

OPINION / GÖRÜŞ

Relationships Between Agri-food Systems and Cities:
Exploring Synergies and Trade-offs*Tarımsal Gıda Sistemleri ve Şehirler Arasındaki İlişkiler:
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Introduction

Urbanization stands as a noteworthy worldwide phenomenon. The global trend of urbanization is advancing rapidly; indeed, the rural populace has expanded at a low rate while the urban populace has surged significantly. The urban population share has doubled from 25% in 1950 to approximately 50% in 2020. Urbanization is expected to continue to increase over the next three decades, with the urban population projected to rise from 56% in 2021 to 68% in 2050. This means there will be an additional 2.2 billion urban residents by 2050, primarily in Africa and Asia (UN-Habitat, 2022). This trend suggests that the direction of humanity and its impact on the planet will largely be determined by what occurs in cities. Consequently, cities are being called upon to play a pivotal role in pursuing sustainable development.

Urban sustainability remains a crucial subject because of the strategic significance of urban systems and their considerable potential and challenges in relation to sustainability (Allen et al., 2002; Castán Broto et al., 2019). Despite this, many efforts to promote urban sustainability tend to overlook the essential role of agriculture in urban areas. This raises concerns about the limited consideration of food production in sustainable urban development. The “brown” aspect of urban sustainabil-

ity prioritizes human well-being, social equity, and urban development that benefits the poor. The “green” aspect focuses on environmental well-being, preservation of ecosystems, and the ecological effects of urban systems (Allen et al., 2002).

Urbanization offers both opportunities and challenges from socio-economic and environmental perspectives. Orsini et al. (2013) posit that “In many developing countries, the urbanization process goes along with increasing urban poverty and polluted environment, growing food insecurity and malnutrition, especially for children, pregnant and lactating women; and increasing unemployment” (p. 695). In addition, urbanization brings about further difficulties in managing food systems and ensuring food security. Hence, alternative approaches are necessary to guarantee food and nutrition security sustainably. Urban and peri-urban agriculture (UPA) is often cited as one of these alternatives.

A growing body of research focuses on urban food systems and their shift towards sustainability (Moragues-Faus & Son-nino, 2019; Smaal et al., 2020). Nevertheless, Doernberg et al. (2019) reveal that “urban food policy activities are still highly fragmented and frequently stem from individual initiatives,” and there is a lack of “comprehensive urban food policies and their enactment through urban food strategies”. Municipal actors’ capacities for policy implementation are restricted due to a shortage of

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financial and staffing resources. Most research on urban food systems concentrates on developed and industrialized countries. The scrutinized policies and policy documents cover topics such as food and nutrition security, sustainable and healthy diets, non-communicable diseases, biodiversity, and organic farming. Special emphasis is also placed on the connections between sustainability transitions in agri-food systems and achieving the Sustainable Development Goals (SDGs), particularly SDG 2, “Zero Hunger” (El Bilali et al., 2021).

Within this framework, the current opinion provides insight into the various connections between agri-food and cities from a sustainability perspective. Initially, the article presents UPA and examines its multidimensional advantages. Subsequently, it delves into the relationships between agri-food systems and SDG 11, “Sustainable Cities and Communities”. Then, the article explores the vital role of urban planning and governance in determining cities’ sustainability and shaping the transition towards sustainable systems.

Urban and peri-urban agriculture (UPA): Definition, Inclusion in Global Agendas, Benefits and Challenges

UPA has been defined in different ways (FAO et al., 2022; UNDP, 1996). According to FAO et al. (2022), “*Urban and peri-urban agriculture (UPA) can be defined as practices that yield food and other outputs through agricultural production and related processes (transformation, distribution, marketing, recycling...), taking place on land and other spaces within cities and surrounding regions.*” (p. 11). UPA includes horticulture, animal husbandry, aquaculture, and other endeavors to generate food and agricultural products within urban areas and their surroundings. UPA covers all individuals, organizations, undertakings, locations, and economic activities focused on production in urban and peri-urban areas, their positive effects on the environment and society, and the mutual benefits they create (Skar et al., 2020).

