

# Urban agriculture - A Sustainable Model and its challenges for Indian Cities

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## ABSTRACT

*The population of cities in India continues to expand exponentially. It is predicted that by 2050, 55% of Indians will be living in urban areas. Traditional Agricultural Industry is challenged to keep pace with this as it is estimated that agricultural land capacity can increase by 2% only. Presently multi day we see that comprehensively idea of urban agriculture is very well known. What's more, we Indians are very well known for duplicating the most predominant styles of created country in India without appropriate evaluation. Urban agribusiness is no uncertainty an idea that has had noteworthy effect in couple of urban areas of world like Boston, US and Bangkok, Thailand. Urban horticulture is the act of developing, preparing, and disseminating nourishment in or around a town, town, or then again city. It can likewise include creature farming, aquaculture, agro ranger service, and agriculture. These exercises too happen in peri-urban regions also. In India we have worked on actualizing urban cultivating ventures urban areas. In this paper, we study five factors involved in urban agriculture are Food Products, People, Product Market, Technology, Location. And sustainable development models of Delhi, Hyderabad and Mumbai. My paper goes for making an investigation on these activities and results of their usage.*

**Keywords-** Livelihood, Resilience, Sustainability, Urban agriculture, urban poor

## 1. Introduction

Terrace gardens and cultivating in urbanized regions are as old as Babylon. However, today Urban Greening and Urban Farming has obtained another essentialness because of the current pattern of fast urbanization around the globe.

As per Census of 2011, India's populace rose to 1.21 billion individuals in the course of the most recent 10 years — an expansion by 181 million. Urbanization is occurring at a quicker rate in India. Populace living in urban regions in India, as indicated by 1901 enumeration, was 11.4%. This check expanded to 28.53% as indicated by 2001 statistics, and intersection 30% according to 2011 registration, remaining at 31.16%. As per a study by UN State of the World Population report in 2007, by 2030, 40.76% of nation's populace is relied upon to dwell in urban zones. Assets are constantly restricted. Also, in a creating and exceedingly crowded nation like India, assets are much scarcer. Populace blast results in the lack of even the most essential assets like sustenance. As per an article by World Bank Group, "... the greater part of all youngsters younger than four is malnourished, 30 percent of infants are fundamentally underweight, and 60 percent of ladies are iron deficient." Resources are constrained all over the place.

The joined issues of populace blast, quick urbanization and environmental change are representing an extraordinary danger to sustenance supply. The Farmer populace has diminished and different components add

to the poor yield of existing Farmlands. The adolescent are taking to non-horticultural occupations and work in non - farming parts. Hence the Urbanizing people group are gone up against with urban development, evolving ways of life and sustenance security issues. The urban populace living and utilized in urban communities needs to source their sustenance supply from the market. As much as 70% of their pay must be spent on purchasing nourishment. Along these lines they are powerless against the variances in the market costs. To help this defenceless populace is an extraordinary test for urban Governance. In numerous parts, it is seen that the urban poor are using empty plots in the city to develop vegetables to upgrade their salary too.

