Persian Garden, Cultural Sustainability and Environmental Design case study Shazdeh garden

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Abstract

This study will help researchers in coming up with designs that will develop the situation of life of people living in harsh environs also will help designers in coming up with designs that preserve the environment while getting better the life of people at the same time, and people will be capable to realize how culture can promote the environment and revamp barren land to sustain life. These types of gardens try to balance out the structure by complementing it with greenery. The study investigates the ancient Persian garden and the harmony with nature as means to achieve living quality. It is to make this desire a reality that such gardens came into existence, combining the serene beauty with the living space.

Keywords: Persian garden; cultural; sustainable; environment

1. Introduction

This research focuses on Persian garden and cultural and religious effect to create the garden. The history of the world gardens tells us that from the beginning of the birth, the Gardens have to meet human physical and spiritual needs. During the development of the gardens, the material construction and the...
cultural connotation were always closely linked with each other, the tangible heritage and the intangible heritage, which the gardens contained gradually, achieved a perfect harmony. Among cultural heritage properties, the garden is a unique cultural phenomenon and also is the product of the development of human civilization [Medghalchi, L. et al. 2014]. The gardens are the cultural products, and also the carrier of the traditional culture. Composed of various material forms, the Gardens contain a lot of social and humane factors. Design of the garden of Shazdeh is one of the best of their time. It’s a marvelous example of technology of that time. Shazdeh gardens’ greenery is truly an oasis in the deserted plain, where water from the deepest layer of the region was used [national climate change 2009]. Transporting water from distant resources being still the modus operandi of many modern gardens in deserted plains, Shazdeh gardens did the optimum utilization of available resources.

Iranian culture strongly believes in the harmonious existence of nature and humans. Place of Shazdeh is considered to be the most vibrant example of Iran’s harmonious human-nature blend, and a garden of Shazdeh is the typical example of this. Understanding nature aids the co-existence of human beings in it. Gardens of Shazdeh shows the environmental tangibles and it look forward to the real world’s ideal sublimation [Hirbod, N. 2012]. The ideal and real lives are combined, so that the Shazdeh gardens realize the combination of ideals as well as realities and thus thereby make notable contribution to the human civilization. In the ancient mind sets, paradise exists, where flowers and trees never fade and the mountain delights changes day and night. Paradise is said to be a comfortable and convenient environment for living. Carriage and horses are busy outside the door and one could go into real life, whereas inside the doors, the vision is different where birds sing and flowers blossom. When materials and spirit are put together, then nature and humans exist in harmony [Medghalchi, L. 2014].

2. Sustainable design

Classical Gardens of Shazdeh also has ecological aesthetics concepts. Garden design is based on ancient re-creation, of giving back to nature. The main purpose of the garden building is to give back to mother earth, whether it be digging the ground for a pond or laying foundation. Subjective consciousness of Iranians is quite strong and dense in gardening, creating an ecological and poetic landscape. As such the garden fun is from nature and art. Such landscapes are higher than the natural landscapes and ancient Persian literature, calligraphy, philosophy, music, poetry, opera and art were embedded in them. The traditional Iranian landscape poetry and painting were pre-dominant in them. These gardens are known as ‘Silent Poetry’ and 3D paintings. Shazdeh gardens have their names for specific reasons. For example, the Humble Administrator’s Garden is the retired National Ombudsman’s need to grow vegetables. The Retreat and Reflection Garden, the owner of the garden thinks about the mistakes he did in the past. Another example is the Couple’s Garden Retreat is a pair that was willing to cultivate a harmonious life together. Gardens give back to nature for various reasons. Gardens sequester her from the world; she calmly lives with her lover, thinks on the past mistakes upon retirement etc. The ultimate aim of gardening is to live in an environment harmoniously with mother earth [Halsted, L. 2014].

Iran has different climates due to the large geographical area of the country [national climate change 2009]. The climates vary from hot to dry, where rainfall is less. This part is in the Eastern Iran at its central region. There are hardly any plants in this region and thus no rain. Anyhow in such a hard climate of Iran, traditional architects in Iran have made use of methods that suits the development of a living environment that is suitable and comfortable. This is reflected widely in Iranian gardens. A close association between nature and humans is gained in a simplified manner and there is no border line between the mansion and the remaining parts of the garden and thus the beginning and end of the gardens cannot be seen. Many trees are planted for the purpose of getting shade which paves way for the gardens to have narrow walkways. Canals are also designed in such a way that the flow of water produced sound.
The garden’s design is such that it uses straight lines. Flow of water can be seen and grooves are made on the bottom part of the water channel in the soil, whereby the grooves gives the water flow an uneven look appearance making it look as if it is flowing on top of the rock surface. Physical and well as non-physical elements have contributed to Persian gardens. One of the key characteristic of Persian gardens is their geometry. These gardens are divided into 4 sections. This geometrical division is followed on the basis if irrigation as well as division of water streams. Each part of the garden, irrespective of whether it is a rectangle or a square is separated into even small squares. One visible characteristics of the geometry is that all rectangle spaces are divided into 4 equal parts with 2 streams that intersect at the center. These streams are linked to the rectangles axis of symmetry and normally a pond is seen at the center point of their intersection [Langgut, D. 2013].

