Evaluating the Urban Green Spaces: Benefits and Issues

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Abstract: As urbanization leads to rapid decline in open spaces across our cities, a rethink for the sustainability of urban biodiversity and maintenance of essential ecosystem services is a must. The rate at which urbanization is taking place is exponential resulting in urban sprawls eating away much of open spaces. Environmental degradation continues to be a major problem in many cities as the open spaces available per capita are decreasing. By 2030 more than 57% of the world's population is expected to live in urban areas with the figure expected to touch 70% by 2050 (United Nations, 2013). Consequently urban sustainability will be a critical challenge, particularly for developing nations like India. This paper evaluates the importance of these spaces and tries to propose urban design solutions for sustainability of these recreational open spaces.

Keywords : **Recreational Spaces, Sustainability, Urban design**

Introduction:-

Open space within the city has been declining due to relentless trend of development. In this scenario the city is headed towards an unbalanced system. For sustainable and balance of the system, planned open space and open space system is necessity. Since these spaces have need been considered as potential revenue generators, these spaces are either in neglect or not taken seriously by the city administrators and planners. .

Sustainable urban design approach of recreational open spaces aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but in the indefinite future. Urban design is about making the connections between people and places, between public and private space, between the natural and built environment, between movement and urban form, and between the social and economic purposes for which urban space is used. Urban design is as much about urban structure as it is about the design of a specific place. Urban structure is important because no matter how good the detailed design of a place may be, it cannot overcome structural deficiencies. Much bad urban design stems from poor urban structure and an inadequate analysis of the placement of a development.

Urban Recreational Open Spaces

The term 'open space' covers green-space consisting of any vegetated land or structure, water or geological feature in an urban area and civic space consisting of squares, market places and other paved or hard landscaped areas with a civic function.

Some spaces may combine green and civic space elements, but one type or other will usually predominate.

Recreational Open Space (Cordell & Bergstorm 1998, pg19) includes areas for the purpose of recreation including landscaped areas with special lighting and seating (passive recreation), walks and paths, such as jogging paths or Para-course paths (exercise trail with activity stations), recreational buildings, game courts, enclosed child play areas, clubhouses, workout areas, picnic areas, and swimming pools, or other similar uses accessible to each lot or dwelling unit within a development through a system of public or private walkways.

Trends in Indian cities:-

The findings by a team of Professors at The Indian Institute of Science Bangalore using satellite borne sensors compared images over decades and modeled past and future growth to reveal the rate of decline of urban green. The results of these findings are on graphical form below.

