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افول شبکه آبرسانی شهر سمنان، از یک زیرساخت منظرین شهر تا عنصر فراموش شده در منظر شهری

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### Viewpoint\ Critical Review

## The Decline of Semnan's Water Supply Network, From a Landscape Infrastructure to a Forgotten Element in the Urban Landscape

Mohammad Jamshidian\*

Ph.D. Student in Landscape Architecture, School of Architecture, College of Fine Arts,  
University of Tehran, Iran.

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### Abstract

One of the constant challenges of the cities of the central plateau of Iran has been to deal with the problem of water shortage in all eras a challenge that has led to the emergence of the ingenuity of the inhabitants of this territory in the ways of using water. Among these methods that have been used in the desert city of Semnan has been extracting water, directing and collecting it in water storage pools, and then dividing it between agricultural lands. According to the historical and existing evidence, this water supply structure was the main infrastructure of the city's formation and the author's studies show that this infrastructure has been prominent, alive, and dynamic as a scenic infrastructure in all eras. The various functional, identity, and aesthetic dimensions in different physical, semantic, cultural, and social fields that can be identified in the knowledge of this structure introduce it as a scenic infrastructure that undoubtedly played a fundamental role in shaping the landscape of the old city. The role that, with the arrival of modern urban infrastructure, including the modern water supply network, not only has no role in the emergence of the new city landscape but is losing its color in today's city landscape. This is despite the fact that keeping such an infrastructure alive can not only respond to the aesthetic and physical aspects of Semnan's urban landscape but due to the various layers of meaning loaded on it, it can also cover the social and public gaps in the field of urban planning.

**Keywords:** *Water supply network, Semnan city, Landscape infrastructure, Urban landscape.*

### Introduction and statement of the problem

Water supply systems in cities have always been one of the main infrastructures and perhaps the most important infrastructure of every city since they have the task of bringing life to the city and its citizens. The location of cities in the low-water desert beds or the central plateau of Iran has given these infrastructures a double importance factor, they have kept them alive due to their vitality with the passing of different traditional and modern periods in the city.

Although some conditions may make their function or scale of function different, their presence in any era has not been denied. Also, their impact on the city landscape is undeniable due to their functional presence and other reasons of identity and culture. This issue makes water supply networks a continuous value in the history and life of the city, which is a part of the original landscape of that city.

### Structure of criticism

"Urban landscape is the knowledge of the concept

\*+989132010788, mohammadm3@yahoo.com

of the city among citizens who have lived in that environment throughout history and have produced a meaningful relationship with the natural and artificial bodies of the environment, which plays an essential role in the continuation of their reasonable life” (Mansouri, 2010). In this way, the urban landscape has components and elements with different semantic and functional loads that give an objective-mental image of the city. These components range from small scales such as the details of a wall or urban flooring that reminds of a historical memory to large scales such as an access network with specific social or cultural axes. But all these components form a single whole as a city landscape, which is a multi-dimensional image imprinted in the collective memory of people. “The landscape of the city is a totality consisting of countless small and large components, from which made a unified system that is beyond the body and is a mental matter that is understood by the audience (Mokhleset al., 2022). Although it is not possible to consider a priority for these scales and sometimes a street or an architectural building is considered a representative of the landscape of a city, it can be said that the effects of the landscape elements of the city on a large scale on other components of the city landscape and on the overall landscape of that city are greater or It is deeper. Because they play a greater role in the formation of the city landscape with their larger size and subsets of other elements. Landscape infrastructures are one of these macro-scale city landscape components that carry different dimensions of the city landscape. Different functional dimensions to identity and aesthetic presence in the city. Due to the depth of their influence in the city, their historical continuity is also predictable and logical in different eras of the city’s growth and expansion, because sometimes they cannot be removed or destroyed. An example of one of these infrastructures is the water networks in cities, which today, with the modern piping system, are only mechanical and physical infrastructures; But in the

