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The Role of Green Space for Sustainable Landscape Development in Urban Areas

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ABSTRACT
Development of cities cause increase in exploitation of natural resources more than environmental capacity and lead to create instability. Hence, urban green spaces and elements are necessary consideration. Attitude of sustainable development emphasizes the role of green area and in order to achieve this goal, "green space" is considered as one of the most important tools for improving urban sustainable development. Green ways are the linear elements of networks; those are programmed, planned and managed for multidimensional purposes such as ecological, recreational, cultural, recognizable beauty and other reasons which are compatible with the concept of sustainable city. This paper draws the attention to the role of green space for sustainable landscape development in urban areas and concludes with an elaboration of rich multi-tasking performance of urban green space for a modern urbanized society.
Key words: *Green space, Sustainable development, Urban areas, Society*

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INTRODUCTION

Every day human life creates new and spreading aspect of role and importance of landscape. Human spiritual and corporeal relation with landscape represents that description of flower and grass are delightful for everyone. In recent years, worldwide weather fluctuations especially increase in temperature of globe and depletion of water resources causing many problems in human environment. High population density is one of the reasons for underdevelopment of urban greenery sector in India. Particularly, in big cities population accumulation, huge buildings and modes of urban transports cause unpleasant condition for humans. Moreover, urban areas are dominated by mass of concrete. In these areas there are small green areas at a micro level. In the process of rapid urbanization created an unnatural environment. Establishment of urban green space systems has become a necessity at present.

Urban green spaces which is agreed on by ecologists, economists, social scientists and planners is public and private open spaces in urban areas, primarily covered by vegetation, which are directly (e.g. active or passive recreation) or indirectly (e.g. positive influence on the urban environment) available for the utilization [1].

Green spaces in urban systems include parks, gardens and road/street side planting. Green space can be categorized in three levels: at the regional level, at city level and at neighborhood level. It is necessary to maintain appropriate areas of open space, have connectivity among open spaces and make these accessible to public at each level to maintain urban sustainability.

The two main characters of green space that affect urban sustainability are structure and pattern. Structure is the Vertical characteristics of landscapes including plant species, habitat types, and ecological forms. Pattern- is the horizontal characteristics like spatial arrangement, size and connectivity of landscape habitat patches (Open spaces).

CONCEPT OF URBAN LANDSCAPE

The urban landscape is the part of open landscape in urban area covered with natural and artificially grown trees, shrubs, flowers and grass. Also, other plants that have been protected based on human control and management, taking in to laws and related skills for improvement of citizen's life. The functionality of those green spaces is equally influenced by the location and distribution in the whole city [2].

SUSTAINABLE DEVELOPMENT

Urban green spaces provide many functions in urban context that benefits people's quality of life. There is therefore a wide consensus about the importance and value of urban green spaces in cities towards planning and constructing sustainable or eco-cities of 21st century. Steadily growing traffic and urban heat, especially in the developing countries is not only damaging the environment but also incur social and economic costs. The ecological benefits bestowed in green spaces which range from protecting and maintaining the biodiversity to helping in the mitigation of change cannot be overlooked in today's sustainable planning. Inner-city green spaces are especially important for improving air quality though uptake of pollutant gases and particulates which are responsible for respiratory infections. Green spaces also help in reduction of the energy costs of cooling buildings effectively. Furthermore, due to their amenity and aesthetic, green spaces increase property value. However, the most sought benefits of green spaces in a city are the social and psychological benefits. Urban green spaces, especially public parks and gardens provide resources for relaxation and recreation.

ROLE OF URBAN GREEN SPACES

1. Environmental Benefits

Pollution control

Pollution in cities as a form of pollutants includes chemicals, particulate matter and biological materials, which occur in the form of solid particles, liquid droplets or gases. Air and noise pollution is common phenomenon in urban areas. The presence of many motor vehicles in urban areas produces noise and air pollutants such as carbon dioxide and carbon monoxide. Emissions from factories such as sulphur dioxide and nitrogen oxides are very toxic to both human beings and environment. The most affected by such detrimental contaminants are children, the elderly and people with respiratory problems [3]. Urban greening can reduce air pollutants directly when dust and smoke particles are trapped by vegetation. Research has shown that in average, 85% of air pollution in a park can be filtered. Noise pollution from traffic and other sources can be stressful and creates health problems for people in urban areas. The overall costs of noise have been estimated to be in the range of 0.2% - 2% of European Union gross domestic product [4]. Urban green spaces in over crowded cities can largely reduce the levels of noise depending on their quantity, quality and the distance from the source of noise pollution. In the contemporary studies on urban green spaces consider the complex urban ecosystem, conservation of the urban green spaces to maintain natural ecological network for environmental sustainability in cities. For the cities in fast urbanizing and growing economy, country like India should consider the dynamic form of urban expanding to manage effective urban green spaces which will contribute to reduce the overall CO_2 by maintaining or even increasing the ability of CO_2 absorption via natural ecosystem [5].

