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In The Scope Of Sustainable City; Landscape Value Of Urban Gardens

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Abstract – Green spaces that make important contributions to the sustainable development of cities; urban areas that are proven to improve the quality of life of users. However, nowadays, cities are over-concentrated due to various direct and indirect reasons, and the areas that need to be allocated to public green spaces are decreased, and the existing areas are occupied by other uses. In addition to occupying the green areas within the cities, it has also started to use the fertile lands around it in terms of its concretization. As a productive landscaping area, it is necessary to include the urban gardens in suitable areas of the city. In addition to facilitating the access of the city to clean food, urban gourds positively affect the quality of life of the city as a result of creating habitat for natural life, carbon retention to reduce the greenhouse effect, added values to cultural and visual landscape. Trabzon is a city in which the urban gardens exist unconsciously. In many piece of land, users use these lands for agriculture. Although these uses vary, landscape values are different. In this study, the landscape value and visual perception of the 5 urban gardens in Trabzon city center were examined. The aim of this study is to determine the most ideal urban garden typology for the city of Trabzon by determining these spontaneously developing values in the city and to create a public urban garden project for the city. Thus, we focus on sustainability solution with local resources; urban agriculture model that provides economic, social and spatial improvement and contributes to local value has been created.

Keywords – *Key Words: Sustainable city, Clean agricultural land, Urban garden, Landscape value, Urban agriculture*

I. Introduction

The globalization effect of modern life has started to show as ordinaryization and identitylessness in living spaces. It is foreseen that the city structure consisting of similar spaces, functions and systems will harm the city ecosystem socially, economically and ecologically in the long term. Many concepts and approaches have been developed to minimize these damages and to sustain the city. One of the issues that these concepts and approaches emphasize is flexible spaces. In order to maintain the sustainability of the city in every sense, the city needs flexible spaces and systems that tolerate threats. With flexible spaces, cultural, economic and aesthetic values can be supported in urban ecosystems and the factors that threaten the city are minimized. Urban gardens can be defined as flexible spaces within the city morphology due to their benefits. This flexibility provided by urban groves can provide advantages for ecological, economic and social sustainability in the city with proper use and planning [1]. Thus, the existence of the city groves that existed in the past but began to disappear nowadays came to the agenda again and its importance for the cities started to be emphasized.

In addition to supporting the cultural values of the city with the features they possess, urban gardens increase the biodiversity capacity of the city and this provides positive gains to the ecological and cultural texture of the city [2,3]. Urban gardens reflect the urban identity and culture both in terms of usage and the products it produces. Keeping the urban gardens within the urban morphology with conservation and planning approaches is very important for the original identity and urban characteristics of the cities. In addition to the cultural value of urban gardens, its importance in regional development is very important. Because urban gourds are shaped according to the nutrients needed by the local people, not according to the needs of the general food market. This also enables the development of the local economy, meeting the demands of the local people and food security [4]. It is very useful for the ecological sustainability of the city to integrate the city groves with the green infrastructure systems which are deemed necessary for the sustainable city together with the ecological values and which are trying to adapt to the structure of many cities. Composting of urban organic wastes and reuse of wastewater after treatment will be beneficial in urban gardens. In addition to economic, ecological and cultural achievements, urban gardens are considered to be very important for the socialization of the society. In some studies, it is defined as collective environmental education and social empowerment areas [5]. It is seen as organic spaces that allow people to socialize both at the installation stage and at the usage stage and which create spatial bonds as communication increases [6].

The aim of the study is to determine the most ideal urban garden typology for the city of Trabzon by determining these spontaneously developing values in the city and to create a public city garden project for the city. Thus, we focus on sustainability solution with local resources; The aim is to create an urban garden model that provides economic, social and spatial improvement and adds value to urban identity.

II. Materials and Method

Working Located in Turkey's eastern Black Sea region was held in the city of Trabzon. Population and urban areas with high urbanization rate were selected as the study area. In order to determine the study areas from the mentioned urban groves, the size of the areas and their location within the city were taken into consideration. Of the listed city groves, city groves of 100 m2 or more were selected as the study area (Figure 1).

