

Importance of Water and Its Elements in Persian Gardens

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Abstract | Title of this research is to analyze the impact of water on the formation of architectural elements, especially the spaces that are related to the bodies of water in the gardens. On one hand, the aim of this research is to categorize and define different types of spaces and elements that are connected with the water and to analyze different forms of it on the other hand. The research method is a descriptive-analytic type, and the data were categorized and analyzed afterward. The methodology of the research is based on the fact that the environmental and climatic phenomena on one hand, and the functional specifications together with the cultural concepts of the water in the gardens, have played a major role in the formation of water elements, especially pools on the other hand. The research result shows that how water has played a major role in the formation of gardens in hot and dry areas, and pools are the most important water elements which have been used in various different shapes in the design and construction of the gardens. The cultural concepts of the water in the Islamic era, and especially in Iran have a role in the physical formation and the location of some ponds. It seems that one of the most important and divine water elements is related to the pool, but a number of changes in this tradition were made during the Qajar era. During this period of time, a large number of ornamental and fantasy aspects was added to its symbolic dimensions.

Keywords | Persian Garden, Water Elements and Spaces, Pool, Pool-Houses, Pond.

The Historical and Cultural Significance of the Water

In many of the ancient cultures, people paid a lot of attention to the natural elements; some of the people sanctified it by performing ceremonies for it. Water is one of the most important natural elements which in the view of the people living in hot and dry spaces and facing a water shortage. People had a special attention to the quality and the water quality and consumption methods (Moghaddasi, 1982: 172 & Al Karaji: 2004: 69).

Water had a key role in most of the traditions. For instance, we can refer to the Gilgamesh myth, in which Shems, god of the sun, asks Gilgamesh to fight with Khomiyaba together with Enkido to kill him for the sins he committed. Gilgamesh and Enkidu approach Algamac temple to have the priest's prayer of luck just before going to the war, and for them to perform a religious ritual. In such a ritual, the priest would pour a bowl of water on the ground. Pieces of the original myth are as follows: "He returned again with divine ornaments, covered in a white piece of clothing with golden shields on their chests, a cluster above his head with a bowl full of water in hand. Poured some water on the ground, and climbed of the temple. A smell of incense flew in that hill, under the open area." (Smith, 1999: 42).

This tradition of pouring water was also prevalent in Egypt and other nations. It was prohibited by some of the leaders but they became spread as a tradition (Maths, 1983: 163)

In The Zarathustrian scriptures, the creation of water is related to Ahura Mazda: it was in a still condition at first then it flowed to the dry areas (Yashtha, 1968: 72).

Several sculptures are found from the goddess of fertility in

the form of a naked woman especially during the Ashkandi period which some of the researchers considers them the statue of Nahid (Heinels, 1989: 38).

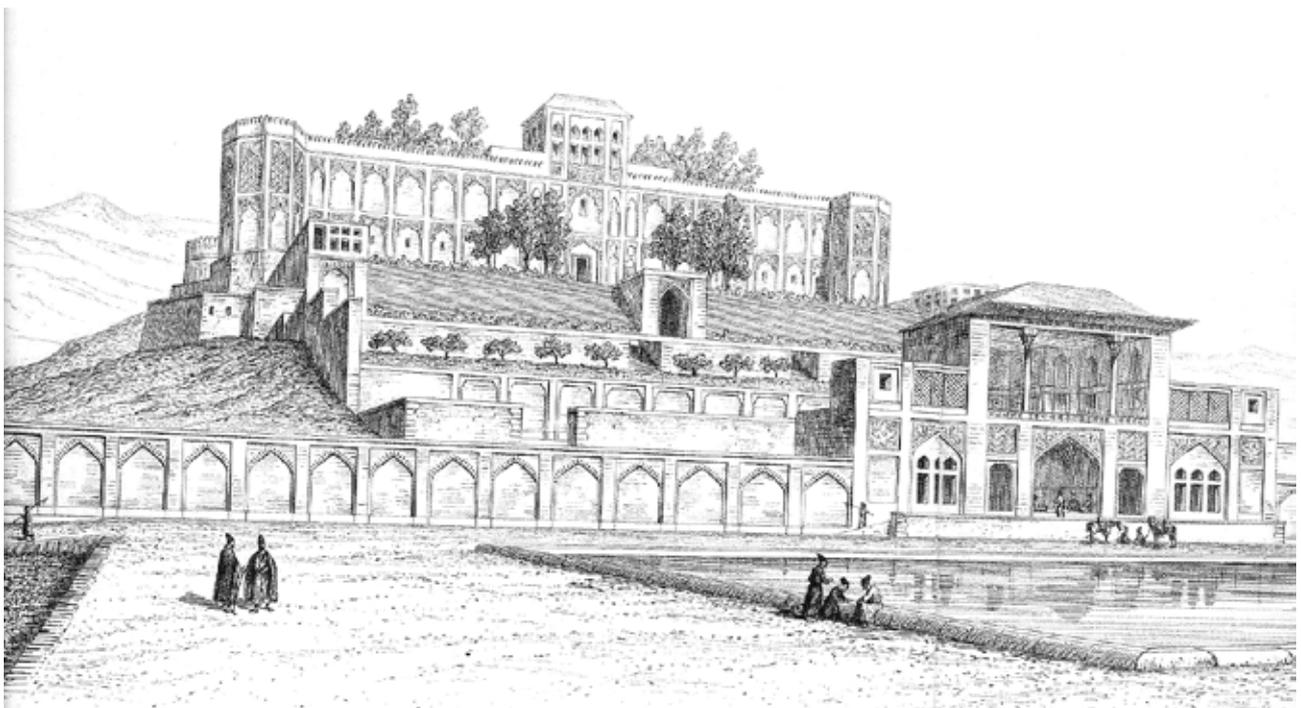
The relationship between the water and a goddess, also the concept of fertility is seen in many of the cultures throughout the history. In many of the ancient cultures, concepts of water, life, fertility, birth, and women were generally thought in relation with each other and a goddess was responsible for it (Eliadeh, 1997: 192). On the other hand, in some other cultures, there was a relationship between the goddess of water and the mountains; especially in the drylands, existence of water fountains or the flow of rivers and other streams of water from the mountain cause the veneration of these elements (Moghadam, 1968: 95; Gherishi, 2011; Akhavan Alsafa, 2008: 186).

