Urbanscapes

Bangalore's Tragedy – A Dead City with Unabated, Unplanned and Untenable Urbanization

T.V. Ramachandra

Energy & Wetlands Research Group, Centre for Ecological Sciences, Email: cestvr@ces.iisc.ernet.in

Bharath H. Aithal

Indian Institute of Technology, Kharagpur, Email: bharath@ces.iisc.ernet.in

Bangalore has been experiencing unprecedented rapid urbanization and sprawl in recent times due to adoption of concentrated developmental path with impetus on industrialization for the economic development of the region. The city witnessed large scale land cover unhealthy transition with the fragmented uncoordinated governance by the numerous para-state agency leading to take over of the city by land, water and waste mafia.

Bangalore was once aptly branded as air condition city and due to salubrious climate with the summer temperature of 14-16 °C (in 1800) was holiday destination for many international voyagers. The region had the distinction of growing apples at place orchards due to the favourable climate with temperature of zero degrees for couple of days during December. However, the city lost its sheen with the misadventure of opting unscientific developmental path in a haste to transform the region to Singapore in nineties. Rapid unplanned urbanization has posed serious challenges to the innocent native citizens with the plethora of socio-ecological issues such as changes in micro-climate, enhanced greenhouse gases (GHG) emissions, depletion of groundwater resources, traffic congestion, inadequate infrastructure, poor basic amenities, etc. During seventies the city was known as garden city as city landscape was dotted with trees (70%) and water bodies (5-8%). However, the creation of BDA – Bangalore Development Agency in mid-seventies and ad-hoc decisions of relaxing FAR (Floor area ratio) by the colonial mindset bureaucracy has spelt doom to the garden city. The spatio temporal patterns of urban growth through the pictures taken from the satellite platforms reveal of **large scale unrealistic land cover changes with the strident increase (1005%) of** paved surfaces (concrete area, etc.) with the sharp decline in vegetation (88%) and water bodies (79%) during 1973 to 2016 (Figure 1). Quantification of number of trees in the region using higher spatial and spectral resolution remote sensing data with field census reveal 1.5 million trees and human population is 9.5 million, indicating one tree for every seven persons in the city. This is insufficient even to sequester respiratory carbon (ranges from 540-900 g per person per day). This has made the

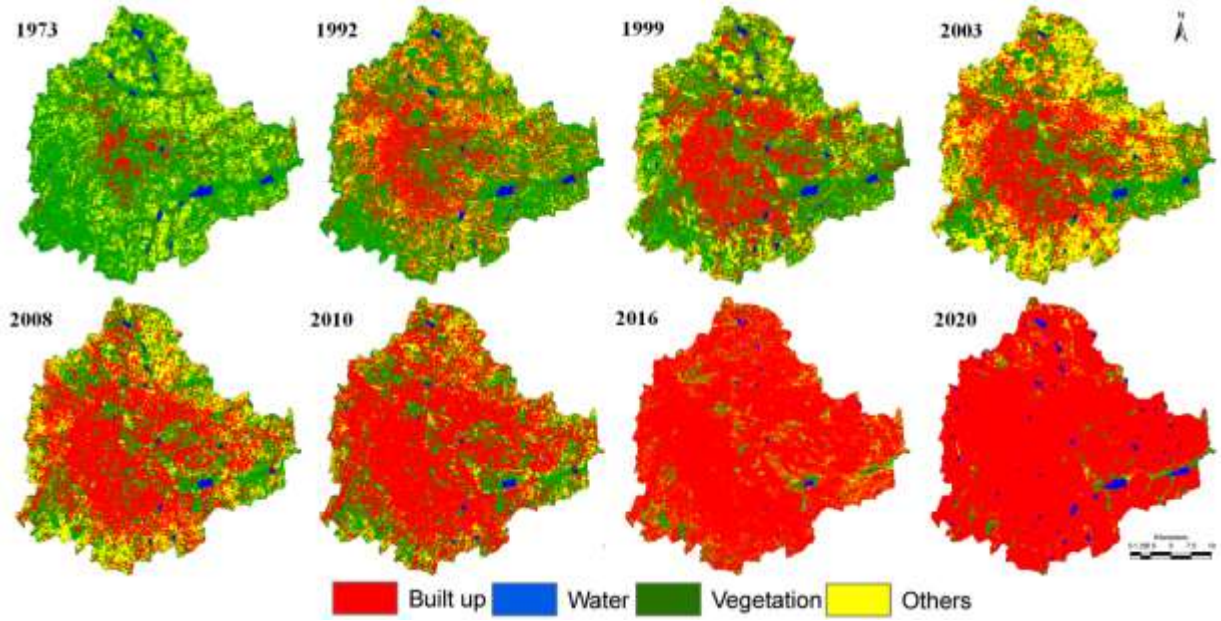
region GHG rich, water scarce, non-resilient and unlivable, depriving the city dwellers of clean air, water and environment. The knowledge of land cover dynamics aid the sensible decision makers to plan and ultimately build a sustainable city. The simulation of likely land uses during 2020 raises alarm as 93% of Bangalore landscape will be filled with paved surfaces of buildings, etc., depriving clean air, water and environment to the citizens, contrary to the fundamental rights as per Article 21 of our Constitution.

