

The Characteristics of Persian Historical Gardens (Case Study: Emarat Birooni Garden of Urmia, Iran)

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ABSTRACT

Persian gardens are valuable historical and cultural human-built landscapes however, Persian gardens are deteriorating gradually. Thus, comprehensive studies would be helpful in obtaining deeper insights into different aspects and meaning of Persian gardens. The descriptive-analytical approach was used to review the EmaratBirooni garden of Urmia (Campus of Urmia University) as it is the only remnant of Qajar period demonstrating a clear image of the past of the Persian garden model in Urmia. Data were employed through literature review and on-site field study. It was found that the Campus of Urmia University had three historical eras- era 1: Before the garden was purchased by American missionaries, era 2: The settlement of American missionaries, era 3: After American missionaries left and delivered the garden to the government. By examining the periods, it was seen that the survival of the campus stemmed from proper uses in each era. This suggests that new uses suiting the contemporary conditions could be beneficial in protecting historical gardens. In this respect, it is essential to protect historical gardens since these gardens can become a cultural capital to the future generations.

Keywords: persian historical gardens; urmia university; garden; environment; era

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1. Introduction

Technological advancements and urban expansion have led to human invasion of nature and ecosystem and reduced human-environment interaction (Maleki and Saeedi, 2015; Lembi et al., 2020; Richter and Bixler, 2022). To cope with this contradiction, it is necessary to develop green spaces as the lungs of cities. A deep review of the past indicates how Iranian ancestors maintained this mutual relationship by building gardens based on the climate and culture (Dabestani and Baghaei, 2016). Today, to properly respond to human needs, the construction of new urban green spaces and the protection and revival of historical gardens would help not only identify the precise model of historical gardens but also contribute to the historical, cultural, and social identity of Iran

(Goudarzian, 2012). Currently, there is only general knowledge of Persian gardens obtained from foreign research. However, Iranian researchers have recently been conducting significant studies at different levels. There is a wide scope of research and questions to identify the unknown aspects of Persian gardens since Persian gardens have not only physical but also conceptual dimensions (Etezadi and Golestani, 2018). Historical gardens have been increasingly destroyed, and some little-known gardens are living their last days of life across Iran. Direct observations, written works, photographs, plans, verbal history, and legends are the best references to research Persian gardens (Irani-Behbahani, 2018).

The present work presents a case study of the Campus of Urmia University as a deteriorating Persian garden. It is the only remnant of Qajar Iran in Urmia. This garden is a rich structure in terms of garden construction, history, and use variety in different historical eras (Aghlmand and Pakand,

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2012). The present work attempts to understand why the gardens of Urmia have been destructed and how the campus managed to survive, even though it is a damaged building. Optimistically, this garden exists as the only remnant of old Iran. However, there are few references to conduct a perfect research work on Persian gardens. Concerning the Campus of Urmia University, no studies had been conducted. Thus, this study seeks to take a small initial step to enable future great ones. The most important limitations of the study were the unavailability of the first generation who observed the life of the garden, the shortage of written comprehensive references, documents, and plans, and the disappearance of important garden elements for known and unknown reasons. The remaining parts of the garden and some documents, photographs, and maps can be mentioned as the research components. The primary goal of the study is reviewing and recovering the design of the garden in different eras to identify the Persian garden model in Urmia in Qajar Iran. The other objectives of the study are to discuss the destruction causes of historical gardens in Urmia and realize how this garden has survived and how it could be protected as a national and cultural heritage.

2. Theoretical Underpinning

Historical gardens demonstrate how the identity concepts and values of nations continue to exist, even though many of historical gardens have changed or disappeared. Failure to consider the histories of gardens leads to incomplete protective schemes.

Based on Albert et al. (2022) study, the identity-building function of heritage and its sustainable protection assume a critical role, since heritage creates identity. Based on the Convention (i.e., 50 Years World Heritage Convention: Shared Responsibility – Conflict & Reconciliation), destruction of the heritage is multifunctional and, its deterioration of a natural heritage is very harmful impoverishment of the world. It should be stated that until now there is no pattern or planning for the protection of the historical gardens in Iran. Thus, it is possible to utilize global theories regarding to the conservations of such heritages and monuments.

As known, there is no particular policy dedicated to the increasing devaluation of World Heritage through commodification. It might cause to devaluation, such as those resulting from tourism development with damaging effects, on

infrastructure and other facilities specifically on urban landscapes. Nevertheless, until today, commodification as a complex mechanism in the World Heritage system has not been recognized as a threat (UNESCO World Heritage Committee, 2017).

Based on (Albert et al. 2022) the protection of World Heritage requires knowledge of potential conflicts and their avoidance and appropriate implementation strategies.

According to (Labadi & Logan, 2016) in today's interdisciplinary field of heritage study, heritage is considered and understood as a social and political construction in which heritage results from a selection process, often government-initiated and supported by official regulation.

It is also possible to consider all heritage protection principle through main Charters such as The Venice Charter (1964), The Florence Charter (1981), The NARA document on authenticity (1994) and The San Antonio Document (1996) which they are mostly accentuate on the Originality and Identity of the natural and heritage and monuments.

According to Camilo Boito's belief, the method of the restoration of heritage buildings is deferent from case to case (Rouhi, 2016) and restoration should be based on respecting the artistic and historic values of heritage buildings, whilst Boito considered alteration as untrustworthy (Kim, 2010).

In the contemporary era, adaptive reuse has been considered as a strategy for protecting these buildings for both present and future generations. At present, the 19th and 20th century conservation and restoration theories are the backbone of the contemporary adaptation movement by introducing different forms of adaptive reuse over time (Yazdani Mehr, 2019)

To this end, in order for protecting gardens, it is required to consider the entire social, cultural, and symbolic values of the landscape since it would provide a more consistent and flexible background for new identity solutions (Mahdizadeh and Rajendran, 2019). The Burra Charter 1982 defines conservation as an objective to protect valuable cultural features (garden buildings and sites). The protection of historical gardens allows for keeping gardens as cultural capital and delivering them to future generations (Carneiro et al., 2004).

2.1. Overview of Persian gardens

Gardens are among the most elegant phenomena of human life and have existed for a

long time. They have had a significant position on cultures and civilizations. The backbone components of gardens, i.e., water, flowers, and grasses, can never be replaced (Vilbar, 2011). Iranian historians suggest that gardens known as *Pardis* were built nearly 3000 years ago around most Persian houses. Persian garden artworks can be observed in the pictures on clay pots. These pictures often involve a tree of life surrounding a pool, a parkway with two parallel lines, and a pool within each garden (Pouya et al., 2015).

The Passenger Gate Gardens in Pasargadae were the first Persian gardens. They were constructed by Cyrus the Great of Persia, 600 BC. These gardens were divided into four elements, including soil, fire, water, and wind, based on the Zoroastrian classification (Faghih and Sadeghy, 2012). As a perfect structure, Persian gardens represent the close relationship between Persian, culture, nature, and art. This demonstrates cultural and historical identities and the close relationship between the environment and human needs (Pouya et al., 2015).

2.2. Evolution of Persian gardens

Persian gardens undergo an evolution from the beginning of construction to becoming a complete garden. Sense of place is considered to be the major characteristic of Persian gardens. Persian garden designers select garden sites based on the environment and land use (Mirfendereski, 2004). In the initial Islamic era, the Islamic world adopted two garden styles from Persians, and these styles were promoted among Muslims for centuries. Historians claim that the Abbasids constructed a Sassanid-style garden with porches and planted trees on the shores of the Tigris. There were two types of gardens in the Persian agriculture style, including ornamental gardens and gardens surrounded by trees and shrubs (e.g., fruit and tea gardens) (Haddadeadel, 2007).

The major characteristics of ornamental gardens include (1) a portal in most of walled gardens, (2) a road network with curbs, (3) small and large water bodies, (4) trees, flowers, and grass, (5) different buildings in the garden, and (6)

tall and shading trees on the two sides of the street network. These gardens are divided into three groups based on the plan, including (1) flat and low-depth gardens, (2) sloped gardens, and (3) gardens constructed in lands with natural features. Ornamental gardens typically have a rectangular design. Layouts are a major characteristic of such gardens. The layout of a garden is dependent on factors such as the plan, design (shape), and size of the garden. Most gardens have two major north-south and east-west roads with a number of narrow roads perpendicularly running into the major roads (Islamic Encyclopedia Foundation, 1994). Gardens are irrigated using subterranean canals or some ducts from rivers or springs. The natural slopes in most Persian gardens provide a suitable location for placing a summerhouse at a high elevation (Diba, 1995).