Some of the Water-Related Material in the Gardens

Lake (Pond)

Due to a water shortages in many of central areas of Iran, they refer to big pools or ponds as the lake. Thus, it seemed probable that area of 500 meters as a lake. In the real scarce instances, small natural ponds were used as well. Pond or the lake in the chain of gardens near Behshahr is one of the following types.

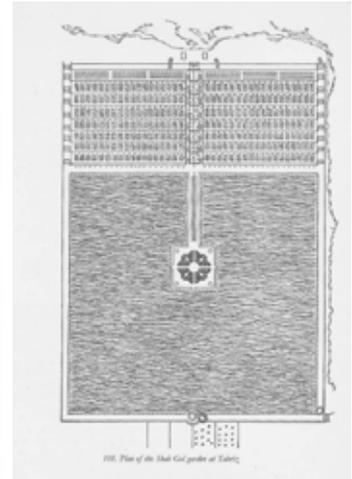
Design and construction of big ponds or small lakes were done for a number of purposes. One of them was to create a platform in the center of the garden for the construction of a Kooshk building and to develop a specific landscape. Kooshk building of Behshahr garden, together with the



Pic 1: Tehran, Qajar garden with a big pool on the entry of the palace.
Source: Wilber, 2004.



Pic 2: Lake of the lil-Goli Garden in Tabriz, Iran.
Source: Wilber, 2004.



Il Goli garden are categorized in this type. In some cases, development of a beautiful and broad landscape was desirable; the big pond in front of the Takht-e Qajar garden in Tehran can be included in the following type (Pic. 1). In some of the cases, the main reason behind the construction of such ponds was to preserve and the upkeep of water. This point is evident in some of the gardens in Morocco (Ghasemina, 2015: 104).

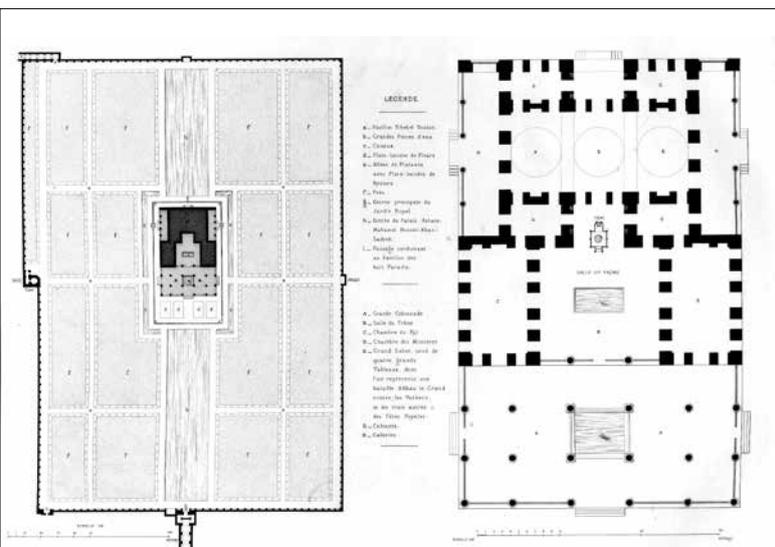
In some cases, both functions were considered, including the Il Goli garden in Tabriz. Of course, it was written about Il Goli (Shah Goli) garden which is constructed as a water container, the actual date for the development of pond is not known. But it was ruined during the Qajar dynasty and Ghahraman Mirza, the eighth son of Abbas Mirza, the ruler of Azerbaijan ordered to construct a palace in the Garden, they renovated the pond with stones and lime, a building was constructed in the center of the garden and they also made a pathway from the south as the access road for the

building, they also sailed a small boat in the lake as an amusement (Nader Mirza, 1981: 166); (pic. 2).

Pool (Howz)

We can consider it as one of the most important water elements in the architecture and landscape design in Iran, which is specifically used in hot and dry areas together with a variety of others in the residential spaces and some of the urban spaces. Dimensions, area and the physical specifications of the Howz include a diverse range. As it was constructed in front of important spaces and also in big ChaharBaghs like the Chaharbagh in Isfahan (Holster, 1976: 78).

According to some documents, during the 2nd A.H., pools were constructed in an urban space and the high importance of such pools made people consider the whole area as the pool (Howz). As we know "Howz-e Ghadim" is the name of a neighborhood in Old Baghdad which was located near the area of Romans and the house of Persians (Bani-Yaghoub, 1977: 15); (Pics. 3 - 6).



Pic 4: Morocco, Pool within the pool, Dar-ol Jameh.
Source: Lehman, 1980.



Pic 3: Small howz in Fath Abad Garden in Tabriz, Iran.
Source: Wilber, 2004.



Pic 5: Pool within the pool, Dar-ol Jame, Morocco.
Source: Lehman, 1980.



Pic 6: Pool of Golshan Garden, Shiraz, Iran.
Source: Khansari, Moghtader & Yavari, 2004.

