

Creating an Urban Place According to the Ecological Approaches of the Landscape (Case study: Persian Gulf Martyrs Lake)

Abstract

In recent decades, due to the deterioration of the environmental situation in the world, attention to environmental and ecological issues are considered by theorists, planners and urban designers; in this regard, urban location experts are not exempted from this rule. The current research has been accomplished with the aim of presenting a conceptual model to explain the relationship between the theory of urban place and the ecology of the landscape and then turning this exemplary into a model. In the model presented in this research, by using the ecological approaches of the landscape, the creation of an urban place has been done by determining the location of the components involved in it. The presented model, under the title of ecological place model, has four physical, activity, semantic and ecological components. A number of criteria have been determined for each component, which includes twelve criteria in total. These criteria are: landscape ecology, accessibility, human scale, readability, flexibility, visual beauty, environmental comfort, security and safety, activity, attention to economy, sensory richness and identity. The Persian Gulf Martyrs Lake was selected as a case study and their compliance with the model of the ecological site was investigated using the ANP method. The results of the investigations show that it conforms to the presented model, but due to the importance of changes in the ecological principles of the landscape, it is recommended to modify the ecological trends in order not to reduce the quality of this urban place.

Research objectives:

١. Explaining the pattern in identifying the process of creating an urban place by observing the principles of landscape ecology.
٢. Presenting a conceptual model to explain the relationship between the theory of urban place and the ecology of the landscape.

Research questions:

١. How can we present a model for creating an urban place by considering the ecological principles of the landscape?

٢. What are the solutions to create interaction between the topics related to the creation of urban place and the ecology of the landscape?

Keywords: public space, urban place, landscape ecology, ecological place.

Introduction

The basics of creating an urban place are rooted in the innovative ideas of city design. This approach has been created with the aim of creating desirable urban places and includes a wide range of strategies and innovations to improve the living environment. Emphasizing that every urban space does not necessarily have the characteristics of a place, this approach emphasizes the importance of creating a desirable space with the necessary characteristics to produce an urban place. Since the ١٩٨٠'s, due to the environmental crises that have occurred in the world, attention to this issue in issues related to urban space and place has become particularly important. For this reason, many experts of the discussion of urban location considered a special place for environmental issues in their models. Especially after the official plan of the topic of sustainable development since ١٩٨٧, almost all the experts on the issue of urban location paid special attention to it in presenting their opinions in this field. On the other hand, landscape ecology is one of the new branches of ecological science that developed in Eastern and Central Europe after the Second World War and a little later in Western Europe and America. Landscape ecology, landscape patterns (both natural and human), processes related to them, how these patterns change and their interrelationships have been examined and formed on the basis that the change in the landscape pattern strongly depends on the characteristics of the land as it effects ecology. A point that needs to be taken into consideration in the current research and in order to create an urban place is the relationship between environmental issues and their level of importance along with other issues related to the formation of an urban place. Regarding the environment, considering the trends and flows of matter and energy is of particular importance. Landscape ecology provides the necessary mechanism to consider the above issues regarding the urban place. Place is something that occurs between oneself and the face of the land (Casey, ١٩٩٧: ٢٩). Accordingly, in order to create an

urban place, the place and its related qualities must be examined in a ampule on the scale of the landscape.

The review of the background of the current research indicates that so far no independent work with this title has been written so far, nevertheless, several works have investigated the issue of location and territorial ecology. In an article entitled "Eco-oriented Urban Space Design, Case Study: Keshavarz Boulevard, Tehran", Bonyadi and Taraqi (۱۳۹۱) have investigated the relationship between urban design and environmental needs. In this research, the subject discussed in this article is not mentioned; hence, the current research seeks to find the answer the fundamental question of how can a urban place be created by considering all the necessary components. In this research and in order to provide a model for creating a desirable urban place, the ecological approaches of the landscape have been used as a suitable environmental approach in which natural and human processes are reflected. The present research has been carried out using quantitative and qualitative methods and relying on statistical data and library sources.

Conclusion

In this research, by using the concepts of sustainable development, the principles of landscape ecology and the researches carried out on the creation of urban space, an action and a model for the creation or evaluation of the degree of adaptation of the urban space were developed. A city created with a desirable urban location is presented in the form of an ecological location model. After presenting the model of ecological location, the compliance level of Persian Gulf Martyrs Lake with this model has been investigated. Based on the results obtained from the ANP method and based on the final prioritization of the options, the compliance rate was high. If some existing unfavorable trends are not corrected, especially in the case of the ecological component (due to its higher importance than other components), there will be a potential for reducing compliance and decreasing the quality of the space. In order to improve the ecological component in the Persian Gulf Martyrs Lake, the following are suggested:

- a) Native plants replace non-native plants. Native plants are a more favorable option due to their adaptability to the climate, less water consumption and with less disturbance in the ecological trends.
- b) The use of native shade trees can contribute to the comfort of the environment.