2.3. Reasons for the construction of Persian gardens

Persian gardens have been constructed for several reasons, such as:

- Creating green, pleasant habitations in aggressive climates (e.g., in oases),
- Building gardens beneath a palace,
- Constructing garden shrines,
- Creating public and surrounded gardens in city squares, and
- Constructing gardens in private small/large yards.

Apart from their physical differences, nature-human equilibrium is a shared characteristic of gardens, particularly Persian gardens (Taghvaei, 2010).

2.4. Persian garden systems

According to Shahcheraghi, the Iranian garden consists of 4 functional, geometric and motion, physical and meaning systems, which are shown in the form of a diagram in Figure 1. According to the need for research and in order to understand the physical system and geometric structure, they are described and studied below. Figure 1 shows the systems of Persian gardens (Shahcheraghi, 2019)

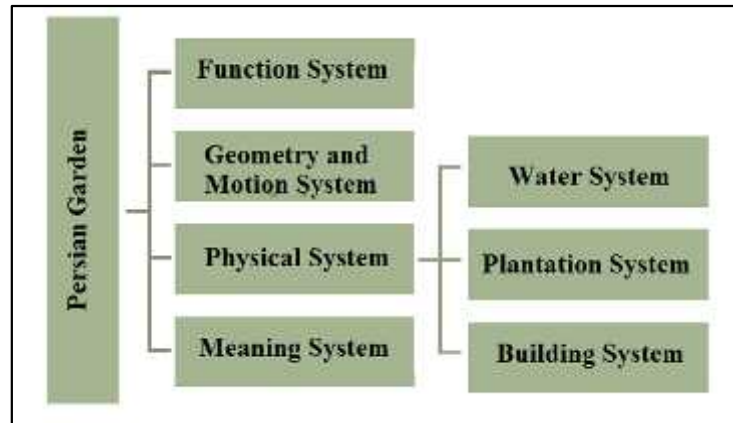


Figure 1. Persian garden systems (Shahcheraghi, 2019)

2.5. Geometric system

The geometry of a Persian garden includes a square or rectangular garden based on the water amount that could be supplied. The garden is terraced based on the land features. The geometric

structure of a Persian garden is created by either applying three parallel lines along the garden or by creating two perpendicular lines and then dividing the garden into regular squares, as shown in Figure 2 (Mottaghi-Pisheh, 2013).

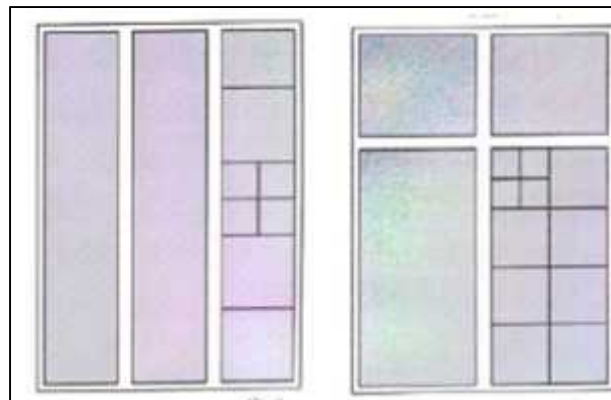


Figure 2. Persian garden geometries; (a) tri-line and (b) perpendicular line systems (Shahcheraghi, 2019)

2.6. Physical system

Water system: Water is an essential component of a garden as no garden can be constructed without water. It is the most important factor of garden liveliness. Water is also employed as an ornamental element in pools, fountains, and irrigation channels (Ebrahimi et al., 2016). The transfer of water from remote locations to the garden and distribution water within the garden were properly handled by the constructors of Persian gardens. Water was transferred through regular aqueducts and channels as the “artery” of the garden toward the ditches of the garden. This irrigation procedure influenced the design of gardens – that is, gardens were designed based on this irrigation procedure. The design divisions of gardens can be performed based on water passage, flowerbeds, and major and minor roads (Pirnia,

1969). The area of a Persian garden is a perfect square or rectangular, depending on the amount of water that could be supplied, and the garden is terraced in the form of a regular geometry based on the land features (Shahcheraghi, 2019).

Plantation system) The plantation system of trees and grasses in Persian gardens considers the climatic and geographical characteristics and brings specific quality in the body and space of the garden. It also brings subsystems such as shading subsystems and landscape subsystems distinct from the garden outdoor spatial systems of other civilizations. Terraces are based on rational regularity, harmonic size, geographic orientations, environmental characteristics, optimal sunlight utilization, and wind stability (Abolghasemi, 1995).

The primary plantation approach is planting trees in parallel configurations and certain distances within the terraces. The second plantation approach is five-point trees, in which four trees are planted at the four corners of a square, with another tree at the center of the square. The Persian garden plantation system represents green surfaces in two manners: (1) tall trees and a massive amount of leaves and (2) surfaces covered with short grasses such as clover and ornamental flowers. The relationships of the plantation system with the other systems include:

Plantation system and shading system: Tall, shading trees based on the geometric system of the garden produce a distinct system of light and shade in Persian gardens.

Plantation system and sound system: trees and other plants attract birds during the year, leading to pleasant songs of birds.

Plantation system and landscape system: Plantation emphasizes the landscape of the main road in the building direction (Sheybani et al., 2018).

2.7. Building system

The building system of Persian gardens brings buildings and artificial structures in order, organizes the garden space, and adds to the integration of the physical system by combining the plantation and water systems. The building, plantation, and water systems are consistent with the geometric system and deploy human-made elements in the garden. The building system determines not only the buildings but also garden components, the most important of which is the garden walls (Shahcheraghi, 2019). In most traditional gardens, particularly large habitation gardens with an integrated space, three major buildings existed, including the front building (Sardar), summerhouse (Kooshk), and private building (Andarooni). For example, Fin Garden in Kashan involves all three buildings along with side and service spaces next to the garden (Naeema, 2014).

2.8. Qajar gardens

The Qajar gardens and decorations were influenced by French landscaping, large grassed and ornamental tree areas, small basins, and flowers. Most Qajar gardens were organized based on geometric configurations, the fundamental element of which was straight roads. In general, when there was a longitudinal line, the garden would be divided into two sections, and the line was responsible to establish a visual relationship

and a physical relationship between the entrance and the main building. There were gardens divided by two perpendicular lines, with a building or pool at the intersection of the lines (Gharakhani et al., 2016).

The comprehensive geometry of the garden was intended to be combined with the landscape and environmental characteristics. Long landscapes replaced the short landscapes of gardens in the old Islamic ages, organizing the exterior and interior spaces. Specific plant species and shading trees were planted in the form of forest sectors along the major and minor lines of the garden. The front outdoor space was organized using ornamental plants and grass over time (i.e., the late Qajar era) (Naeema, 2014).

It became particularly important to find a visual relationship with the long landscape in the Qajar gardens. Apart from the previous attitude, they attempted to bring suitable landscape in the gardens and enable different parts of the gardens to enjoy wide views and have unique perspectives. They positioned the garden lines or main places such that landscapes inside and outside the garden would be achieved. Compared to the inside-oriented tradition of previous prominent gardens, it seems that the visual relationship between the garden and long landscape replaced the visual relationship of the internal landscape along the line between the building and entrance (Behbahani and Soltani, 2003). Perhaps this explains the exploitation of natural characteristics in country areas and the construction of gardens on mountainsides, particularly Shemiranat. In fact, in the Qajar era, the imitation of the western garden style became very common, without considering the cultural backgrounds (Mahan and Khorramrooei, 2020).

The use of new ornamental elements, such as sculptures, columns, bridges, arbors, and metal fences in the outer part of the garden, along the lines, or in front of the main building became common. In fact, these elements were added to gardens just to show modernism and Western cultural influence. As with previous eras, garden components such as the walls, front building, summerhouse (i.e., the main building), and private building represent the structural system of gardens. The layouts of these gardens represent the geometry of the garden, with the difference that the Qajar gardens did not insist on following decorative principles or landscape architecture that used to be adopted (Gharakhani et al., 2016).

2.9. Garden culture in Urmia

The people of Urmia have long had a strong desire for nature, and most of the wealthy class had personal gardens in the past. Those tourists that traveled Urmia support this claim. As Ali Khan Vaali said:

“There are many great buildings that belong to the rich, religious authorities, and merchants. The surroundings of the gardens are elegant. The rich of the region have glorious resorts by the Shahr Chay River” (Mohammadzadeh, 2013).

French ambassador Eugene Aubin said:

“Urmia is a green region with fertile lands and full of water resources. There are willows by the roads, and short thatched walls separate the grape farms” (Aubin, 1983).