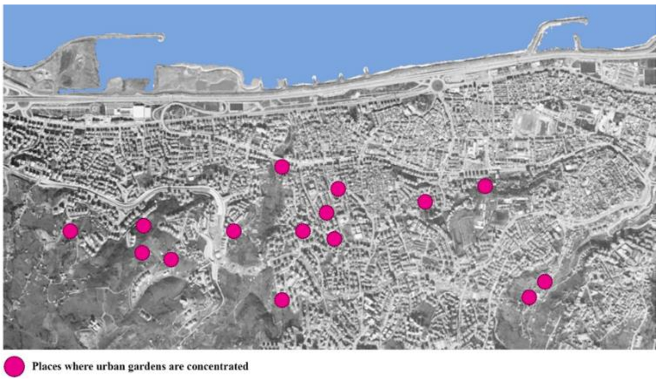

Figure 1. Areas where urban gardens are concentrated

Considering the typologies of urban gardens within the city; In total, three urban gardens, which are completely enclosed by buildings, not enclosed by buildings and half-turned by buildings, were identified as study areas (Figure 2).

Figure 2. Photographs of workspaces

The method followed during the study consists of two main steps (Figure 3, Figure 4). In the first stage, the study areas and evaluation criteria in Trabzon were determined in line with the scope and objectives of the study. In order to determine the landscape value, the parameters to be questioned were determined. The second stage consists of two stages: land and office work. The first stage, the field study, involves the provision of data. At this stage, the photographs of the urban gardens where they were located were taken, which crops were grown in the area and the dimensions of the areas were determined. Office work consists of converting the photographs of the working points determined in the field work to the survey with the predetermined landscape values. In the last stage of the study, a survey was conducted with 138 users in order to determine the landscape value of urban gardens.

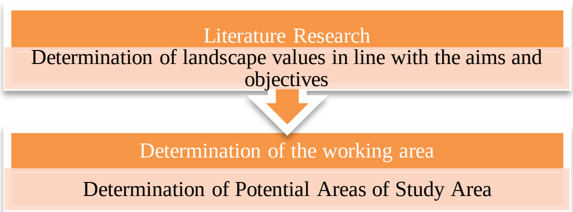

Figure 3. Working diagram

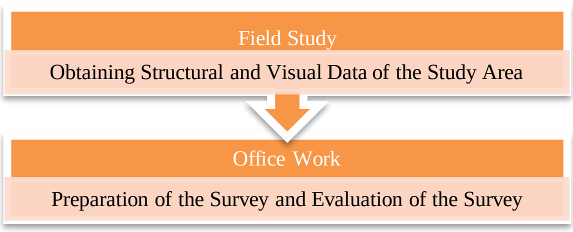

Figure 4. Working diagram

III. Results

A. Characteristics of Workspaces

According to their typology, the three gardens identified as study areas were divided into three groups as completely surrounded by buildings, not surrounded by buildings, and half-turned areas with buildings.

B. Completely Surrounded Garden with Buildings

The working area is 121 m2. The people who build the garden and obtain the products are the people who live in that environment. The purpose of the installation is to meet their needs and supply products to the neighborhood. The area is defined as an empty piece of land between buildings. It is a garden that meets the individual needs of the users. It was determined that the products grown in the study area changed periodically, mainly corn, tomatoes, peppers, kale, chard, black mulberry and lettuce.

C. Unturned Garden with Buildings

The working area is 620 m2. The people who set up the garden and obtain the products are the legal owners of that area. The study area is not a public area but a private area. The purpose of installation and use of the area is to generate commercial income. The products obtained from the area are sold in various district markets. The area was established in an area away from buildings for agriculture. There are no buildings around the area except the building belonging to the owner. It was determined that the products grown in the study area changed periodically, mainly corn, tomato, pepper, kale, chard, lettuce, parsley, arugula, ground apple, potato, persimmon, hazelnut and apple.

D. Half-turned Garden with Buildings

The working area is 475 m2. The people who set up the garden and obtain the products are the legal owners of that area. The study area is not a public area but a private area. The purpose of installation and use of the area is to generate commercial income. The products obtained from the area are sold in various district markets. The northern part of the area is surrounded by buildings and the southern part is open. While it was determined that the products grown in the study area changed periodically, it was determined that tomato, pepper, kale, chard, lettuce, parsley, arugula and broccoli were predominantly in the field.

E. Survey Data of the Study Areas

In order to determine the landscape value of the city gardens, a survey was conducted with 138 users on the internet. When the demographic structure of the participants was examined, it was seen that the majority of the participants were in the 20-30 age group (30.5%), while the lowest age group was in the 15 -15 age group (7.9%). While the ratio of female participants was 52.9%, the rate of male participants was 47.1%. When the educational status of the participants was examined, the highest percentage was university graduates (28.9%). Although the majority of the participants were students, the rate of civil servants was 15.2%, the rate of non-workers was 10.1% and the rate of retirees was 11.6% (Table 1).

