

The Role of Food System in Promoting Environmental Planning

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Abstract—Today, many local and national governments are developing urban agriculture as an effective tool in responding to challenges such as food security, poverty and environmental problems. In fact, urban agriculture plays an important role in food system, which can provide citizens' income and become one of the components of economic, social and environmental systems. The purpose of this paper is to analyze the urban agriculture and urban food systems in order to understand the impact of urban foods production on environmental planning in non-western city region context. To achieve such objective, we carry out a case study in Mashhad city of Iran by using qualitative approaches. A survey on documentary studies and planning tools integrate with face to face interview with experts which explain the role of food system in environmental planning process. The paper extends the use of food in the environmental planning, specifically to examine this role to create agricultural garden as a mean to improve agricultural system in non-western country. The paper is concluded with a set of recommendations for researchers and policymakers who seek to create spaces in order to implement urban agriculture in cities for food justice.

Keywords—Urban agriculture, food system, environmental planning, agricultural garden, Mashhad.

I. INTRODUCTION

ENVIRONMENTAL planning is one of the new subjects for using the lands sustainability and environmental protection that has newly been taken into consideration [1]. Environmental planning is a general approach which ensures the long-term goals of environmental sustainability [2]. On the other hand, urban agriculture is a multi-dimensional action which has this ability to contribute in urban sustainability [3]. Urban agriculture can help urban planners to achieve their goals such as sustainable urban form, urban environmental management and community development [4]. Recently the planners emphasize on the social, economic and environmental opportunities to combine with the food system in cities [5]. Moreover, as Morgan mentioned this awareness about the food belongs to the scope of urban planning needs to be addressed through policies [6]. As well as, Renting et al. discuss about the importance of the role of food system as a comprehensive solution for future urban food in the city, since it allows to integrate rural/urban linkages, planning and climate change adaptation at the territorial level [7]. In this

regard, this paper aims to analyze how food system can be entered in the environmental planning of non-western city region context in order to improve urban agriculture, by showing the brief literature review of environmental planning, urban agriculture and food system. It also carries out a case study, which is one of the agricultural gardens in Mashhad city of Iran, named Alandast Garden, to achieve such approaches.

The methodology of this paper is based on qualitative analysis. First a deep documentary study through plans has been done, following an exploratory case study was prepared, namely in-depth interviews, participant observation, focus groups and document analysis.

The paper is organized as follows. Section II includes literature for the study of the environmental planning, urban agriculture and food system, Section III consists of methodological approach and IV includes case study. Finally Section V and VI include results, discussion and conclusion of the study.

II. LITERATURE REVIEW

A. Environmental Planning

Environmental planning is a general and integrated approach which faces with the environment issues. Its goals are intended for internal and sustainable development [2]. Environmental planning involves different types of scale, from local to regional and beyond, and it needs to be discussed between different understandings of the environment [8]. It has attracted as a considerable subject through urban planners [9].

Environmental planning has continued to develop social aspect and promoted environmental and social knowledge of nature over times [9]. One of the features of environmental planning is emphasizing on multiple planning to promote opportunities for disadvantaged groups through market forces and also, focus on sustainable development and public participation to be consistent with the foundations of sustainable development in decision making [10].

In the context of environmental considerations, environmental planning is based on ecological initiatives as a subgroup of ecological planning. It also involves a wide range of planning activities such as reducing air pollution, reducing water pollution and disposing of waste [10]. In planning, policies in the fields of agriculture, industry, energy, transportation and construction are ignored. On the one hand, they have environmental consequences that lead to the destruct resources and pollution [2].

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B. Urban Agriculture

The concept of urban agriculture includes issues of urban rehabilitation, sustainable development, health, healthy food accessing, water and waste management, social stability, better integration of generations and cultures, urban flexibility as well as new forms of economic interaction [11]. Urban agriculture is a multi-mentional action that enhances food security and nutrition, community structure, education, employment and environmental management [12]. It leads to gather people with different goals, abilities, aspirations and initiatives to create a new urban daily life. It also allows social coalitions to be organized that can overwrite new food policies held by large retailers today, and provide more democratic environment for sharing food choices [11].

The social and economic benefits of urban agriculture are recognized well today. Urban agriculture can help to reduce poverty and hunger issues in cities. Controlling food production at the household level ensures food security for the people, where food is usually better quality, less expensive, and constantly accessible to purchase. Self-produced food can be suggested to urban poor to reduce household expenses and increase the nutritional advantages of it. Also, urban agriculture can create incomes and job opportunities for households. Environmental benefits of urban agriculture are often cited as being in line with potential environmental hazards (e.g., soil degradation, water evaporation and sewage). Urban agriculture can conserve energy and water resources and contribute with sustainability of the urban environment [4].

There are different scales of urban agriculture. In city, they include personal or family farms (within yards and roofs), group or cooperative farms and some large farms. The main point of creating urban agriculture (farming in city) is to produce food products through easy techniques with minimum facilities [13].

C. Food System

Food can be considered as a valuable system in different aspects. Recently the social, economic and environmental opportunities of food system have been considered in planning policies [5]. Today, analyzing the structure of urban food systems and finding the opportunities to integrate urban agriculture into planning policies, is the important issue to be considered [14].

In terms of population growth, food system must be considered in urbanization. Developing food systems have positive results such as improving employment opportunities in food industries and increasing food choices in local scale over the decades in developing countries. However, urban transformation has resulted in increasing significant challenges in food security. Therefore, a better understanding of food system functions is essential to develop them in minimizing the negative impacts and maximizing the positive ones [15].

