

Role of Urban Green Spaces in Cities

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Introduction

Urban forestry is the branch of forestry, which deals with the art, science and technology of managing trees and forest resources in and around urban community ecosystems for physiological, sociological, economic and aesthetic benefits trees provide for society. Urban parks, gardens, roadside plantation, home garden and natural landscapes are better known for their non-market or intangible benefits than market or tangible benefits; they are very valuable for non-timber forest products market as well as direct timber market. Trees laden parks/gardens are used for morning and evening walks/exercises and recreation by all kinds of people. Urban green spaces are the most effective means of removing atmospheric pollution in big cities and aesthetic value increased.

The contributions of forests, trees and other urban green areas to the quality of urban life and the environment can be significant. When existing good practices are built upon, urban forestry has shown significant contributions to the quality of urban life and the environment, together with other types of comprehensive green-space planning and management concepts. Through agroforestry systems, for example, urban forestry and urban agriculture join forces in supporting livelihoods. A review of the status of urban forestry research and development, policy-making, implementation and education across the globe shows that advances have indeed been made. Urban forestry has been developed in response to the call for innovative, comprehensive concepts that promote the multiple benefits of urban green space. Sometimes named urban and peri-urban forestry, the concept encompasses the planning and management of forests and other tree resources in and close to urban areas and thus integrates different parts of urban green structures.



Objective of Urban Spaces:-

- To reduce air pollution by sequestering gases such as CO₂, NO₂, SO₂ and other harmful gases by filtering air particulates.
- To minimize water pollution by absorbing toxic and heavy metals.
- To reduce the volume of surface runoff and soil erosion thereby minimizing flood in flood prone areas.
- To enhance biodiversity.
- To increase aesthetic value.
- To provide shade and act as wind break.
- To reduce noise.
- To provide alternative livelihood to urban communities.
- To increase Social and cultural values of urban green.

Benefits of Urban Green Spaces:-

- ✚ **Health & Wellbeing:-** Access to green space improves our mental wellbeing, reducing the need to treat for anxiety and mental health conditions. Depressive disorders are now the foremost cause of disability in middle-and high-income countries and can be precursors for chronic physical health problems.



- ✚ **Temperature & Climate Change:-** Urban green spaces take in more carbon than they return to the atmosphere, but their design and maintenance play a crucial role in determining how much carbon they will store. For example, a “forest-like” green space with many trees and native vegetation ground cover maximises carbon sequestration over a “parklike” design with fewer trees and frequently mown grass. As well as creating new green space, looking after existing mature trees is particularly important because they continue to sequester and store large amounts of carbon.
- ✚ **Air Quality:-** Urban air pollution consists of tiny particles, known as particulate matter (PM), and gases such as ozone (O₃), nitrogen dioxide (NO₂) and sulphur dioxide (SO₂). These pollutants are formed mainly as a result of vehicle and industrial emissions. Trees and shrubs have multiple impacts on air quality. They can improve air quality by removing both particles and gases from the air; particles stick to the surface of the leaves, and gases are taken up through pores on the leaf surface. Trees with complex, ridged or hairy leaves (such as pines) tend to capture more particles than trees with broader, smoother leaves.
- ✚ **Flooding & Water Quality: -** In urban areas, the impermeable materials used for roads and pavements mean that rain is not absorbed and remains on the surface. During periods of heavy rainfall this water accumulates and when the drainage capacity of the area is exceeded, flooding will occur. In contrast, vegetated surfaces are able to intercept and store water, reducing the volume of rainwater run-off. Benefits from individual trees are maximised if they are planted in tree pits containing permeable soils able to absorb additional water, or structural soils that facilitate the growth of tree roots beneath pavements and roads.
- ✚ **Wildlife & Habitats: -** Our towns and cities are typically considered to host a less diverse range of plants, animals and birds than nearby rural areas. However, green spaces within an urban area can be home to many of the same species that are more commonly associated with rural settings, including those that are rare or threatened. For some species, urban areas can provide a more favourable habitat than intensively farmed countryside, suggesting that towns and cities could make an important contribution to national conservation efforts. Urban green spaces can act as “wildlife corridors”, linking together larger parks, and providing links to rural areas on the



outskirts of towns and cities. This facilitates the movement of animals, birds and insects between individual green spaces and prevents the fragmentation and isolation of wildlife the concept of urban forestry has several main principles, which include:

Urban forestry is integrative and comprehensive

The concept incorporates different green-space elements into a whole (the “Urban Forest”) and thus promotes a holistic view (Mock 2004; Pauleit et al., 2005). It aims for more integrated land-use systems, for example by combining forest, agricultural, nature conservation and recreational areas. It builds on the notion that sustainability of tree-based systems is not exclusive to forest resources, but also applies to other systems such as agroforestry systems and lined tree plantings. Integration also occurs in land ownership, closely related to legal or customary rights of access to and use of the land, the trees and their products (tenure aspects).

Urban forestry is strategic

Urban forestry envisions development of long-term policies and plans responding to the needs for tree resources and urbanisation prospects, connecting to different sectors, agendas and programmes, and taking into account the continuous tendencies of expansion and densification of cities (Mock 2004, Ottitsch & Krott, 2005). This is particularly true when poverty, conflicts and natural disasters force the rural population to migrate into cities (UN Habitat, 2004b).

Urban forestry is multispectral, multidisciplinary and aims to become interdisciplinary

Urban forestry is built on the involvement of experts and practitioners from a wide range of disciplines and professional backgrounds. These do not only include natural resource professionals, but also planners, social scientists, economists, and others. Urban forestry thus operates beyond traditional sectoral and disciplinary boundaries (Miller 1997; Nilsson *et al.*, 2005).

Urban forestry emphasises social inclusiveness

Developing partnerships between different stakeholders is a key element of urban forestry. While respecting local cultures and traditions, the concept emphasises the involvement of different segments of local communities in managing and using tree resources (Mock 2004, Van Herzele *et al.*, 2005). It promotes decentralisation, public participation, transparency and accountability, and fair and equitable sharing of benefits and access to



resources. The development of true partnerships often require the establishment of new institutions, for example public-private, or new public institutions that involve multiple layers of government (Jones *et al.*, 2005).

Urban forests are multifunctional

Urban forestry caters to the needs of urban society by providing multiple benefits. These include the various economic and livelihood, environmental and ecological, and socio-cultural goods and services urban forests can offer (Mock 2004, Tyrväinen *et al.*, 2005).

Conclusion

In 2021, around 64% of the world's population were living in towns and cities, and this number is projected to increase to nearly 75% by the middle of the century. Almost two thirds of the urban area that will exist by the year 2030 is yet to be built, so it is vital that we take the opportunity to create and maintain healthy and sustainable urban environments. Green spaces in cities mitigate the effects of pollution and can reduce a phenomenon known as the urban heat island effect, which refers to heat trapped in built-up areas. The urban heat island effect appears in towns and cities as a result of human activity.