3. Function of Persian garden

One of the main purposes of the existence and building of these gardens was to provide various forms of relaxation such as leisurely or even spiritual. “Pairi Daeza” is a Persian phrase meaning enclosed space [Minorsk, V. 2013]. This term can also be seen in Christian mythology who had adopted it to define and describe paradise on earth, i.e. Garden of Eden. The gardens could be built with reliance on any Feature desired by the architect like nature or structure, but irrespective of these aspects, its basic goal must be to encourage sentimentality and thoughts [Delumeau, J. 2000].

One of the functions of building Persian gardens was as a way of escaping from the harsher landscapes. Modern gardens such as the magical nightingale gardens of Tehran have followed this concept since 5th century B.C. The garden of Cyrus was built in a geometric manner with watercourses made of stone. In Islam, these four rivers were considered as the paradise of water, milk, honey and wine. These concepts spread quickly around the world and adaptations can be seen in the Moorish gardens of Spain to Mughul gardens in India [Gharipour, M. 2012].

When compared to the European style gardens, Persian gardens were always seen as more lavish and rich. Monasteries and residential areas were surrounded by herbs, plantations and yellow and red fruit plants. However, unfortunately, majority of these beautiful Persian gardens have not survived the test of time. Nevertheless, Bagh-e-Shazdeh is fortunately one of the Persian gardens that have remained till date. This garden has an abundance of beautify of nature and also consists of a series of split-level fountains [Rashidi Nejad, F et al 2013].

The Persian gardens have influenced the gardeners all over the world all the way from Andalucia to India and many other nations. The Alhambra garden represents the Persian philosophy and Palace styles of the Spanish Al-Andalus era. One of the best examples of Persians gardens is the Taj Mahal that was built in India during the Mughal Empire [Cunningham, A. 1996].

4. The impacts of Iranian beliefs on creation Persian Gardens

Several authors have focused on how gardens can express personal, social, cultural and environmental/ecological identities [Bhatti, M 2004]. According to Francis (1990) we use our gardens to communicate to others, to show the public world how we feel about ourselves and the larger world that surrounds us. Through our gardens, we reveal to ourselves and others ...our personality, aesthetics, and environmental values. In some instances, different members of the same household may compartmentalize and carve out their niches within the garden to reflect their unique gardening interests and passions [Gross, H. 2007].
Iranian gardens are usually designed in the shape of a square. The figure of the garden can either be a perfect square or a rectangle. According to square geometry, a quarter is considered as a circle and circles represent the depth of the universe. From ancient history, we know that the square Iranian gardens were inspired by the quartering circles as the basis of their designs in sacred and holy places. Then again the structure of Iranian gardens is also based on Mandela figures with a separate division for the circulation of water canals.

The Iranian traditions and customs paid a great deal of respect for agriculture and the construction of gardens. For example, as Vandidad, Zoroaster says to Ahura Mazda: “Oh the creator of physical life, Oh the pure One, who is the fourth who beings land into its highest rank? And Ahura Mazda answers, "The one who cultivates more vegetables, plants more trees, the one who dries the wet and swam lands and cultivates them [Ariyanpoor, A. 1986].

