

THE IMPORTANCE OF URBAN AND PERI-URBAN AGRICULTURE IN SUSTAINABLE DEVELOPMENT AND INCREASING FOOD SECURITY

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Abstract

The concepts of urban and peri-urban agriculture, although they are not new, are current as a result of the fact that one of the problems that arose during the Covid-19 crisis was that of food security as a result of the need to ensure food resources from nearby sources, in the conditions in which transport and other sectors of activity have reduced or suspended their activity. In this paper, we propose that, starting from the study of the specialized literature regarding urban and peri-urban agriculture, to identify their development possibilities, to identify the forms of practice of urban and peri-urban agriculture, to present the strengths and weaknesses weak related to their development and to propose solutions for their integration in the development of cities on a sustainable basis. The research methodology assumed the study of specialized literature, the consultation of internal and international databases, the processing and analysis of data with the aim of formulating conclusions that can be the basis of future studies, but also formulating conclusions that can be integrated into future policies regarding the development of urban and peri-urban agriculture, taking into account the fact that at the moment there is still no exact formulation regarding their support.

Key words: peri-urban agriculture, food security, resilience

INTRODUCTION

Crises, regardless of their nature (economic, sanitary, social) bring into discussion concepts that already exist, but which have not always been given enough attention, and which can be constituted as solutions at hand to get out of such situations. The Covid-19 crisis was accompanied by a lot of unknown problems, which required immediate and efficient solutions. One of these problems was that of food security, which appeared against the background of the interruption of transport, of food chains, of the reduction or suspension of activity in numerous sectors of activity. Such events come to demonstrate the fragility of the existing systems and the limits of globalization, this time it is about the supply systems [15, 19]. Ensuring the food needs thus brought into discussion the concept of urban and peri-urban agriculture and the need for their development.

Urban and peri-urban agriculture are not new concepts, but their application raises problems related to the way of implementation and ensuring a sustainable supply [13].

Initially, urban and peri-urban agriculture represented a way of ensuring the necessary resources for the poor population in urban areas [2]. Later they represented ways of expressing the hobby or ecological education [5, 11]. However, at some point they became the subject of public policies and concerns related to food security, food resilience and social cohesion [1, 17, 20, 24] in the conditions where, even without crisis situations, considering the fact that the world's population is growing, and food resources being limited will represent an ever greater problem [21].

According to Statista data from 2019, the world population is expected to exceed 9.74 billion in 2050 (Fig. 1), which will put great pressure on the ability to provide the necessary living resources, while creating a

strong pressure on the environment. So concerns about resource depletion are well-founded.

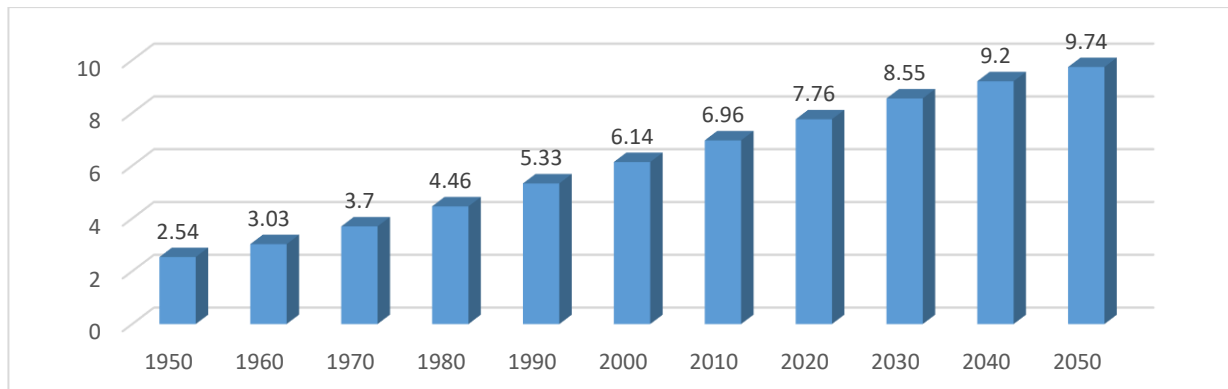


Fig. 1. Evolution of the world population in the period 1950-2050 (billions inhabitants)
 Source: own processing [27].

In support of the mentioned comes the statistical data that show that at the current date (6.08.2022) the world's population is 7.96 billion inhabitants. The largest share is held by the 0-14 age group (25%), followed by the 15-29 age group (23%) and the 30-44 age group (22%). The 45-59 age group represents 17% of the world's population, the 60-74 age group represents 11%, and people over 75 years old represent 2%. There is therefore an increase in the world's population that will face a high pressure regarding the provision of food resources, even in the conditions where the rate of population growth has slowed down between 1950 and 2050 (Fig. 2). The maximum value of the growth rate was

recorded in 1970, when the increase compared to 1960 was over 22%. This rate continued to grow, estimating that in 2020 it will be 5.86%. The Covid-19 pandemic contributed to a reduction in the growth rate. In 2022, compared to 2019, the growth rate was 3.8%. Therefore, it is understandable the concern that preoccupies not only the political circles, the world organizations, but also the concerns at the individual level regarding the way the future will look. At the same time, it is justified to try to find viable solutions for a sustainable development, given that the challenges appear every day and are getting bigger and bigger.

