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Concept of Participatory Urban Agriculture (A Future's Farming)

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Introduction:

Urban spaces need to radically rethink their relationship with food in terms of production and consumption as climate change, land degradation due to industrialized farming present a serious challenge to food security. Community based urban farming initiatives are proving to be an effective way to create sensitivity, critical awareness and connection with the land, farmers and ecosystems. The Ministry of Agriculture and Farmer Welfare, Govt. of India launched PGS (Participatory Guarantee System of India), it is a quality assurance initiative that is locally relevant, emphasizes the participation of stakeholders, including produces and consumers and operates outside the frame of third party certification. According to the Ministry of Communication & IT, Govt. of India around 46189 (13, 07830) groups are working in different states in India under this participatory scheme.

Urban Agriculture, Urban Farming or Urban Gardening is the practice of cultivating, processing and distributing food in or around urban areas. It encompasses a complex and diverse mix of food production activities, including fisheries and forestry, in many cities in both developed and developing countries. Urban agriculture is also the term used for animal husbandry, aquaculture, urban beekeeping and horticulture. Urban agriculture can reflect varying levels of economic and social development. It may be a social movement for sustainable communities, where organic growers, foodies and locavores from social networks founded on a shared ethos of nature and community holism. These networks can evolve when receiving formal institutional support, becoming integrated into local town planning as a ‘‘transition town’’ movement for sustainable urban development. For others, food security, nutrition and income generation are key motivations for the practices. In both scenarios, more direct access to fresh vegetables, fruits and meat products through urban agriculture can improve food security and food safety. To systematize urban agriculture, a distinction must be made between the gardening and the farming level. Urban food gardening encompasses agriculture activities with a generally low economic dependence on material outputs, while using the production of food for achieving other, mostly social, goals.

Urban farming refers to intentional business models taking advantage of the proximity to the city by offering local or regional agriculture products or services. This concept does not apply to all farming that takes place in larger urban areas. Non-urban-oriented farming includes all farm enterprises that maintain 'business as usual': the farmers practice their conventional farming activities on areas that were previously rural and have been converted to intra or peri-urban areas as a result of urban growth. The adjacent city is usually perceived as a threat rather than an opportunity, except for the improved access to transport infrastructure. The production is mainly oriented towards domestic or international markets.

At the gardening level, and according to production, urban food gardens can be divided into those based on individual production (family garden and allotment gardens) and those based on collective schemes (educational gardens, therapeutic gardens and community gardens). Squatter and social gardens can fall into either category. Multi-functionality in urban areas has been associated with farm diversification strategies, mainly addressing urban demands for recreation and tourism.

Over the years, urban farms have expanded the provision of services and goods and now include landscape management, environmental measures, land rental and direct marketing. The farm in intra- or peri-intra locations that have adapted their business strategies can be subdivided into two main groups. One implies the provision of on-site

Classification of Urban Agriculture (Lohrberg et al. 2016)

A. Urban Food Gardening

- **Allotment gardens**: Subdivided garden, whose plots are rented under a tenancy agreement; highly formalized, often managed by an organization or association.
- **Family gardens:** Non-commercial food-producing undertakings for the household provision with produce; no institutions or organizations involved.
- **Educational gardens**: Teaching tool addressing food production, processing and consumption; high potential for raising public awareness and spreading gardening ideas.
- **Community gardens**: Based on bottom-up initiatives and tended collectively; their purpose is food production as well as social functions for the community.
- **Therapeutic gardens**: Located at physical and mental health care institutions; sub-types are contemplative gardens and production-oriented, active gardens.

- **Squatter gardens**: Food production on idle land; due to their informal, extra-legal character, they are not registered nor subject to public policies.
- **Social gardens**: Gardens intended to address social problems and aimed at promoting the integration of people at risk of exclusion.