Table 1. Demographic structure of the participants

Demographic Variables	Number of Part.	Percentage of Part.
Age		
-15	11	7.9%
15-20	26	18.9%
20-30	42	30.5%
30-40	30	21.7%
40+	29	21%
Total	138	100%
Gender		
Female	73	52.9%
Male	65	47.1%
Total	138	100%
Education		
Uneducated	5	3.6%
Primary school graduate	12	8.6%
Secondary School Graduate	29	15.2%
High school graduate	37	26.8%
Graduated Universty	40	28.9%
Master's Degree	15	16.9%
Total	138	100%
Occupational status		
Not working	14	10.1%
Student	61	44.2%
Officer	21	15.2%
Retired	16	11.6%
Academician	15	10.8%
Private Sector	6	4.3%
Other	5	3.8%
Total	138	%100

As a result of literature research, 20 criteria were used to determine the landscape value of the study area (Güneroğlu & Acar, 2016). For the study areas, 20 landscape values were questioned separately (Table 2,3,4).

Table 2. Landscape value of the completely surrounded garden with buildings

Landscape Values	Num.	Percentage	Landscape Values	Num.	Percentage
Aesthetic	0	0%	Recreation	14	10.1%
Cultural	19	13.7%	Actual	1	0.7%
Natural	11	7.9%	Heritage	1	0.7%
Tourism	0	0%	Social	13	9.4%
Therapy	10	7.2%	Scientific	0	0%
Economic	13	9.4%	Wild	11	7.9%
Sustainability	8	5.7%	Moral	0	0%
Biodiversity	***21***	***15.8%***	Historical	0	0%
Livelihood	10	7.2%	Future	5	3.6%
Learning	1	0.7%	Archaeological	0	0%

Table 3. Landscape value of the unturned garden with buildings

Landscape Values	Num.	Percentage	Landscape Values	Num.	Percentage
Aesthetic	13	9.4%	Recreation	1	0.7%
Cultural	13	9.4%	Actual	1	0.7%
Natural	20	14.5%	Heritage	1	0.7%
Tourism	0	0%	Social	1	0.7%
Therapy	10	7.2%	Scientific	0	0%
Economic	***25***	***18.5%***	Wild	8	5.7%
Sustainability	13	9.4%	Moral	0	0%
Biodiversity	20	14.5%	Historical	0	0%
Livelihood	9	6.5%	Future	3	2.1%
Learning	0	0%	Archaeological	0	0%

Table 4. Landscape value of half-turned garden with buildings

Landscape Values	Num.	Percentage	Landscape Values	Num.	Percentage
Aesthetic	***25***	***19.15%***	Recreation	1	0.7%
Cultural	17	10.7%	Actual	1	0.7%
Natural	***25***	***19.1%***	Heritage	0	0%
Tourism	0	0%	Social	1	0.7%
Therapy	5	3.6%	Scientific	0	0%
Economic	21	15.2%	Wild	3	2.1%
Sustainability	10	7.2%	Moral	0	0%
Biodiversity	21	15.2%	Historical	0	0%
Livelihood	7	5%	Future	1	0.7%
Learning	0	0%	Archaeological	0	0%

According to the data obtained from the survey, the “biodiversity value ın of the fully enclosed garden area was defined as the highest landscape value. In addition to biodiversity value, “cultural” and “recreation” values were found to be high. The “economic value ın of the area of the garden, which is not surrounded by buildings, is defined as the highest landscape value. Besides its economic value, “biodiversity” and “natural” values were found to be high. The “aesthetic value” and “natural value ın of the garden area, which has been turned into buildings by half, are defined as the highest landscape value. Besides these values, “biodiversity” and “economic” values were found to be high. The alan recreation ”and“ social ”values of the garden areas were not high in all types of study areas. They are considered insufficient in terms of sustainability.