Bangalore has been experiencing unprecedented rapid urbanization and sprawl in recent times due to adoption of concentrated developmental path with impetus on industrialization for the economic development of the region. The city witnessed large scale land cover unhealthy transition with the fragmented uncoordinated governance by the numerous para-state agency leading to take over of the city by land, water and waste mafia. Violation of town planning act and attempts by the real estate friendly bureaucrats (gullible to plunder public goods) further highlights the erosion in professional ethics in the current breed of decision makers. The pride of the city took downward trend and agony of Bangaloreans' compounded with (i) the burgeoning breed of senseless and autocratic decision makers with the colonial mindset (deliberate mismanagement to plunder and to optimize individual gains) with the fragmented governance and lack of transparency in the civic administration, (ii) relaxation of FAR, (iii) irrational approvals with the issue of no objection certificate by BWSSB (Bangalore Water Supply and Sewage Board) despite insufficient water in the region, (iv) permitting poor architecture buildings with glass facades, leading to higher annual electricity consumption (14000-15000 units (kWh) per person compared to the consumption of 700-1200 units in normal buildings), (v) higher emissions in transportation sector (45%), (vi) sustained inflow of untreated sewage and industrial effluents, (vii) inadequate infrastructure, (viii) mismanagement of solid waste, leading to **the serious environmental degradation with** a plethora of challenges such as climate change, enhanced greenhouse gases (GHG) emissions, lack of appropriate infrastructure, traffic congestion, and lack of basic amenities (electricity, water, and sanitation) in many localities, etc.

Bangalore depends on groundwater resources to an extent of 40-45%. Declining water table of 300 m from 28 m and 400 to 500 m in intensely urbanized area such as Whitefield, etc. over a period of 20 years with the decline in wetlands and green cover. An increase of ~2 to 2.5 ºC

during the last decade highlights implication of urban growth on local climate, necessitating appropriate strategies for the sustainable management of natural resources.

Fig. 1. Urban growth in Bangalore (based on temporal data acquired through space borne sensors)



Frequent occurrence of large-scale fish mortality, frothing and fire in lakes only reminds us of the inefficient management of water. Emissions from transport is about 43.83% (Greater Bangalore) on account of large scale usage of private vehicles and mobility related to job accounts to 60 % of total emissions due to lack of appropriate public transport system and haphazard growth with the unplanned urbanization. Lack of integrated land use and mobility planning, majority commute longer distances, thus contributing to emissions. Higher fuel consumption, enhanced pollution levels due to the increase of private vehicles, traffic bottlenecks have contributed to carbon emissions significantly.

Apart from these, mismanagement of solid and liquid wastes has aggravated the situation. Dumping of solid and liquid waste to the lake has increased the anaerobic condition leading to emissions of greenhouse gases (methane, CO_2, etc.). Unplanned cities thus not only contribute to

global climate change by emitting the majority of anthropogenic greenhouse gases but also are particularly vulnerable to the effects of climate change and extreme weather. This emphasizes the need to improve urban sustainability through innovations while addressing economic, technical, behavioral, and political challenges to create cities that are low-carbon, resilient, and livable. Decongest Bangalore on priority or perish forever. Environmentally sound urban centers with essential basic amenities and advanced infrastructures (such as sensors, electronic devices and networks) would stimulate sustainable economic growth and improvements in citizen services. The deployment of information and communication technology infrastructures for effective governance support social and urban growth through improved economy and active participation of citizens. Indian cities while exhibiting technological innovations and connectedness, should also focus on increased living comfort of every citizen through adequate infrastructure and essential basic amenities.