Urban Agriculture as an Entrepreneurship Opportunity: Its Opportunities and Challenges

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ABSTRACT

Urban agriculture is a system which can use natural resources of a city to provide food needs of citizens, to keep quality of city environment, to prevent natural resources and to create new occupation opportunities to provide sustainable development. Lack of employment opportunity in industry and services is a motivation for millions of people in developing countries driving their livelihoods from agriculture. Urban agriculture as a novel idea in cities can be considered as a kind of entrepreneurship. So, occupation and entrepreneurship in this section could be important issues for policy makers. Present research is a library one which is based on gathering information and available data, reviewing previous researches and reconstructing them in a new form in order to introduce challenges and opportunities in urban agriculture sector.

KEY WORDS: Urban agriculture, entrepreneurship, opportunities, challenges, sustainable development.

INTRODUCTION

During last century, urbanization growth, rural population decrease and agricultural land destroy cause led to many problems in societies. Increasing in urban population normally needs to food growth. Then trade and commerce become an important issue of citizens and goods production process has been distributed in cities. Unemployment as a harmful social economic and cultural phenomenon is a basic concern of planners; entrepreneurship is a factor of creating and developing occupation opportunities, and reducing level of unemployment as a remarkable index of development. Entrepreneurship has significant role in evolution economic development and cultural improvement. Growth of such phenomenon could lead to basic evolution and change in national economics. Entrepreneurship is a process in which, entrepreneur present new idea, accept risks to provide new product or services. Although there are many definitions on this word, many writers and experts define entrepreneurship as process of deleting economic opportunities, establishing business and companies to benefit from available chances. The result would be offering goods and services. In recent years, governments severely encourage this act, as it will help in creating wealth, employment and technology development, encouraging people to invest, establishing and developing new markets, increasing welfare and effective use of resources. Many developed
and developing countries pay serious attention to entrepreneurship as key solution to resolve many problems and internal crisis and to maintain in international competitions oil price fluctuation motivates planners and policy makers to think about other source of income. That source would be obviously facing with potentials and supporting entrepreneurs and their novel and productive ideas in agricultural section (Rabiei Monfared human, 1389). An effective solution in reducing unemployment in cities and increasing food security is entrepreneurship in urban agricultural section. Most parts of urban lands have the capability to change into green spaces for growing plants in them. This process is called urban agriculture. It is referred to agricultural products in urban areas or its environment which focused on various agricultural products (vegetable, fruits, livestock production…) recycling and sewage treatment in order to process and distribute food and non-food crops. In other words, urban agriculture refers to producing and kind of agricultural products in urban area or its suburb.

Growing food (vegetable, beans, mushroom or even meat and dairy), medicinal plant, shrubs and decorative plants is considered as a kind of urban agricultural activity. It also includes techniques and approaches of growing plant in house yards, urban wide gardening, hydroponics greenhouse and aqua farming or open green areas (Shaibani, Mehdi, Sadeghi, Zahra, 1391). According to FAO definition, if urban agriculture is well understood, various agricultural and domestic activities provide food security, income and entrepreneurship. Since urban agricultural activity needs little initial investment and have available market for sale, it can be regarded as profitable and significant activity. Urban agriculture often doesn’t need big area and it uses small and useless area, it reduces initial and stable costs. As urban agriculture needs infrastructure like preparing urban lands, roof, balconies, and establishing service provider organizations, it could be useful in business development and entrepreneurship. In Netherlands, 33% of all agricultural products arise from urban agriculture.

In United States, 10% of urban population participate in urban agriculture, in Vancouver, 44% of all residents engage in agro- food (Indraprastha, G.S. I. Agustina, 2011). According to latest predictions, about 200 millions of people around the world are involved in urban agriculture, and offer their productions to 800 million residents. In Africa countries, about 40% of citizens are engaged in urban agriculture and it arrives to 50% in Latin America. Urban agricultural activities is like a continuum, in one end, there are gardens and domestic agricultural activities in small scale run by members of a family, in other end local governments, city manager, planners and social groups are located. They deal with supporting and developing urban agriculture in order to gain multiple benefits (Howe, J., P. Wheeler, 1999). Generally, there are 4 kinds of urban agriculture: 1) public gardens 2) small scales production activities, 3) large scale production activities like: community supported agriculture, urban farms and gardens 4) agriculture in poor soils like: vertical gardening, mushroom growth and aqua farming (Brown, K.H., A. Carter, 2003).