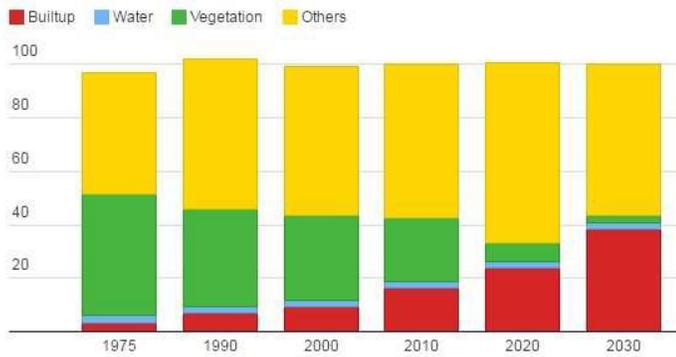Breakup of Land Usage In Kolkata
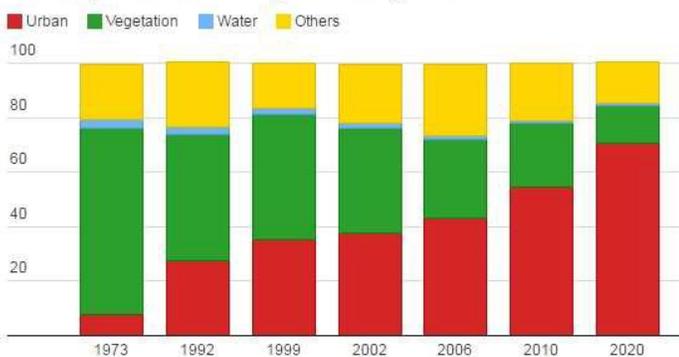In percentage
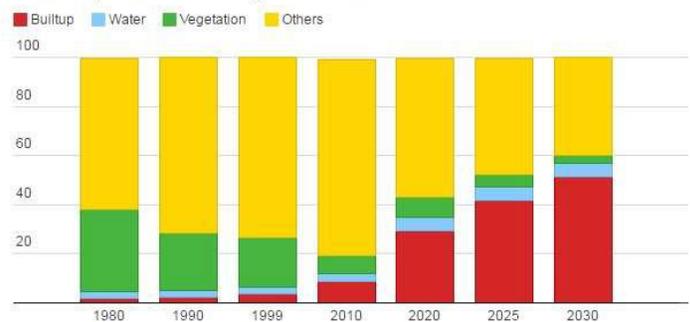
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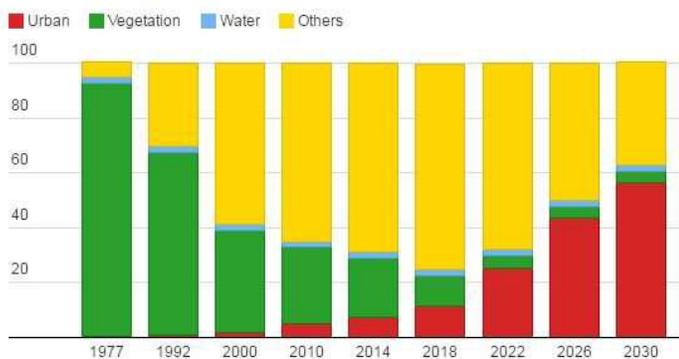In percentage
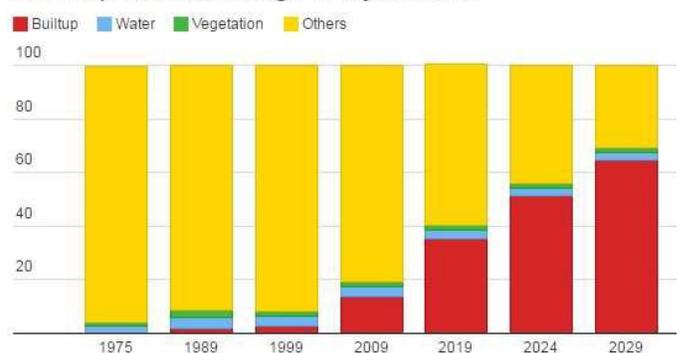
Breakup of Land Usage in Ahmedabad

In percentage

Breakup Of Land Usage In Bangalore

In percentage

Breakup Of Land Usage In Bhopal

In percentage

One of India's greenest cities better of than other cities even today, but the concretising trend is clear. In 1992, 66% of the city was covered with vegetation that is down to 21% and falling. The trends seems to be similar for most of the urban land in the country. This directly leads to the decline in the urban recreational spaces.

Table 1: Percentage of green areas in different Indian Cities

Name of the City	% Recreational Area	Name of the City	% Recreational Area
Mumbai Suburban	**19.28%**	**Mumbai City**	**0.65%**
Jaipur	**4.42%**	**Bhopal**	**11.26%**
Kolkata	**0.20%**	**Ahmedabad**	**2.03%**
Chennai	**4.17%**	**Pune**	**8.52%**
Hyderabad	**5.08%**	**Chandigarh**	**13.16%**

Source: (Jain,2011)

The green spaces, specially the recreational open spaces are an important part of the urban scape, providing the city and its residents with numerous benefits both tangible and intangible ecosystem. (Jim & Chen, 2008). These urban green space also helps in ecosysytem services like pollutant sequestration, ambient temperature regulations, noice contral, (Bhaskar, 2012), Social services abd health and also economic services like tourism, increase in property prices, (VP., 2010).

With the accelerated growth of urban cities, population and consumption patterns, more and more of these greenfields are being converted into built forms. Green and open space are becoming scarce resource, putting up large strain on resources as well as threatening human health. Studies have found deep connect between the amount and frequency of physical activity and green space. Hence using the per capita green space in urban areas can be used as an indicator for citizens wellbeing and quality of life.

Urban Green Spaces (Functions and Benefits)

Open spaces enables numerous ecosystem services, which in turn translate into social, aesthetic and economic benefits for the urban populace.

The urban green spaces helps in maintaining the urban biodiversity, control of run off, flood, attenuation. Parks and greenbelts act as sinks for CO_2, regulating the chemical composition of the air, purification of air. (Nowak, 2006).Urban parks, gardens and natural landscapes are known to conserve the energy in city by control of microclimate, reduction of urban heat island effect.

