

URBAN AGRICULTURE: A SILENT REVOLUTION



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Urban garden (Freepik).

Introduction

This article argues that urban agriculture is much more than just a trend - it is asserting itself as a strategic response to the socio-economic and environmental challenges of the 21st century. In line with the FAO's 2030 vision, this approach promotes the creation of 'more efficient, inclusive, resilient, sustainable, and inclusive' food systems. Despite facing a number of obstacles, urban agriculture transforms urban spaces into places of food production and by doing so, enables city dwellers to reduce their expenses, generate income and strengthen their food autonomy, while promoting social inclusion and the ecological transition. This article argues that urban agriculture is revolutionary, highlights some examples, and looks at the role adult education plays.

What is urban agriculture?

Today, globally, an increasing amount of people move to and live in urban areas. In this context of urban development and environmental challenges, urban agriculture is emerging as an innovative solution aimed at establishing a synergy between urban dynamics and nature. It decentralises food supply by bringing food production closer to the place of consumption, and improves access to fresh food. Urban agriculture refers to various practices of cultivating, processing, and distributing food in urban areas³.



Aquaponics: there are catfish in this tank, feeding the plants above, which feed the worms below, which feed the catfish (Ryan Somma).

https://commons.wikimedia.org/wiki/File:Aquaponics_with_catfish.jpg

According to Mougeot (2000), it addresses major challenges such as food sovereignty⁴, sustainable development, and social cohesion, while offering new prospects for improving living conditions in urban areas.

A brief history

Urban agriculture is not just about growing a few plants in small spaces. It goes beyond simple gardening and is part of a broader approach, rooted in our history. For example, the famous hanging gardens of Babylon illustrated the ability to grow plants in a dense, resource-limited urban environment. In the Middle Ages, monasteries and villages set up enclosed vegetable gardens, focusing on medicinal and food plants, thus ensuring essential nutritional autonomy, plus contributing to spiritual well-being. Later, during the two world wars, urban agriculture regained importance in the face of shortages. 'Victory gardens' or 'war gardens' cultivated in private residences, courtyards, and public spaces enabled essential foodstuffs to be produced locally, reducing dependence on supply chains while strengthening community resilience. Since the beginning of the 21st century, this type of farming has enjoyed a new lease on life, driven by increasingly sophisticated, sustainable, and commercially viable production systems. The COVID-19 pandemic highlighted the vulnerability of the global food system and played a

part in rekindling interest in local solutions. The proliferation of urban farming initiatives and relocalising food systems, both individual and collective, reflects a growing desire for empowerment and an awareness of the need to strengthen community resilience.

Why do we need urban agriculture and why is it revolutionary?

Firstly, increasing urbanisation is putting unprecedented pressure on available natural resources. According to UN-Habitat (2024)⁵, 70% of the world's population will live in urban areas by 2050. As cities expand, agricultural land is gradually disappearing, limiting the space available for conventional agriculture. At the same time, the rapid growth of the urban population increases the vulnerability of the poorest households to food insecurity and, therefore, intensifies demand for fresh, affordable food.

Secondly, current environmental crises exacerbate this fragility. Climate change is causing major disruptions including droughts, floods, and extreme weather events which directly threaten supply chains. These disruptions underscore the urgent

need for more local, resilient food production capable of adapting to contemporary ecological constraints. Urban agriculture contributes to a concrete ecological transition. By reducing transport distances, recycling organic waste through composting, and recovering rainwater, it encourages sustainable resource management. It embodies a form of green resistance to speculative urbanisation⁶, reconnecting city dwellers to the cycle of life.

Thirdly, on a socio-economic level, exclusion and marginalisation in urban centres are becoming a cause for concern. In this context, urban farming is a valuable lever in the fight against poverty: by producing one's own food on rooftops, in backyards, or on community plots, many families are able to meet part of their food requirements and this helps reduce their daily expenses. In addition the local sale of surpluses generates additional income. Urban agriculture plays an important role in improving living conditions for city dwellers, particularly in working-class neighbourhoods by helping to strengthen the financial autonomy and resilience of urban communities. Socially, it redefines the uses of urban space. Collective gardens, urban farms, and vertical gardens are becoming places of cooperation, learning, and solidarity. Seeds, advice, recipes, and hopes are exchanged. These spaces strengthen social ties and restore the dignity of residents, particularly young people, women and marginalised people, by offering them concrete opportunities to integrate into economic and community life.