Gornal Mirdal states that two basic issues in every developing country's economics which are non-developing and unemployment relates directly to agriculture, supporting agricultural section causes increase in supply and employment. Mougeot, highlights urban agriculture role in increasing job opportunities, income and in cutting costs of foods. In addition to entrepreneurship, production and service providing. Urban agriculture causes lack between marketing and sales of food products.

In Uganda urban agriculture is under the control of welfare organization and social services planning and policy making in this regard id done on city level. Statistics indicates that about 83 % of residents of Kampala have garden (less than 10000meters) 10% engage in agriculture in area (1000 to 3000 meter), 5% are involved in pre urban agriculture and 2% allocate to institutes and schools. Research in Zambia shows that despite of urban agriculture’s role, there isn’t adequate support of government in this regard (Hampwayne, G., 2007).

In other research, it is evident that factors like existence of agricultural land and appropriate management, offering consulting services, establishing necessary infrastructures, attention to environmental concerns and training can play important role in urban agriculture development and economical-social benefit.

Another research in Benin illustrates that developing urban agriculture play key role in unemployment in cities, rural migration, and balance in diet.

It also shows that urban agriculture causes income increase and life standard enhancement of people in this section. Researches done about urban agriculture is a sign of its positive effects on entrepreneurship. In the following, we deal with entrepreneurship opportunities in urban agricultural section, and then we concern its challenges and opportunities and finally get into conclusion.

**Urban agriculture’s advantages:**

Case studies show that social roles of urban agriculture, its economical functions, its potential for sustainable livelihood in urban land and its environmental advantages are useful. According to this study, urban agriculture has the potential to support local economic (Masi, B., 2008), to enhance environmental conditions (Doron, G., 2005) and to expand social sense comparing urban agriculture in developed and developing countries shows the extreme difference (FAO (Food and Agriculture Organization), 2007; Peck, S., 2003). Researches indicates that in developing countries, urban agriculture is done with the purpose of producing food for family, creating income and sale (Mougeot, L.J.A., 2005), however in developed countries social, cultural
and environmental dimension in public gardens are the usual concerns (Holland, L., 2004). In the following, it analyzes the urban agriculture's advantages in 3 dimensions are environmental, economic and social.

Environmental dimension:
Urban agriculture influences on reducing air pollution in many ways. One way would be increasing and greens spaces in order to enhance air purification. Within Photosynth they absorb co2 and release o2, which this level of absorption arrives to its maximum level in growth level of plants. Since gaining profit and products is considered as a main purpose, and regarding the fact that we have 4 sessions in our country, the effects of such actions is remarkable in air purification. Besides reducing traffic and transportation and needs to packing foods, leads to energy saving and decrease in garbage disposal. Such criteria reducing environmental one dimensions and maintaining the environment for future generation would be realizing one dimension of sustainable development

Economical dimension:
Economic importance like producing income, transferring skills and entrepreneurship is one of the advantages of urban agriculture (Petts, J., 2005; Dixon, J., 2007). Armar-Klemesu, explain about economic advantages of urban agriculture. He states that it helps food security in many big cities, provides important part of food system of city and minimizes food shortage of vulnerable groups (Armar-Klemesu, M., 2001). Since poor people in developing countries usually spend a big amount of their income (50%-70%) in buying foods, food production will reduce its cost. It also saves energy and decrease transportation costs. Constructing canny factories, producing fertilizer from urban waste, producing tools, it would produce job opportunities for citizens. Urban agriculture has many economic benefits for community. Urban gardens can enhance economic development and agro tourism. They attract residents and become a motivation for commercial growth. Also, a green space is an additional advantage for a building or house. Applying area created by vertical gardens or green yards permit the owner to increase rental amount, as a result gain more benefits. Besides, it attracts micro and macro investment in this field.

Social dimension:
Urban agriculture as an appropriate approach will remove or reduce poverty. There are lots of project run by urban management systems or non-governmental organization in which many vulnerable groups like orphans disabled, women and refugees. In many develop cities, urban agriculture created with the purpose of providing mental and physical health. Other social resources of urban agriculture are providing health and economic family needs and increasing women’s participation.

