell in urban population and also due to fractured urban housing policy; housing has become a major affecting the cities. There exists immense pressure of population of land which has given way to rise in slums and shanties in which the economically challenged sections take shelter in the wake of inadequate housing amenities. These shanties are marked by filth and unhygienic conditions and the quality of land and water in these shanties are almost deplorable as both of them stand contaminated by waste. Those with a little better resources have occupied unclaimed land and built there houses which with time graduate to become a colony but since they couldn't find a proper place in the books of the authorities and are called unauthorized colonies they have also remain challenged in terms of amenities.
- B. Disposal of urban waste is a major issue in the cities. As the mainland of the city is filled with concrete structures to the brim, the waste is discharged to open and unbuilt spaces that exist on the periphery of the cities. This leads to conversion of these open spaces into landfills, sizes of some are akin to small hills. There are instances where banks of river are also being used as landfills which go a long way in contaminating the water of the river. The domestic garbage is dumped in the municipality garbage bins only in places which has the kind eye of the civic authorities which, in most cases, are places where affluent and aristocratic reside. Those suffering from the neglect of civic authorities often either lack a garbage bin as a result of which the garbage is dumped on roadsides giving rise to stench and associated health problems or the garbage bins are not periodically emptied or not installed in proper places.
- C. The water and air of the city are the biggest victims of urbanization after land. There is neither robust system of sewerage nor a proper system of sewage treatment or waste water treatment in place. As a result of this large amount of untreated waste is directly being flown into the river thereby harming, to the extent of extinguishing, the aquatic life of the river. No part of the city has supply of water round the clock. This fractured supply of water creates a vacuum in the supply lines of water which often suck in pollutants present on land from the leaking joints thereby endangering the lives inhabitants. The air like water also stands contaminated to a very great extent. This is majorly because of the industrial plants located within the city which emit harmful gases. But the prime reason behind the reduction in air quality is constant felling of trees in various parts of cities in the name of development and absence of green spaces within the cities. Not only has the air quality degraded but there has also been a stark rise in the temperature of the city because of cutting of trees. This increase in temperatures have assisted the germination of various kinds of bacteria in the air which eventually get transmitted into human through vectors thus endangering the lives of the city dwellers.

The concept of urbanization per say is not a negative concept. Urbanization in more ways than one enhances the quality of human life. But the concept of urbanization gets problematized when it is seen or adapted in isolation or in neglect of the natural environment in which brought up. Though two different concepts, urbanization and ecology cannot be separately seen or developed. Urbanization comes up in certain within a certain environment and an environment flourishes in a certain urban milieu. Urban city planners should never ignore this link while planning a city or regenerating a city. Urban land is under immense population pressure which needs to be either reduced or at least fissured out to some extent. One way this can be done is by creating opportunities in the rural areas to improve the quality of life of its inhabitants. This shall reduce the rural-urban migration a parameter to a great extent.

3. References

- i. Kiran Rajashekariah, "Impact of Urbanization on Biodiversity"
- ii. Challenges of Urbanization in India – 12th Plan; Planning Commission
- iii. Harini Nagendra, "Biodiversity and the City"
- iv. Dinesh Mehta, "Emerging Challenges of Urban Planning in India"
- v. Peter Lang, "Shrinking Cities: Effects on Urban Ecology and Challenges for Urban Development"
- vi. M.J. McDonnell and S.T.A.Pickett, "Ecosystem Structure And Function Alongurban-Rural Gradients: An Unexploited Opportunity For Ecology"
- vii. Gordon. M. Heisler and Anthony. J. Brazel, "The Urban Physical Environment: Temperature and Urban Heat Islands"
- viii. Rob Northrop, "Reducing Conflicts Between Urban Infrastructure And Trees"
- ix. Alex Zuniga Vega, "An Urban Ecology for the Developing World"
- x. S.T.A.Pickett, "URBAN ECOLOGICAL SYSTEMS: Linking Terrestrial Ecological, Physical, and Socioeconomic Components of Metropolitan Areas"
- xi. Rama Shankar Sinha, "Urban Forestry: Urbanisation and Greening of Indian Cities- Efforts for Green Delhi"
- xii. C.M. Lakshmana, "Population, development, and environment in India"
- xiii. World Urbanization Prospects –United Nations Report
- xiv. Dr.Isher Judge Aluwalia, "HPEC Report and Recommendations"
- xv. Urban Infrastructure in India – FICCI
- xvi. India's urban awakening:Building inclusive cities,sustaining economic growth – CII
- xvii. Xizhe Peng, "Urbanization and its Consequences"
- xviii. NeelmaniJaysawal, SudeshnaSaha, "Urbanization in India: An Impact Assessment"
- xix. Mrs.Vimala.M, "URBANIZATION –IMPACTS"