5. Gardens are a sample of the harmony between nature and humans

In today’s world the harmony between nature and man is a highly discussed topic. This study focuses on the Persian garden study in Iran that pointed out the significance of this harmony in the ancient times itself. In the developing nations of today, this balance is much debated upon in terms of people and limited resources and the protection of the natural environment. From the perspective of ancient people the most desired harmony was the relationship between their home and nature. The classical gardens of Shazdeh are considered to be a harmonious reflection of this desire by incorporating the best of nature, art and tradition. This garden fulfills the Iranian philosophy of nature and aesthetic way of life [Massoudi, A. 2009]. Many people, in both ancient and contemporary time period prefer the urban lifestyle as it is seen as a comfortable way of living and a land of opportunities for themselves in the present and future. While many people live in the cities these days, such lifestyle has certain drawbacks, such as separation from nature, and beauty of the environment, which also means highly polluted areas. The garden of Shazdeh is a well maintained, natural environment [Vahdat, A. H. 2010]. With the increase in economic performance, the garden was improved further and came to be known as the “urban forests”. In such world, today city gardens are a place to create such connection, and called the urban forests, in which human have the opportunity to reunite with nature, while taking advantages of a modern lifestyle. The garden of Shazdeh contains both aesthetic and ecological qualities and is designed as a re-creation of the
ancient way of life [Shahcheraghi, A. 2013]. People build buildings or dig ponds with the primary aim of returning to nature. Gardening is done at a very concisions level, by being aware of all the cultural influences and references it should portray. Thereby the beauty of the garden is derived from both nature and art. This landscape provides the next level, beyond natural landscapes as this incorporates poetry, art form, paintings and traditional Iranian references that add to the meaning and elegance as well. [Gharipour, M. 2013]. The garden of Shazdeh is also known as the “silent poetry, three-dimensional paintings.” For example the names of some of the gardens in Shazdeh themselves provide a lot of meaning. “The Couple’s Garden Retreat” is named after pair who was willing to cultivate a harmonious life [Toosi M, Emamifar S.N. 2012].

The return to nature using the gardens as a means has various functions for example withdraw themselves from the urban world, live in peace and reflect on their past mistakes. The ultimate purpose of gardening is to achieve the harmony between man and nature. The gardens of Shazdeh, in comparison with the rest of the world are a small, private and limited area has created it with meaning and beauty [Shahcheraghi, A. 2013]. The largest surviving Classical Garden of Shazdeh is the Humble Administrator’s Garden which covers 2.3 hectares. The gardens have contrasting backgrounds which give the illusion of an increased landscape in order to portray a beauty in a small amount of land. Architects make use of bridges, corridors and walls to make the garden’s landscape look rich. The idea of these gardens is to allow people to perceive the whole world, from within the miniature [Shahidi, M, 2012]. The design is radically different from the more westernized classical gardens and also varies from the architecture of Persian royal gardens. In the contemporary world, flexibility to use nature in architecture is considered with a high regard. Furthermore, by creating natural and ecological spaces, it proves the living creatures with a habitat to survive. Vegetation, mountains and water plays a critical role in the ecological environment. The significance of vegetation in gardens can be clearly depicted from the ancient and contemporary data. The gardens of Shazdeh in their natural forms are filled by various types of vegetation that serve different purposes. For example, elm, pine and willow trees are planted to beautify the walls and roads. Rose, fruit tree, and Thistle are planted for sightseeing and aesthetic pleasure [Rahmani, B, Sobouti, H, 2014]. Trees such as ash tree, Buttonwood and cedar are planted to provide shade from the sun. Gardens contain hundreds of types of vegetation which blossom and stay green all year round. The lush greenery of the gardens easily attracts small reptiles, insects and birds and even provides a habitat for animals such as the Crows and sparrows. The intentional attraction of animals, and
the unintentional attraction, along with the plants and vegetation create a small man-made ecological system. A small biological chain is created whereby there is harmony within the climate and is made up of hundreds of smaller ecosystems [Motedayen, H, 2011].

6. Methodology

This study employs the mixed method approach, to discover the many complexities of behavior and garden design. The questionnaires were developed to collect the data. A combination of various validates measurements as per the wide literature work was used to develop this study’s instrument. These chosen validated measurements were then customized slightly for accommodating the sample of this study.

6.1. Measurement model (CFA)

Operationalization of constructs is a very important step [Hair, et al., 2006] in the process of ensuring accuracy. Researchers have a choice of several established scales in attempting to ensure theoretical accuracy. However, despite the availability of a varied number of scales, researchers are often plagued by the problem of a lack of established scales and are thus driven to developing new measurement scales or greatly modifying existing scales to accommodate new context. Given all these considerations, the basis for the SEM analysis is in the selection of items to measure the constructs [Hair, et al., 2006].

6.2. Descriptive analysis

In this analysis, covariance matrix method was used to calculate the descriptive function so that all of the variables could be included in the analysis. The composite scores of the variables were computed by parcelling the original measurement item scores. Parcels are sum or averages of several individual indicators or items based on their factor loadings on the construct [Coffman & Maccallum, 2005; Hair, et al., 2006].

