



Public Attitude Toward Urban Agriculture in Tehran Metropolitan

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Abstract – Urban agriculture is an increasingly acceptable, affordable and effective tool for sustainable urbanization. Attitudes supportive of urban agriculture held by any of the three players in the planning process (the public, politicians and planners) can pose potential opportunities to urban agriculture. The main purpose of this study was to analysis public attitude toward urban agriculture in Tehran metropolitan. The statistical population of the study consisted of all citizens in 22 regions of Tehran (N=2704904). 300 citizens were selected by using stratified random sampling in 22 regions. The research was carried out through a survey method and questionnaire was used for data collection. Reliability of the questionnaire was confirmed by Cronbach's alpha. Content validity of the questionnaire was verified by a panel of experts. Descriptive and inferential statistics (T-values) were used to accomplish the aim of this study. The results showed that the public attitude toward urban agriculture was moderate. Also some variables such as type of gender, type of house, farming experiences and participate in training courses in the field of agriculture made a significant difference in public attitudes towards urban agriculture.

Keywords – Attitude, Awareness, Sustainable Urban Development, Tehran, Urban Agriculture.

I. INTRODUCTION

In the past fifty years, society has observed an increasing trend in the number of people who choose to inhabit cities. In 2008 for the first time, the world's population was evenly split between urban and rural areas, so urban per capita consumption continues to increase its advance over rural per capita consumption [1].

Tehran, the capital of Iran, with a population of around 8.3 [2], is Iran's largest city and urban area, and also ranked 29th in the world by urban population size in 2010[3]. Metropolitans like Tehran, because of its unilateral dependence on entrance flow of material and energy and exit flow of pollutants and produced waste, which is the feature of modern cities, will damage more than the sustainable cities. Sustainability of metropolitans like Tehran depends on adjusting and controlling these flows [4]. Tehran that has 3.89 foot-print for each person, in fact, has 1.91 pressures for each person on environment, compared to Iran. Also, in comparing to the world level, again, the footprint of each person in Tehran is 2.39 higher, which means that each person in Tehran is using ecological ability more than 2.5 times his/her share and this pressure is increasing day by day. It means that if

Tehran citizens continue this trend of using goods and services, it will be more unsustainable in the near future [5]. In the opinion of researchers and urban planners, a sustainable city is the result of urban sustainability. In this way, searching the model of sustainability of metropolitans needs a unified attitude to the metropolitan and its support area [6]. A sustainable city let all its citizens to meet their needs and increase their welfare without damaging nature or threatening life condition of people at the present time or in future. Urban sustainable development needs to establish rotary or continuous and highly efficient systems in cities to make the best use of resources and surface. Such activity is able to decrease the distance between the place of supplying resources and demand place. Sustainability creates the necessity of establishing the concept of neighborhood in order to increase the efficiency of urban consumption patterns [7].

In some cities of second world countries and even the first world, urban planner and public have attempted to reconsider and use the existing space creatively. Using spaces which are not used and empty pieces such as balconies, roofs and public gardens is regarded as a creative strategy to produce urban foods [8]. Accordingly, urban agriculture is the largest and the most efficient tool available to transform urban wastes into food and jobs, with by-products of an improved living environment [9]. Urban agriculture helps nourish urban populations, contributes to their livelihood and is a promising instrument to achieve sustainable urban development [10]. By definition, urban agriculture is a "unique form of agriculture that produces, processes, and markets food, plant and animal sourced pharmaceuticals, and fibers dispersed throughout the urban and peri-urban areas, usually applying intensive production methods" [11]. The United Nations Development Program put the number dwellers engaged in urban agriculture worldwide at 800 million [12], which was then 30% of the global urban population [13]. In Tehran, urban agriculture, as a complementary strategy to decrease urban poverty and food insecurity as well as increasing urban environment management, can play a significant role to increase urban food security. In conclusion, considering the global experiences regarding urban agriculture, it can be stated that urban agriculture has a potential which can guarantee Tehran sustainability which has been ignored by the urban planner and politician.

Commonly, socially oriented urban agriculture is



created at the community level. Additionally, recent studies have examined the social benefits of urban agriculture, which have often become the main motivation for the promotion of urban agriculture initiatives. The social values associated with urban agriculture are community empowerment, health improvement, social organization, social cohesion, social inclusion, and education [14]-[15]-[16]. Despite the positive impact of urban agriculture, in many cities, it is encountered some difficulties to implement it [17]. Roehr & Kunigk (2009) discuss that public attitude plays an important role, especially if urban agriculture is deemed inappropriate in the urban environment[18]. The attitudes of community residents can go far in influencing attitudes of politicians and government staff [19]. However, the opinions held by citizens on the merits of urban agriculture, and on how it should be practiced, vary widely. Public attitudes and culturally-rooted preferences may play their own role in hindering or favoring urban agriculture. Sawio (1998) uncovered deeply-rooted cultural biases for and against particular kinds of urban agriculture [20]. Attitude is a scientific concept that represents an individual's degree of like or dislike for something [21]. It can be positive or negative. It can be interpreted as an overall evaluation that is shaped by beliefs and goals or values people hold with respect to the object of their attitude [22]. Attitudes combine three component (1) Cognitive - thoughts, beliefs, and ideas about something. (2) Affective - feelings or emotions that something evokes. (3) Conative, or behavioral - tendency or disposition to act in certain ways toward something [23]. Attitudes towards urban agriculture can be expected to be influenced by the benefits people expect from it. Planners need to understand the attitude of the people both practicing urban agriculture and affected by urban agriculture as a first step in extending agriculture in urban area. So this paper aims to analyze the attitude of the urban population towards urban agriculture.

