

Original Research Article

Reading the Urban Landscape of Semnan and Damghan Based on Elements of Spatial organization*

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Abstract | The “city” concept refers to the recognition of an independent, invisible entity continuously interacting with its various constituent elements. It is an aspect of a social concept that connects the components of a city in a systemic order while maintaining its independence. The definitions of city components and the type of connection between them depend on the social, natural, cultural, political, economic, functional, physical, etc. factors that explain the development and life of the city in a systemic relationship throughout history. The cities of Semnan and Damghan were formed based on the presence of water. The spatial organization of the city, urban elements, and city events and ceremonies are formed in connection with water. In addition to the current objective and subjective factors in the city that determine its overall meaning, in the abovementioned cities, the natural element of water is the most important factor in defining the elements of the city organization. It has an evolutionary and meaningful relationship with the presence of the tree in the city, and in accordance with the concepts and other objective elements of the city, it contributes to the reading of the urban landscape through the elements of spatial organization. Therefore, the present study aims to identify the organizational relationship between the elements of the urban landscape through field studies and observations. It seeks to answer the following question: in Semnan and Damghan, how are the elements of the urban landscape read based on the elements of the spatial organization of the city?

The study draws upon a holistic perspective to answer this question by reviewing library sources and matching them with observations. For this purpose, the instances of the city that can narrate the concepts of spatial organization elements were read. In addition to the physical and functional instances in defining the elements of the urban spatial organization, (i.e. centrality, territory, small units, and structure), water-supply infrastructure and trees as natural elements are among the important organizational aspects in the completion and readability of the urban spatial organization elements that distinguish Semnan and Damghan from other Iranian cities.

Keywords | *Urban spatial organization, Urban landscape, Semnan, Damghan, Natural elements.*

Introduction | The urban landscape is a totality composed of numerous small and large components,

by which “order” makes an integrated system that is beyond the body and is a mental matter understood by individuals. The order between the urban elements

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(i.e., the spatial organization) of each city is unique according to its geographical location, and the history and culture of its people. Regarding the cities of Semnan and Damghan, different components have played a role in their formations through history, among which the economic component with its social pillars and aspects, has had a key role. The Silk Road, which was a network of interconnected trade routes in Asia, is one of the symbolic characteristics representing the raised issue and it may be mentioned as the most important road in the world until the 15th century. The east-west freeway that connected China to Europe was one of the most important routes of the Silk Road.

On the road from Khorasan to the west, in the west of the Khazar Gate, this road passed through the “Eyvanki” valley and ended in the flat lands around Tehran. The mentioned corridor has certain geographical characteristics, and the cities along this route were formed due to two important factors: agriculture and trade. For this reason, the cities located in this corridor, such as Semnan, Damghan, Bastam, etc., show relatively common characteristics (Kiani, 1987). In Semnan province, due to its special geographical location and its proximity to the Alborz mountain range and the desert plain, various parts of this province have diverse climatic conditions. In addition to its special climatic conditions, the natural element of water is a natural model for the formation of the cities of Semnan and Damghan, and it is one of the most important components playing a role in their formation. It is a settlement model that conveys the meaning of the system of activity and culture to society and organizes the different elements of the city. The special geographical location and the prominent role of the water-supply infrastructure and thermal comfort in the formation of the physical structure of the cities of Semnan and Damghan, especially in the old fabrics, have brought an integrated body to the urban landscape and connected different neighborhoods of the old fabric. In the two cities, the urban landscape configuration includes a system of neighborhoods, and each neighborhood includes the urban elements of *takaya*, mosques, and *hussainiyeha*, which are connected by roofed or semi-roofed passageways of the bazaar and sabbats, creating a coherent. This coherence has guaranteed the durability and consistency of the urban landscape of these cities in the minds of their people until today. Therefore, in the present study, to investigate the elements of the urban landscape in the cities of Semnan and Damghan based on the elements of spatial organization, the effective components were divided into two objective and subjective categories. This study focuses on the objective dimension of spatial organization elements to read the

above-mentioned cities in two physical and natural aspects. Moreover, it seeks to answer the following question: What are the elements of the urban landscape in the reading of the spatial organization of the two cities of Semnan and Damghan?