B. Urban farming

- **Leisure farms:** Offering recreational opportunities linked to farming activities.
- **Social farms**: Farms intended to address social problems and aimed at promoting disadvantaged people's rehabilitation and the integration of people at risk of exclusion.
- **Educational farms**: Pedagogical function is dominant, e.g. in the form of learning programmes or short-term stays for schools; recreational component is optional.
- **Therapeutic farms**: The therapeutic use of farming-related activities promotes physical and mental health and well-being, e.g. hippo-therapy, occupational therapy.
- **Local food+ farms**: Oriented toward local markets and a direct relationship with consumers (cooperative, CSA), the + indicates non-food production (cosmetics, fiber).
- **Environmental farms:** Farms with high natural and environmental value and/or contribution to biodiversity or agro-diversity conservation; as part of flood or fire prevention plans or green infrastructure, networks, green belts, Natura2000, etc.
- **Cultural heritage farms:** Intentionally contribute to preserving the tangible and intangible cultural heritage through the maintenance of traditional materials, buildings, crops and breed varieties and cultivation techniques.
- **Experimental farms**: Tests new agricultural technologies, production methods, varieties and breeds or models of social and economic interactions with their urbanenvironment.

Participatory planning

Indian society is highly stratified not only in terms of economic class but also in term of caste, religion, gender and social status. The participation of urban citizens in urbanization processes is largely impended by these factors. Further, its modern capitalist economy is an all-encompassing force, which penetrates every aspect of city making including land, housing and labour. Owing to these, participatory urbanization carries its own challenges in India. One has to also be mindful of the dynamic political economy of

landownership in urban areas. Political ideologies and religious affiliations directly affect the course of development in India, such that urban land politics is entrenched with overlapping class, caste religion and ethnic mooring.

Participatory planning is a planning paradigm that emphasizes involving the entire community in the strategic and management processes of planning; it also designates urban or rural community-level planning processes. It is often considered as part of community development. Participatory planning aims to harmonize views among all of its participants based on bottom-up principles and prevent conflict between opposing parties. In addition, vulnerable/marginalized groups have an opportunity to participate in the planning process.

Participatory urban agriculture

Urban agriculture has become an important research topic in recent years as there is an increasing convergence in motivation to do urban agriculture related to food security and livelihood development, particularly for poor and disadvantaged segments of society. However, for urban agriculture to be sustainable as a livelihoods and resilience strategy, it will require decision-support tools that allow planners and participants alike to jointly develop strategies and assess potential leverage points within urban food value chains.

Recently, there has generally been a significant disconnect in developed countries between those actors that drive and organize urban agriculture and those that regulate and manage it. Without any formal support, urban agriculture in both developing and developed countries has mostly been a bottom-up process, typically initiated by individuals or non-governmental organizations rather than by governments or facilitated by planners. Given the important role that urban agriculture can play from a livelihoods and social cohesion perspective, the question is thus how to support and mainstream urban agriculture as a strategy that could be used not only as a reaction in times of crises, but also as a livelihoods strategy that can enhance the resilience and sustainability of urban areas and populations. More specifically, what types of systemic planning tools are available to integrate planners and practitioners in a process of joint learning that can guide the development of urban agriculture more effectively. Despite the growing interest in urban agriculture, urban planners and landscape designers are often ill- equipped to integrate food-systems thinking into future plans for cities. The challenge (and opportunity) is to design urban agriculture

spaces to be multifunctional, matching the specific needs and preferences of local residents, while also protecting the environment. Urban agriculture offers unique research opportunities that require alternative methodological approaches. Participatory research can be very effective for gathering data, while at the same time engaging and informing the public. The urban agriculture gardeners/farmers themselves could be involved in the data collection by documenting their activities, tracking their inputs and yields, inventorying the plants and spatial mapping of the garden site. Other studies have engaged residents or gardeners/farmers in focus groups to determine the factors most important for protecting and expanding urban agriculture.

Social inclusion and urban agriculture

The concept of social inclusion has been inseparable from the concept of social exclusion; when discussed, the latter prevailed as a starting point in the sense that 'socially excluded' people have been "in need of the receipt of policy to enable their 'social inclusion'". Over time, policy discourse shifted from exclusion to 'inclusion', a seemingly more positive or affirmative term that is now ubiquitous, and many synonyms, such as solidarity, cohesion, social capital, integration, has come into regular use in different political and social settings. Social exclusion did not exclusively signify the monetary aspect but also encompassed the inability to participate in economic, political, cultural and social life as well as exclusion from the "mainstream" orientation of the society.