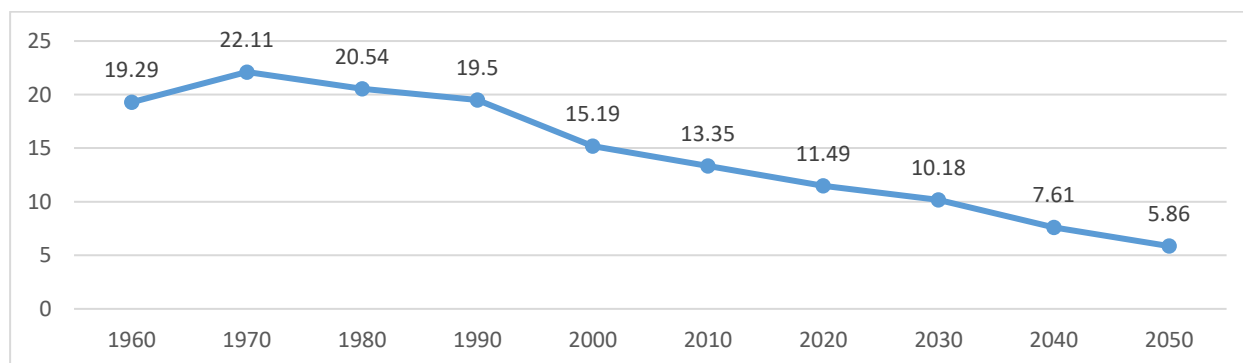


Fig. 2. The pace of world population growth in the period 1950-2050
 Source: own processing [27].

The war in Ukraine is such a challenge and we find that it brings with it the same problems related to the provision of food resources. The interruption of exports due to the impossibility of maritime transport

represents a serious food security problem, given that this country is the second grain exporter in the world and ranks 5th among grain producers.

That's why urban and peri-urban agriculture can represent not only temporary, but also long-term solutions.

Peri-urban agriculture is still a sector that is not sufficiently integrated in agricultural policies, being rather an informal sector. It is defined as a form of agriculture carried out in the city or in its neighboring areas and which involves growing plants, raising animals, fishing and forestry, both with the aim of producing food for own or commercial purposes, but also for recreational, social or educational services .

Peri-urban agriculture has also been called metropolitan agriculture [12] or marginal urban agriculture [4], but regardless of the name or definition, these forms of agricultural practice have potential for development.

At the level of the European Union there are initiatives for their development. Thus, the Communal Agricultural Policy from the period 2007-2013 supported through the LEADER axis the development of local communities through public-private partnerships, and for the period 2014-2020 the financial aid measures were addressed to all eligible farmers, including those from peri-urban areas or urban. These measures are continued for the period 2021-2027.

MATERIALS AND METHODS

The research method involved the review of specialized literature regarding the concept of urban and peri-urban agriculture, being analyzed works published in the period 1997-2022 in the databases Web of Science, Scopus, WorldCat, Google Scholar. The search was carried out starting from keywords that were found in the title of the work, in the summary or within the work, namely: urban agriculture, peri-urban, food security, food resilience, urbanization. Starting from the resulting information, we were able to identify the practice typologies of urban and peri-urban agriculture and we were able to formulate conclusions regarding the possibility of developing these forms of agriculture, as well as their advantages and disadvantages.

RESULTS AND DISCUSSIONS

After reviewing the specialized literature, we identified several forms of urban and peri-urban agriculture, the difficulty of delimiting these two forms resulting from the very definition of the terms urban and peri-urban.

Thus, among the most common forms of practicing urban and peri-urban agriculture are:

Community gardens that produce food or ornamental products for their own consumption or for the purpose of marketing, being organized individually or in groups where members can use resources in common [23, 25]. Also, the financing of activities can take different forms, but the form of ownership can also differ [10].

The private gardens that are located either in the courtyards of the houses, or on the balcony or in other annexed spaces and aim to obtain food or ornamental products intended for own consumption [14, 16].

Farms and rooftop gardens can be individual or collective, they are found in urban areas, not appearing in statistics as forms of organization of agricultural activities [26].

Allotments are individual or family properties, found in Europe and which can have legal personality, they operate according to management principles [3].

Urban or peri-urban farms are located in the immediate vicinity of cities, have the form of legal organization and carry out production activities, but also social, educational, etc. [7].

Peri-urban agricultural holdings are those that carry out agricultural activities as a main or secondary object of activity, which are legally organized, which have an economic function and which have the same right as other agricultural holdings to receive subsidies.

There are other categories of practicing urban and peri-urban agriculture, which are not only for economic purposes, but through which agricultural activities are carried out, namely:

The social farms that, in addition to the economic activities carried out, also have an important social role, addressing target groups that are part of certain categories of people

(either disadvantaged or people with integration problems), also following the integration of some social services.