Ditch (Water course)

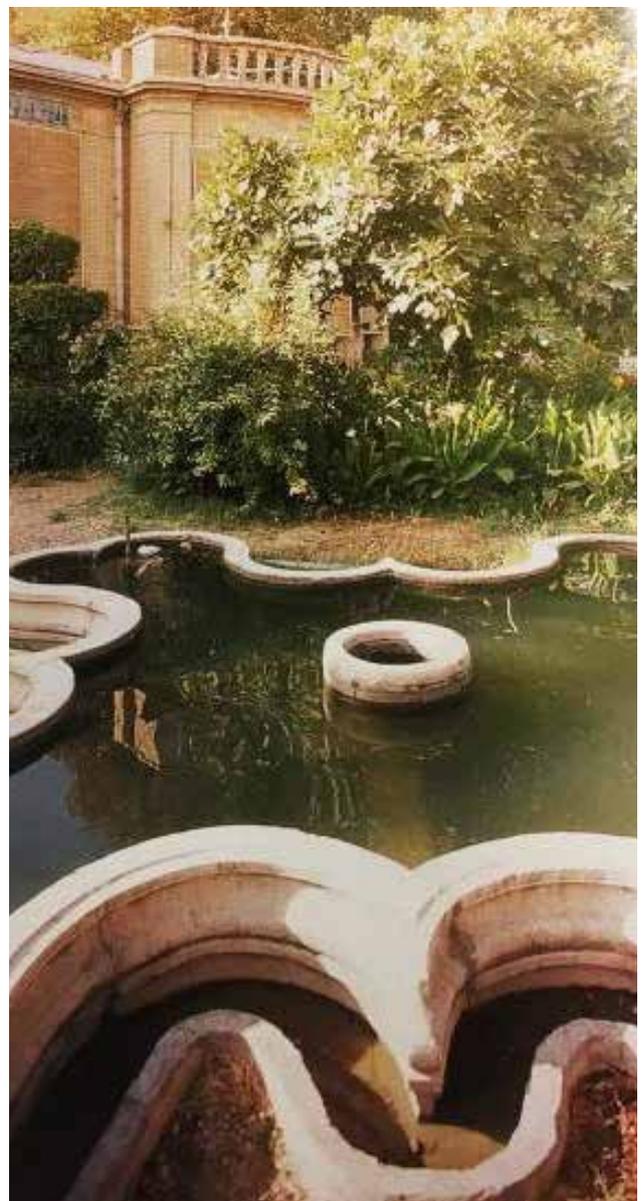
A canal or a ditch was a water stream which was constructed both for the irrigation of trees and plants in the garden and as a performative element to present water along the main axis of the garden in combination with one or several pools. Presence of four ditches which are connected to a central pool has a significance in the rituals and literature of ancient Iran, as it is written about Afrasiyab's place in the Bundahishn as follows: "Four rivers flow inside, one includes water, the other wine, milk in one of them and yogurt, while sun and moon help to light the dome" (Farnbaugh Dā'dagi, 2001: 137). It seems that four ditches were considered as utopian elements in designing cities, as it was inscribed in Ardeshir Babakan's log by himself as follows: "He went to Persia, near the Ardeshir Khoreh furnace, which was a fair and beautiful county. Four ditches bring together the flowing water of a sea." (Logs of Ardeshir babakan, 1990: 44).

Fountain

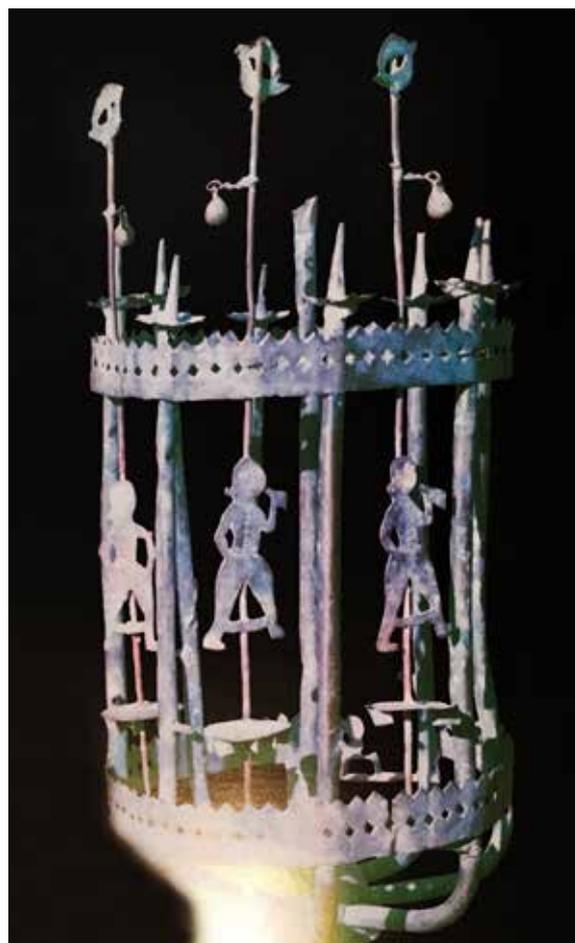
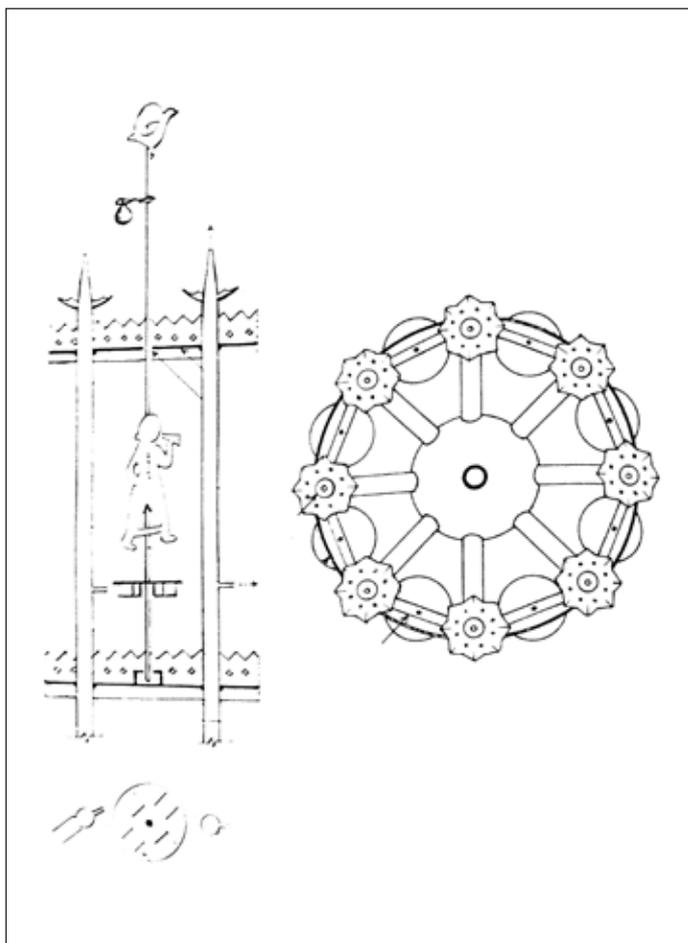
It was a generally vertical element which was constructed on the ditches and pools and the streams of water which had a source with a level higher than the garden level caused the spout of water in it which was considered as attractive because of development of waves on the surface of the pool or the water stream in addition to the visual aspects and development of water sound (Pics. 7 - 9).

