

The Role of Women in Urban Agriculture and Food Security in Beit Lahia City, Gaza Strip

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The worldwide population is on the rise. The rate of population is not only increasing, it is becoming progressively urban. Around 3 billion individuals, which form more than half worldwide population, currently lives in urban areas, (World Bank, 2009). Reportedly, the population is expected to increase from around 7 billion at present to 9 billion individuals by 2050. In the meantime, the average purchasing power, and with it the food consumption, per capita is expanding (Godfray et al., 2010). These patterns are expected to lead to increase the food demands of about 70 to 100 per cent by the year of 2050 (World Bank, 2009). Therefore, the distance between production and consumption is widening, resulting in the increasing of complex logistics and a greater transportation demand. This impact is magnified by globalization, in light of the fact that increased global commerce means that rural hinterlands are increasingly often in other countries, where labour and land are less expensive.

Traditional agriculture does not guarantee constant food security for the growing population and also it has negative effects on the ecosystem. Therefore, food production should be further explored using alternative method. As one of the solutions, urban space should be reconsidered to exploit more space for plant cultivation and food production in order to improve the level of food security (Viljoen, Bohn, 2005).

FAO (2009) warns that the local governments in many countries are not regulating policies to consider the issues related to food insecurity, however, it motivates that urban policies should consider "food dimension of poverty in urban areas".

The first modern studies of urban farming were conducted during the 1960s (Mougeot, 2000) and after that, many case studies of

urban farming have been investigated and published in numerous journals and books. Development aid agencies have played key roles by sponsoring many of these studies, focusing on cities in developing countries and on the role of urban agriculture in a development context.

Available land for horticulture is very limited in the Gaza Strip and, with the current blockade imposed on Gaza and with access restrictions to the lands in place, fresh fruit and vegetables are very expensive. Meanwhile, continuing population growth, at over 3% per year, is putting extra pressure on the resources of the Gaza Strip which is one of the most densely populated areas on the planet. As reported by FAO (2012), 97% of the population in the Gaza Strip are urban or camp dwellers, and thus do not have access to land. Therefore, there is a critical need to find alternative and creative approaches to achieve as ideal as possible investment in urban farming practices, and to foster such production patterns in the Gaza Community. However, it was found by the Gaza Food Security Cluster report in (2015) that most households were defined as food insecure, approximately 50%, in Gaza experience chronic food insecurity. This is a sign of a long-term food crisis and a reduction in coping mechanisms and resilience, and the consequent need for proper solutions and interventions. Therefore, this study aims to investigate the role of the women and urban agriculture, as one of the possible solutions within Gazan community, in coping on food security crisis considering the no harm strategy to the natural resources.

Research Methodology

The research objectives steer the study in choosing the most appropriate research design and research methodology as shown in Table (1).

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#	Research Objectives	Research method employed
1-	To explore the importance of the urban agricultural and its effect on Gaza food security's crisis.	- Literature review; - Questionnaire with community members - Interviews with relevant stakeholders
2-	To explore the role of the women in Urban Agriculture within Gaza Strip.	- Questionnaire with community members - Interviews with relevant stakeholders - Literature review
3-	Investigate the socio-cultural conditions and job opportunities could be saved by implementing appropriate urban agriculture concepts.	- Literature review; - Questionnaire with community members - Interviews with relevant stakeholders

Table (1). Research objectives research methods employed

The necessary data has been collected, analysed and displayed in numerical rather than narrative form. During this phase, the collected data has been checked and organized. Then the data has been analysed using the statistical package for the social sciences (SPSS 20). Descriptive statistics, cross tabulations, including frequency counts, percentages, and other relevant data analyses presentation forms have been utilized in the study.

Data Analysis

Gender, age and education of urban agriculture practitioners

Of a sample of 129 urban farmers' surveys, 85.3% of the respondents are male, while only 14.7% are female. It is clear that the percentage of men is much higher than women as it is difficult to reach out to women in Gaza households due to religious and cultural considerations. The work of women was limited to harvesting the product and in many cases selling in the village market. Therefore, in peasant society, personal contacts and external relations are men's responsibility. In some cases, farms belong to widows who can perform activities within the farm to raise their children. Moreover, 0.8% of the farmers are under the age of 20, 27.1% are from "21-30", 34.1% are from "31-40", and 38% are over 41. However, 26.4% of respondents

hold university degrees. The educational level of urban agriculture practitioners targeted in this study considerably varies from illiterate to university graduate. That 26.4% of farmers hold university degrees explains to some extent the unemployment figures in their areas of expertise.

In a study performed by De Muro&Burchi (2007) on the relation between the education and food security, they found that hunger is highly correlated with the illiterate people. However, the level of food insecurity in Gaza strip is still high as the education does not protect the people from the impact of economic crisis that Gaza experience since many years. Around 33% of the agriculture crops are "Permanent trees", 58.9 % are "vegetables and fruits", 0.8 % are "fodder" and 7.8 % of agriculture crops are other types. The high percentage of vegetables and fruits cultivation in Beit Lahia is due to its good quality water which is using for the irrigation. The other locations of the Gaza Strip have brackish water which cannot be used for irrigation of sensitive crops such as vegetables.

The ultimate use of UA product and the role of the women

About 16.3% of the respondents use urban agriculture products to supply their household with food and 9.3% of them used to sale the product in the market. The ultimate use of the products for more than two-third of the respondents, was household food supply and market sale with 74.4%. Such phenomena, which are being practiced by the urban farmers, help them to guarantee the household livelihood by reducing expenses on consumption the high price products and alleviate the local market expenditures at somehow.