Entrepreneurship opportunity in urban agriculture:
It can produce income and local jobs. Case studies illustrate that by annually covering 6% of Toronto buildings, 1350 job opportunities will be created directly and indirectly. Moreover, commercial value of production in urban agricultural section will be 4 to 5.5 million annually (Peck, S., 2003).

According to a study in Tanzania in 1994, urban agriculture achieved the second place of entrepreneurship, which equals to 20% of employees. Annually gross income of more than 10,000 active institutes in urban agriculture section equals to 27.4 million dollars, considering annually vat which is 11.1 million dollars. Entrepreneurship opportunities and employment by urban agriculture is so various. In some areas, half of the urban farmers employ labors. In other areas, too poor urban farmers or sporadic market usually offer season job opportunities (Nugent, R., 2002). In some cases, urban agriculture is the only source of income in a family and plays important role in reducing poverty (Van Aerbeke, W., 2007; Graefe, S., 2008). In cities which experienced industry downtown, preparing abandoned fields for growing foods is a political planning option. In cities of United States like Detroit and New York, thousands of hectares of lands dedicated to unemployed labors to work. In England, the project of city farm is done on abandoned lands 20 cities. In Germany, urban land which were previously coal mine areas like Essen, are used for urban agriculture projects nowadays. So, entrepreneurship and employment opportunities increased in this section. Most parts of urban lands are capable to be changed into green spaces. These areas could be used for plant growth.

For example, west European countries, especially Germany, expand installation of eco-friendly roofs in order to reduce warmth, improve local ecosystems and enhance quality of life. Eco-friendly roofs are being used in capitals of Asian countries in these days. In Japan, local and national government approved rules with the purpose of encouraging people to use eco-friendly roofs. In African countries 40% of citizens do farming this amount arrives to 50 % in Latin Americans (Ruel, M.T., 1998). Investment development of production activities in urban agriculture leads to creating job opportunities. So, unemployment issue will be reduced in this day. Urban agriculture helps in creating job opportunities in urban and per urban area.

According to report by food and agriculture organization (FAO) in 2005, urban agriculture provides food needs of 700 million people around the world.
After the collapse of Russia and budget cut, Cuba government encourages people to grow vegetables in private yard or public areas in the cities and establishes a system based on chemical fertilizer instead of animal based fertilizer. In 1997, this system could produce approximately 21,000 tons of vegetables and in 2005 this amount arrived to 27,7000 tones. It used as a successful pattern for performing similar project. In Havana (Cuba), more than 26000 people work on 2439 hectors and produce 25000 tons of food annually.

More than 100 women with low income in Bogota, the capital of Colombia grow vegetables on their house’s roof. Their incomes were 3 times more than their husbands with semiskilled jobs (Sohrabian, 1389).

In Shanghai (China), 300,000 hectares of suburb lands are dedicated to agriculture. These lands provide 60% total need of vegetable, 50% total need of meat and 90% need of diary (Researcher center of city council Mashhad,1385). In Shanghai, 20% of lands got the construction license from municipal, and 80% of these lands were used for farming. This leads to independency in vegetable producing.

Local government of Caracas (Venezuela) with cooperation of FAO established 4000 gardens (1m2) in the city. Its future plan is building 100,000 gardens in urban areas of the country.

Dakar (Senegal) with cooperation of FAO harvests 30 kgs tomatoes in each 1m2 of roofs.

In Hanoi, Vietnam, 80% of need to vegetables and 50% of need to meat is provided by urban agriculture.

In Haiti some people grow vegetables in old tries of trucks. In 1990, cemeteries in suburb areas of Sarajevo, capital of Bosnia were changed into farming lands. Even in Britain, 30,000 urban lands were identified for growing food and vegetable.

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Pekan with more than 10 million populations, run its adjacent farms.

Challenges and urban agricultural opportunities:

Urban agriculture like other activities has its own challenges, opportunities, limits and advantages. One of important available limit is lack of adequate and appropriate spaced in the cities to do agricultural activities. Yet this activity could have positive effects like soil protection, air pollution reduce, recycling, etc… Generally agricultural challenges and opportunities can be analyzed on following dimensions (Deelstra, T., H. Girardet, 1996).