Waterfall

The amount of water that was allocated to a single garden in Islamic lands was not generally so large to be presented in big, immense waterfalls. On the other hand, the number of the gardens which steep areas to simply provide this condition for presenting water was really scarce. In such cases people used the waterfalls when the condition was in hand. In some of the Islamic world countries like Kashmir and some parts of India in which streams of water were



Pic 7: Khalili Garden, Shiraz, Iran.
Source: Khansari, Moghtader & Yavari, 2004.



Pic 8: One of the Fountains in Bagh-e khans' Pool, Tabas, Iran.
Source: Daneshdoost, 1997.

flowing, immense and majestic water falls were constructed to show the stream of water (Pic. 10).

Foot-Bath

It was usually built around each pool or small and narrow ditches in order to transfer the overflow of the pool water into the other parts of the garden.

In a few number of pools which did not enjoy a raised body and walls in comparison with the surface, no foot-baths were constructed.

Functional, Physical and Ritual Specifications of the Pool

A pool was one of the most important water elements in Iran, especially in the central areas of the country and it was used in many of the buildings in which its role varied proportionate with the building type and functional specifications (Forsat-ol Dowleh, 1928: 521). In this part we only point out to some of the functional and physical specifications of the pools within the gardens:

Water Upkeep

In dry areas, people gradually store water in a big pool which was carefully constructed (Sharden, 1957: 325) and used the water for the irrigation and other purposes. Although they stored the drinking water in underground and roofed place that kept it colder.

Climatic Functions

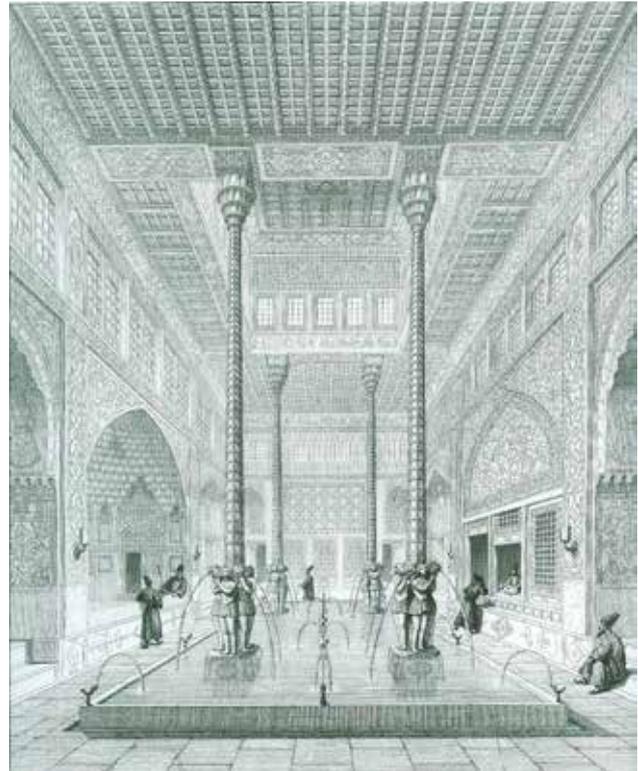
Evaporation of the water in the pool helps the ventilation in the garden by developing desirable cool weather. This function was considered in its best forms in the design of pools, in a way that a part of water of the pool and its fountain was evaporated and the air stream containing the water entered the building through the ground floor windows and flew out through the small openings in the dome-shaped ceiling above the pool-house or other windows of the pool-house which caused a cooled air in effect.