According to Slater, 2001, food processing and production within and around cities participate in supplying the urban poor with safe, affordable, and reliable food and at the same time improve income generation and create more jobs to a

large number of women. Around 78.3% of the respondents believe that household women play an important role in urban agriculture activities, while 21.7 % suggest that the women are not involved in activates. Urban agriculture is taking place close to home, making it more suitable for women as they do not need to leave their children or their household burdens to go far for the farms. According to many scholars, women are an important category of economic and social actors who facilitate the role of the family in human survival in their various multiple roles. Therefore, seemingly the present economic hardships in Gaza strip force women to accept this responsibility, whether or not there is a cultural obligation for women's productive role. When the key informant from different organizations were asked whether the Gaza household women partake in urban agriculture activities or not, all of them confirmed that the women in Gaza play an essential role in the agricultural sector. Gaza Urban and Peri-urban Agriculture Platform (GUPAP) and agricultural work committees (UAWC) official further added that 50 % of Gaza agro work is shouldered by women.

Role of urban agriculture on food security

Around 61.2% of the respondent are feeling food secure due to engagement in urban agriculture, 28.0% are feeling food secure to some extent while 8.5% are feeling food insecure and 2.3% of the urban farmers' feeling about food secure are vary from one year to another. In total, approximately 89.2% of the respondents are feeling food secure due to their engagement in urban agriculture. At the same time, since food security level can be measured by the daily number of meals, it was found that 74.4% of urban farmers had 3 or 4 meals a day; this result is also a sign of the satisfying level of food security. This high percent demonstrates that practicing urban agriculture plays an important role to improve the household food security.

Type of urban agriculture and its relation to the source of income

The data analysis shows that urban farmers' monthly income ranges from 30-800 USD, with a mean of 250USD, median of 200 USD and Std. Deviation of 150 USD. According to (Zhou, et al., 2014), the income status of the household influences the level of food security, while

poverty, which decreases purchasing power at the household level, is considered a main factor in food insecurity. However, long-term water security is at risk questionable in the long run if the current practice is continued, due to the very high consumption of irrigated water for the crops which are cultivated in green-houses, particularly strawberry which consume more than 1500 m³/dunam/yr.

As shown in figure (1), the types of urban agriculture practiced by the sample urban farmers are categorized into four subsystems including poultry production, dairy production, fishery farm and agriculture crops production. Poultry is one of the activities of urban agriculture practiced by farmers' families by percent, Dairy by 5.4 %, Fishery farm by only 3.9 % and the Agriculture crops production by 86.8 %.

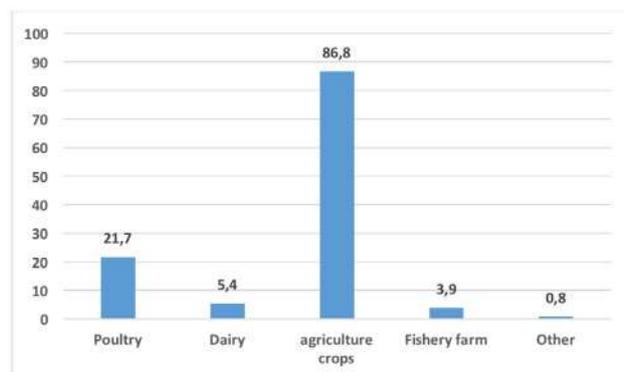


Figure (1). Type of activity/ies of urban agriculture practiced by the family

As indicated above, urban agriculture in Beit Lahia city includes different types while the farmers practice one or combinations of these. It is clear that the agriculture crops production is the most important production system in Beit Lahia as the majority of urban farmers practice it. This is because of the high market demands on this type of production as well as its acceptable price for the low, medium and, of course, high income families, comparing with the other types of urban agriculture activities.

The urban farmers depend on one or more of the mentioned factors as sources of income, as per figure (2), about 89.1% of urban farmers are depending on "selling from agriculture produce" as a source of income. Meanwhile, 16.3% depending on "selling animal produce", 3.9% depending on "Fishery", 9.3% of them are depending on charity or relatives, and 5.4% of the respondents have other sources for their income. It is highly

reasonable that the majority of urban farmers who produce agricultural crops are, in the meantime, depending on these crops for their income when they use them for market selling. The measure of association between source of income and type of activity/eis of urban agriculture practiced by the respondents, the Pearson Chi-squared value of 81.322 with p-value 0.000 and effect size equals 0.374 indicate strong association between two variables. Therefore, we conclude that source of income and the type of activity/ies of the urban farmers are not independent of each other. In other words, these variables are significantly related.

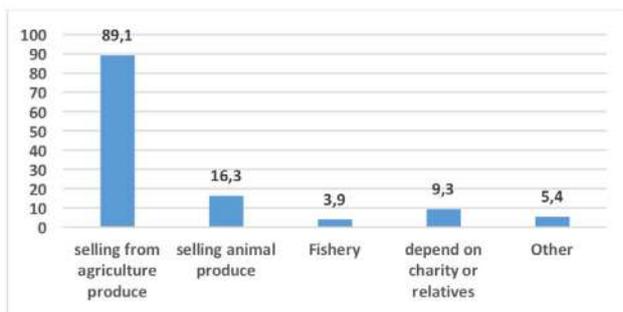


Figure (2). Source of income

In separate interviews with Gaza Urban and Peri-urban Agriculture Platform (GUPAP) and Ministry of Agriculture (MoA) official, both have agreed the above result when they stated that those involved in the different types of urban agriculture are considering these activities as a livelihood strategy and to be the main source of income for their families.



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