old cities, there were scenic and multidimensional infrastructures that played a role in the formation of the city landscape. The importance of providing water as the main source of life, and the sacredness and high position that water has had in Iranian culture, has turned this infrastructure into a landscape network, which continues due to its development in the city and its components. It has left living spaces everywhere and played a significant role in shaping the urban landscape. “This network has been upgraded from a natural network to a scenic network in the city, and this has caused this infrastructure to somehow stabilize its presence over the centuries in the city and the lives of citizens. Here, the water network, while having an infrastructural role in the city, serves as a supplier of the required water which the formation and development of the city depended on, it has the role of landscapes and objective-subjective multifacetedness in the city” (Mansouri, Alehashemi & Jamshidian, 2012). There are different examples of these networks according to the type of water presence and the location and landform where the city is located which have brought various types of presence or in better words shaping the landscape of the cities. The type of water extraction, distribution, or storage of water and its division has required different supplies, equipment, and facilities, which have had different effects on the image of the city. What is the basis of this critique is that these infrastructures have such an impact on the urban landscape, what is their place in the urban landscape now? This question has been raised on a case-by-case basis about the city of Semnan and its water supply network, and its current situation has been criticized. The city of Semnan, one of the cities of the central plateau of Iran, has a special water supply network using the water of the Gel Rudbar river, which after dividing the water in the para (water dispenser) it is transferred to the city level and after the water passes through The main and secondary streams in the city have been stored in ponds according to the

diverse needs of farmers and agricultural lands for water in different seasons to prevent water wastage and divided into the downstream lands in a regular schedule. The last component of this network is the water distribution facility between agricultural lands, which is still used by farmers. “Irrigation system of the city (Semnan) in the form of a pool and taking turns using the cisterns has been common in Semnan since at least the 4th century AH, but from the second half of the 7th century onwards, laws were established for the distribution of water in Semnan” (Bani Asadi, Referred by Jamshidian, 2011). Different components of this network have played a major role in shaping the main structure of Semnan city. The networks of the city’s roads, especially the main roads, have been by the main water bodies of the city. The location of the water storage pools in the centers of neighborhoods and the name of each neighborhood is part of its identity, and the neighborhoods of the city have been formed according to their distances and locations. “The compatibility between the neighborhood structure and the relationships governing it in Semnan with the traditional water infrastructure of this city shows that there is a two-

way relationship between the urban structure based on semi-independent neighborhoods in Semnan and traditional water infrastructure of this city and a multifaceted link between the infrastructure Water and urban structures have been formed. This link is not only summarized in the physical structure of the neighborhoods, dimensions, territory, orientation, and location of the crossings and centers of the neighborhoods, but beyond that, this infrastructure is related to the socio-cultural relations of the urban neighborhoods of Semnan and with various social, religious, and cultural flows and the individual and collective life of the residents of the neighborhoods in the city of Semnan are connected” (Alehashemi, 2019) (Fig. 1).

Another facet of this network that raises it beyond an important physical element or a vital infrastructure is a semantic dimension that turns each of its components into an element of the urban landscape with the features that were briefly mentioned. The water network of Semnan is not only a skeleton of a city that has a special place in the thoughts of citizens. Examples of this position and semantic dimensions can be found in different cases. One of these examples is the presence in the cultural manifestations of Semnan city. The special customs related to water-related rituals that have existed for many years are one of these examples. One of these rituals was known as “Kale Nuja”: The head of the pool has also played a role in traditional news reporting. When they wanted to gather people (especially farmers) in one place, they ordered not to open the head or top of the pool. At the same time, they instructed the keeper of each pool to Kele Novezha (Don’t lift the head from its place). And when the water owners and farmers observed that the water was not flowing in the streams, they moved towards the pools and became aware of the situation” (Ahmad Panahi Semnani, 1995, 310). The presence of this structure and its related details in poetry and popular literature is another place where traces of this system can be

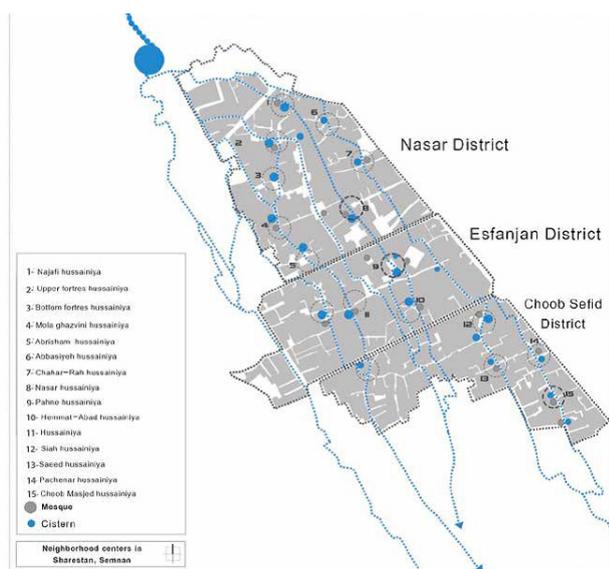


Fig. 1. The path of water distribution channels and the spatial structure of the Nasar neighborhood in Semnan city. Source: Alehashemi, 2019.

