

# URBAN HORTICULTURE:

## A WAY FOR SELF-RELIANCE AND NUTRITIONAL SECURITY

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India's urban population has increased rapidly over the past decade. It has now become a usual scene that the metropolitan cities are getting densely populated day by day with the rural folks from different parts of our country. According to 2001 census, the population residing in urban areas was only about 28.53%. Whereas, UN survey predicts that nearly 40.76% of India's population is expected to reside in urban areas by 2030. The percentage of urban population in India in previous year (2022), was 35.87% according to the estimates of World Bank. Urbanization has truly negative impact on the agriculture sector of our country. It changes the overall system of food marketing and distribution. These drastic changes happening over years urge the better understanding on the potential and possibilities of transforming these urban belts into tools of sustainable development. Urban Horticulture can be a best option for this. Urban horticulture refers to the practice of growing various horticulture crops including fruits, vegetables, leafy greens, ornamentals, medicinal and aromatic plants in the cities i.e.; urban areas in a limited space but in an effective manner. Cities usually have little or no farming environment to feed themselves and most of their food sources are shipped from far away farms. People residing in such areas also faces limitations in space to take up large scale agriculture endeavors. Urban horticulture which can be taken up via vertical farming, hydroponics, and aeroponics or even in the terraces and indoor areas could solve the problem. Thus, urban horticulture can also be a good way to generate income by selling homestead grown products with organic label. This article explores the various aspects of urban horticulture for developing self-reliance and nutritional security among urban-dwellers.

## ADVANTAGES OF URBAN HORTICULTURE

### Food security:

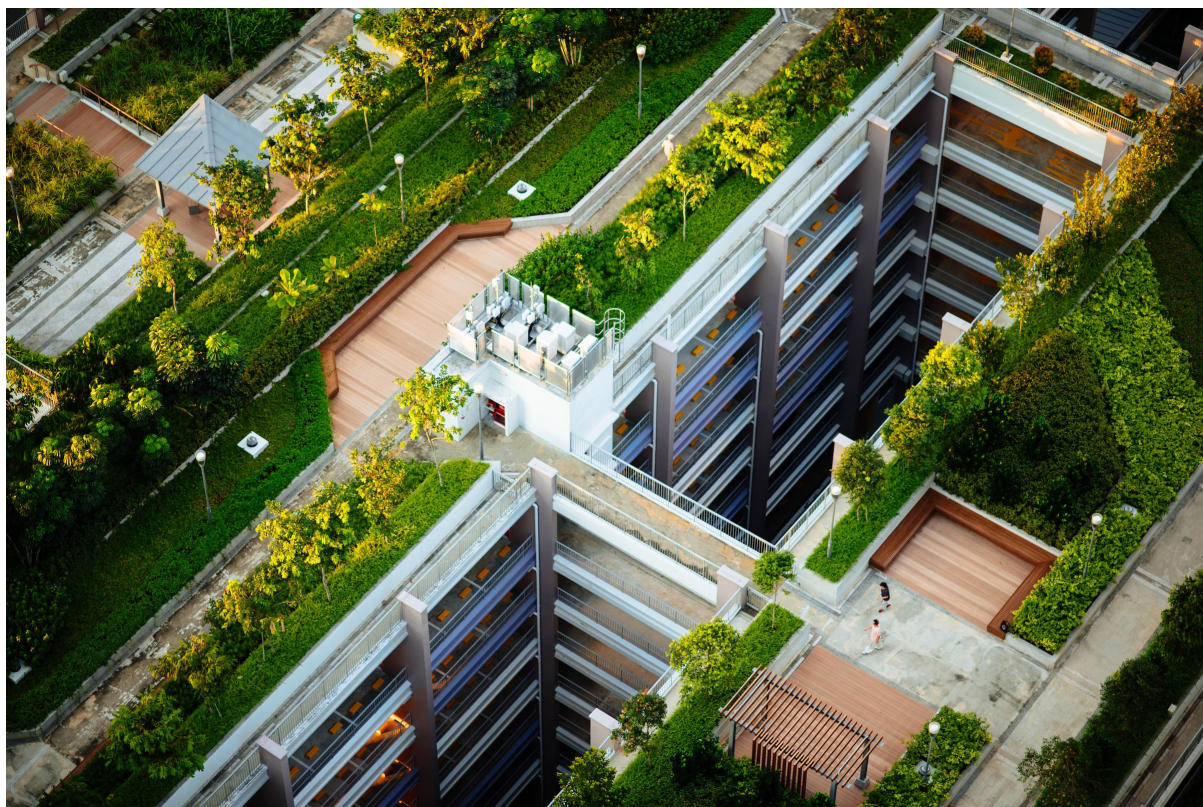
Food security ensure that every person is available with safe, nutritious, sufficient and affordable food according to his/ her preference. Due to the abruptly increasing population size it was estimated that the world food demand will increase to 43% by 2030. These challenges in food security can be addressed by urban horticulture by providing safe and abundant amount of fruits and vegetables.

### Conservation of biodiversity:

Several flora and fauna in urban areas are severely affected by various human activities. This results in disturbed biological ecosystem causing altered ecological patterns, changed natural cycles and processes and increased environmental pollution. In urban horticulture there is very limited use of pesticides or fertilizers which paves way for a better co-existence within the ecosystem.







engaging in gardening. Gardening is also believed to promote good social association among peers. This is often good way to engage local communities.

**Improvement in microclimate:**

Vegetation helps in reducing solar radiation and dust particles and increasing the atmospheric humidity which will further enhance or modify the microclimate of that particular region. Similarly, planting of different aromatic plants helps in mitigating bad odours from polluted cities. Thereby, urban horticulture can be a boon to make urban belts greener, natural and beautiful.