'Social exclusion' is a concept that can be at least in politics—generally defined and deployed in two ways. In the narrow sense, it is used as a synonym for income poverty, referring specifically to the unemployed or people in low-wage work. As such, it is often used alongside the concept of 'social cohesion' in the sense that a cohesive society is one in which (political, social and economic) stability is maintained and controlled by participation in the paid workforce. In the broad sense, 'social exclusion' denotes a dynamic process in which people experience a lack of resources and/or a denial of social rights that result in multiple deprivations, breaking of family ties and social relationships as well as in a loss of identity and purpose. In this sense, the concept of social exclusion can be useful for developing a different and more complex understanding of the factors and influences that lead to well-being and relative advantage on the one hand, and disparities, inequalities and relative disadvantage between members of a community on the other hand. Such

understanding and definitions specifically highlight 'participation' and 'social inclusion'. Sociologists in general underline that social inclusion/exclusion is a result of a lack of equality, which is an imminent feature of every society, even the simplest ones. They have used various terms to grasp the differences between individuals or groups regarding the possibilities and opportunities they have, such as deprivation, marginalization and exclusion. Gardening supports health and wellbeing, as it brings many mental and physical benefits. It provides a sense of affirmation, contributes to a healthy diet, and demands physical activity. One of the first structured approaches using nature and working within it, e.g. farming and gardening as a therapy was horticultural therapy. This is a specialized form of occupational therapy using plants and horticulture as its main activity. Related to it is therapeutic horticulture, which adopts a more generalized way of using horticulture and gardening to promote health. The distinction is that horticultural therapy has a predefined clinical goal similar to that found in occupational theory, while therapeutic horticulture is directed towards improving the wellbeing of the individual in a more generalized way and has a more important social context; thisis why it is usually referred to as social and therapeutic horticulture in some of the European countries.

In the sense of green care, gardening addresses all dimensions of social exclusion: production, consumption, social interaction and political engagement. Gardening and farming projects also enable production through activities that have many of the attributes of paid employment and that are regarded as work by project participants, staff and others. Planting, cultivation and other garden work are seen as both meaningful and productive. Such projects give participants access to a popular leisure activity from which they are often excluded. In some cases they also provide them with food, which contributes to their quality of life. In this way, they are able to participate in the process of consumption. The activities also provide opportunities for many forms of social interaction; parallels have been drawn between green care and (forming of therapeutic or/and social) communities.

Sustainable urban development and urban agriculture

Agricultural production is not "the antithesis of the city", but often an integrated urban activity that contributes to the resilience of cities. Urban agriculture (UA) is characterized by its heterogeneity of the involved actors, dimensions, backgrounds and objectives on the one hand, and by its multifunctional external

effects on the urban economy, society and environments.

that UA produces between 15 and 20% of the world's food (*Polling et al. 2016*).

Table-1: Following Five Start-Ups are Revolutionary the Concept of Urban Farming in India

Company	Founders	Inception	Services
Homecrop	Manvitha Reddy, Sharmila Reddy, Sai Krishna and Krishna Reddy	2017	Set up edible customized gardens for households and provides maintenance services and online DIY kits.
Growing Greens	Hamsa V and Nithin Sagi	2012	Provides live micro-greens, edible flowers, salad leaves, sprouts and herbs to high-end restaurants, cafes and five-star hotels.
Urban Green Fate (UGF) Farming	Linesh Pillai	2017	Conduct workshops on Urban Farming, retail live micro-greens and live green veggies in high-end supermarkets and set up the hydroponic farming system at five-star hotels and high-end restaurants.
Pindfresh	Somveer Singh Anand	2016	Set up indoor and outdoor hydroponic farming for clients and sells DIY kits online.
Living Food Co	Akash K Sajith	2018	Does B2C business of selling micro-greens, herbs, leafy greens, freshly baked sourdough bread, pro-biotic drinks etc.
COMPANY	**FOUNDERS**	**INCEPTION**	**SERVICES**
Homecrop	Manvitha Reddy, Sharmila Reddy, Sai Krishna and Krishna Reddy	2017	Set up edible customized gardens for households and provides maintenance services and online DIY kits.
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(Source: Entrepreneur Magazine-2019)

According to estimates by the Food and Agriculture Organization of the United Nations (FAO), 800 million people around the world are engaged in UA, of which 200 million are commercially active. It is estimated

household's own production is particularly important in the poorest developing countries, reducing urban poverty and increasing food security. Economically based forms of UA are the "hidden champions" of an urban green development strategy. One of the important

synergies fostering low-cost production is using resources that are currently underutilized: vacant plots of land, empty buildings, urban organic and heat waste and excess rainwater. Micro- and macro-scale UA has a potential for commercial market value and significant employment opportunities (Table-1). A micro- and macro-level of UA can have a significant enterprise development and value-adding potential to UA production, e.g. retail (local food markets), marketing and supply chain opportunities.