According to increasing urban population and food demands, countries consider urban agriculture as a strategy to deal with the food security challenges in order to develop

urban sustainable development. In other words, urban agriculture includes two main objectives which are public participation in increasing food security and decreasing environmental effects through agricultural development in cities [16].

As mentioned, one of the advantages of urban agriculture is to create food security and healthy foods. On the other hand, urban agriculture can improve both foods quantity and quality. In addition to food security, foods can be urban products for other populations [17].

III. METHODOLOGY

In this research, a survey on documents of case study has been carried out which is based on quantitative and descriptive analysis. Moreover, the survey used interviews and discussions with people, local administrators, planning officers, farmers and representatives of local associations in order to get more information about the case study and to gain a deeper understanding of the issues. The questions addressed to the interviewees had a common structure and aimed to understand how food plays roles in environmental planning process of the Alandasht garden.

IV. CASE STUDY

Mashhad is one of the largest cities in Iran. Potentially, it has suitable areas for agricultural uses. One of the small-sized gardens which have the potential to implement urban agriculture is Alandasht Garden. This garden with a total surface area of 10 Ha is adjacent to the main streets of Mashhad and its ownership can be both public and private. Due to its fertile soil, this garden has a variety of garden products. It produces a sample of pear, apple and cherry trees and other trees that bloom in springtime and make beautiful urban landscape for people. Considering the productive potential of this garden, it is possible to develop urban agriculture. Therefore, the present trees could be preserved and the farmers and people can produce more fruit trees, flowers, and vegetables.



Fig. 1 Alandasht Garden

V. RESULTS & DISCUSSIONS

Developing urban agriculture in Alandasht Garden can play a significant role in decreasing urban poverty and food insecurity and also, increasing urban environment management which leads to increasing urban food security. Following these results, urban agriculture could be helpful to develop economy and encourage poor citizens, especially women, to participate in these social urban activities. According to the lack of such agriculture in Mashhad, it seems that urban agriculture can contribute to achieve three dimensions of sustainable development; economic, social and environmental aspects.

As the results of survey show, there are some challenges in Mashhad city around the research goal, which could be improved by developing urban agriculture in Alandasht Garden in some cases. These challenges are shown as below:

- Since people have a great interest in urban agriculture, the important thing to be noted here is to make them familiar with agricultural activities. To achieve this, educational spaces must be created to raise public awareness of urban agriculture. Therefore, the authorities can try to provide these educational spaces for people in all ages. Also, creating NGOs and organizing workshops in different parts of the city can help people to gain skills.
- From people's point of view, there are not enough spaces for increasing social interaction and leisure time in neighborhoods. As we know, urban agriculture can be both a recreation and an opportunity for the community to stay away from urban tensions by working on agricultural areas. Also, it can be a space to enhance the social interaction of residents from different ages and groups.
- Another important issue from the people's point of view is how much they are involved in decision making. Public participation in the city is the key to solving the problems of poverty, comfort and food security. For this reason, urban agriculture increases contributions between local people, government and local organizations in the city.
- People are less satisfied with the vegetation and green spaces in the neighborhood. On the other hand, from their point of view, the attention of the public and the authorities to the types of pollution is very low. However, the existence of garden for urban agriculture can be both a solution to increase green spaces and diverse vegetation in the neighborhood, as well as enhancing people's participation in environmental protection.
- There is little access to fresh and varied food and daily services in the neighborhood. By developing urban agriculture and allocating places to sell its products, people's daily needs can be partially met and also it gives this opportunity to people to do physical activity and gain health outside the home.
- The issue of earning money among the people is important. As it is mentioned, urban agriculture can play an important role in achieving economic sustainability in cities through the creation of new jobs and professions, the production of goods and services, and the filling of

existing gaps in the marketing and sales of food products. So, by engaging people in urban agriculture, it can partially increase income for different ages.

VI. CONCLUSIONS

According to the findings of this research, we understand that there is a lack of integration of food in current environmental planning strategies. As some experts indicated after different approved of these plans, there are no clear mention of food system in the agriculture part.

We are sure about this fact that urban agriculture can provide food for a community. In order to make the positive potential into reality, planners and policymakers must plan strategically and address this issue into the urban policies.

Researchers play an important role in addressing data gaps and strengthening the network between different actors. In the following, there is a set of recommendations for researchers and policymakers who seek to create spaces in order to implement urban agriculture in cities for food justice. These recommendations could be considered in 4 categories:

- Social considerations: Recognizing people in acceptance of public participation position, creating areas of cooperation between people and related organizations, using people's interest and desire in urban agriculture, creating urban spaces for social interaction and leisure through urban agriculture, establishing NGOs for urban agriculture in gardens, creating educational spaces around gardens to educate people on urban agriculture.
- Environmental considerations: Improving the ecological quality of environment in gardens, reducing environmental pollution around gardens by using more tree planting and greenery through urban agriculture, increasing the diversity of vegetation and green space in gardens through urban agriculture.
- Public health and food safety considerations: Providing appropriate gardening services to the people by implementing urban agriculture, increasing public participation in planting and consuming fresh and organic food through urban agriculture, increasing physical activity and mobility of people by implementing urban agriculture in gardens.
- Economic considerations: Establishing small-retailed centers around gardens to launch small businesses and sell urban agricultural products to the public, supporting successful investors, producers and activists in urban agriculture, increasing the level of awareness of the authorities on the urban agriculture.

According to the recommendations, the important issue is that the agricultural land like Alandasht could be the emergence of a network between citizens and farmers. In particular, the integration of environmental planning and food system policies include a wide set of political and administrative sectors which are from land use to education, commercial, health, and social. Therefore, this issue could be a major challenge for the present urban transition in Mashhad and other cities.

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