Research method

This research is a qualitative case study. This study draws upon a holistic perspective to recognize, investigate, and interpret the effective factors in the reading of the city landscape based on the theory of “Spatial organization of the Iranian city”. The two cities of Semnan and Damghan, as a system, are a set of instances and urban elements that were interpreted interactively and semantically and made the meaning of a system called the city. Some of the organizational instances of the city were obtained through the field studies and observations of the historical fabrics of these two cities, and some of the required data were obtained to scrutinize the findings and the reading of the city through library studies, and by relying on historical sources and travelogues.

Elements of spatial organization in the reading of the urban landscape

The city is not a set of scattered parts that are simply placed next to each other, rather it is a whole in which there is a unity of purpose and significant connections among its constituent elements. The wider these connections are, the stronger the citizens’ understanding of the city and the greater their sense of belonging to the urban environment (Adelvand, Mousavilar & Mansouri, 2016). The urban landscape is the citizens’ perception of the city, which is obtained through its symbols. The dependence of the understanding of the landscape on the history of attendance in the city causes different layers to be recognized in the landscape (Mansouri, 2010, 32). The city can be looked at from different aspects and each of which provides a special definition of the city as a whole. Among the different perspectives on the city as the subject of recognition, the systemic perspective considers the city as a single and purposeful entity composed of interconnected components. In this view, the city is not a set of various unconnected elements that can be viewed and analyzed atomistically. On the other hand, the city can only be known in the **form closest to its true face** when it is examined from a systemic perspective (Mansouri, 2013). In a systemic view of the city, **more** important than the protection of the various forms of the city’s face are the connections between them, which **form** the spatial organization of the city under a special system. The spatial organization of the city is the result of considering the city as an independent

whole. It is an abstract concept and equivalent to the order among the different elements constituting a city. The residents' mentality of the city, in the form of a collective agreement about how to organize the parts of the city, directly influences the formation of its spatial organization. Therefore, spatial organization is one of the main signs distinguishing different civilizations from each other, which has been in different forms in different cultures and historical periods due to the influence of the mental components of citizens on it (Mansouri et al., 2020). Urban spatial organization is a concept. What can be read in the city are the instances of the concept of spatial organization. These instances can be the same or variable in every city and region. In the Islamic era, the spatial organization of the Iranian city consisted of four components: "territory", "centrality", "structure" and "small units". To determine the components of the spatial organization of Semnan and Damghan based on the findings of historical studies and examination of instances, each of the above-mentioned components is examined separately in physical and natural elements and the role of the relationships governing them is addressed (Fig. 1).

Elements of the spatial organization of Semnan and Damghan

The spatial organization of the Iranian city is subject to the system approach that puts forward assumptions about the organization of the elements of the city to interpret the city as a whole and explain the conceptual relationships between its elements to understand and manage complex urban concepts. According to this theory, the city system is analyzed based on the four main elements of centrality, territory, small units, and structure, each of which contains objective and semantic variables and is read during a dynamic interaction in the city. It is a system that is not just a set of elements. Its originality comes from the fact that the elements of

spatial organization are concepts defined by objective elements and readable components. Examining and explaining the dynamics of an urban system shows the evolution of the city in a significant relationship with its constituent elements over time. Therefore, it depends on the interactions between the physical elements of the city and their interaction with social concepts and relations in the city as a whole. The four components of the spatial organization of Damghan and Semnan are read based on objective instances in the city and natural elements.

• The distinctive component of territory in Semnan and Damghan

The territory is an edge that separates an area with special characteristics from its adjacent areas (Mansouri et al., 2020, 52), and it has special characteristics, functions, and meaning different from those of adjacent spaces. "Fence" has existed in Iranian cities for a long time to define the territory of the city and distinguish it from the surrounding spaces. Regarding the existential philosophy of the fence, as the main component in the organization of the city, it is found that it has played a semantic role resulting from the evolution of the city and is considered a manifestation of "inside" in the infinite space of "outside", although according to many scholars, it was initially applied to provide security (ibid, 49).

