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### The urban agriculture approach to evaluating urban-rural interfaces

Irem Yurday <sup>1</sup>, Ceren Yagci <sup>2</sup>, Fatih Iscan <sup>3</sup>

<sup>1</sup>Konya Technical University, Institute of Graduate Studies, Konya, Turkey

<sup>2</sup>Osmaniye Korkut Ata University, Faculty of Engineering, Department of Geomatics Engineering, Osmaniye, Turkey

<sup>3</sup>Konya Technical University, Faculty of Engineering and Natural Sciences, Department of Geomatics Engineering, Konya, Turkey

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#### ABSTRACT

Population growth in the world has increased the pressure of urbanization and led to the growth and expansion of urban areas. In addition, this situation has caused some problems in the production of food in cities. These problems can be solved by applying urban agriculture, which is an alternative land use model where interfaces in the urban-rural context can be best evaluated. Urban agriculture contributes to economic, social and environmental branches under the roof of sustainability. In terms of land use, resource management, agriculture, and food security, urban agriculture has emerged as a critical concept. In this study, the concept of urban agriculture, its contribution to sustainability and its benefits are explained. A critical viewpoint on the process of transforming villages in large cities into communities was provided in the light of Law No. 6360. It is aimed to turn the Law No. 6360 into an opportunity and to make suggestions for decision-makers by making the peri-urban agriculture a profitable way out in terms of production. It would be useful to provide a scientific perspective on the development of urban agriculture practices in Turkey.

#### 1. INTRODUCTION

More than half of the world's population lives in cities. As the urbanization rate increases, food production facilities should be located close to the main consumption centers (Orsini et al., 2013). As two-thirds of the world's population is estimated to be concentrated in urban areas within 4 years, a durable food system will become more important for city dwellers. One of the suggested solutions to make cities more sustainable is to implement local urban farming systems (FAO, 2012). In this way, urban agriculture will become increasingly important (Orsini et al., 2013).

Urban agriculture (UA); defined as any agricultural activity located in or within the boundaries of a town, city or metropolis that grows, operates and distributes food and non-food products (Lovell, 2010; Mougeot, 2006).

In another study, urban agriculture was described as an essential component of the growth of cities and their adjacent rural areas, with the potential to dramatically shorten food and ecosystem service supply chains in the face of rising urbanization (René Van Veenhuizen &

Danso, 2007). Urban agriculture provides food sources in cities through new technologies, increases the resilience of food systems and ensures food security in urban areas (Grewal & Grewal, 2012; Haberman et al., 2014). Sustainable urban food production has recently become a topic of interest in professional and academic fields (Bell et al., 2016; Caplow, 2009).

The benefits of urban agriculture are numerous and encompass the economic, social and environmental dimensions (Mougeot, 2006; Peters et al., 2009; Smit et al., 1996). Economic growth, enhanced environmental quality, and meeting food demand are only a few of the many possible benefits of urban agriculture (Saha & Eckelman, 2017). Furthermore, urban and environmental agriculture addresses the issues of urban poverty and food insecurity, providing strategies to reduce them and contribute to approximately 15-20% of the worldwide food demand (Abdulkadir et al., 2012; Armar-Klemesu, 2000).

Urban agriculture is ignored in urban and regional planning, considering its tremendous advantages and positive aspects for individuals and communities (Lovell,

\* Corresponding Author

(yurdayirem@gmail.com) ORCID ID 0000 – 0003 – 2960 – 0926  
(cerenyagci@osmaniye.edu.tr) ORCID ID 0000 – 0002 – 4429 – 7809  
(fiscan@ktun.edu.tr) ORCID ID 0000 – 0002 – 0669 – 5830

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2010). As a practice, urban agriculture is very important in both developed and developing countries. Because this practice contributes by addressing three dimensions of sustainability (Ackerman et al., 2014). The definition of urban agriculture and its advantages are discussed in this study, as well as examples of urban agriculture plans and policies implemented by countries.