Required area for urban agriculture:

After the Second World War, in most European countries, there were not adequate spaces for urban agriculture. Economic development and growth in last decades causes citizens to be a consumer rather than a producer. When the role of exchanges and cooperative activities as an important fact in human survival has been identified, urban agriculture has been raised as a new opportunity in society. This role became more remarkable in cities which experienced down turn. However, in crowded and polluted air there are many problems regarding health of foods, so it is suggested not to do agricultural activities near busy roads or considering 10 meter distance. There are problems in water and soil which are polluted by cadmium and plumbum. It is suggested to use organic material through fertilizer or compost. This will stabilize and immobilize heavy metals. China can be a successful template in this regard. In other cities of the world, appropriate lands are allocated to agriculture. For example, in Dar es Salam, Tanzania, river bank lands which are not appropriate for construction due to flood water and continuous storm are dedicated to agricultural deals.

Urban micro climates’ condition improvement:

In case plants and trees became compatible with urban construction, urban agriculture leads to comfort of residents. Green areas near buildings will improve micro climates’ condition in this ways. Relative humidity increase, temperature decrease and freshness and fragrance increase in the air. Dust and pollution absorption by plants wind and storm control, solar radiation reduction and shadow creation. So, nowadays in many big and polluted cities of the world, urban agriculture is considered as an effective strategy in reducing pollution and proving climate conditions.

Soil protection:

As, there are adequate organic material in cities, there is no problem regarding fertility of agricultural land and there is no need to use chemical fertilizer. A wide range of materials like agricultural products remaining, ganno, old newspaper, home waste can be changed into compost and leads to fertility of soil. In China there is an advanced system about recycling and animal waste to produce fertilizer urban farmer usually make use of available materials in cities to fertilize soil. Moreover organic material cause preserving environmental balance and materials cycle of soil. It also prevents erosion causes protection of soil.

Recycling of garbage and foods:

Generally there are 3 approaches in reducing garbage: garbage reduction reuse of materials such capabilities and recycling. Urban agriculture play key role in these approaches. With local food production, packing needs
will be reduced. Since the packing is produced with commercial purposes or maintaining foods in long distances between production, supply and consumption locations.

Agricultural activities in cities lead to re-use of available materials such as dishes, wood, plastic and glasses. Urban agriculture can play a role in the third approach by recycling organic materials. About 20% of garbage is organic food which increases fertility of soil by recycling and changing them into compost. It also decreases remarkable amount of garbage will be reduced.

Water resources management:

Urban agriculture can indirectly manage resources in cities. Plants and trees cause running and surface water to penetrate to the ground and nutrition of underground water. Also by developing impenetrable surfaces like streets, roofs and garages, the possibility occurrence will be increased. To deal with such problems drainage systems are constructed with high cost. Adequate green spaces can reduce inquiry for such system as a result a remarkable amount of urban cost will be reduced.

Direct use of waste water and surface water in urban agricultural system can improve utilization of water resources especially in areas with limited water resources. Due to pollution of waste water, reuse of them needs waste water treatment. This process is costly and needs necessary infrastructure. Waste water treatment system in Dakar the capital of Senegal is a good example. This system has 2 stations for water purification. In first step, solid materials are changed into compost. Waste Water will be used for irrigation of farming land after treatment. Another solution would be growing rain-fed crops with considering suitable conditions.

Biodiversity:

Urban agriculture can improved bio diversity into ways. 1. Production of rare fruits and vegetables. 2. Establishing new industry and job opportunities' in urban areas and its suburbs. Urban agriculture can play positive role in enhancing biodiversity of cities. Due to higher number of buildings in city compare to village bio and animal diversity of city is less than village. Urban agriculture can be useful solution for such problems. For example project in Philippine has done with the purpose of biodiversity development and improvement.

Global warming and air pollution:

CO2 is one of dangerous gases for environment which is produced by various activities in cities. Urban agriculture can reduce large amount such gas. In case foods are produced in city environment, production, supply and sale location will be closed to each other, transportation will be reduced, so fewer amounts of CO2 or other dangerous gases will be produce in environment. Urban agriculture also reduced CO2 by plants' absorption of CO2. The capacity of absorption will be at highest level in growing stages of plants. So agricultural activities will improve urban ecosystem.

Environmental alerts:

Urban agriculture can change citizens' approaches to foods. Direct experience of food production is the missing link in urban life of developed countries. In developed countries people usually provide their needs from shopping malls without any information about production process, quality of material, its health and hygiene. They usually don't have access to fresh foods. Citizen are usually interested in buying fresh food and be familiar with production process. Generally, urban agriculture enhances peoples' knowledge, awareness and sensitivity their health.