Hajj Sayyah said:

“Urmia is famous due to its numerous gardens and pleasant climate. The city of Urmia is good and wealthy. The people of Urmia are types of pleasure. There are many gardens and flower

beds. The people are rich and have many assets. Beautiful gardens exist around the city” (Sayyah, 1987).

Historical events, political conflicts, continuous foreigner interventions, border evolutions, the multiplicity of ethnicities, religions, and languages, and most importantly, the historical competition of Persia and the Ottoman Empire led to the collapse of peace in this region (Aghlmand, 2019). As Eugene Aubin said:

“The intervention of the Ottomans and religious authorities for political benefits induced an undesirable situation in this lovely village that used to be peaceful” (Aubin, 1983).

As a result of insecurity, the gardens were abandoned, and the people moved to the city to be safe and secure. The Islamic Revolution of Iran eliminated aristocracy, and the historical gardens began to deteriorate. The gardens have been destructed due to the abandonment by their heirs and the lack of proper administration (Aghlmand and Pakmand, 2012).



(a)



(b)

Figure 3. (a) House of Mirza Ali Khan Sartip, son of Baharol-Molk next to the Shahr Chay River, 1883-1885 and (b) House of Malek Ghasem Mirza, 24th Son of Fath-Ali Shah Qajar, owned by the heirs of Eghbaloddoleh, 1883-1885 (Ref. Ali Khan Vaali’s photo album)

2.10. Gardens of Urmia

Assyrian references claim that gardens of fruit trees were built in the Azarbaijan region at command of the Urartu king (735-713 BC). These gardens created an elegant, glorious area out of the deserts around Ulhu (modern-day Salmas) in the northwest of Lake Urmia. As with other cities in Azarbaijan, Urmia had gardens inside and outside the city. However, all the gardens have been destructed, except for the Campus of the Urmia University. There are small pieces of information on these gardens in travelogues. Overall, it can be said that most gardens of Urmia existed by the rivers and river branches, and they were irrigated traditionally by open, wide creeks so that they could be easily cleaned. It should be noted that Urmia has 22 aqueducts and 169 old creeks. As the

aqueducts are in the northern part (residential section) of the city, farmlands and gardens were irrigated by branches of three rivers, including the Shahr Chay, Nazlu Chay, and Baranduz Chay rivers (Aghlmand and Daghighi, 2005).

It can be inferred from studies conducted on the gardens of Urmia that all the Urmia gardens had fences, and most of them were resort gardens with the main building, a private building, and a public building (Delgosha Garden) (Mirza Rashid Adib-ol Shoara, 1967). There were also state gardens, such as Sardari Garden. Karim Khan Zand was coronated in the citadel next to Sardari Garden (Nazarbaghi Garden, Dagh Baghi Garden, Ferdows Garden, Siavash Garden) (Aghlmand and Pakand, 2012). Gardens such as Kamalabad and Yeylaghi Khan had various cedar trees, plane trees, fruit trees, flowers, and basil (Saadabadi,

2001). Edalat, Vaali, and Nazmiyeh Gardens were the sloped gardens of the city (Aghlmand and Daghighi, 2005). Eugene Aubin described the Birooni Garden (the campus of the Urmia University) as: “There is the Castle of the American Commission after a roofed entrance. Brick houses resting under the shadow of plane trees...”.

3. Research Methodology

3.1. Research design

This study adopts an interpretational-historical methodology, and data were collected using documentary and On-Site Field Study research. The approaches are dependent on analysis and inference and mostly comparative and holistic. This study has an open ending with step-by-step evaluation. In other words, this work reviews the literature on the protection of historical gardens and the theoretical foundations of Persian gardens in the Qajar era. Direct observations, written works, photographs, plans, verbal history, and legends are the best references to research Persian gardens (Irani-Behbahani, 2018). I, based on historical and photograph documents, travelogues, aerial photographs, On-Site Field Study, and verbal historical sources, the ancient model of the campus of the Urmia University is identified. The history of the campus was divided into three major historical eras, evaluating the evolutions of each era. The relative area of the campus garden was found by investigating the deed of gift in the first era, and

the buildings of the garden were somewhat identified. However, the structure was not identified.

In the second era, based on the remnants of the garden, aerial photographs captured in 1956, and verbal history, the structure of the garden was identified. Also, since the building had all been destroyed, except for one building, the remaining photographs of the garden were collected, obtaining the overall image of the garden and its structural systems, including the geometry, water, and planation systems as well as buildings and visual landscape. Finally, in the third era, based on the structure and buildings of the garden, field studies, captured photographs, and reference to the history of the two earlier eras, solutions were proposed to protect and revive the garden. In the end, we will answer such following question that are “What are the factors that harmed and destroyed the historical gardens of Urmia? And why has the campus been able to relatively last until now?”

3.2. Research location

The campus of the Urmia University lies in the southwest part of Urmia, next to the Shahr Chay River. The campus is entered by both pedestrians and vehicles through the northern side (Shahid Beheshti Street). There is a secondary entrance on the eastern side (Mansour Afshar Street). The campus has a total area of 9.3 hectares and is surrounded by the Islamic Azad University, Road and Urban Development Office, Azarbaijan Hospital, and Qoba Mosque.



Figure 4. Aerial photograph of the campus in 2019

3.3. History of the campus

The garden had an area of 50 hectares and used to belong to Najaf Gholi Khan Biglarbeigi's

mother, who gifted it to her nephew Malek Ghasem Mirza, the 24th son of Fath-Ali Shah Qajar and the governor of Urmia. There is only a

deed of gift remaining from those days. However, the text of the deed provides significant information on the garden. The garden was later

bought by American Missionaries (Protestants) to offer medical services.



Figure 5. Deed of gift of the garden.

The introduction of Christianity to any part of the world has a story. Christianity was introduced in Iran in the Parthian era, 1st-2nd century AD. Fifty years after the arrival of the first Christian missionary in Iran, the first medical missionaries, i.e., Dr. Grant and Dr. Perkins, arrived in Urmia and founded schools in 1835. They offered medical services at their homes (Kavianpour, 1999). The missionaries not only paid for the education of the youth in Urmia but also offered free medication and drugs. Drugs were important as they related to families and created acceptance in families, leading to public acceptance over time (Mansouri, 2000). Later in 1878, Dr Joseph P. Cochran, born in the village of Seer, Urmia, and son of two American missionaries, completed his education in New York and returned to Urmia. Dr. Cochran bought 15 hectares of the garden to establish a hospital (Dehgha, 1969). Then, West Minster Hospital was launched in 1879 by Dr. Cochran. The hospital involved four separate buildings. Dr. Cochran and his colleagues established a medical and pharmaceutical education college due to the shortage of doctors (Gorgiz, 1918). Eastern people, particularly Persians, would respect a country that built hospitals for them (Garrote, 1990). It should be noted that the first modern medical center and medication school had been established seventeen years earlier by Dr. Perkins and colleagues in the village of Seer, which were then moved to the hospital of Dr. Cochran (Aghlmand, 2019). This medical center had simple and clean classrooms, a library, a clinic, a drug store, a women's hospital, and a separate building for patients with infectious diseases.

After years of hard work and significant services, Dr. Cochran died from typhus, at the age of 50 (Gorgiz, 1918). The attack of Sheykh Obaydollah, a Kurd commander of the Ottoman Empire, on Urmia was an important historical event in those years. During the attack, the flag of the UK was placed on the college's door, and Christians and Muslims were asked to gather in the garden for protection from the invaders since Sheykh Obaydollah would not harm those who were supported by Dr. Cochran (Speer, 2018). It should be noted that the people of the city believed that Dr. Cochran supported Sheykh Obaydollah's attack on the city (Mansouri, 2000). Six months earlier, Dr. Cochran treated Sheykh Obaydollah's severe disease, and this was the explanation for their friendship. Before Sheykh Obaydollah attacked, fifteen Christian families along with domestic animals ran to the college and stayed there for six weeks (Wilson, 2001).

The missionaries kept their activities until 1933 (Dehghan 1969), when Reza Shah Pahlavi ordered all foreigner missionaries to leave Iran. The lands of the missionaries were bought by the government and granted to the Ministry of Education. The garden was converted into the department of agriculture, and the buildings of the garden were destructed to be replaced with new buildings over time. Also, the portal of the building was alternated (Khalilzadeh, 2019). This garden became the Urmia University in 1977 (Gehghanm 1969). Today, 9.3% of the initial garden area remains unchanged, which was registered in the National Heritage List of Iran in 2016. This complex is currently the research

center of the Urmia University (Urmia Cultural Heritage Archive).