In this way, except if we can build up an innovation that would empower us to live on only one grain of wheat, the populace increment remains a significant issue in India. India spends around \$10 billion every year on lack of healthy sustenance (World Bank Group), and still, after all that the legislature of India can't give the ordinary nourishing prerequisites to everyone in India. On the off chance that you stroll in the city of Calcutta or Delhi, you would see a few kids battling with one another for a little bit of bread that they found in a dumpster. While this may stun the vast majority, this is a day by day schedule and the best way to make due for some individuals in India. Survival of the fittest discovers its actual importance in the city of the urban communities of India. The ongoing scene sustenance value emergency has rendered the significance of comprehension and going up against the reasons for nourishment weakness of the urban poor significantly more clear. Poor urban occupants, being to a great extent net sustenance purchasers and depending generally on business sectors for their sustenance supplies, are especially powerless against unfriendly nourishment value stuns, and are reliably the gathering in the public eye that experiences most higher sustenance costs. Urban Agriculture is one of the arrangements that are seen all around to take care of the demand of sustenance of urban populace. There are various courses through which urban horticulture can, on a basic level, affect urban nourishment security. At the family unit level, urban farming can be a wellspring of pay, can give guide access to a bigger number of healthfully rich nourishments (vegetables, organic product, meat) and a more fluctuated eating regimen, can build the soundness of family unit sustenance utilization against regularity or other impermanent deficiencies, and can expand the time moms spend thinking about their kids, rather than non-rural exercises that will probably be found further far from home. Urban agribusiness can be characterized right away as the developing of plants and the raising of creatures inside and around urban communities. The most striking component of urban horticulture, which recognizes it from rustic farming, is that it is coordinated into the urban financial and natural framework: urban agribusiness is implanted in - and associating with-the urban environment. Such linkages incorporate the utilization of urban occupants as workers, utilization of ordinary urban assets (like natural waste as fertilizer and urban wastewater for water system), coordinate connections with urban shoppers, coordinate effects on urban biology (positive and negative), being a piece of the urban nourishment framework, going after land with other urban capacities, being affected by urban approaches and plans, and so forth. Urban agribusiness isn't a relic of the past that will blur away (urban farming increments when the city develops) nor conveyed to the city by provincial foreigners that will lose their country propensities after some time. It is an essential piece of the urban framework. Urban Agriculture assumes an essential job for making a city stronger and safe in term of sustenance and economy as well as enhancing way of life of urban poor by expanding mean of occupation.

With the end goal to get a more all encompassing comprehension of elements engaged with maintainability of Urban Farming as an instrument for urban advancement, we utilize the essential SAFA display which characterizes four mainstays of supportability in particular monetary strength, natural uprightness, social

prosperity and great administration. As we adjust the issues of UA in India with these four columns, we can check whether they bolster the reception of Urban Agriculture on a full scale for Sustainable Urban Development.

## **2. Factors involved in urban agriculture**

### **2.1. Food Products**

Urban agribusiness incorporates nourishment items, from various sorts of yields (grains, root crops, vegetables, mushrooms, natural products) and creatures (poultry, rabbits, goats, sheep, dairy cattle, pigs, guinea pigs, angle, and so on.) and additionally non-sustenance items (like sweet-smelling and therapeutic herbs, elaborate plants, tree items, and so on.) or blends of these. Regularly the more short-lived and generally high-esteemed vegetables and creature items and side-effects are favoured. Generation units in urban farming when all is said in done will in general be more particular than country undertakings, and trades are occurring crosswise over creation units.

### **2.2. People**

Expansive piece of the general population engaged with urban agriculture is the urban poor. In numerous urban communities, one will frequently additionally discover lower and mid-level government authorities, teachers and such engaged with farming, and additionally more extravagant individuals who are looking for a decent speculation for their capital. Ladies establish a critical piece of urban ranchers, since agriculture and related handling and offering exercises, among others, can frequently be all the more effectively joined with their different undertakings in the family unit.

### **2.3. Product Market**

Urban agriculture in corporate agrarian creation exercises and also related preparing and advertising exercises and in addition inputs (e.g. fertilizer) and administrations conveyance (e.g. creature wellbeing administrations) by particular smaller scale undertakings or NGOs, and so on. In many urban communities in creating nations, an essential piece of urban agrarian generation is for self utilization, with surpluses being exchanged. Be that as it may, the significance of the market-arranged urban agriculture, both in volume and financial esteem, ought not to be thought little of. Items are sold at the ranch door, via truck in the equivalent or different neighbourhoods, in nearby shops, on neighbourhood (agriculturists) markets or to middle people and grocery stores. Predominantly new items are sold, however part of it is prepared for possess utilize, cooked and sold in the city, or handled and bundled available to be purchased to one of the outlets made reference to above.

### **2.4. Technology Used In Urban Agriculture**

In the city, we may experience individual or family ranches, gathering or helpful homesteads and business endeavours at different scales running from miniaturized scale and little homesteads (the larger part) to medium-sized and some huge scale undertakings. The innovative dimension of the greater part of urban agriculture undertakings in creating nations is still rather low. Notwithstanding, the inclination is towards all the more in fact progressed and escalated agriculture and different models of such can be found in all urban communities.