Finally, beyond food security alone, urban agriculture is important from the perspective of food sovereignty. It gives citizens back the power to influence their food choices, farming practices, and relationship with the environment. By combining traditional know-how and technological innovation, this model promotes a fair, sustainable, and democratic approach to food. By giving citizens the means to produce, process, and distribute their own food, it challenges dependence on international markets and inequalities of access. It enables people to regain control over food choices that are often dictated by industrial and commercial logics that are far removed from local needs.

What is the role of adult education?

In working-class neighbourhoods and urban renewal areas, collective workshops, local training courses, and informal learning paths enable unemployed youth, women seeking autonomy, retirees, and migrants to acquire knowledge and skills in agroecology¹¹, composting, resource management, artisanal processing, and agricultural entrepreneurship. These initiatives promote the creation of income-generating activities such as micro-gardens, solidarity baskets¹², the sale of seedlings, and cooperative markets.

Beyond the economic aspect, a renewed relationship with the city and nature is taking shape. Adult education contributes to the emergence of a shared ecological awareness in which everyone becomes a player in their own territory, the guardian of their soil, and the architect of a common future. It transforms the act of cultivation into a gesture of emancipation, and the urban garden into a space for learning, social ties, and intergenerational transmission.

Education and learning can further empower those engaged in urban agriculture - this aligns with Baatjes' (2022)¹³ analysis of workers in the informal economy, which highlights how learning and collective organisation can serve as powerful drivers of emancipation for marginalised groups.

The future of urban agriculture: Challenges and hopes

Despite its growth, urban agriculture faces structural obstacles. Limited access to cultivable space in dense cities, growing land pressure, and a lack of appropriate regulatory frameworks are holding back its expansion. In many cities, public policies do not yet fully recognise its social, economic or ecological value.

Urban agriculture is revolutionary because it stimulates the imagination: that of a city that nurtures, supports, and is in harmony with its ecosystem. It invites everyone to become a player in the transition, not only by growing plants, but also by cultivating autonomy, justice, and hope. Urban agriculture is more than just a technical adaptation to urban space - it revolutionises the way we think about cities, food, and our relationship with nature. Urban agriculture questions the dominant logic of the globalised agri-food system, by mobilising atypical resources, such as informal land tenure, citizen self-help, waste valorisation⁷, and non-market exchanges that escape classic agricultural models. These resources make it possible to design economic models that are more resilient, better adapted to urban constraints, and conducive to social innovation.

Inspiring initiatives in North Africa

Today, this dynamic of adaptation and innovation is taking concrete form in a number of inspiring projects in North African cities. By combining traditional know-how and technological innovation, these initiatives enhance urban livelihoods and generate economic opportunities, notably through the development of local micro-enterprises.

In Algeria, *l'Association Torba*⁸, active since 2014, trains citizens in permaculture and promotes production on rooftops, balconies, and shared gardens, contributing to food self-sufficiency and reducing expenses. *Les Agriparks Urbains* (Urban Agriparks) combine production, social inclusion, and environmental education. These public parks, which integrate cultivated, educational and commercial zones, offer young people and vulnerable populations sustainable income opportunities.

In Morocco, the *Réseau des Initiatives Agro-écologiques au Maroc* (RIAM) (Network of Agro-ecological Initiatives) encourages the creation of micro-farms and urban vegetable

gardens. The growing use of urban greenhouses ensures stable production and creates jobs. *Le Toit en Vert* (The Green Roof) is an association founded in 2019 which promotes the greening of buildings by integrating agriculture into urban architecture.

In Egypt, the scarcity of arable land has encouraged techniques such as aquaponics and aeroponics⁹, promoting local production that saves water and space. In Cairo, green roof projects are reducing heat islands¹⁰ and boosting food self-sufficiency, notably in neighbourhoods such as Shubra and Imbaba, with the support of local NGOs. In Tunisia, community gardens and cultivated roofs in Tunis provide healthy food and supplementary income. The *Jardin du Belvédère* (Belvedere Park) offers training in sustainable agriculture, strengthening the capacities of small-scale producers. On the outskirts, the *Groupements de Développement Agricole* (GDA) Sidi Amor (Agricultural Development Groups) combine aquaponics, permaculture, and ecological management, and promote green entrepreneurship and socio-economic integration.

One of the most promising aspects of urban and peri-urban agriculture is the active participation of women, who serve as a key driver for both social and ecological resilience.

By combining economic autonomy, social innovation, and local know-how, several initiatives place women at the heart of transition strategies. In Tunisia, the *LandAgriTech* digital platform, launched as part of the SALAM-MED project, facilitates women's access to agricultural services and entrepreneurial opportunities in the peri-urban areas of Médenine. In Algeria, *la Coopérative Green Women* (Green Women Cooperative) in El Kala also reinforces this by developing local plant resources and supporting women's economic emancipation through solidarity-based practices adapted to peri-urban realities.