Mapping of the functionality of these urban green spaces could be done on the principles listed below (Chen, 2004).

- A spatial green space results in reduction of visual stress, since it's neither monotonous neither too diverse.

- For neighborhoods the distance shouldn't be more 2 km but larger greener spaces could be at a distance such that travel time is not more than 30 minutes.

- Legibility: It is the interference that one can explore environment without becoming lost.

- The size of the open spaces need to be large enough to accommodate populations that they need to serve and also for a longer duration of time.

Major benefits of urban green spaces can be categorized under tangible and intangible.

Tangible benefits

Ecological Benefits: (Jim & Chen, 2008) (Nowak, 2006) (Brack, 2002)

- Absorption of pollutants from the air, release of oxygen, as well as associated soil removes polluted particulate matter from water before it reaches storm sewers.

- Green cover also acts as natural air conditioners to keep cities cooler, mitigating the effects of concrete and glass, urban heat islands etc..

- Trees are effectively the least expensive way to manage the flow of storm water, flood attenuations. Water logging are a common feature today in most of the cities , since most the city spaces like parking lots , roads, sidewalks are covered with impervious surface preventing water from being absorbed in the soil. The green cover actually slows the run off velocity thereby increasing on the absorption by the soil. Urban green cover is important for the storm water management system of the city.

Planning Benefits:

- High quality and number of open spaces can help in improving the accessibility and attractiveness of the city.

- Helps in encouraging people to walk, or cycle , thereby reducing on the energy consumption, pollution and cost.

- Designed green urban space can be used as screen as well as barrier for noise.

Economic Benefits: (Luttik, 2000) (Chen, 2004)

- A closer look into the real estate market and one can realize that people are willing to pay more for properties closer to green spaces, or providing larger open green spaces.

- A park often becomes one of a city's signature attractions, a prime marketing tool to attract tourists, conventions, and businesses. Organized events held in public parks-arts festivals, athletic events, food festivals, musical and theatrical events often bring substantial positive economic impacts to their communities, filling hotel rooms and restaurants and bringing customers to local stores.

Intangible benefits

Health Benefits:

- Access to park increases the frequency of physical activity. A recent study published by CDC shows creation or enhanced access to places for physical activity led to a 25.6% increase in the percentage of people exercising on three or more days per week.

- Exposure to nature and greenery makes people healthier. (Ridder, 2004) Various resaerch has shown that contact with nature improves physical and psychological health. . One important study reviewed the recoveries of surgical patients in a Pennsylvania hospital. The rooms of some patients overlooked a stand of trees, while others faced a brown brick wall. A review of ten years of medical records showed that patients with tree views had shorter hospitalizations, less need for painkillers, and fewer negative comments in the nurses 'notes, compared with patients with brick-wall views. The benefits extend to psychological health.

Social Benefits:

- A well-managed green space enhances the cultural life by providing venues for local festivals, civic celebrations and performances.

- Green spaces provide a refreshing contrast to the harsh shape, color, and texture of buildings and stimulate the senses with their simple color, sound, smell and motion.

- These spaces contribute to social justice, by creating opportunities for people of all age groups to interact.

- Access to Public Park and recreational facilities has been strongly linked to the reductions in crime and in particular juvenile delinquency.

- For small children, playing is learning. Play has proved to be a critical element in a

- child's future success. Play helps kids develop muscle strength and coordination, language, cognitive thinking, and reasoning abilities.

- Green spaces build community. Research shows that residents of neighborhoods with greenery in common spaces are more likely to enjoy stronger social ties than those who live surrounded by barren concrete.

- .Recreational facilities keep at-risk youth off the streets, give them a safe environment to interact with their peers, and fill up time within which they could otherwise get into trouble.

Problems and Issues:

Cities are experiencing increasing signs of environmental stress, notably in the form of poor air quality (case of New Delhi, Beijing), excessive noise & traffic congestion (S, 2004). At the same time, irregular and unsustainable extension of cities has caused destruction of urban green areas and resulted from

increasing demand for land. Urban green spaces are an integral part of any city landscape, providing city and its residents with numerous benefits both tangible and in-tangible. But it is ironic that despite realizing the numerous benefits availed by green spaces in an urban ecosystem, yet vegetation is undergoing destruction and degradation in the modern times due to rapid and haphazard urbanization in developing countries

Some common problems and issues are following:

- **Lack of public recreational open space**: As per the planning standards 0.2 Ha/1000 population of land is required for Green open recreational spaces, which many cities have failed to maintain. The lack of these spaces are not due to lack of land as there are plentiful of vacant land its mainly because of the apathy and carelessness of government authorities, they are not used for recreational purpose.