Hygienic Function

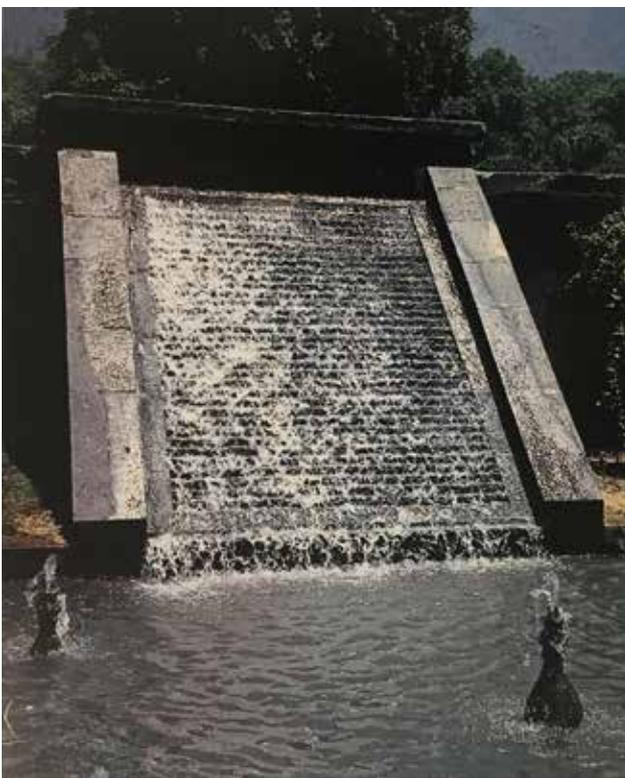
Activities about washing of clothes, dishes and other related events were done in the pools of houses and service sections and courtyards of the gardens. This type of activities was not



Pic 9: Topkapi, Fountains around the pool, Turkey, Iran.
Source: Lehman, 1980.



Pic 11: Pool of the roofed Palace, Isfahan, Iran.
Source: Wilber, 2004.



Pic 10: Waterfall in Neshat Garden, Kashmir, India.
Source: Lehman, 1980.

present as the same in different pools; as an instance, we can refer to the pools and pool-houses which had continental and visual functions.

Visual-Aesthetic Function

Importance of water made the Howz as a desirable beautiful area and space. Reflection of a part of the building facade and also the sky in the Pool was considered, as it was mentioned in some of the historical scriptures (Al-Esfahani, 1989: 100). It was also written in the dedication letter of Dowlat abad Garden of Yazd as follows: "Surroundings of that occupied space include three lakes and a pool which were like mirrors which people could observe themselves, and ditches with

high quality in construction reminded us of the sweet water stream" (Tarab Naeini, 1976: 355).

Recreational and Leisure Function

Lakes or big bodies of water in the form of Howz were employed for the leisure time (Karlsson, 1983: 234). Gertrude Bell have also referred to a big pool in a garden with a small vessel sailing within (Bell, 1984: 64). According to some surviving illustrations, a big pool or a Howz was considered for the women to swim. In the Iran-Russia travel story of Ez-ol Dowleh have referred to a pool which was for the swimming o the courtyard residents in Khalvat-Garden in the collection of Behshahr gardens (Melkonoff, 1985: 145). "Nasir-ol Din" Shah have also mentioned a throne which was constructed for him on the "Cheshme-Ali" lake in Damghan, and the way they put a bower on it in his Khorasan travel story (Naser al-Din Shah, 1975).

Ritual, Symbolic and Social Function

In the ancient Iran, water was considered as the most important life-bestowing elements, and people constructed ritual places with simple spaces for the veneration of the water wherever permanent springs of water were observed. "Takht-e Soleyman" in Azerbaijan and "Tagh-e Bostan" in Kermanshah are the important instances of this culture. But it seems that due to the fact that mosques and different ritual buildings were located in the city based on different



Pic 12: Bridge within the pool, Moeinieh Garden building.
Source: Sane, 1991.



Pic 13: Bridge over the pool, Amirieh Garden building, Tehran. Iran.
Source: Sane, 1991.

relations in respect to the past during the Islamic period, an impression of water as a sign of an important element in the form of pools was located in the fronts of important buildings. In addition to this phenomenon, ceremonies like "Abpashi" (Literally: Pouring Water) in "Siosepol" bridge during the Safavid reign in Esfahan and Zayanderood river together with some other periods in the Chaharbagh street in Isfahan were performed.

Indeed, prosperity and social standing of people had a role in allocation of a sufficient fountain or other sources of water to a specific garden in some areas of the country (Pollak, 1989: 76); (Pic. 11).

Personification and Modernism in the Elements and Shape of the Howz

A type of personification and Modernism was considered in employing the element of sculpture near the Howz from the Safavid dynasty era onwards; use of human and animal sculptures in some of the roofed palaces like Chehelsotoon palace. This tradition became persistent during the Qajar era, and various shapes were employed to construct the Howz. "Etemad ol Saltaneh" describes the Howz of Chaharbagh in Garoos area near the Bijar borough as follows: It was made up of yellow carved marble, and four torpedo sculptures were located on its corners in a way that it fills the strangers in wonder. Foot-bath of the pool was made up of marble stones. This Garden was constructed by "Lotf-Ali Khan", the ruler of Garros during the Safavid Sultan Hossein in 1725 and was renovated during the Qajar era (Etemad-ul Saltaneh, 1994: 1905).

The Position of the Howz in the Garden

In the simplest and primitive shapes of it, at least one pool was located in front of the main building of the Kooshk or one or more than a pool was in the patio or the courtyard. In some of the gardens, a number of small pools were built

along with the main axis of a stream which flew through the building or the gates of the building.

In a few number of surviving gardens like the Golshan garden in "Tabas", and the Taj Mahal gardens in Agera, a pool was designed and built in the central point of the garden. It seems that in the cases which the Kooshk building was not planned to be constructed in the center of the garden due to various reasons, they locate the pool which had an important in the terms of symbolism and landscape design in the center of the garden instead (Symbolism, 1999: 20).

Location of the Pool With Respect To the Building

We can categorize the location of the pool with respect to the built spaces in three types: First the pools which were located in open spaces, second the pools which were built in roofed places or terraces like the pools in the terraces Chehel Sotoun gardens in Isfahan, and the third type are the pools which were built in closed spaces which include the pools in the Kooshk (Kiosk) buildings like Delgosha building in Shiraz together with pool-houses like Eram garden or Afif-Abad in Shiraz.