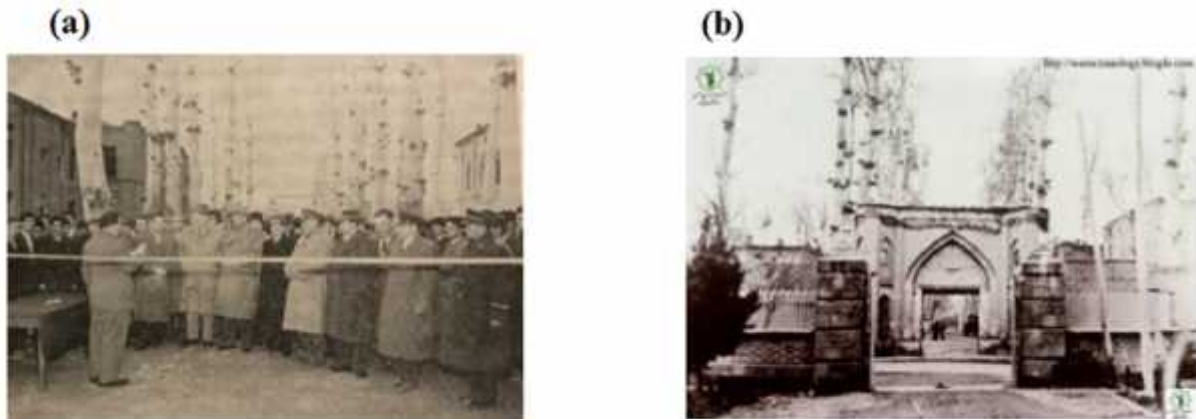


Figure 6. (a) Opening of the Agricultural Department of the Urmia University in March 1956 (Ref. Ali Khan Vaali's photo album, 1983) and (b) the portal of the Urmia Agricultural School (Ref. Ali Khan Vaali's photo album, 1983).

4. Result and Discussion

Urmia has lived and grown with nature. In light of fertile lands and pleasant climate, the people of Urmia have had a strong interaction with nature, and most of the middle and rich classes used to have gardens. The poor class worked in private gardens. Most of the people spend summer working in gardens and collecting crops. Apart from profitability, gardens were a place of recreation and amusement. However, people chose to move to cities as cities were more secure than country areas during domestic and foreign conflicts. As a result, the historical gardens were abandoned and disappeared over time. The Islamic Revolution in 1979 eliminated aristocracy,

and historical gardens were abandoned. Also, the heirs of the gardens did not protect their gardens. This represents another reason for the destruction and disappearance of historical gardens. Today, only some ruined buildings and idle lands remain as the relevant authorities did not attach importance to the gardens.

The development of the garden could be studied in three eras:

Era 1: Before the garden was purchased by American missionaries

Era 2: The settlement of American missionaries

Era 3: After American missionaries left and delivered the garden to the government

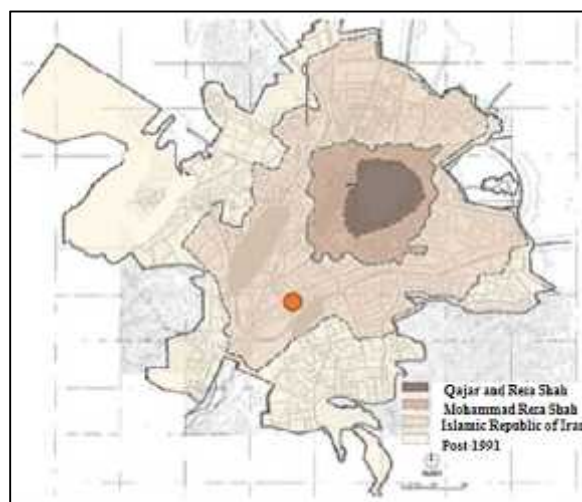


Figure 7. Campus area in different periods (Archive of the Art Department of the Urmia University)

4.1. Era 1 of development

The deed of gift provides significant information on the garden in its initial development period.

The area of the garden: The garden bordered the Bayaz Land used by Shahsavarkhan for farming to the east, Zereshkzar Garden to the

west, Share-e Am (Public Road) to the south, and Shahr Ajoo Creek to the north.

Interior of the garden: The interior space of the garden involved fruit and non-fruit trees, private and public buildings, a workshop, a watch house, stables, and the bathroom. The other components of the garden rested in Siavash Garden.

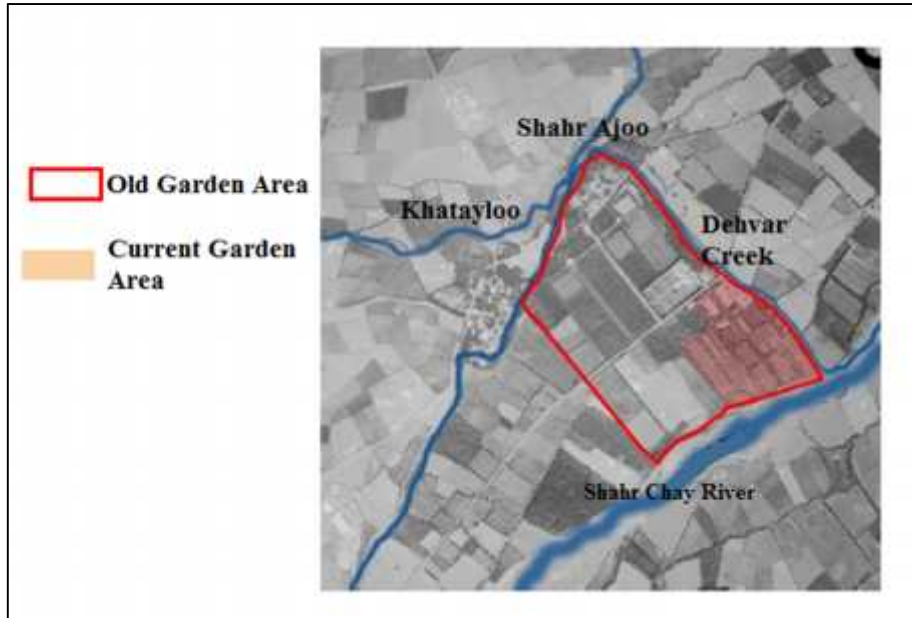


Figure 8. An aerial photo of Urmia in 1956.

As can be inferred from the interior space description of the garden, this campus used to be an ornamental, recreational, and aristocratic garden irrigated through Shahr Ajoo Creek. It involved Persian garden elements, such as the portal, walls, private building, public building, and

trees. Also, given the architectural similarity of the portal of the garden to that of Delgosha Garden (one of the most famous gardens of Urmia), such as ogee arches, scale, proportions, and brickwork, it can be said that the two gardens were built in the Qajar era.

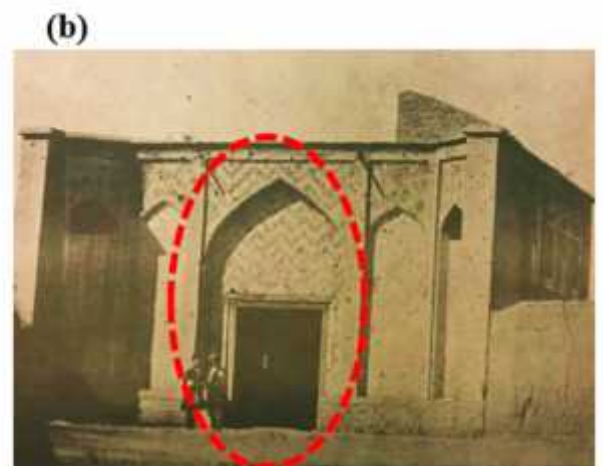
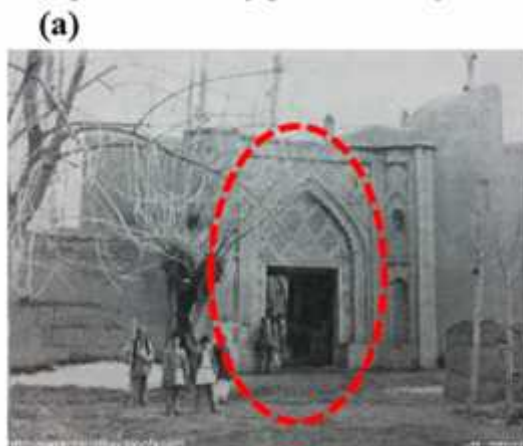


Figure 9. (a) Entrance of the campus with ogee arches and brickwork (Ref. Sina Eslam Noor’s personal album) and (b) Exterior portal of Delgosha Garden (Ref. Ali Khan Vaali’s photo album, 1983).

Given the location of the portal, approximated area, and the deed of gift, it seems that this garden involved two sections separated

by a narrow road connecting the village of Band from the city of Urmia.