II. METHODOLOGY

This study was an applied research, which was carried out by survey method in Tehran metropolitan. The statistical population of the study consisted of all citizens who inhabited in 22 regions of Tehran (N=2704904) [2]. 300 citizens were selected by using stratified random sampling in 22 regions. The questionnaire was used for data collection while it was designed based on the research objectives and it was divided into 2 sections. The first part of the questionnaire included demographic variables such

as age, gender, house types, and marital status. The second part of the questionnaire included the statements measuring the public attitudes about urban agriculture using a ten-point scale (ranging from 1-10) where 1= strongly disagree and 10= strongly agree. Reliability of the questionnaire was confirmed by Cronbach's alpha ($\alpha=0.886$) and content validity of the questionnaire was verified by a panel of experts. In this study, categorizing of public attitude was based on the interval of standard deviation from the mean (ISDM) [24] as follows:

- Min<A<Mean-1/2SD (Negative)
- Mean-1/2SD <B< Mean+1/2SD (Moderate)
- Mean+1/2SD<C<Max (Positive)

It should be noted that in this formula, SD imply the standard deviation from the mean. Descriptive and inferential statistics were used for analysis by using SPSS software.

III. RESULT

A. Socio-Demographic Profile of Respondents

Most of the respondents were female (62.7%), and only 37.3% were male. More than two-thirds of the respondents were married (77%), and 23% of respondents were single. The average age of the respondent was 39 years. The age range was between 18 and 72 years whereas majority of respondents was categorized under 31-40 year-old (45.3%). Regarding education, 39.3% of the respondents had bachelor degree from university, which was the highest percentage and only 1% of the respondents were illiterate. About type of house, 260 respondents (86.7%) were lived in the apartment, and 40 of them (13.3%) were lived in Courtyard house. According to the findings, 84% of the respondents (28%) had precedent of agricultural activities and 216 of them (72%) had no precedent in this area. Also, the average of respondents' precedent in agricultural activities was 3 years. 77 of the respondents (25.7%) are currently engaged in urban agriculture activities. Also, the results show that 42.3% of the respondents have participated in training courses related to agriculture.

B. Attitude Toward Urban Agriculture

Base on the research background, 15 statements were categorized in three component of attitude toward urban agriculture including six statements in cognitive component, six statements in effective component and three statements in conative component. These statements are listed in table 1, in terms of priority according to respondents' view.

Table 1. Prioritize the Statements of the Respondents' Attitudes towards Urban Agriculture (N=300)

	<i>Statement of Attitude</i>	<i>Mean</i>	<i>SD</i>	<i>CV</i>	<i>Priority</i>
<i>Cognitive</i>	I think urban agriculture program is a step towards green earth	8.16	2.468	0.302	1
	I think that urban agriculture is a suitable way for daily use of fresh production	7.99	2.502	0.313	2
	I think participation in urban agriculture improves the dietary habits.	7.59	2.501	0.329	3
	I think urban agriculture causes people become more familiar with methods of food production.	7.72	2.595	0.336	4
	I think the experience of urban agriculture closes citizens to	7.01	2.730	0.389	5



<i>Statement of Attitude</i>		<i>Mean</i>	<i>SD</i>	<i>CV</i>	<i>Priority</i>
traditional culture.					
I think agriculture in the city or its surrounding can reduce the cost of living		6.64	2.924	0.440	6
<i>effective</i>	I think providing fresh agricultural products from local places are interesting and pleasant.	8.33	2.473	0.296	1
	I think agriculture in urban area is an interesting issue.	8.09	2.547	0.314	2
	It is important that citizens learn about agriculture.	7.99	2.551	0.319	3
	I feel that my life is become more beautiful and fresh by doing gardening in urban area.	8.08	2.668	0.330	4
	Farming in the city is pleasant to me.	7.43	2.870	0.386	5
	I think farming in urban society is important.	7.18	2.895	0.403	6
<i>Conative</i>	I think in today's world it is necessary for citizen to engage urban agriculture near their occupation.	7.07	2.958	0.418	1
	Farming in the city is look like a hobby for me.	6.75	2.858	0.423	2
	If I had extra money I would invest it in urban agriculture.	6.77	3.005	0.443	3

Table 2 indicates the priority of the attitude's component by means. As result shows the first priority is effective component, the second one is cognitive component and the third one is conative component.