Biodiversity and nature conservation

Green spaces do functions as protection centre for reproduction of species and conservation of plants, soil and water quality. Urban green spaces provide the linkage of the urban and rural areas. They provide visual relief, seasonal change and link with natural world [6]. A functional network of green spaces is important for the maintenance of ecological aspects of sustainable urban landscape, with greenways and use of plant species adapted to the local condition with low maintenance cost, self sufficient and sustainable [7].

Ecological benefits

Urban green spaces supply to cities with ecosystem services ranging from maintenance of biodiversity to the regulation of urban climate. Comparing with rural areas, differences in solar input, rainfall pattern and temperature are usual in urban areas. Solar radiation, air temperature, wind speed and relative humidity vary significantly due to the built environment in cities [8]. Urban heat island effect is caused by the large areas of heat absorbing surfaces, in combination of high energy use in cities. Urban heat island effect can increase urban temperatures by 5°C.Therefore, adequate forest plantation, vegetation around urban dweller's house, management of water bodies by authorities can help to mitigate the situation [4].

2. Economic and Aesthetic Benefits

Energy savings

Using vegetation to reduce the energy costs of cooling buildings has been increasingly recognized as a cost effective reason for increasing green space and tree planting in temperate climate cities [8]. Plants improve air circulation, provide shade and they evapotranspire. This provides a cooling effect and help to lower air temperatures. A park of 1.2 km by 1.0 km can produce an air temperature between the park and the surrounding city that is detectable up to 4 km away [8]. A study in Chicago has shown that increasing tree cover in the city by 10% may reduce the total energy for heating and cooling by 5 to 10% [3].

Property value

Areas of the city with enough greenery are aesthetically pleasing and attractive to both residents and investors. The beautification of Singapore and Kuala Lumpur, Malaysia, was one of the factors that attracted significant foreign investments that assisted rapid economic growth [3]. Still, indicators are very strong that green spaces and landscaping increase property values and financial re-turns for land developers, of between 5% and 15% de- pending on the type of project [8].

3. Social and Psychological Benefits

Recreation and wellbeing

People satisfy most of their recreational needs within the locality where they live. Most of the population of a country live in urban areas and thus green spaces within urban areas provide a sustainable proportion of the total outdoor leisure opportunities. A study conducted in Helsinki, Fin- land, indicated that nearly all (97%) city residents participate in some outdoor recreation during the year. Half of the residents make outdoor visits on a daily basis or every second day [9]. Urban green spaces serve as a near resource for relaxation; provide emotional warmth [8]. In Mexico City, the centrally located Chapultepec Park draws up to three million visitors a week who enjoy a wide variety of activities [3].

Human health

People who were exposed to natural environment, the level of stress decreased rapidly as compared to people who were exposed to urban environment, their stress level remained high [4]. In the same review, patients in an hospital whose rooms were facing a park had a 10% faster recovery and needed 50% less strong pain relieving medication as compared to patients whose rooms were facing a building wall. This is a clear indication that urban green spaces can increase the physical and psychological wellbeing of urban citizens. In another re-search conducted in Swedish cities showed that the more time people spend outdoors in urban green spaces, the less they are affected by stress [10]. Certainly, improvements in air quality due to vegetation have a positive impact on physical health with such obvious benefits as decrease in respiratory illnesses. The connection between people and nature is important for everyday enjoyment, work productivity and general mental health [3].

CONCLUSION

Urban green spaces fulfill many functions in urban context that benefits people's quality of life. There is therefore a broad consensus about the importance and value of urban green spaces in cities towards planning and constructing sustainable or eco-cities of 21st century. The ecological benefits bestowed in green spaces which range from protecting and maintaining the biodiversity to helping in the mitigation of change cannot be overlooked in today's sustainable planning. Inner-city green spaces are especially important for improving air quality though uptake of pollutant gases and particulates which are responsible for respiratory infections. Green spaces also help in reduction of the energy costs of cooling buildings effectively. Furthermore, due to their amenity and aesthetic, green spaces increase property value. However, the most sought benefits of green spaces in a city are the social and psychological benefits. Urban green spaces, especially public parks and gardens provide resources for relaxation and recreation. Ideally this helps in emotional healing and physical relaxation.

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