- **Inadequate playgrounds:** Recent survey has concluded even though the number is satisfied the parks and playgrounds available in the city are smaller in size. These small tot lots cannot satisfy the need of all age groups. A big or connected open space is required to serve all age group's need or according to previous study there should be hierarchical distribution of recreational open spaces. People today are aware of the benefits of these open spaces resulting in overcrowded parks and spaces which is a deterrent for people.

- **Maintenance of parks:** Most of the major cities are plagued by lack of funds to maintain these parks wherever they have been provided. This indirectly discourages people for using it and sometimes it becomes a dumping yard for garbage resulting in serious health and sanitation problem.

- **Inadequate parking area:** It is hard to find any parking space near the public park or other recreational open spaces due to lack of proper planning as well as encroachment by street hawkers.

- **Broken and inadequate equipment in park:** Children coming to the parks are there to enjoy, if the equipment's are inadequate or broken they are discouraged for coming to the park, or recreational spaces.

Approaches to Public Recreational Open Space Planning

Over the years public planning of open spaces reveals two contradictory approaches.

a) **Demand Approach:** The demand approach is more typical of planners and geographers and focuses on providing a response to human demands for recreation, amenities and environmental quality. This is expressed by the types of open space it supports—mostly gardens and parks within or close to urban and metropolitan areas. According to the demand approach open spaces are meant to fulfill the population's needs. Therefore, they should relate mainly to attributes of the target population— its size and demographic variables, values and preferences, residential distribution and density (though some attributes of the natural environment may be considered too, such as topography that affects accessibility).

b) **Supply Approach:** The supply approach is typical of ecologists and conservationists – focuses on open space conservation as a means for protecting existing landscape and natural values (Safriel, 1991). The supply approach aims at conservation of high-quality natural and landscape values, relies on visual, ecological and spatial attributes of the existing natural environment. In fact, the differences between demand and supply approaches are the conceptual expression of the distinction between recreation and conservation functions of open spaces and their relevant planning principles, as was described above.

Urban Design Solutions for Recreational Open Space

i. Partnership/Program

- To promote and facilitate opportunities for local inventiveness by the different communities, associations, etc. to develop events.

- Promoting more "in the Park" type of activities such as band & music competitions. (e.g. Competitions organized by Sakal News Paper in Saras Baugh, Pune).

- Working with the Tourism Department to develop a series of tourism/event strategies throughout the year.

- Working in partnership with the different local community art groups to identify and implement local art programs in specific locations. (e.g. Warli painting at Sanskriti).

- Considering a concert series with partner and sponsors to promote a number of dates throughout all seasons.

- Actively working with diverse cultural groups to develop opportunities.

- Theme presentations or special public events to correspond to worldwide and national convention activities.

- Prioritization of those open space sites within the City those are appropriate for intensive programming.

ii. Design & Inventory

- Highlighting recommendations for site upgradation and infrastructure improvements to facilitate and accommodate events and festivals in parks and plazas.

- Making an inventory of locations for amenity improvements to encourage passive opportunities. (e.g. Nallah park)

- Identifying locations and program opportunities for different seasonal activities. (e.g. Circus at the riverfront)

- Increasing commercial activity adjacent to major parks and plazas.

- Identifying locations and program opportunities for office workers and others during lunch hour.

iii. Financial Sustainability

- Charging fees for using of the open spaces to support for City open space.

- Seeking out partnerships, alliances and Sponsorships.

- Developing volunteer programs (e.g. adopt-a-park).

- Actively seeking donations and establish endowment funds.

- Generating revenue from bookings, special events, concession operations, lessons and programs, advertising, etc.

Conclusion:

The ecological importance of urban green spaces are rarely taken into cognizance and with the rapid rate of urbanization the decline in urban open spaces continues. Planners have been shortsighted with the short term benefits of converting land for development rather than looking into the larger environmental issue. The need to develop adequate green spaces has not fully been realized specially in a country like ours. There is an urgent need to integrate open space planning in urban development on the highest international standards such as accessibility and availably per capita is achieved.

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