Numerous global sustainable development initiatives have focused on UPA, such as the SDGs, the New Urban Agenda (NUA), and the Milan Urban Food Policy Pact (MUFPP). The 2030 Agenda for Sustainable Development (United Nations, 2015), with its core of 17 SDGs, aims to eradicate poverty, preserve the planet, and ensure prosperity for both developing and developed countries. One of the SDGs, SDG 11, targets explicitly sustainable development in cities and communities by making them inclusive, safe, resilient, and sustainable. The NUA, endorsed on October 20, 2016, at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, establishes new global standards for planning, managing, and living sustainably in cities (United Nations, 2017). It includes various mentions of urban agriculture and is closely intertwined with the SDGs, with the NUA serving to fulfill the SDGs in urban areas. The MUFPP,

signed by over 100 cities in October 2015 in Milan during EXPO 2015 (MUFPP, 2020), is a non-binding agreement on urban food policies. The MUFPP Framework for Action has identified different work streams, including food production.

Numerous studies have indicated that UPA can address various challenges, such as food insecurity, poverty, malnutrition, and health issues (Orsini et al., 2013; Zezza & Tasciotti, 2010). Orsini et al. (2013) highlight that UPA offers a range of environmental, social, and economic advantages. Indeed, it contributes to food security, livelihoods, income generation, social inclusion, gender equity, waste reduction, biodiversity conservation, and air quality, as well as decreasing environmental impacts related to food transportation and storage. However, the advancement of UPA faces numerous constraints, particularly in developing countries. These include inadequate government support, restricted market access, land tenure insecurity, limited access to productive resources, and issues related to inequality (Houessou et al., 2020).

Agri-food and SDG 11 “Sustainable Cities and Communities”: Synergies and Trade-Offs

SDG 11 aims to make cities inclusive, safe, resilient, and sustainable. The rationale behind SDG 11 is that since the global population is steadily growing, it is imperative to construct eco-friendly urban areas to house everyone. To ensure the well-being and success of all individuals, innovative urban design is essential, fostering secure, budget-friendly, and adaptable cities with environmentally friendly and culturally enriching living environments. SDG 11 encompasses 10 targets (Table 1).

While UPA does not contribute directly to *safe and affordable housing* (T11.1), the way land is managed and used can affect housing. Indeed, there might be trade-offs between agriculture and housing: housing (and urbanization) can reduce the land available for agriculture and vice-versa. Therefore, it is crucial to have adequate planning to maintain a balance between the different land uses.

UPA does not contribute directly to *affordable and sustainable transport systems* (T11.2). Still, promoting short supply chains can reduce transport needs, consequently mitigating greenhouse gas emissions. Once again, the use of land to develop the transport network might be at the expense of the space dedicated to UPA.

Inclusive and sustainable urbanization (T11.3) implies an appropriate use of land and space in cities. UPA can contribute to better city planning and improve cities’ sustainability and inclusiveness. Indeed, UPA contributes to environmental, social, and economic sustainability. It also promotes participatory processes for land use and management and inclusiveness by strengthening the social fabric/capital. Therefore, UPA can play a role in *policies for inclusion* (T11.9).

Table I. Targets of SDG 11 “Sustainable cities and communities”

Target (T) number	Target focus
T11.1	Safe and affordable housing
T11.2	Affordable and sustainable transport systems
T11.3	Inclusive and sustainable urbanization
T11.4	Protecting the world's cultural and natural heritage
T11.5	Reducing the adverse effects of natural disasters
T11.6	Reducing the environmental impact of cities
T11.7	Providing access to safe and inclusive green and public spaces
T11.8	Strong national and regional development planning
T11.9	Implementing policies for inclusion, resource efficiency and disaster risk reduction
T11.a	Supporting least developed countries in sustainable and resilient building

Source: The Global Goals (2020). SDG: Sustainable Development Goal.

The protection of cultural and natural heritage (T11.4) in cities cannot be dissociated from UPA and how it is managed. Indeed, many natural heritage sites are de facto agricultural ones. Furthermore, how UPA is managed, and its level of intensification and sustainability determines its externalities that can affect natural capital and heritage.

Urban and peri-urban farmers are important managers of land in cities, and the way they do that can affect the incidence and the adverse effects of natural disasters (T11.5). Indeed, UPA can affect the occurrence of natural disasters such as fires and also mitigate the impacts of water-related disasters such as floods. Therefore, UPA can also be included in strategies aiming at disaster risk reduction (T11.9).