found in people's minds. "Ovu Bersiye Estali, Kole Mandeli Dembali (The water of the pool has arrived, send for Muhammad Ali Kotole (the digger). Is a song that children sing while playing and imitating the pool and the story of water. They build a small pool with soil and mud, make a head, and when they open the water, they sing" (Sotoudeh, cited in Jamshidian, 2013). Proverbs are also part of the popular culture of each region, which represents their intellectual roots. Like the proverb about miserly people in Semnan folklore: "Te estale bete, mu baghchawan (When you fill your pool, send water to my garden as well)" (ibid.). Another example that shows the burden of meaning that citizens have loaded on this network is the presence of foundations and social interactions. "Neighborhood centers, which are the main place for the formation of social interactions of the small neighborhood community, with the formation around the pools of this water system, are one of the platforms for the formation of social interactions. In each neighborhood, the corresponding pool has been a place for residents and farmers to gather. The daily gathering of irrigators and farmers at the head of the pool in the morning to get their share of water and determine it has been the most important collective event of the neighborhood, which is repeated every day and has turned the place of the pool into a place for gathering" (Jamshidian, 2011). With the brief definition that was presented earlier about the features of the landscape elements of the city, it can be said that the water supply network of Semnan is an urban network containing landscape features that can be called a landscape infrastructure. An infrastructure that, due to the depth of its influence and penetration in different objective and mental layers of the city, should be more dynamic, alive, and eternal than any of the components of the urban landscape. Although the significance of this structure may be due to its vital role, as predicted and expected, it happened at least until now and its elements are still present in the city, but it seems that their life and dynamics as one

of the most important elements of the landscape in terms of it is far away. The results of the decisions and performance of managers and decision-makers about the city in the urban landscape of Semnan can be seen that except for the end part of this network, which is also used for water supply and water distribution between agricultural lands, the rest of the components and parts of this network have been forgotten or only It has been discussed as the place that remains in the city. If we divide the existing parts of the city into three parts: water streams, pools, and sprinklers, except for some pools, the remaining parts are forgotten parts that have either not been seen or the new city planning has tried to hide them. The condition of the pools, except for one or two that are left in the more central parts of the city, is pathetic and they have almost turned into discarded elements of the city. The streams are generally covered and in the cases where they had to be kept open, they are not in a condition of consumption (Fig. 2).

The water dispenser, which is called Para in the local language, is also in the place of an urban park that can be used as a brand of Semnan's urban landscape, but it remains at the same park. This issue is more evident in pools, which seem to have more spatial and at least environmental performance. Thus, if we discard the main responsibility of this water structure, which is the water supply for all urban uses, by converting the urban infrastructure to modern systems, these pools can be used as environmental elements of the city, a place to organize the public spaces of the city. But this role has also been denied to them and like other cities, parks and gardens have assumed this role. In the last ring of functions that can be attributed to such remnants of a traditional system, it is used in the tourism industry, which can attract various tourists, which unfortunately has not been used optimally. All these conditions, while each of these components, is not only a typical element of the cityscape but as part of an infrastructure, on which other constructions of the cityscape are based - such as the urban planting



Fig. 2. The general condition of the streams and the places where the water is distributed, which do not have a proper role in the urban landscape. Source: Author's Archive.

plan, plant species, Views and views of the city, landmarks, and signs of the city are more important than other elements. These elements are part of the urban identity and citizens' image of their city. The burden of identity and meaning carried on them will certainly facilitate the restoration of dynamism and life to them.

## Conclusion

The water system of the old city of Semnan is a scenic infrastructure and each of its components as a part of this system form the main elements of the landscape of Semnan city. The parts that have been forgotten and are sometimes being destroyed, and the fact that they were part of the "infrastructure" of the city makes this issue even more painful. All this while having a significant historical burden and identity still can become the most important landscape elements of Semnan city. Today, many measures are being taken to create urban landscapes, and city managers are looking to create dynamic urban spaces with many tools and plans, and in many cases, due

to the lack of proper analysis in bringing citizens' lives and meeting social needs. There is no success in them. The question is why we should ignore such a strong and rich potential when with a little help from the superstructure, this original infrastructure of the city will once again be transformed into the urban landscape of Semnan.

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