Available online at
http://agrospheresmagazine.vitalbiotech.org/

ISSN (E): 2582 – 7022

Agrospheres:e- Newsletter, (2025) *6*(1), 29-31

Article ID: 745

Landscaping for Urban Greening and Climate Adaptation

Satish Saini[1]* and Dimple[2]

[1]Trainer, Horticulture Training Institute, Department of Horticulture, Govt. of Haryana
[2]Maharana Pratap Horticultural University, Karnal-132001

Article History
Received: 14. 01.2025
Revised: 19. 01.2025
Accepted: 24. 01.2025

INTRODUCTION

As cities across the world grow rapidly, urban areas face multiple environmental challenges such as rising temperatures, poor air quality, increased carbon emissions and reduced green cover. These changes are further intensified by climate change, leading to frequent heatwaves, water shortages and loss of biodiversity. One of the most practical and sustainable solutions to tackle these problems is

landscaping for urban greening.

Urban landscaping is not just about beautification. It plays a significant role in climate adaptation, ecological restoration and improving the quality of life in cities. Well-designed landscapes can reduce the urban heat island effect, improve air and water quality, manage stormwater and provide green spaces for urban residents.

What is Urban Landscaping?

Urban landscaping involves the planning, design and maintenance of green spaces in cities and towns. It includes:

- Public gardens and parks
- Roadside plantations and avenue trees
- Vertical gardens and green walls
- Rooftop and terrace gardens
- Community gardens
- Institutional and commercial landscapes
- Urban forests and green corridors

These green elements collectively contribute to the environmental, social and aesthetic value of urban areas.

Importance of Urban Greening in Climate Adaptation

Urban greening through landscaping plays a crucial role in mitigating and adapting to climate change:

1. Reduction in Urban Heat Island Effect

Cities are hotter than surrounding rural areas due to concrete structures, asphalt roads and limited vegetation. Green landscapes help cool the environment by providing shade and through a process called evapotranspiration.

2. Carbon Sequestration

Plants absorb carbon dioxide and release oxygen, acting as natural carbon sinks. A single tree can absorb up to 20 kg of CO_2 annually, helping reduce greenhouse gas concentrations.

3. Stormwater Management

Green spaces absorb rainwater and reduce runoff, preventing waterlogging and urban flooding. Landscapes with permeable surfaces allow water to recharge the groundwater table.

4. Air and Noise Pollution Control

Trees and shrubs trap dust, absorb harmful gases and reduce noise levels. Planting along roadsides and near industrial zones improves urban air quality.

5. Conservation of Biodiversity

Urban landscaping provides habitats for birds, butterflies, bees and other pollinators. Native and adaptive plant species attract urban wildlife and help maintain ecological balance.

Design Principles for Climate-Resilient Urban Landscapes

To make landscapes effective for climate adaptation, the following principles must be followed:

a) Use of Native and Drought-Tolerant Species

Plants that are naturally suited to the local climate require less water, fertilizers and maintenance. They are also more resistant to pests and diseases.

b) Incorporation of Multi-Layered Vegetation

A mix of trees, shrubs, herbs and ground covers helps create a diverse micro-ecosystem, providing shade, soil protection and habitat diversity.

c) Rain Gardens and Bioswales

These are shallow, vegetated basins designed to capture and filter rainwater. They help in managing stormwater naturally.

d) Green Roofs and Vertical Gardens

Ideal for high-density urban areas, green roofs help insulate buildings, reduce temperature and enhance aesthetic appeal. Vertical gardens can be used on walls, balconies and even flyovers.

e) Urban Foresting

Planting dense clusters of native trees using methods like the Miyawaki technique can create mini-forests that grow fast and require minimal maintenance.

Role of Landscaping in Sustainable Urban Development

1. Improved Mental and Physical Health

Green spaces reduce stress, encourage physical activity and improve overall well-being. Access to parks and gardens is linked to lower levels of depression and anxiety in urban populations.

2. Community Building and Social Cohesion

Public gardens, parks and community gardens serve as gathering places and foster a sense of community. Urban landscaping brings people together across age and social groups.

3. Enhanced Aesthetic and Economic Value

Beautiful landscapes attract tourism, increase property values and promote sustainable business practices. Green commercial spaces are becoming increasingly popular in modern urban planning.

4. Educational Opportunities

Landscaped spaces can serve as living laboratories where students and citizens learn about plants, ecology, sustainability and climate action.

Successful Examples of Urban Landscaping in India

- Delhi’s Ridge Area Greening
- Ahmedabad's Sabarmati Riverfront
- Miyawaki Forests in Urban Areas
- Hyderabad’s Urban Biodiversity Parks

Challenges in Urban Landscaping and Greening

Despite the benefits, urban greening through landscaping faces several challenges:

- Limited availability of land due to rapid urbanization
- Inadequate funding and maintenance support
- Poor awareness among citizens and planners

ISSN (E): 2582 – 7022

- Encroachment of existing green spaces
- Invasive plant species and poor plant selection
- Lack of trained landscape professionals

To overcome these, strong collaboration between urban local bodies, horticulture departments, NGOs and citizens is essential.

Recommendations for Expanding Urban Landscaping

- Include landscaping in urban planning bylaws
- Train horticulture professionals and municipal staff
- Promote public-private partnerships for green development
- Encourage citizens to participate through awareness and incentives
- Involve schools, colleges and RWAs in community gardening
- Use GIS and remote sensing for mapping and planning green cover

CONCLUSION

Urban landscaping is more than just a decorative activity – it is a necessity in the era of climate change and rapid urbanization. Greening our cities through thoughtful landscaping provides long-term environmental, social and economic benefits. Whether it is cooling our surroundings, cleaning our air, conserving water, or bringing nature closer to urban lives, landscaping is a powerful tool for building resilient and sustainable cities.