In the pre-Islam era, Semnan city did not have a fence, a city wall, or a fort. In the past, there was a belt of orchards around it, and the residents of the city made a living from the products of these gardens. In historical sources such as Mostowfi, Ibn Hawqal, Curzon, Hudud al-'Alam, and Tabari, the existence of orchards and the absence of fences in Semnan were emphasized and it was narrated that, unlike Damghan, there was no village around Semnan, and this city was surrounded by orchards (Kiani, 1987). The only significant part of the orchards of Semnan city that has remained is in Salas neighborhoods (Baharmast, 2017, 67). Since Semnan was located on the Silk Road, it used to be attacked by various clans and

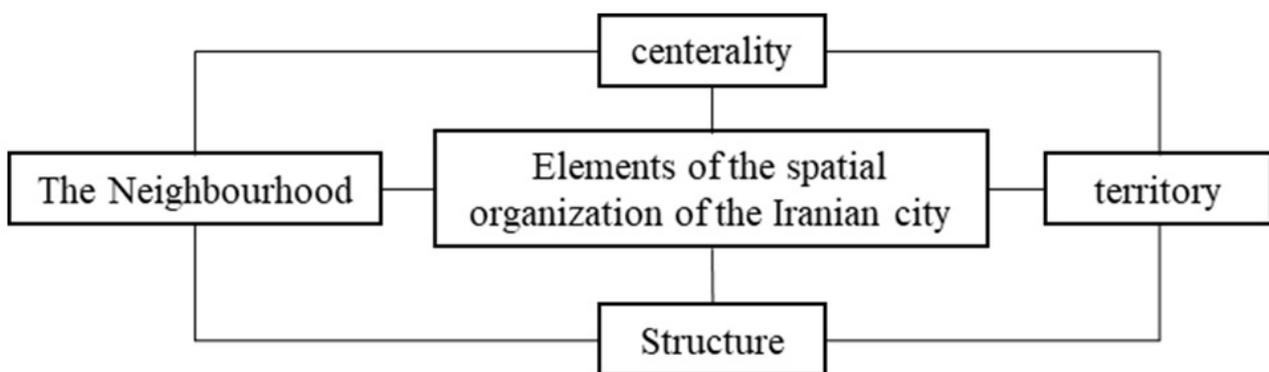


Fig. 1. Elements of the spatial organization of the Iranian city during the Islamic era. Source: Authors.

Turks, and every sudden attack from the east and west threatened the people of this city. Therefore, the people of this city had to build many castles in Semnan to defend and counter such attacks. These castles were scattered. A tribe had lived in any castle (Haqiqat, 1963, 80). Clavijo visited Semnan in the 8th century and wrote: "Semnan is a densely populated city without any defensive walls around it" (Clavijo cited in Kiani, 1987, 347). During the dynasty of Nader Shah, a fence was built around the city, which surrounded the neighborhoods of the city. This fence consisted of a total of 66 ramparts and four gates named Khorasan Gate, Chub Masjid Gate, Iraq Gate, and Nasar Gate (Nazari, 2011, 72). In the book "Shams-al-Tawarikh" (Golpayegani, 1966, 82), the orchards and fence of Semnan are mentioned: "Semnan is one of the towns between Persian Iraq and Khorasan. It has a population of fourteen thousand and it is surrounded by a fence and orchards" (Fig. 2).

After the arrival of Islam, until the Afsharid dynasty, the territory of the city of Semnan was not known. The territory of the city in the 7th and 8th centuries might have been determined by the same orchards around the city. The existence of orchards around the neighborhoods of Semnan, especially in the Salas neighborhoods, is a different description of the existence of the fence and implies the presence of the territory around the castles, which has depended on people's livelihood and it has been in the form of orchards around the city. From the dynasty of Nader Shah onwards, the structures of the cities have become more similar in terms of spatial organization, and Semnan also had a fence and gates. At the same time or a little earlier, Damghan's rampart and fence were repaired. The city of Damghan is similar to the city of Semnan in terms of historical development.