It leads society to use health and organic production. One of successful plan in this regard is performed in London as a 21 article project.

Urban agricultural challenges in Iran:

Training-research:

Nowadays, training roles becomes undeniable in different aspects of human life. Urban agriculture activities needs gaining information on professional fields like planting methods, harvesting methods, irrigation methods, paste management, marketing health an environmental issues.

Training is necessary for food production, distribution and marketing of agricultural products. People with various level of education don't have knowledge about urban agriculture. So many efforts in needed to enhance people's awareness. This training could be done by holding courses, CDs and mass media. Urban agriculture should be introduced at schools. This would help kids to be familiar with advantages and facilities, when they grow old.

Protection:

Urban agriculture's success depends on governmental support and policy making at national or regional level. So it is necessary for government to set rules about support, expand, train, sale and export, encouraged of producers, provide production input
**Policy making:**
Local government and managers should set necessary rules about license, financial sources for poor people who live in suburbs.

**Technical:**
Analysis of air and soil pollution, fertility, needed material for plants' growth, depth of plant's root, access to suitable soil production input (fertilizer, water, human resources) are effective in urban agriculture. Lack of water is considered as an important obstacle in urban agricultural development which necessary infrastructure development to provide required water is essential in such system. Another point would be encouraging people to grow plants with less need for water and to be resistant to dehydration, mulching, to use soil with high capacity for keeping water and plant growth with strong power to cast shadow. One of important water sources urban agriculture would be use of waste water and running water. Another technical point refers to organic material and garbage recycling and waste water treatment.

**Infrastructure:**
In deals with required infrastructure for production, process, distribution and sale of urban agricultural products. Generally such infrastructures can be divided into two main categories. First category includes basic sources for agriculture like (land, water and soil) and supporting services like (electricity insurance). The second category includes equipment's and facilities (personal or public).

**Financial-economical:**
Success in agricultural field is seriously dependent on investment and financial sources. Although urban agriculture is done on small scale with non-commercial purposes and no need to advanced and modern equipment. Basic features and initial equipment should be provided for producers. Bank agricultural organization's financial support could cover such costs.

**Cultural:**
Urban agriculture like other actions which is formed by human factors needs infrastructure. Their success is mainly depended on right culturalization. Many people shopping malls are about to find ready and packed foods. People should understand fresh food's value. They should be informed of the discussion provided in first section of this project. People should be aware of the differences between fresh and fridge foods.

**Urban agriculture opportunities in Iran:**

**Oil income:**
It is regards as basic income of government in Iran. If it is managed very well, it could be a good financing support for employment and economic development.

**Natural sources:**
Appropriate weather, 4 season's existence, fertile and soil waste land are good opportunities to be used urban agriculture.

**Human capital:**
Availability of human resources in Iran is considered as an important opportunity in recent years. They can offer novel ideas in this field. Moreover, they can lead to cultural evolution in entrepreneurship in urban agricultural field.

**Results:**
On international level, urban agriculture is of increasing importance. In many countries by performing novel plans and various training and informing methods government are encouraging citizens to cooperate and internalizing urban agriculture. By expanding urban agriculture, city would be the bed of required production. Usually in urban agriculture creative activities are done to use available spaces like roofs, yards, balconies, available resources and available material for recycling. Nowadays, in big cities, many people are attracted by urban agriculture and assignee considerable time to do this work. These areas even are used as places of relaxation and as places for social and cultural benefits. They can reach to fresh food and vegetable, required material supply, natural enjoyment, creativity flourishing, family relations enhancement, social development, interaction improvement.

**Conclusion:**
Urbanization trend, employment necessity and entrepreneurship importance in country economy makes policy maker and planner to focus on these issues and to find solution. Urban agriculture could place significant
role in employment and entrepreneurship. Some of agricultural product like decorative plants mushrooms and fishes are suitable for growth in city. Since urban agriculture doesn't need great capital, it would be considered as a useful entrepreneurship activity. Although there are many limits and obstacles in realizing creative ideas into actions like: training - research protection, policy making, technical, infrastructure, financial-economic and cultural dimension, many benefits and advantages of urban agriculture would be effective in economic improvement and urban development.

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