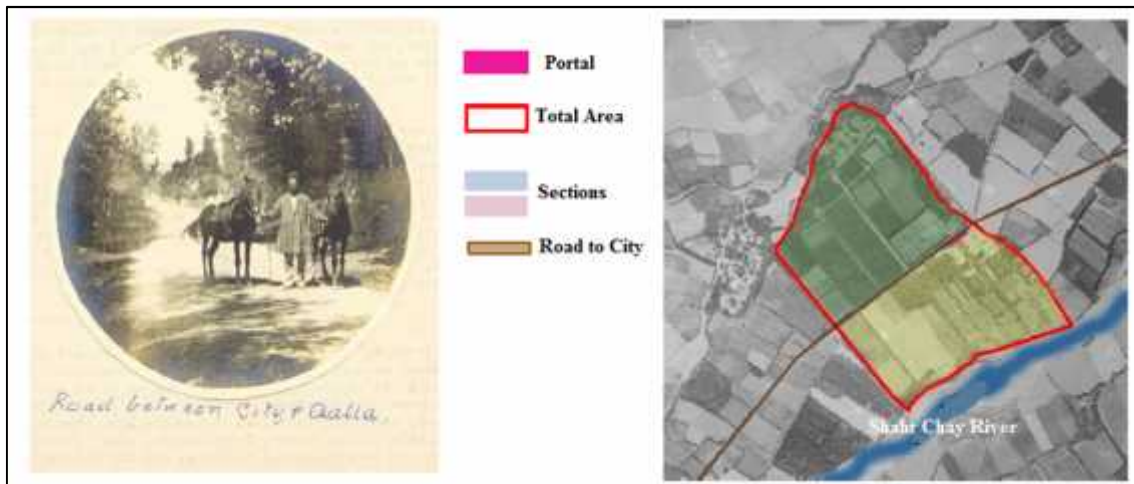


Figure 10. The two-section area of the garden.

4.2. Era 2 of development

Indeed, the settlement of the Americans changed the structural system of the garden since the missionaries sought to enhance health levels, help patients, adhere to religious principles, and live a simple life without luxurious aspects. Avoiding luxurious aspects in the settlement space

was necessary in order to gain public trust. The garden was seemingly selected to build the American hospital and college for a number of reasons, such as the rural region, the vicinity of the village of Seer (a Christian village and the place of missionary establishments), and significant water supply for health and hygiene purposes.

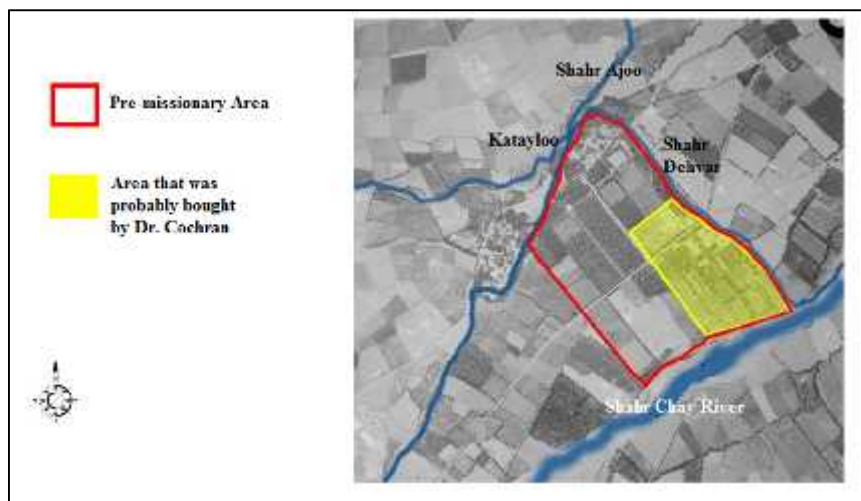


Figure 11. Pre- versus post-missionary areas of the garden.

4.2.1. Geometric system

As with other Persian gardens, this garden had a rectangular shape. However, it underwent a slight geometric alternation to follow the

surrounding natural features (the river and creeks); that is, the northern part of the garden reduced, and the southern part lost its parallel position to the northern side. Overall, the garden changed from a rectangle into a trapezium.

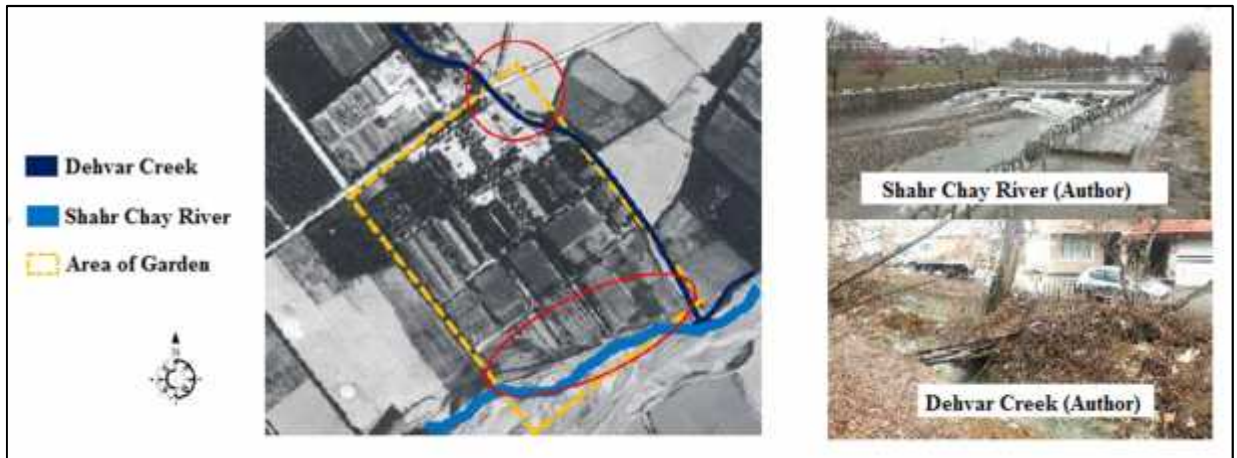


Figure 12. Shahr Chay River and Dehvar Creek, 2019.

Based on field observations, the garden has a tri-line plan in terms of old plane trees on the two sides of the main roads and a perpendicular-line plan in terms of different line widths and

perpendicular lines. Thus, the geometry of the garden can be said to be a combination of the tri-line and perpendicular-line plans.

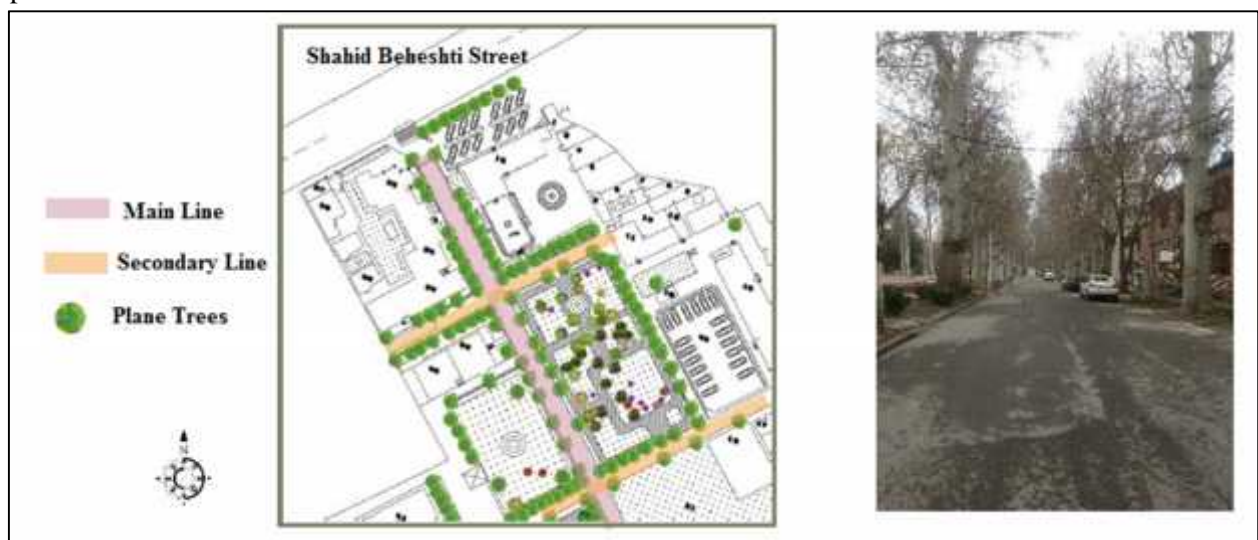


Figure 13. Main and secondary lines and plane trees of the garden.