# TECHNIQUES OF URBAN HORTICULTURE

The major idea behind urban horticulture is to grow fresh produces and beautiful greenies in a condensed communities. Different techniques can be adopted based on the availability of space, irrigation water, infrastructure availability etc.

**Vertical gardening**

When it comes to urban gardening, every inch must work harder. This could imply utilizing vertical structures and hanging planters to maximize space in small places. Trellises, hanging baskets, portable flower boxes, fences, and wall-mounted planters are just a few examples of vertical garden structure. A vertical garden is also ideal for trailing plants and companion planting. Peas, green beans, indeterminate tomatoes are some of the good veggies which are viable for vertical gardening.



**Income generation:**

Along with providing good quality and safe food, urban horticulture can be a better option for generating job opportunities in case of developing countries and even as a direct source of income by running as a business. This can be good way to earn descent income especially for those who are having least employment opportunities or daily wage earners in order to become self-reliant.

**Best way for waste management in urban belts:**

Waste management is a severe issue to be addressed especially in large metropolitan cities. An integrated or holistic approach if undertaken can minimize the impact of this serious hazard. Various inorganic wastes such as rubber tyres, plastic bottles, baskets etc. can be used as containers for filling potting mixture for growing plants. Similarly household organic wastes including vegetable or fruit peels, plant remnants, tissues or papers shall be recycled to compost. This also helps in reducing consumption of chemical fertilizers.

**Control environment pollution:**

Plants are best candidates to mitigate the environmental pollution as they are capable of absorbing various air pollutants. They minimize the dust particles and nitrous oxide present in atmosphere. Thereby the global warming potential due to harmful gases can be reduced to a greater extend by planting at least few plants in every household. They also aids in absorbing extra noise produced in city areas.

**Assured food supply:**

Urban horticulture helps in addition of resilience to our food system whenever there is a food crisis due to any social, economic or environmental causes. Once we have an assured source of food to feed ourselves we don't need to rely upon the food export, imports or price fluctuations or food supply chains which may badly effect our purchasing power.

**Good way for recreation:**

Urban horticulture has also been developed as a hobby among many. There are people who finds mental peace and stress relief by



### Indoor gardening

Blank indoor areas which receives at least 6 hours of sunlight every day can also be transformed into urban horticulture gardens. If you have empty spots indoors that don't get enough sunlight, utilize additional lighting to grow a variety of plants. Herbs, in addition to houseplants, sprouts, and other shade-loving plants, can be cultivated indoors.

### Rooftops and balconies

Rooftops and balconies are frequently overlooked and underutilized locations that could be transformed into urban horticulture gardens. A lot of preparation is needed to construct an urban garden in these settings, especially the balcony with its weight restrictions. Examine the area's exposure to sunshine and proximity to a water source. Once you've received permission from your landlord, it's simply a matter of deciding which plants to grow, which design to try, and which raised bed style to purchase.

### Hydroponics

Hydroponics can help to improve urban farming activities in locations where inhabitants have limited access to land or when climate conditions are unfavorable for growing outside of greenhouses. The method could also be used to address soil scarcity in many urban settings, particularly in large cities where obtaining open land to farm is difficult. It is more adaptable when employed in vertical configurations, enhancing efficiency in the use of available space. Other advantages include lesser insect and disease effect in hydroponic crops, no requirement for fertilizers, and faster growth rates than traditional crops.

### Container gardening

Plants can be grown in a variety of containers or planters, including vegetable and flowering plants. Some of the most popular planters for container gardens are Grow bags, Terracotta pots, Wicker baskets, Plastic planters, Fiberglass planters, Ceramic planters etc. Edible vegetable crops such as tomato, green

onions, radishes, lettuce etc. grow well in containers. Adding a couple of potted shrubs to your container garden is one way to make it appear more complete. Shrubs in dwarf types are more suited for containers. Herbs are also great container garden plants because they don't get too big and are easy to maintain.

### Aeroponics

This is also a soilless culture like hydroponics. But here instead of dipping plant roots in water they are suspended freely in air. The nutrition for plants shall be supplied via intermittent nutrient mist sprays. In addition to that aeroponics are less demanding for irrigation, hence it conserves much quantity of water than hydroponic system. The ground space requirement is much lesser in aeroponic systems as plants will either be raised in vertical tubes or in containers hanging. Thus it accommodates large number of plants within a limited space. Year round production of quality vegetables and greens can be done in aeroponic systems. The yield is also higher when compared to conventional farming methods.

### Aquaponics

As the name suggests, aquaponics is a combination of aquaculture and hydroponics wherein nutrient rich aquaculture water is utilized for applying to hydroponic grown plants. Mostly fresh water fishes like crayfish are used for this purpose as they are capable of tolerating extreme crowding within the system. Whereas the suitability of plant in an aquaponic system depends upon stocking density and maturity of the fish. Vegetable greens such as lettuce, chive, Chinese cabbage, water cress etc. are ideal choice. As this technique involve two component factors, farmers will be able to earn from both of these within a limited space.



## FUTURE PROSPECTS

Urban horticulture meets the social indicators and contributes as an activity that ensures awareness for sustainable development and environmentally friendly lifestyles. It also demonstrates how cultivation can be done in harmony with environment, to stimulate citizenship, to promote mental and physical health, to promote traditional knowledge, and to contribute to the educational function. Thus there are plentiful of ways by which urban horticulture can bring about desirable changes to mankind in harmony with nature. In the current scenario of changing climatic situations, it's high time to know the essentiality of 'going green' and come up with necessary initiatives to boost the sector. Government can also establish policies to uplift and support urban horticulture at various levels.