UPA can contribute to reducing the environmental impact of cities (T11.6) and improving resource efficiency (T11.9). UPA, and its ecosystemic and ecological services, can enhance the quality of air and the circularity of waste management. It can positively impact environmental health by affecting the atmosphere, water, land/soil, biodiversity, materials and energy. It influences GHG emissions and, as a result, climate change. It also has implications for water resources, impacting water usage and quality. UPA has connections to biodiversity, affecting species diversity, genetic diversity, and ecosystem and landscape diversity, which in turn affects the provision of ecosystem services. It also impacts land management and soil fertility. Furthermore, UPA plays a critical role in material and nutrient cycles; it contributes to the reuse and valorization of by-products and waste (e.g., compost).

UPA also provides urban dwellers with access to green spaces (T11.7). This is particularly true when agricultural activities are combined with tourism (e.g., agritourism farms). Some urban farms also serve as educational farms, thus providing children with a space for learning and close contact with nature. Agritourism farms and educational farms also often favor the inclusion of women, elders and persons with disabilities.

UPA can serve as a tool and laboratory to strengthen development planning (T11.8) at national and regional levels. Indeed, it pushes to adopt a holistic and integrated approach towards multifunctional land use and zoning that considers the different economic sectors and aspirations of urban dwellers. UPA also helps to strengthen support linkages between urban, peri-urban and rural areas within regional and territorial food systems thus fostering regional development planning.

The high pace of urbanization suggests support to developing and least developed countries (T11.a) is highly needed. UPA can be one of the sectors where such support, through financial and technical assistance, is provided to build sustainability and resilience within cities. This has already been done in some initiatives, such as the MUFPP.

The Centrality of Urban Planning in the Quest For Sustainability

UPA has the potential to contribute to urban sustainability by, among others, enhancing waste management, improving energy efficiency, and aiding in the preservation of natural and agricultural biodiversity. Nevertheless, there are potential concerns related to health, safety, and environmental pollution arising from intensive UPA models. In this regard, it is essential to establish suitable local governance, institutional framework, enduring policies, and cohesive strategic perspectives at the local level to mitigate any adverse impacts of UPA while maintaining its socio-economic benefits.

Different factors related to politics and governance impact the development of UPA. The diverse urbanization patterns pose significant challenges for urban decision-makers and planners, indicating the need for various governance mechanisms to ensure sustainable urban development without compromising UPA spaces while addressing the associated challenges. UPA has evolved into a socio-political platform involving multiple

stakeholders with differing interests, stakes, and sources of power and legitimacy, leading to multiple governance processes shaped through formal or informal negotiations. The ambiguous legal status of UPA contrasts with the involvement of diverse actors in its promotion, demonstrating its societal and economic value. The multifaceted nature of UPA positions it as a valuable instrument for local policy and planning. Municipal governments are leveraging UPA in policy development, providing an avenue to address comprehensive, sustainable urban management. However, limited knowledge among public authorities about UPA hinders its integration into public policies. Additionally, although public authorities are increasingly interested in UPA, this interest has not always translated into effective incorporation of UPA into institutional and legal frameworks. Coordination challenges between various government sectors and levels, along with insufficient functional complementarity among sectors, impede the progress of UPA.

Conclusion

Cities are called to play a central role in the transition towards sustainable and resilient food systems in developed and developing countries alike. This can be done, among others, by promoting UPA in order to benefit from its environmental, social, and economic advantages for cities and their dwellers. Indeed, UPA can support sustainable food production, procurement, and consumption within cities as well as sustainable waste management and circularity. UPA can assist impoverished and marginalized communities, guarantee food security, and promote sustainable livelihoods within urban areas. It also has the potential to enhance waste management, improve energy efficiency, and contribute to preserving natural and agricultural biodiversity. However, intensive UPA models may give rise to concerns related to health, safety, and environmental pollution. Therefore, it is crucial to establish suitable local governance, institutional framework, long-term policies, and coherent strategic visions to mitigate any adverse impacts of UPA while upholding its socio-economic importance. Lastly, while the diverse benefits of UPA are widely acknowledged, various measures must be undertaken to unlock its potential. Specifically, addressing socio-cultural, environmental, and technological barriers that hinder its growth and persistence, and establishing a supportive policy and regulatory framework for UPA are of utmost importance. In particular, unlocking the potential of UPA and its contribution to urban sustainability and SDG 11 implies, inter alia, changes in strategies and policies as well as legal and legislative documents to create a favorable and enabling environment for inclusive approaches and grassroots initiatives aiming at promoting agriculture within cities. Similarly, urban planning should evolve in such a way as to emphasize agroecological urbanism, urban farming, and participatory and inclusive decision-making processes for planning and zoning while promoting functional linkages between cities and rural areas within city-region food systems.

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