

URBAN OPEN SPACES AND ITS IMPACT : A CASE STUDY OF GORAKHPUR CITY

SHALU SHRIVASTAVA¹

¹Research Scholar (UGC Net), Department of Geography, D.D.U. Gorakhpur University Gorakhpur U.P. INDIA

ABSTRACT

Urban Settlement is a complex entity & its complexity increases with the growth of its population and functional specialization. Spatial pattern of city & its region is subjected to change mainly due to pressure of population growth. Today with rapid urbanization & industrialization there is an increasing pressure on land, water & environment. The cities are expanding in all directions resulting in large scale urban sprawl and rapid change in urban land use. Inadvertently, this results in increase in the built up area and associated changes in spatial urban land use pattern. Present study has been undertaken to investigate the urban open spaces & changes in land use pattern through satellite data over a period of time and its possible impact on the infrastructural capabilities of the city of Gorakhpur. The study aimed towards environmentally sustainable urban growth.

KEY WORDS: Urban Settlement, Space, Gorakhpur, Sustainable Urban Growth

INTRODUCTION

Urban Settlement is a complex entity & its complexity increases with the growth of its population & functional specialization. Spatial pattern of city & its region is subjected to change mainly due to pressure of population growth. Today with rapid urbanization & industrialization there is an increasing pressure on land, water & environment. The cities are expanding in all directions resulting in large scale urban sprawl and rapid change in urban land use. Inadvertently, this results in increase in the built up area and associated changes in spatial urban land use pattern. India is also characterized by high urban population growth, intensive urbanization particularly of primate cities either through natural accrual or by migration. The rapid increase in population has increased pressure on the land and infrastructure capabilities of the city. For the purpose of sustainability, urban areas have to be properly monitored to maintain internal equilibrium (Barredo & Demicheli 2003).

OBJECTIVE

Present study has been undertaken to investigate the urban open spaces & changes in land use pattern through satellite data over a period of time and its possible impact on the infrastructural capabilities of the city of Gorakhpur. The study aimed towards environmentally sustainable urban growth. Remote Sensing and Geographical Information System are used as tools for achieving the objective in order to understand the process,

causes & consequences the following objective of this study have been outlined. The specific objectives of the study are-

1. To Prepare present a land use map of the area with the help of Remote Sensing data.
2. Identification of open space, – on spatial & temporal scales 2015 through RS & GIS, supplemented with field survey. Land transformation
3. Environmental impacts & identification of problem area.
4. Planning towards environmentally sustainable Urban open Space Growth.

REVIEW OF STUDY

The historical evolution of open spaces started in ancient times. Many works of research and historical descriptions give evidence of the public open spaces (e.g. Greek holy gardens and agoras, the forum in Rome) used consciously by the ancient cultures – such the Egyptian, the Mesopotamian, then the Greek and Roman – in their settlements. The significance of open spaces, as well as their importance in the settlements' evolution has been changing continually during the development of civilization. The assessment of their importance depended on the social rules of the era and also on the needs of the residents. In the course of the modern endeavors of urban architecture, enhancing specific areas of cities through open space developments became known through the Urban Regeneration Program of Barcelona in the early

1980s. The leaders of the Spanish city (location of the Olympic Games in 1992) initiated the complex renewal of the city in the early 1980s to put an end to the suburban processes and reduce the uncontrolled sprawl. The urban renewal processes started with the creation and regeneration of streets, parks and greater green areas (about 1980-1986). The second stage (about 1986-1992) is featured by – on the one hand because of the Olympic Games – greater rehabilitation projects. The coast, the residential and recreational areas of the city were renewed and rehabilitated at this time. The infrastructural and strategic areas were rebuilt and renewed during the third stage (about 1992-2004) of the Urban Regeneration Program. Lots of huge public spaces were born by the new functions of these areas. The Urban Regeneration Model of Barcelona is a perfect example for all big cities regarding to both open space developments and complex urban renewals unto this day. It demonstrates the opportunities inherent to the collaboration between the city leaders and developers/investors by its extraordinary success. Beside the local governments (or, where appropriate, the state), the private sector has also important role in open space developments. The role of the private investors has been growing significantly in recent decades because of the rapid development of the economy and the spread of the profit-oriented lifestyle. Therefore the open space developments, which were exclusively initiated by the city's government, level at public areas.

DETERMINING THE AIM

Open spaces have significant importance in the life of the settlements. The areas with high green-coverage rate have ecological and environmental importance. These green spaces can improve the urban climate, abate the urban heat-island effect by their ecological-balancer function and reduce environmental damages. Through their social importance, the open spaces can help the residents in adjusting to the healthy lifestyle. By their aesthetic importance, they determine the characteristic of the settlements, ameliorating the built-up character of the cities.