### **2.5. Location**

Urban agriculture may happen in areas inside the urban communities (intra-urban) or in the peri-urban regions. The exercises may happen on the estate (on-plot) or ashore far from the living arrangement (off-plot), on private land (possessed, rented) or on open land (parks, preservation zones, along streets, streams and railroads), or semi-open land (schoolyards, grounds of schools and doctor's facilities).

**3. Sustainable Development Models**

**3.1. Glance at the definition of Sustainability**

“Sustainable development means ensuring dignified living conditions with regard to human rights by creating and maintaining a widest possible range of options for freely defining life plans. The principle of fairness between the present and future generations should be taken into account in the use of environmental, economic and social resources. Putting sustainability into practice entails comprehensive protection of bio-diversity in terms of eco-systems species and genetic diversity, all of which are vital foundations of life.” (Barnwal, 2012). As such, we may express that maintainability is a ceaseless "decent Life" that is a mix of High dimension of Human prosperity joined with an abnormal state of eco-framework prosperity that underpins it. The human populace while surging towards advancement in the twentieth century had overlooked that with the end goal for Man to endure, we have to keep up the eco framework which underpins us. With the end goal for man to endure, we have to adjust to nature and not visa-versa.

**3.2. Models of sustainability**

Development of Models assists us with understanding the ideas of supportability better. Three Pillars Basic Model has three fundamental measurements which are reliant and together they make for manageability Environmental Dimension, Economic Dimension, Social Dimension

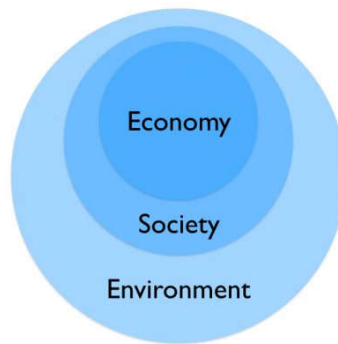


Fig.1. Three pillar basic model.

An enhancement for this model is incorporation of one more measurement Institutional. It could remain for Government Institution or Private Institution or an Alliance of both. Together, they are said to shape the four Pillars of Sustainability.

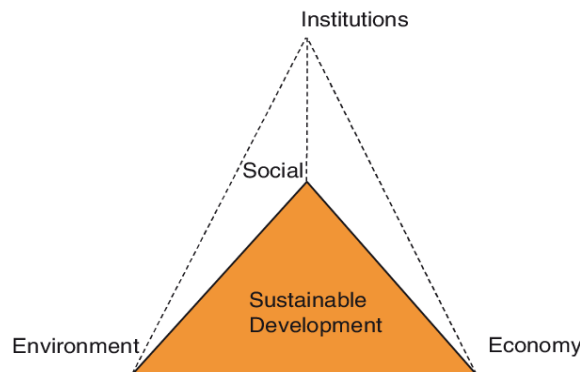


Fig.2. Dimension of Sustainability

In this manner we see that Urban Agriculture can be reasonable on the off chance that it has Environmental Integrity, Economically Resilient, and Promotes Social Wellbeing and is sponsored with Supportive Governmental Policies. This Model for Sustainability was structured in 1994 by Universal Union for Conservation of Nature, The connection between the Eco-System and People resembles one hover inside another , like an EGG and its yolk. Similarly as an egg is great just if the yolk and White both are great. Social and Economic improvement must be feasible if the Eco-framework or Environment offers the fundamental assets and crude materials. Along these lines the Environmental can be viewed as the Super Co-ordinating System to the next three measurements Social, Economic and Institutional. These later can succeed just on the off chance that they adjust to the furthest reaches of natural conveying limit. In the light of the above Model, we can inspect the manageability of Urban Agriculture as an instrument for feasible urban improvement and draw the following conclusion:

**Sustainable Development = Human wellbeing + Eco system Wellbeing**

#### **4. Urban Agriculture - Success Stories and Challenges**

##### **4.1. Case Of Hyderabad**

Urban agriculture is the new culture that is making up for lost time in Hyderabad city. In excess of 4000 families in the edges of the city at present are confident for the vegetable needs of the family. This time Horticulture office for a change is giving sponsorship specifically to the natives rather than agriculturists who need to develop of finish supplements set of vegetables.