During the last one decade, new forms of gardening practices have been emerging using high levels of social innovations, environmental friendly lifestyles and mixed bottom-up or top-down approaches: for example, community supported agriculture (CSA), community composting and gardening, guerrilla gardening and squat farming, urban food strategies, support of small entrepreneurs, local food chains, including market gardens and farmers' markets, the Slow Food initiative, including a revival of local food production and farm shops and markets. Some of them use the internet as a market tool for online fresh fruit and vegetable shopping, prepared vegetable and fruit boxes.

Social dimension

Urban agriculture contributes to the social dimension of sustainability, food security and access, diet and health, personal wellbeing, psychological benefits, increased physical activity, sense of place, aesthetic pleasing, social interactions, community building, personal skills and gender equity. Furthermore, gardening increases neighborhood attachment. The physical and social qualities of garden participation awaken the senses and stimulate a range of responses that influence interpersonal processes (learning, affirming, and expressive experiences) and social relationships that are supportive of positive health-related behaviors and overall health. Regular gardening on allotment sites is associated with improved physical, psychological and social health.

Urban agriculture can also be seen as a power to transform the urban landscape and the food system, as citizens, including immigrant gardeners, can assume an active role in the transformation of the space surrounding their apartments. Urban gardening can also be understood through ecosystem services. Allotment gardens, for example, provide a range of urban ecosystem services and hence combine utility, social meaning and beauty. Although the importance of traditional food production in developed countries is in decline, the undoubted qualities of gardens, especially their contribution to recreation and nature

experience, should promote their integration into urban planning.

Environmental dimension

The environmental aspects of UA have often been addressed through the concept of ecosystem services, such as biodiversity, pollination and food provisioning. While the majority of papers focus on the positive aspects, they also warn about the potential negative impacts/trade-offs on the environment. In general, the main positive environmental aspects of UA are found to be waste recycling, mitigation of the urban heat island effect and carbon sequestration. The main negative environmental aspects are noise, odors and pesticides, the latter being a potential threat to the quality of groundwater. Urban agriculture provides an important contribution to urban biodiversity, pollination, pest control and climate resilience, they also stress the potential disservices or trade-offs urban agriculture can trigger, such as increased mosquito breeding sites, the potential for spill-over of chemicals into natural and human habitats, leading to environmental pollution and air- or water-borne health risks and potential competition for water in arid environments.

Conclusion

With increasing urbanization of India's population it is essential that importance is given to urban agriculture to improve food and nutritional security. At least partial self-sufficiency in food will protect the urban poor from the uncertainties in food availability brought about by climate variability, price fluctuations, changes in oil price and the like. At present our cities are faced with problems of water shortages, inadequate system to manage municipal waste and waste water, air, and water and land pollution and urban poverty. These problems will only get intensified as the urban population increases. Changes in weather patterns like floods, and droughts will add these woes. The Food and Agricultural Organization has emphasized the role of Urban Agriculture in achieving real efficiencies by making productive use of underutilized resources and intensified agricultural practices (FOA, 2001). In addition to institutional support, there is a need to incentivize farming in urban areas to make it attractive to the urban citizens of India. Urban agriculture provides an important contribution to urban biodiversity, pollination, pest-control and climate resilience. In Participatory Urban Agriculture all the stakeholders come together in a common platform which provides a vast knowledge to the individuals/entrepreneurs for set-up their own businesses/start-ups. From the last one decade billions of entrepreneurs establish their own farms and out of these few

of them summarize in table-1. From the detailed research and guidelines provided by the FOA to the extensive institutional framework in India in the agricultural and horticultural sector and the numerous NGOs who are active in this field there are many factors that are favorable for the success of urban agriculture in India. The available information and infrastructure have to be streamlined towards making urban agriculture a viable proposition in India. It is also necessary to weed out inefficiencies and corrupt practices as is seen in the speculative trading in land and illegal conversion of agricultural land for the other purposes and polluting our water bodies with untreated sewage. Once this is done we foresee a very positive future for urban agriculture in the country.

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