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Need of Urban Forestry in North-Eastern India: A Case of Agartala

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ABSTRACT

At present, the modern cities are facing a number of environmental issues which impact the wellbeing of the city dwellers everywhere. Even the cities of North-eastern India are also undergoing a massive trend of urbanization which has led to unplanned haphazard development and expansion of cities and led to destruction of natural resources and increase the gap between people and environment. The motive of revitalisation has been extremely necessary for urban areas mainly after the pandemic etc. Urban forestry is one of the prime ways to fill gap between city dwellers and environment. It not only helps in reducing the pollution but also fighting against the factors like urban heat island, health issues of dwellers etc. Urban forest is one of the prime elements of green infrastructure and play important role in sustainable development. In the current scenario the need of urban forestry is discussed for Agartala, a mediocre city situated in North-eastern India.

Keywords: Urbanization, Urban forestry, Intangible benefits, Green cover, Sustainable development.

INTRODUCTION

The rapid pace of the world's growth of urban population, especially in developing countries, is one of the major challenges for Governments and planning agencies (Mosammam et al., 2016). Most of the urban growth occurs in less developed countries around the world causing rapid changes in land use patter of a place. And it has been observed the green land or marshy land or the forest land has been effected mostly in account of such growth. The land use pattern of Agartala City was initially designed by the Maharaja Birchandra Manikya. The central portion of the city was a marshy land with scattered settlement up to 1949. The Haora River, spatially characterised with meandered was a navigable river owing almost through the middle of the city. The main market area (namely Maharaj Ganj Bazar) was developed along the right bank of the river Haora which was the major transport route during that time.

In 1871, Agartala Municipality was formed with a very small population. The growth process of Agartala City was highly influenced by two major incidents, independence of India (1947) and the independence of Bangladesh (1972). Gradually, population of the city has increased and to accommodate the changing landscape of the city. The socio-economic condition, political stability, better infrastructural facility and good connectivity with regional roadways are the pull factors for the influx of huge population. In order to cater the huge influx Lot of marshy and agricultural lands have been converted into densely settled areas through land filling. The unhealthy correlation between land use patterns and physiography of the city has created problems like water logging during monsoon, growth of slums, narrow roads, and traffic congestion.

Scenario of Agartala

In recent years because better economic growth and development and improvement of connectivity with suburbs many people start to settle within the city. To meet the growing demands to accommodate the huge migrant population with unplanned growth of built-up area in the city.

In recent years because better economic growth and development and improvement of connectivity with suburbs many people start to settle within the city. To meet the growing demand to accommodate the huge migrant population with unplanned growth of built-up area in the city. This growth mainly destroyed the green space in and around the city. The rampant growth not only effect the. Urban green spaces but also effected the marshy land and water bodies in its vicinity. It has severely hampered the bio diversity of that zone. Also leads to flooding of new areas and major cause of UHI (urban heat island) effect in the city.

Year	Population	Green cover (area in SqM)	per capita green space sqm/inhabitant
1991	198320	35130000	177.14
2011	269492	30690000	113.88
2011	400004	15690000	39.22
2015	475000	7790000	16.4

Urban green space Agartala(table-1)

Research says at least 9 m^2 of green space per individual with an ideal urban green space value of 50 m^2 per capita. (Int J Environ Res Public Health. 2018 Oct; Russo, cirella) It has been observed the per capita green space has reduced drastically as compared with the population growth in the city table-1. Although the state per capita is more as compare with the national average and more than the recommended value of but still it is very less than the desired value as recommended by WHO.

Figure-1:- AD Nagar Agartala (2013 and 2022)

Some satellite imagery at different part of the city shows how the urban green has reduced over time. Figure-1 is located in the southern part of the city and figure -2 is located in the northern part of the city.

Figure-2: Capital Complex, Agartala (2013 and 2022)

Expected benefit of Urban Forestry in Agartala

According to the Society of American Foresters' Dictionary of Forestry (1998 edition) Urban forestry is an integrated concept, defined as the art, science, and technology of managing trees and forest resources in and around community ecosystems for the psychological, sociological, aesthetic economic, and environmental benefits trees provide by the tree to the society. Its not only helps in restore the bio diversity but also helps in improving the mental health of the citizen the key benefits of the urban forestry are as follows

Ecological Benefits:

Urban forestry plays an important role in addressing environmental engineering problems, including those related to erosion control, noise and air pollution abatement, wastewater management, watershed protection, and glare, reflection, and traffic control . A fully-grown tree can absorb up to 150kg of carbon dioxide annually, the main greenhouse gases contributing to global warming. Urban vegetation (trees and other plants) can be used to mitigate extreme storm water runoff events in urban areas and control the urban flood. Urban trees can affect stream flows as well, by their ability to intercept rainfall and affect soil infiltration rates of water. By lowering air temperatures, they improve the urban climate. They can directly influence the carbon footprint by lowering the air-conditioning load of a building.

Trees influence thermal comfort, energy use, and air quality by providing shade, transpiring moisture, and reducing wind speeds. Because of uncontrolled growth the city has lot a varity of biodiversity present before the introduction of urban green area ay help in restoring it,

Social Benefits:
Urban trees enhance the beauty and environmental quotient of city and are among the most important features contributing to the aesthetic quality of residential streets and community parks. Urban trees can reduce stress and improved physical health for urban residents and can be of real benefit to health and enhance cultural activities by providing venues for local festivals, civic celebrations, political gatherings and theatrical performances where people of all ages can interact. As people tend to prefer outdoor recreational areas close to their homes, urban green areas are the most popular outdoor recreational areas. Urban dwellers often form strong attachments to trees and green areas close to their homes, which often leads to controversy in cases of tree removal. Recently the health impacts of urban green space have also been studied. Urban green space can have a positive impact on physical and mental health, for example by providing settings for physical exercise, reducing ultraviolet radiation and air pollution, and reducing stress.

Economic Benefits:
Urban forest offers significant benefits in reducing building air-conditioning demand and reducing energy consumption and also Landscaping with trees—in yards, in parks and greenways increase property values and commercial benefits .It act as places for recreational activity, thus making forest tourism a source of wealth generation. Furthermore, they impart various economic benefits through tangible economic items like firewood, timber, fruits, medicinal products, etc.

The urban forestry also provide non-wood forest products such as mushrooms, berries, medicinal herbs, rattan, and so forth. In addition, trees play an important role in urban agriculture, which may provide an important source of livelihoods in developing states like Tripura. The value of real-estate will also increase if the locality has sufficient amount of green space around it.

CONCLUSION

The need for urban forestry to be a planned, integrated, and systematic approach to urban tree management should be stressed. Planning is important because trees are very often considered as an afterthought once development has taken place, rather than being incorporated at the original design phase. An integrated approach implies the participation of many different organizations - local councils, municipal and national planning bodies, departments, etc. Systematic management entails regulated tree management; operations such as planting, pruning, and felling must all be conducted in an organized manner, at the appropriate time. Although the government is working in the direction of creating and improving green infrastructure but special care is need to be given to preserve the existing green spaces and also to create or develop new green spaces which will help to attain a healthy environment for the stakeholders.

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