In recent years, increasing attention has been paid to research regarding the evaluation of open spaces (including green areas and green spaces) and their components as well as their effect on the environment. In Hungary, no such analytical research or evaluation relating to the effects of open spaces on property values has been made so far – and this lack has been to the detriment of the development in a big city like Budapest. Certain areas of the capital that emerged in the face of this lack are poorly

provided with green areas. However, the open spaces have increasingly greater roles in the sustainable city development processes because of the expansion of the city and also of the growing of the residents' number. The research method to demonstrate this hasn't emerged so far.

Based on the contemporary processes and trends, cities and their neighborhoods can, by means of open space developments, enhance their appeal to tourists and residents alike. In this way their values can be increased significantly.

Unfortunately, the actual situation shows that this opportunity to enhance parts of the city and the feedback of the adjoining areas' increased values to city development is not known or acknowledged by local leaders and planners. The research and the analysis of these problems and the share of results regarding the issue with the target audience have become opportune.

The aim of our research is to reveal all of the aspects that have to be collectively considered in the course of the planning of properties and open spaces as well as to 112 *P. I. Balogh, D. Takács* show those connections that can effect mutual collaboration between the two aforementioned activities to influence the city's image positively. Therefore, our purpose in exploring these questions is to get acquainted with the notions, observations and demands of the performers in the city developments and by means of these to create an Evaluation and Proposal System that can take into account the interests of designers, governments, investors and residents simultaneously and, through analyzing them, can propose regulations and optimal recommendations in relation to the developments.

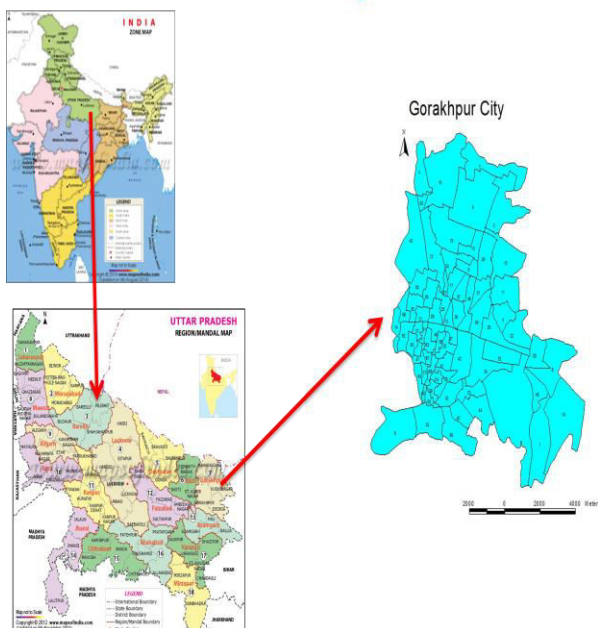
STUDY AREA

Gorakhpur city, one of the important city of Eastern Uttar Pradesh, is situated in the fertile tract of Saryupar Plain, the subdivision of Middle Ganga plain. It is the good example of fast growing urban area. Gorakhpur; the administrative headquarter of North Eastern Railway (since 1954) as well as district and divisional headquarters, is situated at the confluence of Rapti and Rohin rivers Towards the central western end of the city the Rohin meets the Rapti and both these rivers form the western boundary of the city. It is situated between 26° 42' N To 26° 47' N latitude & 83° 20' E to 83° 25' at a height of 339' (102 is to) above mean sea level. On the South, S.E. & Eastwards the Rapti Khadar and Kusmhi forest limits city growth while the north city has extended eastwards from Chilual to the plains west of

Faren Nala. ⁽¹⁾ While the north – western corner of the town looks out over the level plain north of Domingarh, which during rain is transformed into a huge sheet of water called the Domingarh or Karmaini tals. Railway lines passes through the middle of the city and divides it in to two parts Northern & Southern. The National Highway NO.28 to Basti and Faizabad leaves the town on the west at Rajghat where there is a permanent bridge over the Rapti, and further road now christened N.H.No.29 connecting Azamgarh runs south to a similar crossing near Naussar.