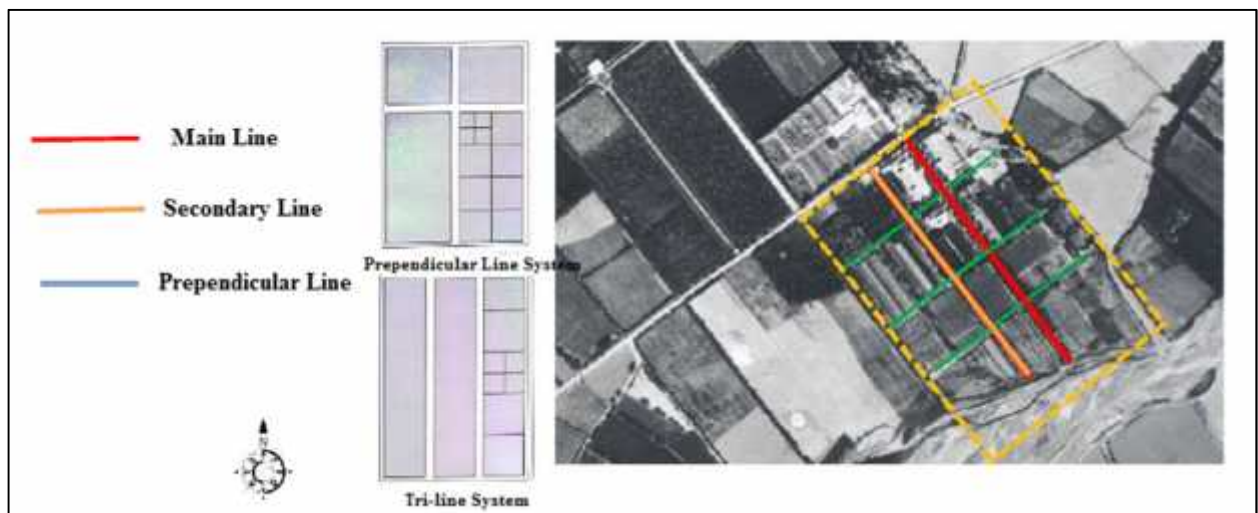


Figure 14. Geometric system of the garden (review by Dr. Alaei)

Available online at HABITAT website: <http://www.habitat.ub.ac.id>

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4.2.2. Physical system

Water system) The Dehvar Creek flows on the eastern side of the garden. The ground slopes are small in the northern and southern parts, with an elevation difference of nearly 1.5 from the

ground and 2 m from the Shahr Chay River. Thus, the terraces were irrigated by the gravitation-induced flow of water from the north to the south. Unlike most Persian gardens, the entrance of the garden is located upstream.



Figure 15. Creek flow and ground slope directions.

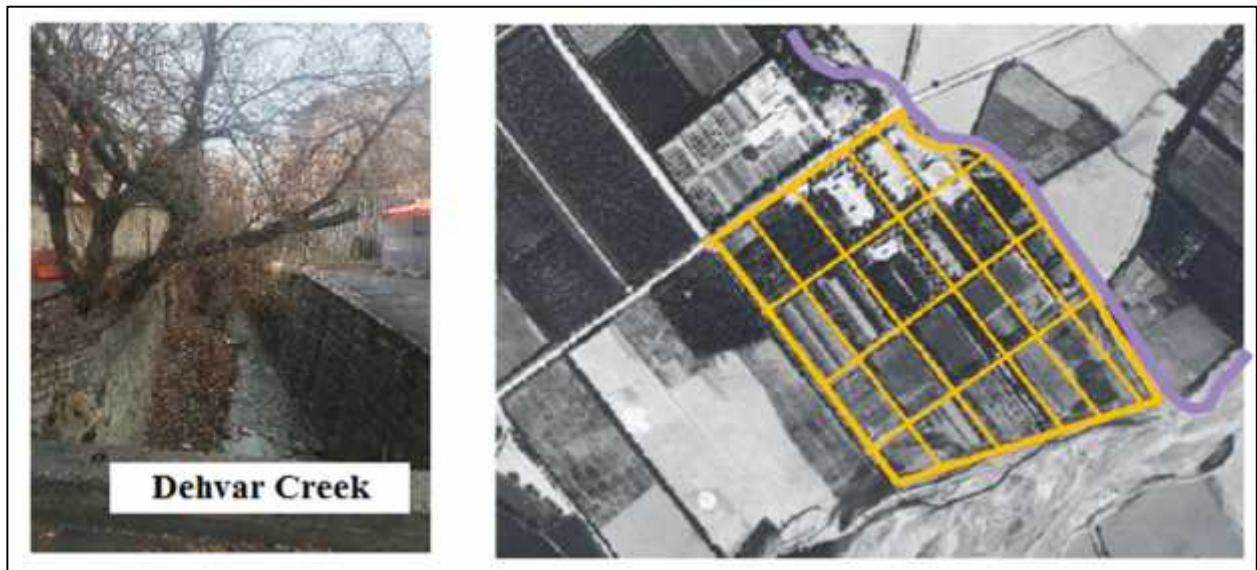


Figure 16. Regular and asymmetric geometry of the garden based on the terraces and irrigation system.

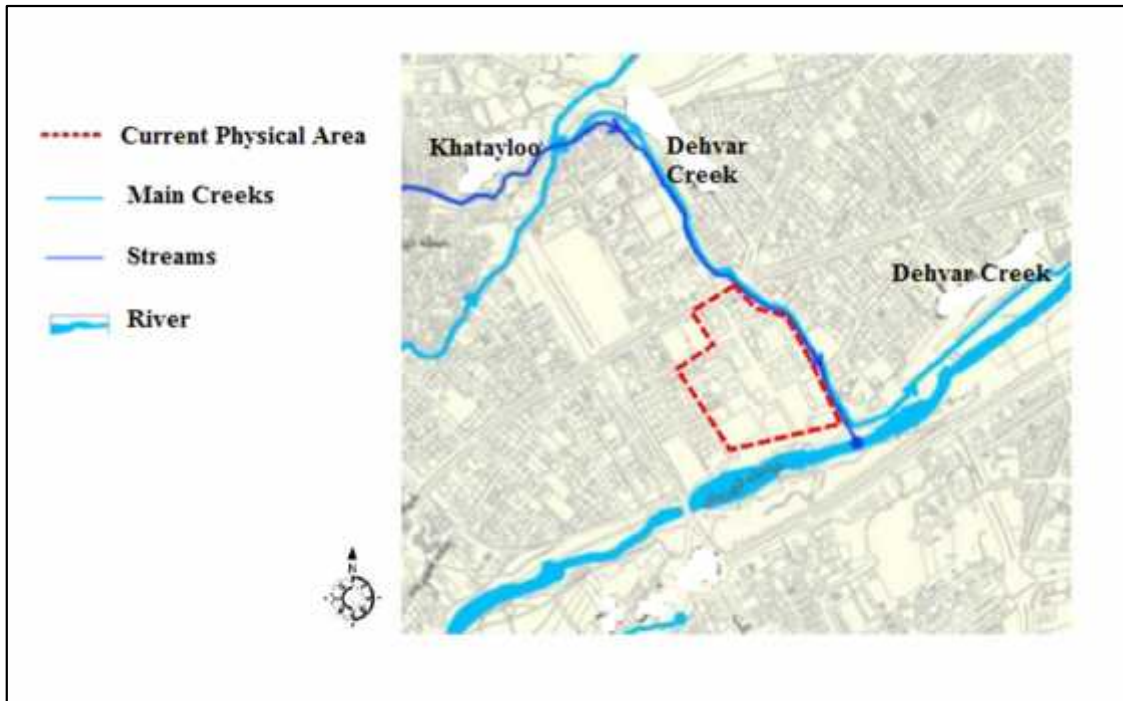


Figure 17. Adjacent water flows.

4.2.3. Plantation system

The vegetation of the garden represents not only ecological and aesthetical aspects but also public and identity dimensions. For example, the plane trees have a long history and are registered. They significantly help understand the geometric

structure of the garden. However, the plantation system has significantly destroyed, and only the trees can be mentioned, e.g., eastern redbud, Spiraea, maple, pomegranate, locusts, and Simaroubaceae trees. Even Pahlavi-planted flowers have disappeared, and most part of the garden has no vegetation.