Location of the Pool With Respect To the Building Floor Level

Pools constructed in open spaces were regularly designed in a way that their floors were slightly lowered from the surface of the garden (30 to 70 centimeters) and their walls and bodies were slightly elevated from the floor level (between 30 to 70 centimeters). Indeed, depth of the pool was not a fixed value in the past and it depended on function and quality of pool's origination, if a pool had the function of a water storage, then the depth would reach two meters or even deeper.

Distance between a Pool and a Building

There was not a specific distance between the pool (Howz) and the building (Kooshk), and it depended on several



Pic 14: Pool and the bed, Qasr-e Amir, the city of FatehPour, India. Source: Lehman, 1980.



Pic 15: Pool in the middle of the main Axe of the Garden, Akbar's Tomb, Sikandra, India. Source: Lehman, 1980.

factors including area of the garden, proportions including the building's floor height from the garden surface and also the mass and depth of the water, and normally it was between an average of three to seven meters. Some points are mentioned in the book of "Ershad Al-Zerah" regarding this context, and it considers the distance between the building and the pool estimated as 20 cubits (equal to 16 meters) which deserves ponder and emphasis.

It seems that the point that is included in the "Beloved Beatrice" which is an article with an unnamed author, is correct regarding a 21 Cubits, (equal to approx. 17m) distance between the building and the pool is correct. In this article, the distance between the pool located on a stage which was at the place was two ditches cross each other is considered as 17 meters. This pool was a much different pool in respect to what they usually constructed in front of the Kooshk (Bailey, 1998: 102). As it was written about the central pool of Taj Mahal in the "Padishah Namah" as follows: "In the four central streets of the garden, that have an identical width of 40 cubits, there exists a ditch with 6 Guz with flowing fountains of the boiling sea, with a stage in 28 Guz length and width scale, the river turns around this and there is a pool in the center of the cross with the length and width of 16 Guz in which 5 fountains are installed (Lahauri, 1867: 1053).

Design of the Pools and Fountains

In the design of Iranian gardens, usually a pool which central role is present which is located in the place of the cross between two main axes. In some cases, like in Golshan garden in Tabas or the collection of gardens in Agera, the pool was located in the exact center of the garden which is a triangle or a square. In some other cases, pools were located in where two roads meet (Fig.1).

In some of the historical lands of Islamic world like India, Morocco, pools had a fully ornamental dimension as people

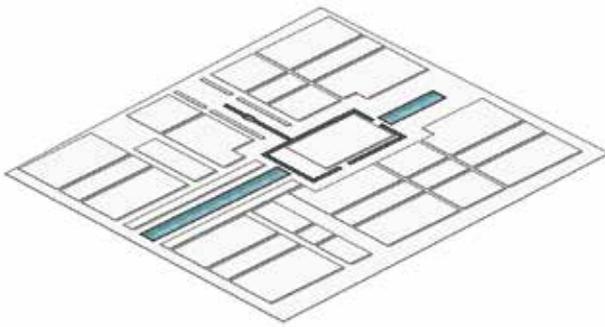
different plants and flowers in their design (Pics. 12 & 13).

Departure from the Tradition in the Design of Pool With Respect To the Access Roads.

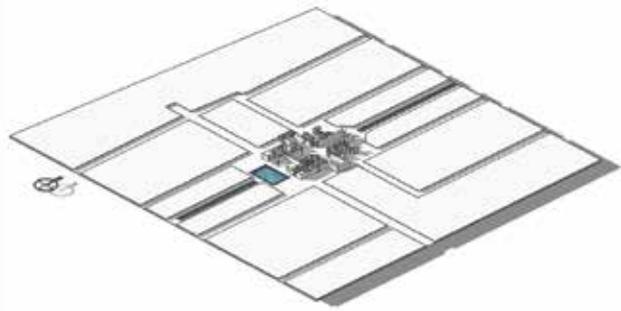
In the traditional Iranian design of the pools, a great emphasis was on the central situation place of them while locating the pool in the course of the access roads to important spaces impeded the direct relocation of the individual's right into the building as they should go round the pool along in a non-direct pathway and to return to their route to reach for the desired space or building. But there is an exception of the pool in front of the Mo'inieh Garden in Shiraz (During the Qajar dynasty) in which a small cart road is designed and constructed within the pool (Sane, 1990: 75), which is the only instance of such design in the history of Iranian architecture. Almost the same condition is observable in the building of Amirie garden with slight differences (Pics. 14 & 15).

Analysis of the Findings and Results

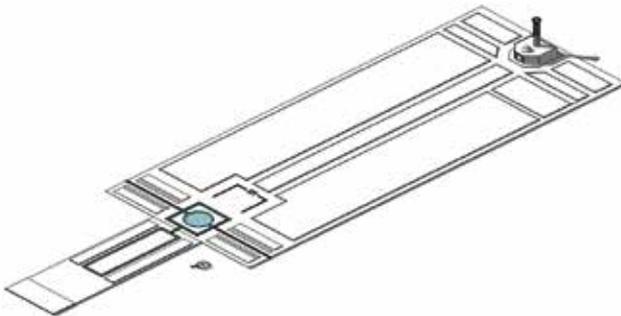
The plans of Iranian traditional architecture show that there was a constant attention on the symmetric geometrical shapes while maps, organic plans or the ones related to the plants were rarely employed in the design. As an instance in the landscape design of the bowers which were constructed