It is fast expanding city & only next to Varanasi & Allahabad in terms of population in Eastern U.P. At the place of regional influence Gorakhpur occupies a position of central importance in the eastern region of U.P., specially the trans-Ghaghra plain. This is due to its being the major collecting and distribution centre for eastern. The multitude of regional activities flowing to and from Gorakhpur require it to be suitably connected with different parts of its broad hinter land and absorb a large movement of goods and persons. Gorakhpur has a numeric of large peremial takes, formed is most cases in the abandoned channels of rivers, Ramgarh Tal biggest in area, Chillue Tal, Sumer Sagar are worth mentioning

Location Map



Urban open space - both magnitude and spatial arrangement - is critical to urban living. Availability of open space, distribution and accessibility are a major Concern for cities. Open space are a necessity and not a luxury. Due to ongoing urbanization trend worldwide, the

distance between city inhabitants and nature is increasing. Urban greenery is one of the ways to bridge this gap between people and nature. Most of the Indian cities are far behind in this. High population density is one of the reasons for underdevelopment of urban greenery sector. Without careful planning, cities will be stressed with environmental challenges. Open space exists at many different scales, in many different forms and under the jurisdiction of different organizations. Open space occur incidentally like the agricultural lands/ barren lands or are formally planned. Open space is a basic type of land use along with residential, commercial, industrial, transportation etc. Other than open space, the rest are given due importance for progress and it is neglected because it caters to natural, recreational and cultural needs that are intangible. However, planning may help in conserving open space as it offers places for wildlife habitat, wilderness protection, ground water retention, air oxygenation, active recreational use, historic landscapes etc.

In present times, the concept of “open space” in urban areas is not only limited to urban parks and preserves. Public space such as streets, schoolyards, outdoor sports complexes, cemeteries and public squares are all important open space (Hall and Ward, 2013) Properties near urban open space tend to have a higher value. One study was able to demonstrate that, “a pleasant view can lead to a considerable increase in house price, particularly if the house overlooks water (8–10%) or open space (6–12%).”

When it comes to proximity to the park edge, while there is a premium attached to apartments in close vicinity to the park, a negative premium is attached to this attribute for single-family houses, which may be due to the potential negative externalities that may surround parks, particularly in the evenings.

The benefits that urban open space provides to citizens can be broken into three basic forms; recreation, ecology, and aesthetic value.

RECREATIONAL

Urban open space is often appreciated for the recreational opportunities it provides. Recreation in urban open space may include active recreation (such as organized sports and individual exercise or passive recreation, which may simply entail being in the open space. Time spent in an urban open space for recreation offers a reprieve from the urban environment.



ECOLOGICAL

The conservation of nature in an urban environment has direct impact on people for another reason as well. A Toronto civic affairs bulletin entitled *Urban Open Space: Luxury or Necessity* makes the claim that "popular awareness of the balance of nature, of natural processes and of man's place in and effect on nature – i.e., "ecological awareness" – is important. As humans live more and more in man-made surroundings – i.e., cities – he risks harming himself by building and acting in ignorance of natural processes." Beyond this man-nature benefit, urban open spaces also serve as islands of nature, promoting biodiversity and providing a home for natural species in environments that are otherwise uninhabitable due to city development.

In a sense, by having the opportunity to be within a natural urban green space people gain a higher appreciation for the nature around them. As Bill Mc Kibben mentions in his book *The End of Nature*, people will only truly understand nature if they are immersed within it. He follows in Henry David Thoreau's footsteps when he isolated himself in the Adirondack Mountains in order to get away from society and the overwhelming ideals it carries. Even there he writes how society and human impact follows him as he sees airplanes buzzing overhead or hears the roar of motorboats in the distance.

AESTHETIC

The aesthetic value of urban open spaces is self-evident. People enjoy viewing nature, especially when it is otherwise extensively deprived, as is the case in urban environments. Therefore, open space offers the value of "substituting gray infrastructure." One researcher states how attractive neighborhoods contribute to positive attitudes and social norms that encourage walking, while having close access to recreational facilities such as parks increases the likelihood that people will translate walking intentions into actual action.

OTHER VALUES OF URBAN OPEN SPACE

The value of urban open space can also be considered with regards to the specific functions it provides. For example, the Bureau of Municipal Research in Toronto lists these functions as the nature function, urban design function, economic function, social retreat function, and outdoor recreation function. Another study categorizes the values open space offers from a sociological viewpoint, listing: civic and social capital, cultural expression, economic development, education, green infrastructure, public health, recreation, and urban form. These studies reiterate the same core benefits of urban open spaces and none of the options create any inconsistencies with the others.

Additional beneficial aspects of urban open space can be factored into how valuable it is compared to other urban development. One study categorizes these measures of value into six groups: utility, function, contemplative, aesthetic, recreational, and ecological.^[8] These categories account for the value an urban open space holds to the development of the city in addition to just those things citizens consciously appreciate. For example, the "function value" of an open space accounts for the advantages an urban open space may provide in controlling runoff. The final three values listed, aesthetic, recreational, and ecological, are essentially the same as the values that make urban open spaces consciously valuable to citizens. Of course, there are several different ways to organize and refer to the merit of open space in urban planning.