## 2. DIMENSIONS OF URBAN AGRICULTURE

Urban agriculture is given below from 3 different aspects.

### 2.1. Environmental

Urban Agriculture leads to the greening of cities, the reduction of air pollution, the rise of humidity, and the cooling of temperatures (Mougeot, 2006; Smit et al., 1996).

UA expands aesthetic and recreational areas associated with green spaces in cities (Saldivar-Tanaka & Krasny, 2004).

Urban agriculture aims to reduce food insecurity in cities while also helping to solve a number of other environmental concerns such as rising recreational space and biodiversity (Parece & Campbell, 2017).

In addition, urban agriculture has the potential to aid in the productive recovery of contaminated lands, especially in terms of environmental management. While contributing to the utilization of rainwater currents and the reduction of air pollution with the increased vegetation cover thanks to urban agriculture, it increases urban biodiversity and helps to protect species (Kaufman & Bailkey, 2000; Rene Van Veenhuizen, 2006).

### 2.2. Social

Another reason people participate in urban agriculture is for social reasons. For city dwellers, a garden or rooftop farm is a place where they can come together for mutual benefit and also establish and connect a shared social and cultural identity (Ackerman et al., 2014).

Moreover, the practice of growing food and horticulture rebuilds people's bond with the land and nature, reduces stress in people, and contributes to a healthier diet for some groups (Douglas, 2012; Kortright & Wakefield, 2011).

Although the socio-cultural services and benefits of urban agriculture are difficult to quantify, the majority of them are focused on improving the quality of urban life. Community-based (HOPE Collaborative etc.) UA formats enhance social interactions and mutual communication between citizens of different ages, cultures and social backgrounds (Galluzzi et al., 2010).

By improving ties between different ethnic origins and age groups, community involvement, and social interaction with community gardens, urban agriculture can have a positive impact on health and environmental issues (Hodgson et al., 2011).

Besides that, urban agricultural activities are fertile green spaces that allow people to come together and grow crops at the level of individual parcels. Collectively, these areas form a network of multifunctional,

productive features that provide citizens with many benefits beyond just producing food (Balmer et al., 2005).

### 2.3. Economical

Agriculture will provide various economic benefits in urban areas. It is effective in reducing the maintenance costs of public spaces, increasing local employment and income-generating opportunities for the low-income group levels of the city, processing unused resources (e.g. roofs, roadsides, public services and vacant lands), and increasing property values (Kaufman & Bailkey, 2000; Rene Van Veenhuizen, 2006).

Urban agriculture can also reduce the energy used in food transportation by saving the way food must travel from producer to consumer, (Peters et al., 2009) therefore, while saving energy, it reduces greenhouse gas emissions and carbon emissions.

As can be seen, urban agriculture provides many benefits in many areas. However, rather than benefits, raising awareness on urban agriculture and implementing it in the best way is a priority area that should be taken into consideration by both local governments and decision-makers.

## 3. LEGAL BACKGROUND OF URBAN AGRICULTURE

Sustainable planning and environmental legislation that encourages urban agriculture in cities should be developed (Bryld, 2003). Many cities in developed countries have recognized the benefits of urban agriculture and have developed planning and policy strategies to support food production (Lovell, 2010).

In the United States, for example, there are 39 UA laws in total among the 25 states that use the term in their legislation. Despite the fact that each of these laws is described differently by state law, they are classified into six policy categories. Grant programs for the creation of UA applications

- Tax Incentives
- Farm to Table Programs
- Urban Farms
- Community Gardens
- Urban Agriculture Incentive Zones (UAIZ)

Food Policy Councils (FPC) or Local Food Advocacy groups (Monaghan, 2020).