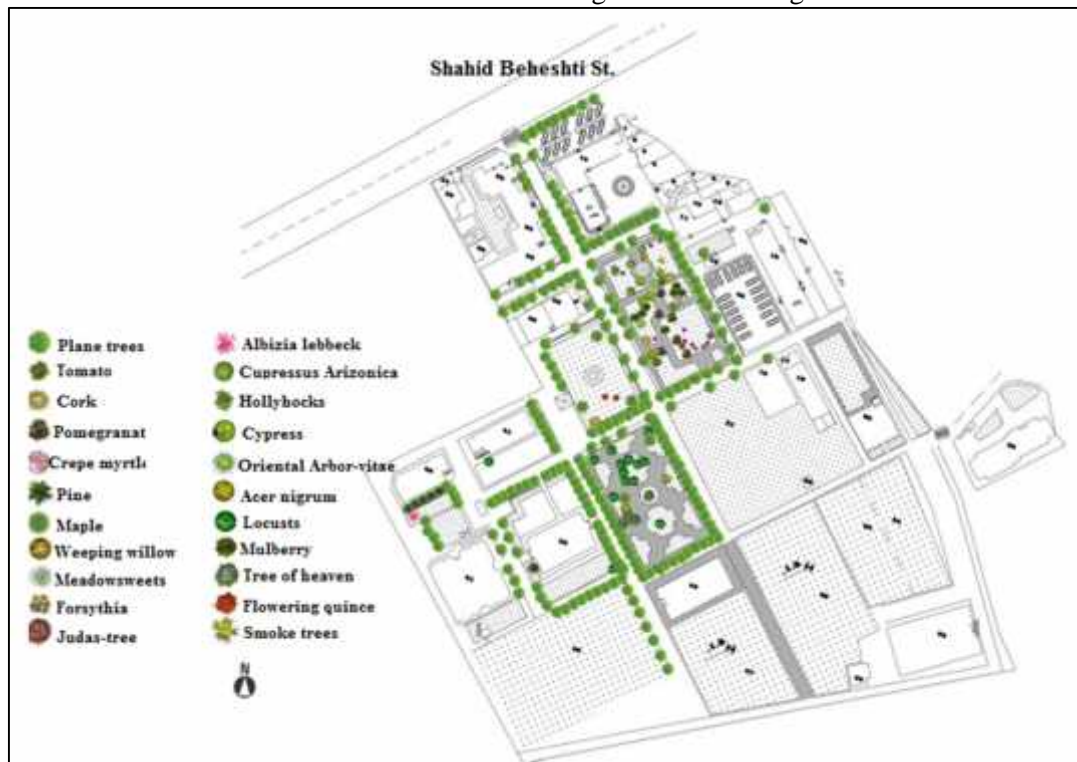


Figure 18. Vegetation of the garden.

The Qajar gardens of Urmia were all Persian gardens with Persian elements, including fences, portals, main buildings, and private

buildings. Today, only the Tabib House and Arbabi House remain, which are surrounded by many modern residential buildings.



Figure 19. Gardens of Urmia.

Based on the deed of gift, the garden had several buildings, as with other Qajar gardens. However, the main building was not observed. The complete disappearance of the main building cannot be verified as no excavation was performed. The garden had fences and a portal since its construction. These two elements could contribute to the privacy and security of the garden. In the second era of development, the Americans applied a new architecture to the interior buildings; however, the portal was maintained unchanged. In the local language, the garden is called “Sibler Ghalasi,” which means “the castle of masters.” This suggests that tall walls existed around the garden. According to Dr. Firouz Mansouri, the public thought that the

garden was planned to be converted into a stronghold. Overall, the French Renaissance influences can be found in the second era of development in the garden. For example, although there is a major line along the portal and some perpendicular roads, no main building or important buildings are observed in the intersections, unlike Persian gardens. Also, the distribution of the buildings within the garden resembles the French Renaissance architecture with larger gardens, higher tree variety, and asymmetric building architecture. The use of the same facades and the positioning of buildings around the main line are not Persian garden elements.

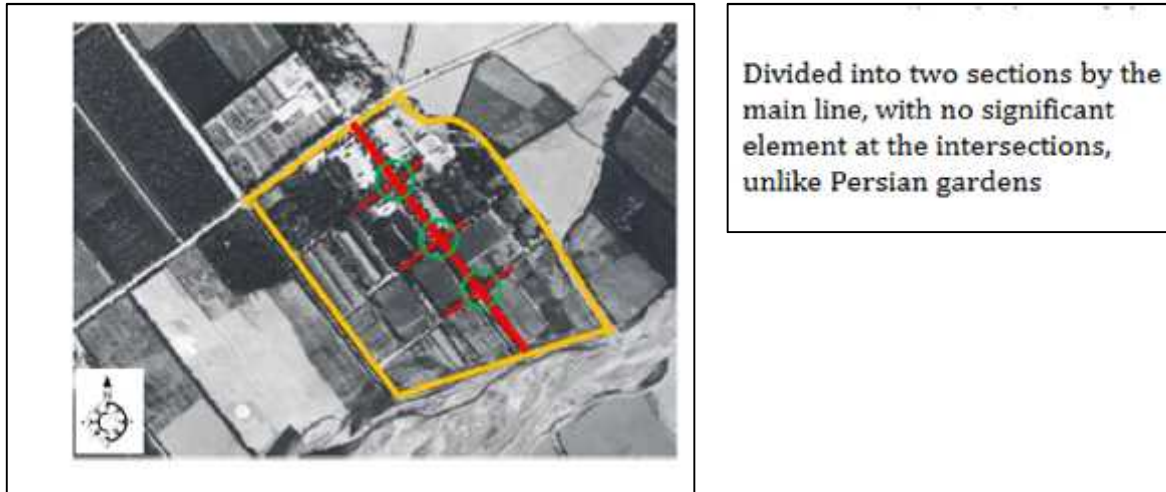


Figure 20. The main axes of the garden.

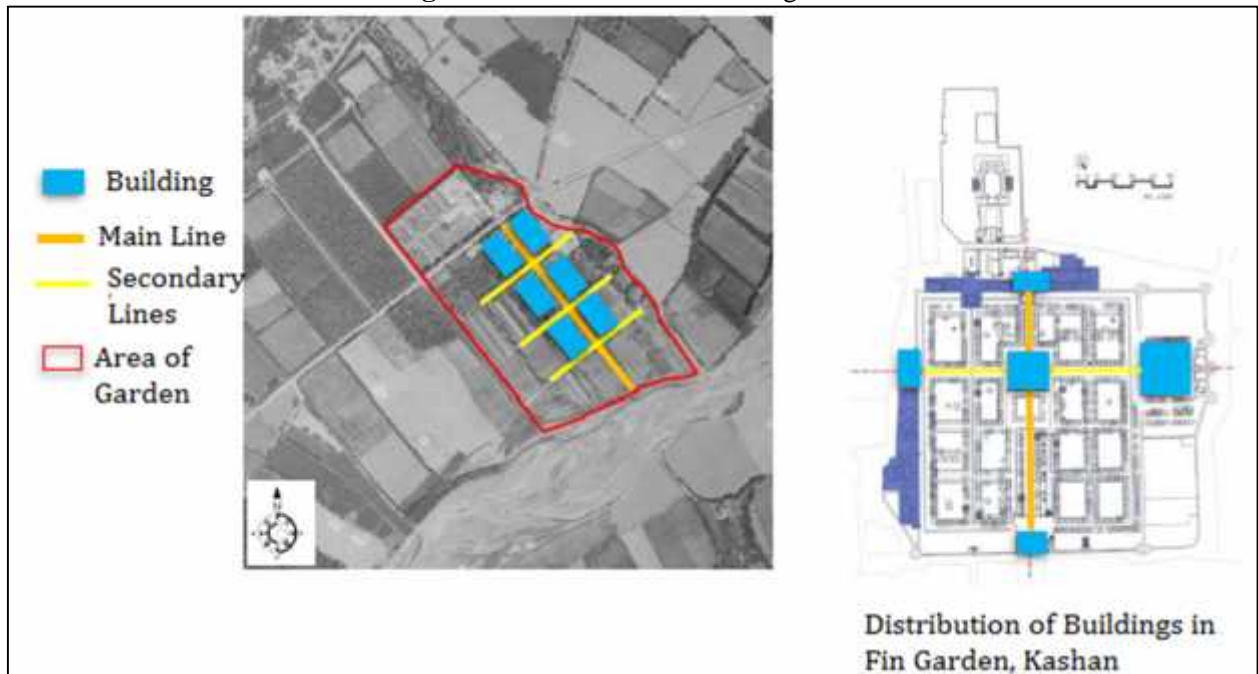


Figure 21. Building distribution comparison of the case study garden versus Fin Garden, Kashan.