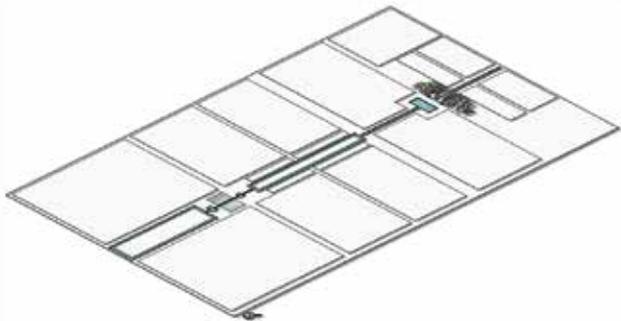
Chehel Sotun Garden



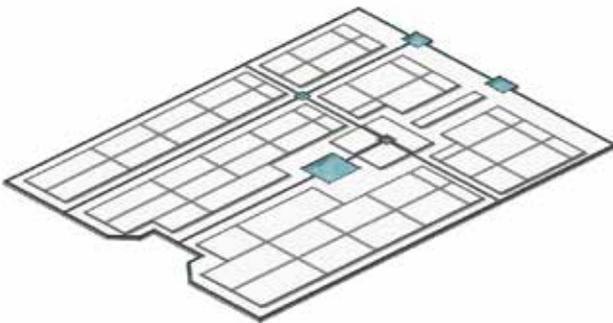
Delghosha Garden



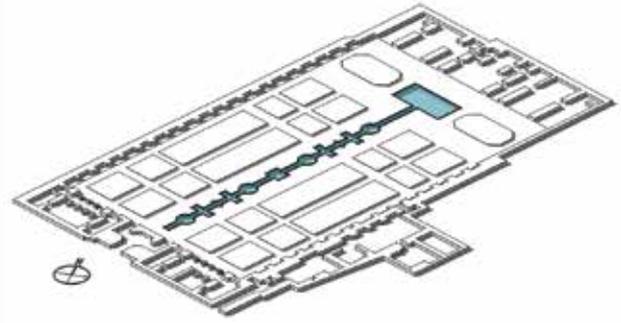
Dowlat Abad Garden



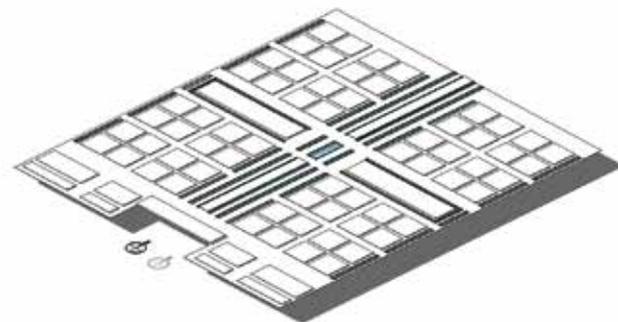
Eram Garden



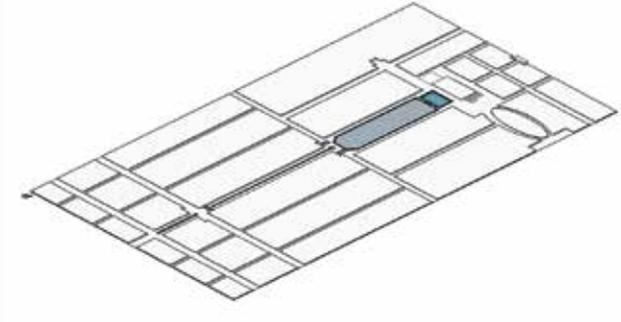
Fin Garden



Ghavam Garden



Golshan Garden-Tabas



Afif Abad Garden

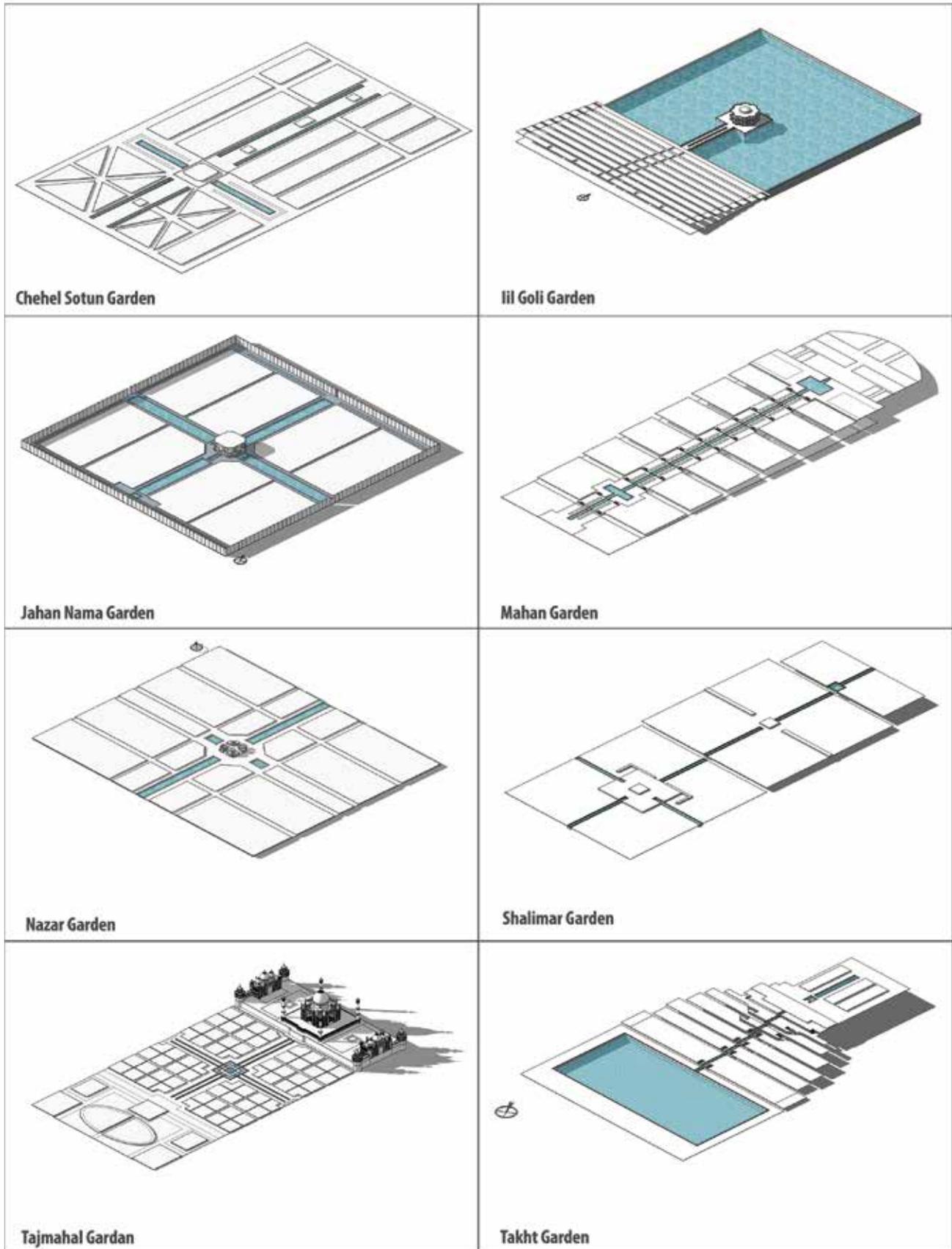
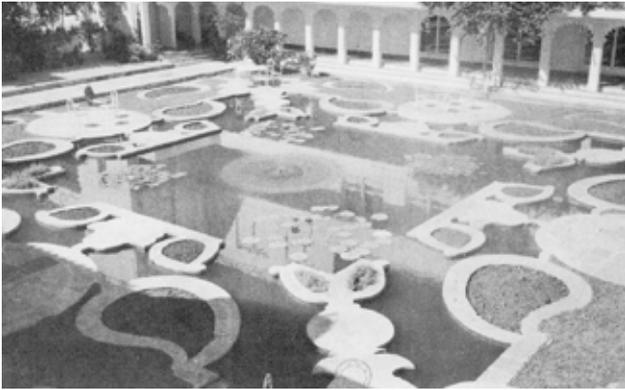