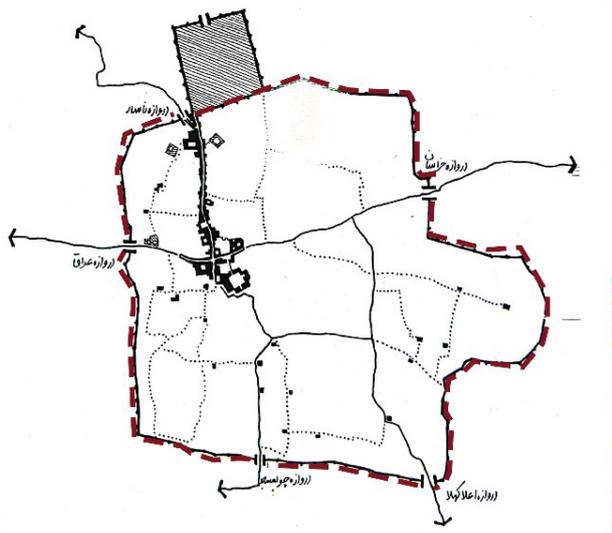


Fig. 2. The Naderi fence of Semnan city. Source: Acecr Tehran University Art center, 2009, 160.

However, there are visible historical traces of Damghan's fence while there is no written work on Semnan's fence or trace of it related to that period.

With the arrival of Islam in the northern regions of Iran, the name of Damghan is abundantly seen in the books by geographers. Damghan reached its peak of importance in the 11th century AD (5th century AH during the Seljuk era). When it was called the center of Qumis County, or even during the dynasty of "Barkiarq", it was also the center of Gorgan and Western Khorasan (Kiani, 1987, 337). From the pre-Islamic era onwards, it had a fence that was the physical manifestation of the territory and distinguished the city limit from its upstream domain. During Schmidt's excavation in Tepe Hesar during the years 1931-1933, the city wall and the old citadel were still standing and a map of the city was prepared (Fig. 3). The important points seen in this map are the presence of the fence surrounding Damghan city and its gates, and most of the important places remaining from the Seljuk era, such as the Tarikhaneh mosque, the Jameh Mosque, Pir-e Alamdar Mausoleum, the citadel, and Chehel Dokhtar Tower within this fence. In numerous historical sources, such as the book "Buildings and the City of Damghan", it was mentioned the presence of the city wall. Clavijo, a famous Spanish traveler, who passed through Damghan in 806 AH (1402 AD) to attend Timur's court, wrote: "In the evening, we arrived at a city called Damghan, which is in a plain, and surrounded by a fence of raw clay, on one of the sides of which there is a tower..." (Clavijo, 1987, 181). Curzon also mentioned the presence of two gates in the fence of Damghan in his narrative of this city (Curzon, 1990).

Defining the territory plays a fundamental role in realizing the concept of the independent whole of the city. The continuation of the functional role of the fence in maintaining security, defining and delimiting the physical limits of the city over time, and improving it has become a fundamental principle in the meaning and formation of Iranian cities (Mansouri et al., 2020). In various historical narratives, objective instances such as fences and gates and natural instances such as orchards were mentioned to describe the two cities of Semnan and Damghan. These components represent the presence of territory in these cities. Considering the strategic spatial and political importance of Damghan throughout history, as well as the importance of natural elements in the structure of Semnan city, three security, political, and livelihood-social components, can be mentioned as the components representing the territory in these two cities. These components determine the geographical limits of the city and its borders with the outside of the city.