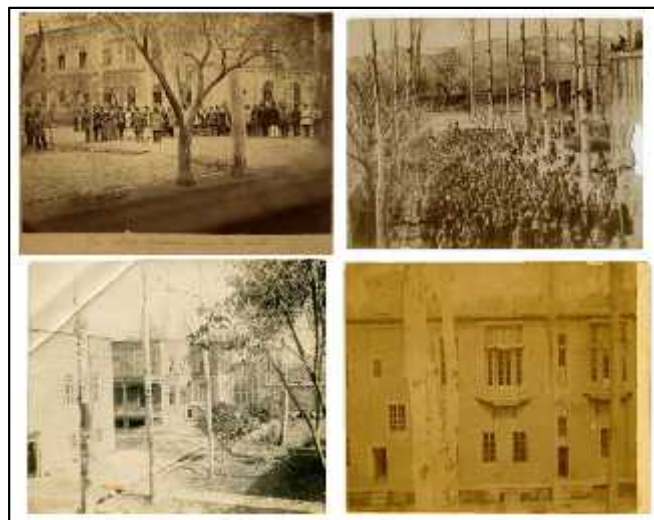


Figure 22. Photographs of Pardis Historical Garden (Ali Khan Vaali’s photo album and Sina Eslam Noor’s personal album)

4.2.4. Landscape

As with the late Qajar gardens, this garden has a long landscape rather than an interior short landscape, and the main line runs the sight from the beginning to the end of the garden. Perhaps

this explains the lack of buildings at the intersections – i.e., in order to avoid obstructions in the long landscape. This indicates the importance of the interior and exterior landscapes of the garden.



Figure 23. Main road with two lines of plane trees defining the long landscape.

As with the late Qajar gardens, large grassed areas are observed. However, no ornamental elements such as sculptures, columns, bridges, or arbors were added for religious reasons. Metal fences around the buildings

resemble American houses in the 19th century. This is not an element of Persian gardens since a primary principle of Persian gardens is the inseparability of humans and nature.



Figure 24. Historical photo of the garden of the Emarat Birooni in 1290 AH Source: Sina Islam Noor Photo Archive.

4.3. Era 3 of development

The American missionaries left the garden, and it was converted into the Urmia University. New buildings were constructed in the Mohammadreza Shah of Pahlavi and the Islamic Republic of Iran eras. The old buildings, except for the Tabib House, were destroyed, the reasons of which remain unknown. The plane trees were maintained, and new ornamental trees and flowers were added to the garden. However, the historical

elements and the garden are at a serious risk of damage in the absence of protection. Heterogeneous constructions have harmed the elegance of the garden. The initial design of the garden was influenced by the late Qajar garden architecture, while the garden underwent French-Italian influence and land use changes in the second era of development, gaining a new shape. It is today employed as a campus for educational purposes.



Figure 25. Area of the garden during (a) 1938-1977, (b) 1978-1993, and (c) 1994-present.

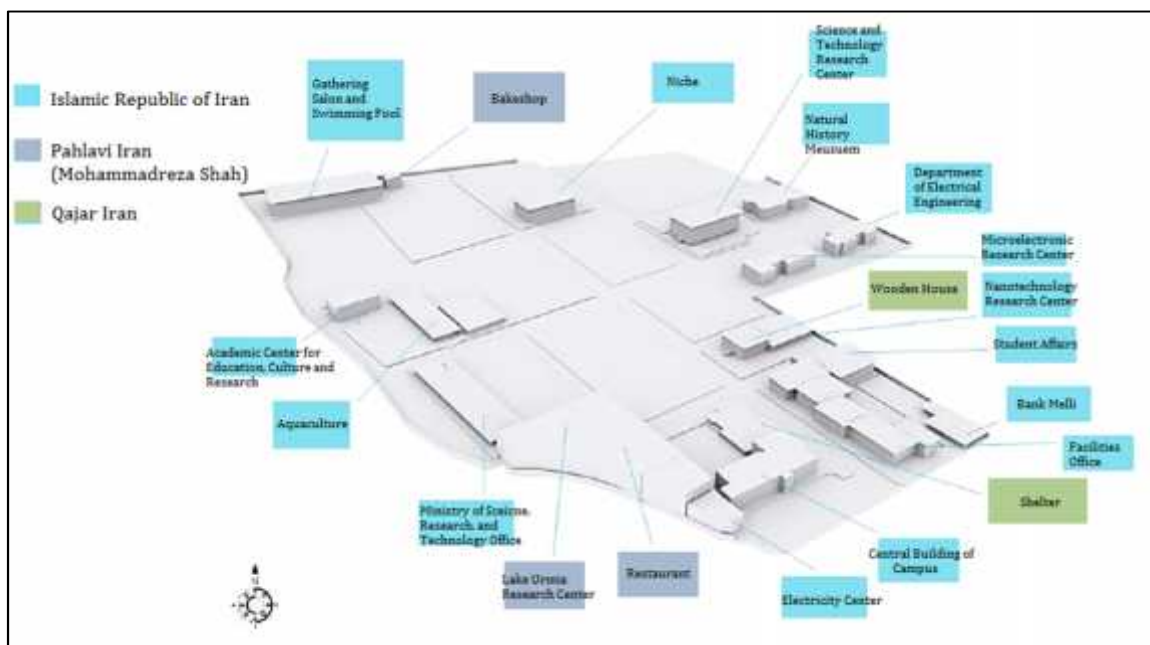


Figure 256. Buildings of the campus.

5. Conclusion

The history of the campus of the Urmia University was divided into three eras, the investigation of which somewhat revealed the story of the garden. The garden used to be an ornamental and resort garden in late Qajar Iran. It belonged to the noble class, but there is no information on how they lived within the garden.

Based on the conservation theories, based on Bioto intuition it is possible to agree that blowing new souls into the heritage causes that the vintage, old constructions and historical gardens revive. When a construction is done, a physical phenomenon is created but after pacing one generation it gets a cultural meaning. Adding and utilizing physical, social functions of the historical gardens in Urmia which are following the main principle of the conservation's theories, is the

thing that has made such natural heritages survive until now. It is obvious, when there is no practice of such values, there would not any needs to utilize such architectural heritages and they will be deteriorated by time.

The aerial photographs of different years and current conditions suggest that the American missionaries brought some alternations in the garden's structure and geometry since they were not familiar with Persian garden principles and intended to make new uses of the garden. These alternations harmed the space of the garden. The Americans maintained the entrance and walls of the garden unchanged and destructed the buildings to construct new ones. These alternations probably did not seem to be irrational in that period as they were aimed at making optimal use of the garden to

meet public requirements. The alternations helped the garden survive, even though domestic unrest and insecurity encouraged people to choose to live in the city, abandoning gardens in Urmia over time. For example, Delgosha Garden in Urmia was located next to one of the city gates, but it was given to the army to provide security. This destructed the structure of Delgosha Garden completely. However, the case study garden survived unrest and insecurity in light of conversion into a medical and service garden. It was able to survive in the Reza Shah era, when Americans left the garden and gave it to the Ministry of Education in the form of an educational garden. However, old buildings continued to be destructed and replaced with new ones over time, and the structure of the garden underwent large variations. As a result, the implementation of alternations to adapt to the requirements could be a solution to protect

historical gardens. The initial model of the garden and the geometric, plantation, and water systems of the garden were obtained, which could be helpful in the design of green spaces and the revival of undiscovered historical gardens in Urmia. A number of general suggestions are proposed to protect this historical garden as a national heritage for future generations. These suggestions could be discussed in detail in future studies. These suggestions include designing the garden area based on the obtained model and making new uses of historical buildings, such as converting the Tabib House into the Tabib Museum, making high-level decisions to contribute to the economy of the Urmia University, creating urban oxygen places, and reviving the past lives of gardens in the minds of the public to enhance tourism. Table 1 summarizes the structural evolutions of the garden in the three eras of development.

Table 1. Evolutions of the garden

	Era 1	Era 2	Era 3	
			Pahlavi Iran	Islamic Republic of Iran
Function system	Recreational (private garden)	Medical and Educational (a medical college and a hospital)	Educational (Urmia University)	Educational (Urmia University)
Plantation system	Unavailable	Irrigation-based system with plane trees on the two sides of the major and minor roads	Plane trees and the addition of Indian species of trees and flowers	Maintenance of plane trees and the disappearance of valuable trees
Water system	Dehvar Creek	Dehvar Creek	Dehvar Creek	Pipelines
Building system	Private and public buildings, fences, and portal	Fences, portal, new buildings (residential, medical school, and four West Minster Hospital buildings)	Urmia University, destruction of all Qajar buildings, except for one building, construction of new buildings	Construction of heterogeneous buildings, maintenance of Pahlavi buildings, maintenance of one Qajar building
Area	50 hectares	15 hectares	15 hectares	9.5 hectares (as a part of the garden was given to the Islamic Azad University of Urmia)

5.1. Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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