Cultivation office executive K Devamuni Reddy said that the activity as a major aspect of urban cultivating is met with great reaction since it was started two months back. "We give the natives who are prepared to grow a group of vegetables at their home an appropriation of Rs 360 and they need to spend another Rs 1200 from their pockets" he included. This appropriation pack includes four silting round beds, red earth, barnyard fertilizers, 14 sacks and other fundamental things to grow a garden at home. Authorities said however the natives need to spend extra Rs 400 to 500 for transporting; reaction has been more than great. Generally individuals in Uppal, Dilsukhnagar, LB nagar, Vanastalipuram who have claim houses have shown great enthusiasm with in excess of 4000 sponsorship units being disseminated up until now. Authorities intend to build this number to another 1000 in next couple of months.

**Challenges faced:** On Paper, on reports, and on official projections, Official records all seems to be attractive and successful, but the realistic scene is completely opposite. The four areas mentioned in the news report, UPPAL, Dilsukhnagar, L.B.Nagar and Vanasthalipuram are so crowded, houses in these areas have no space for gardening or for drying the clothes, houses are built on 200 to 500 square yards have double or triple storied buildings, as these areas fetch good rents, most of the owners have rented out, tenants are not allowed to grow any trees or vegetables, very few houses on the outskirts of the city, say near Hayathnagar, Ghatkesar and others may have purchased few kits, but the result may not have been satisfactory.

##### **4.2. Case of Delhi**

The Yamuna River goes through the centre of Delhi - India's second biggest city and home to a populace of more than 18 million occupants. In any case, not very many of this current city's inhabitants or guests realize that along the banks of the Yamuna live a great many urban agriculturists. As opposed to what one who realizes of them may expect, these urban ranchers are not late vagrants persuasively dislodged from country territories and just ready to look for some kind of employment in Delhi as agrarian workers. Or maybe, they have been

developing vegetables along the banks of Yamuna for a few ages. However still, since they are without government recognizable proof cards and don't claim the property on which they cultivate, these agriculturists are among the most helpless populace in urban Delhi - obscure, as well as undetectable. Notwithstanding having no entrance to taxpayer driven organizations, living under consistent risk of expulsion, and remaking their homes every year after the stream banks surge amid the rainstorm, the Yamuna ranchers talk energetically about cultivating vegetables in the Delhi downtown area for developing grain trims in the provincial areas as they did ages back. Be that as it may, with the as of late opened metro stations along the banks of the Yamuna and the probability of new improvements, the eventual fate of this helpless populace is unverifiable. From fundamental research, one goes under the feeling that there is next to zero critical urban agriculture in Delhi. In any case, as one dives deep inside will discover that there is in certainty broad urban horticulture in Delhi, and on a scale that far surpasses that of the urban communities that ordinarily strike a chord regarding the matter. However, urban horticulture in Delhi exists so that it is both seriously rehearsed and positively insignificant.

**Challenges faced:** The Yamuna agriculturists present a confusing circumstance. From one viewpoint, they are an exceptionally critical subject for urban horticulture all around as far as the sheer size of their generation. And yet, there is the impending danger of advancement and it is improbable that the ranchers will exist in this limit with regards to any longer

## 5. Conclusion

Urban agriculture, at first look, may seem, by all accounts, to be a genuinely basic theme: Scatter a couple of plots about the City and given occupants a chance to begin cultivating. In all actuality, in any case, urban horticulture impacts a network in an assortment of courses, from giving sustenance security, ecological advantages, and notwithstanding changing a city's urban shape. Likewise, notwithstanding its appearing straightforwardness, urban horticulture does not simply occur. To encourage the improvement and development of urban agriculture, a city may need to consider executing methods that incorporate zoning mandates, far reaching designs and, at times, state enactment.

The remove exercise for us is that individuals' vocations must be at the focal point of any exchange about maintainability and rolling out improvements. At a most essential dimension the need to accommodate oneself and one's family is a noteworthy driver of conduct. We should have the capacity to perceive this pressure between here and now job choices and long haul maintainability objectives and produce a way that works with individuals' have to accommodate their families, yet does as such in an ecologically and socially cognizant way.

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