Table 2. Prioritize Component Attitudes of Respondents toward Urban Agriculture

<i>Attitude component</i>	<i>Mean</i>	<i>Priority</i>
Effective	7.85	1
Cognitive	7.52	2
Conative	6.86	3

Citizens' attitudes towards urban agriculture were categorized in three groups according to the ISDM method (Table 3). 56 respondents (19.7%) have negative attitude towards urban agriculture, while 200 respondents (66.7%) have moderate attitude and 41 (13.6%) of them has positive attitude towards urban agriculture. Therefore, it can be noted that the majority of respondents have favorable and neutral attitude toward urban agriculture.

Table 3. Frequency Distribution of Respondents in Terms of Attitudes towards Urban Agriculture

<i>Attitude level</i>	<i>Scale</i>	<i>Frequency</i>	<i>Percent</i>
Negative	10-85.52	59	19.7
Moderate	85.53-140.08	200	66.7
Positive	140.09- 150	41	13.6
Total		300	100

Table 4 shows comparison of respondents' attitude by some variable. The T-values indicate that the female attitude toward urban agriculture is more positive than male. Also the respondent who live in courtyard houses have higher attitude than respondent live in apartment. In addition, the respondents who have precedent of agricultural activities, participate in training courses related to agriculture and participate as city farmer have more positive attitude to urban agriculture in comparison to their counterparts.

Table 4. Comparing Respondents' Attitude by Some Selected Variable

<i>Variable</i>		<i>N</i>	<i>Mean</i>	<i>T</i>	<i>Sig.</i>
Gender	Female	188	106.856	2.690**	0.008
	Male	112	98.803		
House Types	Courtyard house	40	115.875	3.276**	0.001
	Apartment	260	102.000		
Precedent of agricultural activities	Yes	84	112.297	3.676**	0.000
	No	216	100.564		
City farmer	Yes	77	112.39	3.494**	0.001
	No	223	100.90		
Participate in training courses related to agriculture	Yes	127	108.645	2.842**	0.005
	No	173	100.329		

Note: **p<0.01

IV. DISCUSSION

This research set out to answer specific research question concerning public attitude toward urban agriculture in Tehran. Respondents have moderate attitude about urban agriculture. This means that urban agriculture is a new concept among citizens in Tehran. As result showed effective component of attitude was the first

component between the respondents so the emotion and the feelings of the respondents toward urban agriculture were more positive than the other component, whereas public awareness in this area is still low and they were not ready to act.

As a result, female had more positive attitudes than male so they could participate more in urban agriculture. Chen (2012) also indicated that women had especial



participation in urban agriculture. So gender analysis in urban agriculture is essential for policy formulation and program planning to ensure equity in resource allocation and a balanced development that benefits both male and female urban dwellers [8].

House types might give a clue and indicate why some respondents in Tehran like urban agriculture better than others. As a group, respondents who lived in a courtyard house were much more positive about urban agriculture than those who live in apartments. It showed that space for growing food is important for citizens in Tehran and also they have no idea about producing food in a small scale such as rooftop gardens, flowerbox, etc. whereas integrating agriculture into urban design might not primarily refer to professional farming and some of its functions can be provided by micro or mesoscale of urban agriculture [25]-[26]. These micro or mesoscale systems show little direct profitability but have important social impacts such as enhanced food security, social inclusion, poverty alleviation, community development, etc.

The differential analysis with respect to precedent of agricultural activities or engage in farming in a city indicated citizens who contacted with nature and experienced producing food had much more positive attitude about urban agriculture than other citizens because they saw and felt the positive impact of urban agriculture and its effects in their lives [14]-[15]-[16]. This is a reality that requires the citizen to engage with environments as an urban ecologist, seeing social, ecological, and political institutions as possibilities for action like a gardener tills the land seeking possibilities for growth. Gardening/farming is a serious mechanism for participatory urban citizenship that can produce living spaces maintained through vital social infrastructure [27].

V. CONCLUSION

Urban agriculture is one of the strategies to achieve sustainable urban development. It is an important medium to ensure continuous supply of food, reduce urban poverty, increase food insecurity and secure better quality of urban environment. In addition, urban agriculture creates job opportunities, sells agricultural products, and brings income to urban population [9]. Supporting or discouraging urban agriculture by planners and decision maker depends on public attitudes towards it. Public attitude toward urban agriculture can play an important role in hindering or favoring urban agriculture in cities. So this work by investigating attitude of citizen in Tehran has implications for urban planners, landscape designers, and extension agents, as opportunities to integrate urban agriculture into the city.

In conclusion, improving the public awareness and perception towards concept of urban agriculture and understanding of how urban agriculture can impact their health, environment, food safety, society is necessary. Also, and improving public awareness and knowledge about urban agriculture will increase public intention to engage farming in a city. There is need for enlightenment programs that would be targeted at urban dwellers on

importance of participation in urban agriculture in the study area.

As recommendation, to increase the perception and attitude of public about urban agriculture concept, government or institutes can carry out effective product awareness program in exhibitions, trade shows, campaign and seminar to introduce urban agriculture to the public. Frequency campaign or seminar can help to establish positive attitude of public towards urban agriculture. Private sectors also should play an important role in helping the government by following the rules and regulations of producing, processing and manufacturing the food products. The extension agency should encourage urban extension activities in reaching out to urban dwellers that are participating in urban agriculture in order to enhance sustainable food production.

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