By adapting to local specificities, these North African initiatives strengthen urban resilience and inspire other regions to adopt innovative and inclusive urban agricultural models.



Urban garden (Markus Spiske Unsplash).

Financing is also a major challenge. Setting up an urban farm, even a small one, requires substantial resources: equipment, seeds, irrigation systems, training, etc. Yet, in the absence of long-term support mechanisms, many projects remain fragile. To remedy this, alternatives are emerging, such as local cooperatives, short circuits¹⁴, social currencies, and community partnerships. Added to this are ecological constraints: soil pollution, water scarcity, climatic extremes - all challenges that require responses adapted to specific urban situations. It is precisely in this context that a promising mechanism for the future is emerging: the dialogue between traditional knowledge and technological innovation. Ancestral practices such as the use of local seeds, rainwater harvesting, and domestic (home) composting offer a precious ecological memory, deeply rooted in the local environment. Coupled with modern solutions such as hydroponics, aquaponics, intelligent sensors¹⁵, and automated irrigation, they help optimise resources and create resilient, economical, and inclusive production models.

The future of urban agriculture will depend on our collective ability to build bridges: between citizens and institutions, between cultural heritages and emerging technologies, between the constraints of the present and the promise of a more autonomous, equitable and sustainable future, driven by the communities themselves. It is essential to put in place supportive public policies, open

up access to financing, and support the training of citizens in sustainable agricultural practices.

Conclusion

Despite numerous obstacles, urban agriculture reminds us that another model of the city is possible: more equitable, more autonomous, and deeply rooted in the knowledge of its inhabitants. It addresses urgent socio-economic and environmental challenges while restoring citizens' agency over their food, livelihoods, and environment. As argued above, adult education - a living exchange of knowledge and skills - plays a crucial role in supporting its growth and solidifying its presence.

References

Harrington, D., & Baatjes, B. (Eds.). (2024). MOJA Journal of Adult Education (Issue 2). https://www.mojafrica.net/uploads/MOJA-E-Issue-2-17-July-2024_Full-e-version.pdf

Mougeot, L.J.A. (2000). *Urban agriculture: Definition, presence, potentials and risks, and policy challenges*. International Development Research Centre.

Endnotes

- 1 Agricultural soil scientist.
- 2 Food and Agriculture Organization of the United Nations.
- 3 It includes, among others, school and community gardens including rooftop ones, farms including vertical and backyard, hydroponics (growing plants using a water-based nutrient solution rather than soil) and aquaponics - couples aquaculture (raising

aquatic animals such as fish, crayfish, snails or prawns in tanks) with hydroponics.

- 4 La Vía Campesina coined the term *food sovereignty* and introduced the right of food sovereignty at the World Food Summit in 1996 as "the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems". Food sovereignty is concerned with the right of people to determine their own food and agricultural policies independently, meeting their own interests and without harming the interests of others.
- 5 https://urbanoctober.unhabitat.org/sites/default/files/2024-07/wcd_concept_note_2024.pdf
- 6 The creation of new urban environments and infrastructure not to meet existing demand, but to increase land and property value and generate future economic and political returns for developers and governments.
- 7 The process by which waste or residues from an economic process are recovered (receive an economic value) through reuse or recycling, in order to create economically useful materials.
- 8 Literal translation from Arabic: 'the association of the soil'.
- 9 Growing plants using a water-based nutrient solution rather than soil.
- 10 Usually experienced by urban areas - they are significantly warmer than surrounding rural areas. Heat gets trapped and absorbed due to such things as the configuration and design of the built environment, building materials, reduced ventilation, reduced greenery, etc.
- 11 An approach to farming and food systems that applies ecological principles to agricultural practices. It focuses on creating sustainable, environmentally friendly, and socially just food production by working with natural processes rather than relying on chemical inputs or industrial methods.
- 12 Typically a box or parcel of food (sometimes including hygiene products or other necessities) distributed as part of a community-support or mutual-aid initiative. The key idea is that it is organised in a spirit of solidarity rather than charity.
- 13 *Workers in Informal Employment and Inclusivity* (MOJA Journal of Adult Education, Issue 1).
- 14 Also called a *short food supply chain*, a short circuit means reducing the number of intermediaries between the producer and the consumer.
- 15 A sensor that takes some predefined action when it senses the appropriate input, such as light, heat, sound, motion, touch, etc.