Table 1. Displays the means and standard deviation of the constructs, assessed on a 5-point Likert scale

<table>
<thead>
<tr>
<th>Path</th>
<th>Unstandardized Estimate</th>
<th>Standardised Estimate</th>
<th>C.R.</th>
<th>P-value</th>
<th>Hypothesis Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>CULT → SHGA</td>
<td>.218</td>
<td>.061</td>
<td>3.581</td>
<td>.000</td>
<td>H1) Supported</td>
</tr>
<tr>
<td>RELG → SHGA</td>
<td>.122</td>
<td>.051</td>
<td>2.362</td>
<td>.018</td>
<td>H2) Supported</td>
</tr>
<tr>
<td>HIST → SHGA</td>
<td>.005</td>
<td>.054</td>
<td>.101</td>
<td>.919</td>
<td>H3) Rejected</td>
</tr>
<tr>
<td>ARCH → SHGA</td>
<td>.182</td>
<td>.055</td>
<td>3.292</td>
<td>.000</td>
<td>H4) Supported</td>
</tr>
<tr>
<td>PRVC → SHGA</td>
<td>.288</td>
<td>.047</td>
<td>6.146</td>
<td>.000</td>
<td>H5) Supported</td>
</tr>
<tr>
<td>SUST → SHGA</td>
<td>.230</td>
<td>.056</td>
<td>4.075</td>
<td>.000</td>
<td>H6) Supported</td>
</tr>
</tbody>
</table>

The mean was applied as a measure of central tendency, which indicated that means of all variables were above their midpoint level (3) as indicated in Table 3 7. The highest mean rating belonged to
Religion (M = 4.308), followed by Architectural style (M = 4.196). The lowest mean rating belonged to History, Literature and Symbolism with the mean value of 4.086.

The standard deviation was applied as a dispersion index to indicate the degree to which individuals within each variable differ from the variable mean. Among the studied variables, the individual values of Privacy deviated the most from its mean (SD = 0.486). This standard deviation suggested reasonably high variability in respondents’ willingness to declare their perception toward Privacy. In other word, the survey participants were most varying in these variables from each other. At the other side, the lowest deviation from mean belonged to Culture with the standard deviation of 0.412.

Five paths from Culture, Religion, and Architectural style, Privacy and Sustainability and related to willingness to Shazdeh garden were statistically significant (p-values < 0.05). Thus, the hypotheses (Culture has a positive effect on the Willingness to have Shazdeh Garden) were supported. In contrast, the significant effect from history to the willingness to have Shazdeh garden was not supported as its p-value was 0.919, above the statistical threshold of 0.05.

7. Discussion

The specifications of Persian garden and Shazdeh garden in arid regions by utilizing natural soft and hard landscaping can be considered sustainable method, which are not only influenced by climatic factors, but also have effective role to increase much needed passive cooling. The irrigation systems of garden with the use of minimum amount of water in Persian gardens reveal the importance of sustainability in all social, economic and environmental aspects of traditional Iranian landscaping. Understanding Persian garden design among culture could be a valuable research field to venture into in the future Based on the results, Persian garden was significantly associated with sustainability Overall, the results appeared to partly support the concept of culture in social.

8. Conclusion

In this study, the role played by historically important gardens in Iran, as a social service provider and their significance for sustaining city has been addressed. Certain survey results are presented targeting to explore the motives and perceptions if visitors of two of the most historically important gardens in Iran. Certain conclusive remarks are being made here. Firstly, the existence of such gardens in the urban areas of Iran is a significant factor in the physical and psychological well-being of the city inhabitants. It thus fulfills many social functions. Thus the garden adds on to the sustainability of cities and is considered as important municipal resource. Secondly, attributes of the physical environment interacts with different characteristics of humans such as the socio-demographics and perception of people on environment could trigger physical activities and this in turn impacts the health status of the people. As such this correlation between environmental attributes, body weight, physical activity and health can result in environmental compatibility as well as a sense of attachment or belongingness to a place, which results on lifestyle quality enhancement. Hence, evaluation of different amenities, social and psychological services of urban areas has to be integrated into the assessment of the project and be appropriately accounted for in policy making decisions and strategies associated with urban planning as well as satisfaction of the facility users, their needs and their participation and representation in every aspect of urban life, which are considered as crucial aspects in the sustainability of any city. Persian garden does develop over time and is influenced by other nation social contexts in which an individual operates. Thus, there appears a logical reason to assume that gardening start with Persian garden. Future research may integrate the effects of Persian garden and footprint of the Persian garden in the design of other nation.
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