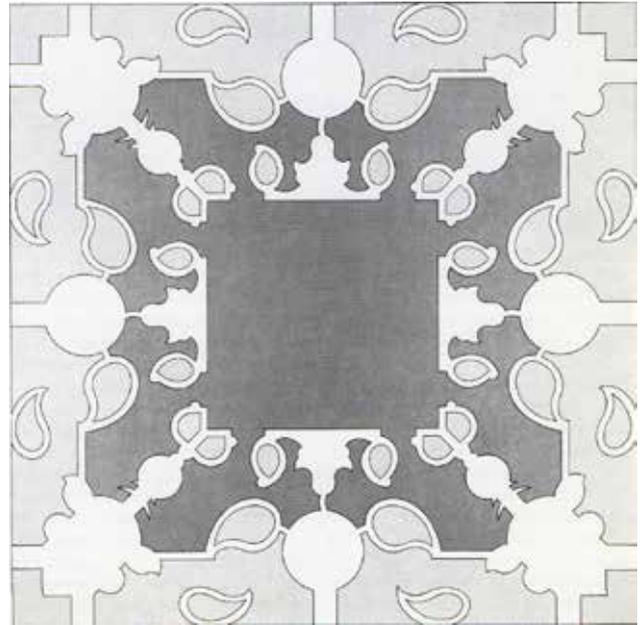
Fig.1: Diagram of settlement organization of the pool, pond and ditch in some of the Iranian and the Islamic world gardens.
Source: Re-illustration by Authors.

on hills or steep areas like the Qajar garden and palace in Tehran and Bagh-e Takht in Shiraz, the natural landscapes were not employed but they were also turned into terraces by performing excavations. It may be simply because of the use of square pools and other square or rectangular architectural elements by the time. Also, it seems that we can analyze the eight/ eight and a half pyramid shapes with this system. The existing documents show that the use of



Pic 14: Pool with a plant shape, Nivas palace in Udaipur city. Source: Lehman, 1980.

circle and ellipses gained a major attention from the Qajar era onwards. Use of long rectangles can be interpreted as an emphasis on a specific axis in a way that we can observe them in a major way in the front of buildings which focus on the view of a specific building axis, like the pool in front of Chehel Sotoun in Isfahan or the pool in front of the Bagh-e Nazar in Shiraz.



Pic 15: Plan of the pool with the shape of a plant, Nivas palace in Udaipur City. Source: Lehman, 1980.

Conclusion | Water shortage in the dry lands causes people to think of water as a holy, divine and vital element, as in some of these lands like Iran, even God was shaped as a force that guards the water. This element played a major role in the formation and development of various types of gardens in these lands and they put it into the view in the gardens in addition to the functional aspects of it; in some cases a considerable amount of energy and assets was allocated for it. It seems that water elements can be considered as the most important elements especially in hot and dry areas. A pool is considered as one of these elements which had different functions and shapes. It can also be considered as the most important water element which was not only employed in the gardens but it was used in different architectural spaces in a variety of ways and we can observe it as the most functional to ritual forms of it.

In many of the cases, shape and the location of the howz

were clearly reflecting the function, concept and symbolic or ritual role of the Howz which was employed as a container for the preservation and distribution of water in its most functional form of it. A pool which had a major symbolic and ritual aspect, was traditionally employed along in the central axis of the building fronts in some of the gardens (e.g., in some mosques and other buildings). In rare cases, the importance and cultural role of the pool in some of the cultural buildings reached a certain degree in which people threw coins and other objects in the pools to achieve their wishes as we can see in one of the pools located in the garden-cemetery of Hafiz in Shiraz. Reflection of different functional and conceptual specifications of the water can be observed in the physical specifications of the pool; in other words, different shapes and forms of the pool reflect the various functions and concepts upon which a pool was constructed in the past.

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