

Conservation and Management of Wetlands: Requisite Strategies

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Abstract

Wetlands constitute a vital component in our ecosystem. They aid in synthesising of nutrients and function as kidneys of the landscape. The rapid urbanisation trend consequent to unplanned developmental activities with burgeoning population has posed serious challenges in the regional planning and management involving plethora of issues like wetland conservation, infrastructure development, traffic congestion, basic amenities, etc. Issues such as water and food security, and clean environment have gained importance in recent times. Urban sprawl refers to the dispersed development along highways or surrounding a city and in rural countryside with implications such as loss of agricultural land, open space and ecologically sensitive habitats. Sprawl is thus a pattern and pace of land use in which the rate of land consumed for urban purposes exceeds the rate of population growth resulting in an inefficient and consumptive use of land and its associated resources. In this context, the holistic approaches in urban planning, and visualization of urban growth and its impact on natural resources has gained importance. The study unravels the pattern of growth in Greater Bangalore with driving factors and its implication on the natural resources (water, vegetation, energy), ecology and also on local climate, necessitating appropriate strategies for the sustainable management. Urbanisation has telling influences on the natural resources evident from the sharp decline in number of water bodies and also from depleting groundwater table. The talk would discuss the strategies to be adopted for the conservation and sustainable management of wetlands.

Bangalore is experiencing unprecedented urbanisation and sprawl in recent times due to concentrated developmental activities with impetus on industrialisation for the economic development of the region. This concentrated growth has resulted in the increase in population and consequent pressure on infrastructure, natural resources and ultimately giving rise to a plethora of serious challenges such as climate change, enhanced green-house gases emissions, lack of appropriate infrastructure, traffic congestion, and lack of basic amenities (electricity, water, and sanitation) in many localities, etc. This study shows that there has been a growth of 632% in urban areas of Greater Bangalore across 38 years (1973 to 2010). Urban heat island phenomenon is evident from large number of localities with higher local temperatures. The study unravels the pattern of growth in Greater Bangalore and its implication on local climate (an increase of ~2 to 2.5 °C during the last decade) and also on the natural resources (76% decline in vegetation cover and 79% decline in water bodies), necessitating appropriate strategies for the sustainable management. The study reveals that frequent flooding (since 2000, even during normal rainfall) in Bangalore is a consequence of the increase in impervious area with the high-density urban development in the catchment and loss of wetlands and vegetation. This is coupled with lack of drainage upgrade works with the changes in enhanced run-offs, the encroachment and filling in the floodplain on the waterways, obstruction by the sewer pipes and manholes and relevant structures, deposits of building materials and solid wastes with subsequent blockage of the system and also flow restrictions from under capacity road crossings (bridge and culverts). The lack of planning and enforcement has resulted in significant narrowing of the waterways and filling in of the floodplain by illegal developments.

Keywords: Wetlands, Conservation, Mitigation, Spatial analysis, Urban floods