With the growing interest in healthy eating in Europe, the "Vitoria-Gasteiz Municipal Council" approved the "Agriculture-Food Strategy Municipal Action Plan" in 2017. Other European examples include the "Paris Sustainable Food Plan," which was developed between 2015 and 2020 for sustainable agriculture practices in municipal services in Paris, France's capital city (Mentes, 2019).

The food project, which is a food waste management plan that was accepted as part of the European Urban Laboratory's "urban revolutionary activities" in Heraklion, Greece, has been approved (Marouli, 2018). The Municipality of Rosario in Argentina, Spain, initiated the "Municipal Organic Agriculture Production Program" in 2002 (Soto, 2003).

The Christchurch City Council passed New Zealand's "Food Resistance Strategy" in 2014 (Toth et al., 2016). Almost all developing countries, urban agriculture lacks a legal foundation. Because its connection to the city has been overlooked as a result of rural life (Bryld, 2003; D. Maxwell et al., 1998; D. G. Maxwell, 1995). Therefore, urban agriculture needs to be enacted, policies revised and institutionalized so that it can be implemented and managed regularly (Bryld, 2003).

There is also no legal legislation relevant to urban agriculture in Turkey, as there are only a few examples of the incorporation of urban agriculture and urban applications, but peri-urban agriculture can be initiated through the enactment process.

Many villages in Turkey's metropolitan cities have been merged into the city limits as a result of Law No. 6360. Agriculture and agricultural production will inevitably continue under the name of peri-urban agricultural activity in these new neighborhoods (formerly defined as villages), which cannot be regarded as cities by only being included in the city boundary.

#### 4. CONCLUSION AND DISCUSSION

The objective of urban agriculture implementation varies between developed and developing countries. Even though it is used in developed countries for landscaping, energy efficiency, and socialization, it is also used in developing countries to improve food security.

Through constructing cities that are more durable, productive, and safer in terms of food production, urban and peri-urban agricultural practices will play an important role in reacting to a variety of challenges facing developed countries (De Zeeuw, 2011).

Urban agriculture and peri-urban agriculture can be a sustainable and innovative solution as a productive land use model with many contributions such as reducing the urban heat effect, greening the city and supporting food production, and refreshing the city's air. As a summary, concepts of urban agriculture and future advantages of urban agriculture are addressed in this study.

Suggestions were made to decision-makers, metropolitan councils, and other local authorities, in order to increase the potential benefits of the peri-urban agriculture by allowing agriculture on the interfaces that serve as a transition between urban and rural areas.

To implement healthier urban and peri-urban agriculture in Turkey;

-In the process of urban agriculture land use, it should be included in the "Spatial Plans Construction Regulation."

-The General Directorate of Geographic Information Systems and the General Directorate of Spatial Planning should work together to promote urban agriculture in metropolitan areas as soon as possible.

- For a better implementation of urban agriculture, legal criteria should be reviewed, and decision-makers should develop urban agriculture regulations.

-The outputs of urban agriculture should be reviewed; more attention should be paid to its benefits and its disadvantages should be minimized.

- Once the existing regulatory obstacles to urban agriculture have been established, it is important to

decide how to protect urban agriculture and to increase public knowledge of urban agriculture.

- Urban agriculture should be controlled and institutionalized by multidisciplinary teams as part of the city ecosystem.

- Urban agriculture; should be integrated into the food production system in all aspects (taking into account human life, past and possible natural disasters).

- Urban agriculture should be viewed as a component of the social food system, with voluntary partnerships and communities playing a role in bridging the gap between food production and consumption.

- Urban farmers should be provided with training and professional technical assistance, support should be provided in the production and processing stages, and the opportunity to sell their products in public places such as school canteens, markets and associations should be offered.

- Especially local governments should revise both infrastructure works and recreation activities in a way that supports urban agriculture.

- Providing land by the municipality to low-income groups in the city through renting and revitalizing production should be encouraged.

- Agriculture and agricultural-based activities should be established in areas that have acquired urban status but have not yet been urbanized as a result of Law No. 6360.

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