Intercultural gardens that address disadvantaged people, migrants, refugees and operate on the principle of tolerance and mutual respect, having the role of bringing together people from different cultural backgrounds. They have the role of providing them with a means of living (by cultivating individual and collective plots of land), confidence in their own strength, communication and cultural diversity [22]. *The educational gardens* appeared with the aim of teaching the participants, both children and adults, about the way to grow plants, about healthy eating, protecting the environment.

Therapeutic gardens have the role of helping people suffering from various diseases (mental, cancer, etc.) or people with disabilities to socialize, to relax, to eliminate stress, also being able to use animals as a therapy process [9].

Ecological care farms are found in the Netherlands and are a variant of old people's homes, which appeared as a result of the positive effect on the elderly due to social interaction, their involvement in physical activities, etc. In the same way, they can also address disadvantaged people [6].

Whatever the form of organization under which urban or peri-urban agricultural activities are carried out, regardless of their economic or social advantages, their development involves disputing the land surfaces between the surfaces intended for residential spaces and the practice of agriculture, which is why the subject creates disputes regarding finding the right solutions for the implementation of this form of agricultural practice, which, in addition to its supporters, also has its critics. The problems are complex and are also related to urbanization, the definition of the notion of peri-urban and the sensitive boundaries between urban and peri-urban.

The attempt to identify the advantages brought by the practice of urban and peri-

urban agriculture is also accompanied by the barriers that appear in their development.

Because habitable areas developed into fertile agricultural areas that allowed the expansion and development of cities or residential areas, it is considered that agricultural land was sacrificed in favor of urban development. On the other hand, the practice of agriculture leads to an increase in pollution in already intensely polluted areas.

By practicing these forms of agriculture, food chains would be shorter, food would be cheaper, different composts resulting from urban waste could be used, but urban and peri-urban agriculture also have their environmental costs.

On the one hand, greenhouse gas emissions due to transport could be reduced, as well as fuel consumption, which are objectives to be achieved through environmental policy.

Another important aspect is related to biodiversity, because they contribute to the maintenance of some species belonging to the flora and fauna, so they have an ecological role. Due to the fact that they use less aggressive technologies, they can also reduce soil degradation. And they can also use innovative, much more efficient technologies leading to an increase in the degree of innovation.

Urban and peri-urban agriculture can contribute to the implementation of circular economy principles.

They can also contribute to mitigating climate change by reducing urban temperatures, filtering dust, air, etc.

Urban and peri-urban farms can attract less qualified labor, thus ensuring integration on the labor market. They can also attract qualified labor through the social, medical and leisure activities they offer.

As far as the positive effects on human health are concerned, they can also be quantified by the fact that they allow the development of physical activities, but at the same time recreational ones.

A feeling of solidarity between producers and consumers can develop, but it can also increase a feeling of responsibility towards the environment and appreciation of the

activity carried out by those who carry out their activity in urban and peri-urban agriculture. Another advantage is represented by the fact that new business models can be developed that are based on diversification and specialization, as important elements of food resilience. But as I mentioned, in addition to the advantages of practicing these forms of agriculture, there are also disadvantages, barriers to their development.

Among the weak points of agricultural practices in urban and peri-urban areas we can list: the fact that agricultural activity is less profitable compared to the use of the respective lands for residential purposes; the agricultural activity can be less profitable also as a result of the size of the farms or agricultural holdings where the activity is carried out, but also due to the lack of training or the applied technology; the practice of agriculture can lead to pollution with chemical fertilizers that would occur near urban areas; the reduced areas do not allow the use of agricultural machinery, which leads to a higher volume of work and a lower efficiency with a direct impact on the profitability and financing of the activity.

However, the subject is one that must be addressed, and the success of such initiatives certainly depends on the local, national or community policies through which these activities can be supported, because the role that urban agriculture and peri-urban can have it on economic development and economic cohesion, without forgetting the need to ensure food security.

CONCLUSIONS

There are many aspects that must be taken into account in terms of the implementation of urban and peri-urban agriculture. The future has its challenges, and one of them is ensuring the food resources necessary for a growing population that will be increasingly difficult to provide [18]. Under these conditions, urban and peri-urban agriculture will represent solutions that are already found in the existing agricultural and food policies both at the level of the European Union and in other countries

of the world. Although agricultural land conservation policies have reduced the cultivated areas in peri-urban areas, peri-urban agricultural production is still found in programming documents encouraging the obtaining of local products to support producers disadvantaged by the effects of globalization.

Another important aspect is related to the identification of vulnerability indicators that cover the technical, social, ecological aspects of urban areas and the way in which they interact with the elements of globalization and that could lead to the quantification of the advantages and disadvantages of urban and peri-urban agriculture [8].

In conclusion, we consider that in the conditions in which the paradigms related to production growth and economic development have often been called into question, concepts such as urban and peri-urban agriculture can be considered solutions within reach that can contribute to the sustainable development of society, to protect the environment and to ensure food security.

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