A study conducted in Australia provided insight into how there is a correlation between community development/community safety and natural open space within the community. Open areas allow community members to engage in highly social activities and facilitate the expansion of social networks and friendship development. As people become more social they decrease the perceptions of fear and mistrust allowing a sense of community bondage.

PUBLIC HEALTH

Despite improvements in medical technology that allow humans to heal from numerous diseases and medical conditions, research shows that contact with the green environment still offers great benefits to mental health and psychological well-being. Within a population, whether it is in the scale of a town or a state, researchers are continuing to find evidence of increased health benefits from a green environment that provides abundant vegetation. When physical activity of an individual is

coupled with green environments, the health benefits are observed to be amplified.

IMPROVE FOCUS

Interacting with nature can have a restorative effect on attention/focus levels, through providing the brain a break from overstimulation.

INDIVIDUAL SCALE

Psychological benefits gained by visitors to urban green spaces increased with their biodiversity, indicating that 'green' alone is not sufficient; the quality of that green is important in delivering the health benefits.

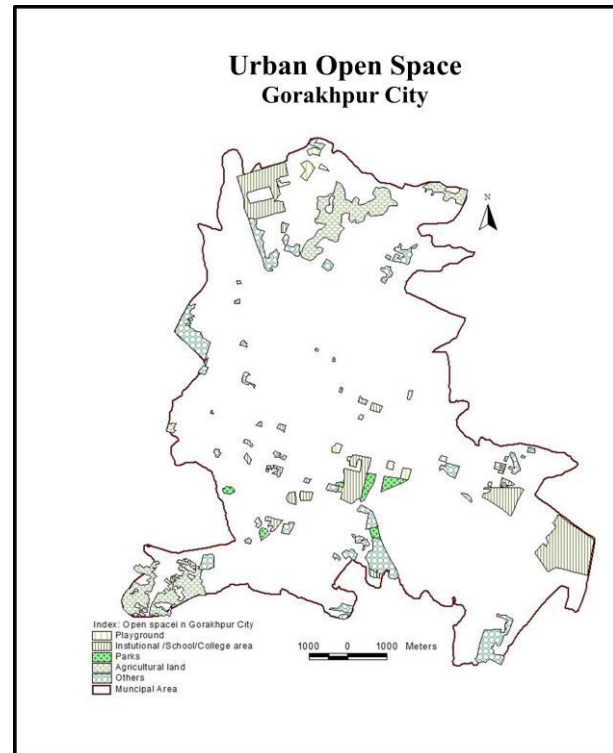
PHYSICAL ACTIVITY

Studies done on physically active adults' middle aged and older show there are amplified benefits when the physical activities are coupled with green space environments. Such coupling leads to decreased levels of stress, lowers the risk for depression as well as increases the frequency of participation in exercise. Degree of intensity of exercises doesn't impact degree of benefit from green space. Casual group walks in a green environment (nature walks) increase one's positive attitude and lower stress levels as well as risk of depression. Research shows that when open spaces are attractive and accessible, people are more likely to engage in physical activity, which has obvious inherent health benefits. Accessibility has been shown to increase open space use, which drops dramatically for distances longer than a five-minute walk (about 400 m). Neighborhood layouts such as the Oglethorpe Plan for Savannah, GA or the contemporary Fused Grid achieve high degree of accessibility. It is important to note that according to a different study, physical exercise in natural environments do not necessarily elevate one's health state such as treating depression, but rather benefit in the forms of preventing the decrease of one's mental well-being such as risk of depression or distress. Also, regular use of non-natural, in particular sporting environments, was positively and significantly associated with greater well-being in terms of physical health, but no such correlation was found with regular use of any of the natural environments from the study. This suggests that greener environments and their positive benefits on human health is limited to mental health and well-being.

URBAN OPEN SPACE OF GORAKHPUR CITY

The Gorakhpur city was a series of concentric circles, the inner core of which would be Civic centre or park, the outermost ring would be set aside as a green belt

for agriculture and Institutional use between these would be housing and a section for industry, This will be applied according to the specific conditions of topography and Transportation of the selected site. In the Gorakhpur city several number of parks in this study we take the image 2015 and identify the urban open space.



CONCLUSION

We paid special attention to acquainting ourselves with and analyzing the Urban Open Space Development. It is particularly important to map the effect of open spaces onto their environment research into urban development practice could be conducive to abating negative processes deriving from city developments and to realize the goals of sustainable development – thus creating more pleasant and more environmentally-friendly cities.

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Including the street and space reconstructions as well as the renewal and construction of private or public gardens/parks.

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