c) Creating circulation in the irrigation of the green area of the lake area and reuse of excess water can lead to a reduction in water consumption.

d) Due to the fact that this lake has been chosen as the wintering destination of some migratory birds, efforts should be made to preserve and strengthen the favorable conditions of these birds.

e) The aquatic species of the lake should be selected in such a way that it is non-invasive and leads to the strengthening of native species. For this purpose, the lake can be brought into the cycle of the water ecosystem of the region with the help of corridors and the ecological structure can be improved.

f) By planting native plants, the extent of green spots in the region and the area around the lake can be increased.

g) Removing the created edges and creating a connection between the Chitgar forest park and the lake and its area can help to improve the performance of both spots.

h) Preventing the unbridled expansion of residential areas, especially the wall formed by high towers north of the lake and the expansion of green spots can lead to the improvement of the ecological performance of the region.

i) Considering the use of the water rights of the Kan River to supply water to the lake, it is possible to contribute to the prosperity of agriculture in the region, especially in the rural areas of the ۲۲nd district of Tehran, by reducing its share and replacing it with the purified water of the region.

j) Paying attention to renewable energies can lead to the improvement of ecological performance in the region. Considering the climate of the region, the angle of the sun and the number of sunny days in a year, using sunlight to produce energy can be a solution. Water power can also be used to produce energy, considering the water entering the lake to supply its water. Concerning that lake is located at the inlet of the western wind of Tehran, wind power can also be used to produce energy.

Bearing in mind that many factors related to the ecological component must be investigated and studied before creating an urban place in order to provide the possibility of creating an ecological place, it is suggested that modeling to be done before creating an urban place. Also, it is recommended to use the principles of landscape ecology to carry out the stages of design, location

and positioning of the urban place to achieve the most optimal possible state that has the highest degree of compliance with the ecological location.

References

Adib, Morteza; Khorasanizadeh, Mohsen and Yousefi Najafabadi, Maryam. (۲۰۱۵). "Landscape Architecture of Chitgar Lake, Design Process and Implementation Challenges", Proceedings of the Second National Conference on Landscape Architecture, ۱۹-۲۰, pp. ۴۷-۵۶. Tehran: Printing and Publishing Center of Shahid Beheshti University. [In Persian].

Botequilha, K. & Ahern, A. (۲۰۰۲). Applying Landscape Ecological Concepts and Metrics in Sustainable Landscape Planning, *Landscape and Urban Planning*, ۵۹(۱), ۶۵-۹۳.

Casey, E.S. (۲۰۰۳). *The Fate of Place: A Philosophical History*, Berkeley: University of California.

Forman, R.T.T. (۱۹۹۵). *Land Mosaics: The Ecology of Landscape and Region*, UK: Cambridge University Press.

Forman, R.T.T. & Godron, M. (۱۹۸۶). *Landscape ecology*, New York: John Wiley & Sons.

Google earth V ۷,۱,۲,۲۰۱۹ (۱۷ June ۲۰۱۰- ۲۵ June ۲۰۱۹). Tehran, Iran. ۳۵°۴۴'۴۱,۲۳" N, ۵۱°۱۲'۵۰,۸۱" E, Eye alt ۱۴۲۳۹ ft. DigitalGlobe۲۰۱۹. <http://www.earth.google.com> [September ۱۵, ۲۰۱۹].

Logon, J. & Molotch, H. (۱۹۸۷). *Urban Fortunes: The Political Economy of Place*, Berkeley: University of California.

Nassauer, J.I. (۱۹۹۷). *Culture and Landscape Ecology: Insights for Action*, Washington: Island Press.

Norberg-Schultz, Christian. (۲۰۰۳). *Architecture: Meaning and Place*, translated by Vida Norouz Barazjani, Tehran: Jan Jahan. [In Persian].

Rafiyan, Mojti; Sifaei, Mahsa. (۲۰۰۵). "Urban Public Spaces; Review and Qualitative Evaluation", *Fine Arts*, ۲۳, pp. ۳۵-۴۲. [In Persian].

Risser, P.G. & Karr, J.R. & Forman, R.T.T. (۱۹۸۴). Landscape ecology: directions and approaches, Illinois: Illinois Natural History Society.

Shabani, Negin and others. (۲۰۱۰). "Introduction and application of the landscape ecology approach at the city scale. Case example: Tehran", Environmental Sciences and Technology. No. ۱۲, pp. ۱۹۷-۱۸۵. [In Persian].

Seamon, D. (۱۹۸۲), The Phenomenological Contribution to Environmental Psychology, Environmental Psychology, ۲(۲), ۱۱۹-۱۴۰.

Zonneveld, I.S. (۱۹۷۲). Land Evaluation and Landscape Science, Netherlands: International Institute for Aerial Survey and Earth Sciences.