IV. CONCLUSION

Gardens, defined as ecological areas within the city, are able to emphasize the strengths of the city according to their fictional plans and management styles, while creating an advantage while strengthening the weaknesses and tolerating the weaknesses. One of the strengths they emphasize is the tendency to create space for social interaction, proximity to the demand-oriented market, and easy access to the needed materials. Considering the weaknesses of the city, land failure, micro-climate moment and harsh change and ecological deficiencies come first [7]. However, as can be seen from the data obtained from the study, even if there are areas with small m2 surrounded by many buildings, these areas are defined as areas with biodiversity value for the urban user. Even though there are areas with small m2 surrounded by buildings in the city, they are the areas that can produce very productive products with their plant species. As a result of the studies to be carried out, the gardens with small m2 will host different species in relation to each other, which will increase the diversity of the products in the market and contribute to the urban biodiversity. When small pieces of land that are idle between neighborhoods are examined in an integrative context as garden and urban garden, it will both support biodiversity and strengthen social communication as it will increase the interaction between the gardens. When the landscape value of the garden area completely surrounded by buildings is questioned, it is seen that social and recreational value is higher than other values. This is thought to be due to the need to meet the needs arising from the lack of green spaces in the city in such small areas and to allow people to socialize while performing actions such as production and harvesting.

When the landscape values obtained as a result of the survey were examined, it was seen that the economic value of the area not surrounded by buildings was high. This is thought to be due to both the size of the area and the fact that the area has a more rural land structure. Although the diversity of crops is generally concentrated on one species (hazelnut) in the land segment which is under the management of the single user according to the size and management of the area, biodiversity contributes by the presence of various fruit trees due to the size of the land.

When the examples of the study areas in different locations are examined, it is seen that there are a lot of problems that urban gardens have to cope with. The most important of these are momentary changes in microclimate, soil insufficiency, user density, ambient moisture / drought, soil properties and vital problems for plants. Sun / shade problem is often seen in the gardens surrounded by buildings. In order to solve this problem, the solution of this problem should be done either with structural products or plant selection as a result of observation of the area. The same problem must be caused by the sudden change of damp / arid areas in the area. While the soil under the eaves of a building can remain dry throughout the year, an area in the garden can always be damp. It is almost impossible for the same kind of plants to live and produce in a living environment with such sudden humidity changes at close distances. After evaluating the environmental conditions, these problems need to be resolved with several solutions. The most important of these is to increase the diversity of plant species with the ability to tolerate moisture and drought, while directing moisture towards arid areas by draining moist areas or raising soil levels. In addition to these solutions, soil improvement will create a healthy solution as it will provide drainage and increase water holding capacity.

Urban areas are a few degrees hotter than the rural areas because of the heat generated, emitted and absorbed. This difference in temperature causes the evaporation of moisture in the soil and this causes wind [7]. Local wind corridors caused by sudden changes in the microclimate of the city due to both the construction and the heat changes. Buddha stresses the plant. Protecting the garden from wind corridors can also be solved with plants. Tall trees and shrubs soften the air in places where there is wind turbulence, cut the wind speed and provide shade if there is a sun problem. By using fruit-bearing shrubs, the plants become completely protected.

Because of the ecological, economic and social benefits they provide, urban gardens are the application areas that should be frequently located in the city. The diversity of the dimensions of these mothers should be turned into advantage and these areas should relate to each other. Within this, it will be very useful for the city to gather a system where the city gardens can be gathered under a platform, where the citizens can learn from each other, learn the harvest times, work voluntarily.

REFERENCES

[1] Holland, L., 2004. Diversity and connections in community gardens: a contribution to local sustainability, Local Environment, 9,3, 285-305.

[2] Kaldjian, P. J., 2004. Istanbul' Bostans: A Mişşennium of Market Gardens, Geographical Review, 94,3, 284-304.

[3] Kanbak, A., 2016. İstanbul Yedikule Bostanları: Bir Yerinde Üretim Pratiği, Batman University Journal of Life Sciences, 6,1, 166-180.

[4] Mares, T. M. ve Peña, D. G., 2010. Insurgent Public Space Guerilla Urbanism and the Making of Contemporary Cities Urban agriculture in the making of insurgent spaces in Los Angeles and Seattle, S. J. Hou editor, Routledge., London, 241-254

[5] Bendt, P., Barthel, S. ve Colding, J., 2013. Civic greening and environmental learning in public-access community gardens in Berlin, Landscape and Urban Planning, 109,1, 18-30.

[6] Öcal, G. ve Erkut, G., 2019. Do-It-Yourself Urbanism within the Context of Right to the City and Participatory Urbanism: The Roma Garden, Journal of Planning, 29,2, 115-128.

[7] Hemenway, T., 2015. Permakültür Bahçeleri, A. Timur editor, Yeni İnsan Yayınevi, İstanbul.