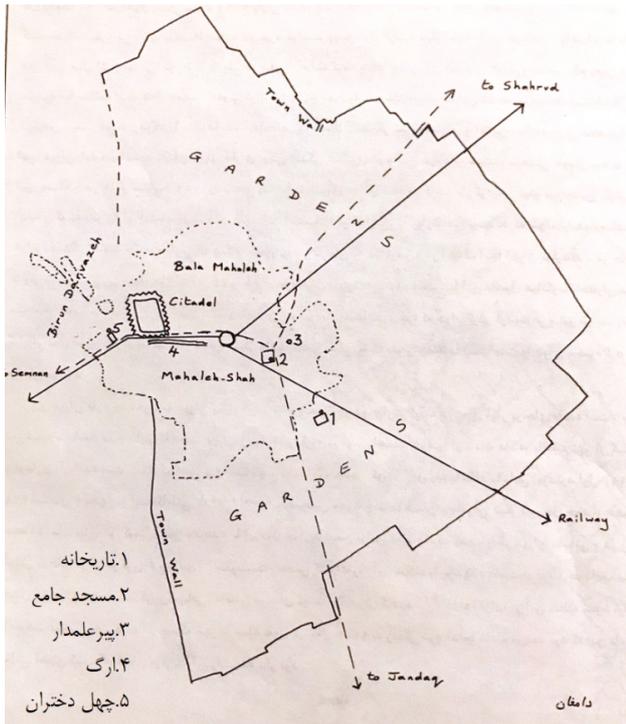


Fig. 3. The map of Damghan in 1931-1933, prepared by Schmit et al. On this map, one can see the fence around the city, its gate, and the important elements within the fence. Source: Kiani, 1987, 323.

• The center, the vitalized place of the city

The center is one of the key concepts of ancient civilizations that believed in the role of the sky and immaterial creator in the creation of the universe. In Persian, this phenomenon is called “Hasteh (nucleus in English)”, which means the element that gives being. Following the law governing natural organisms whose existence, survival, and reproduction depend on the nucleus, regarding the human product, there are beliefs about the existence of the nucleus as the creator and maintainer of the product. In the phenomenon of the city as one of the most excellent man-made products, the center, which is the point at which the city is established and from which the existence of the city begins, plays the role of the nucleus (Mansouri, 2022). The center is the source of social and activity flows. This central point can be understood through its dominance over the place, its possession of territory, and its competition with other central points. The center, as the most important and prominent element of spatial organization, is the nucleus and equivalent of the city as a whole, the epitome of the city and the consensus of its events. The quiddity and identity of the city emerge in the center and are recognized as the identifiers of the city by the citizens. It is considered a place to do public activities, produce collective memories, and improve the quality of the city, and is recognized as the identifier of the city by citizens (Mansouri et al., 2020, 53).

The centrality, in a position higher than the centralization

of various urban functions, has played a semantic and social role in the minds of the residents. This is especially true for Jameh Mosque, which is one of the constituent elements of the city center and the place of social events. In travelogues and specialized sources that have described Iranian cities, the city center has had a significant functional aspect. In their narratives, those tourists who have visited Iranian cities have paid special attention to the bazaar and its functional and semantic role in connecting different parts of the city. In their descriptions of the city of Damghan, “Ibn Hawqal” and “Moqaddasi” referred to the existence of two Nikoo and Jameh bazaars that are located in the middle of the alleys along with the Jame Mosque (Jafarpour et al., 1989, 193 & 33) (Fig. 4).

In the book “Buildings and the City of Damghan”, quoted by Mirza Ibrahim Khan, the mosque, the school, and the ruined citadel in front of it were mentioned as significant elements of the center in the description of the city of Damghan (ibid., 59). In another source, the Tarikhaneh Mosque and its minaret, the Jameh Mosque, and its minarets, and the Rasteh of the bazaar were mentioned as prominent elements of this city, and in his description of Semnan city, “Curzon” referred to the proximity of the bazaar and the square and the connection of the minaret of the Jameh Mosque to the old minaret located in the middle of the square (Curzon, 1990, 386). In addition to functional and social dimensions, the city center has a close relationship with the structure and main communication routes of the city, like the bazaar. The “bazaar” concept is not necessarily equivalent to its physical and functional totality. The “bazaar” concept, in the sense of a place of gathering and supply of goods, is an abstract concept that is related to the meaning of centrality. At the same time, the bazaar, as a kind of manifestation of the center, shows its semantic aspect, and as a city structure, shows its physical and functional aspects (Mansouri et al., 2020, 54). Crossroads, mosque, bazaar, square, bathhouse, cistern, and social and political events are sufficient and necessary conditions for the formation and continuation of the life of the center, respectively. By bringing together the main urban elements and functions, centrality, as the



Fig. 4. Recognition and location of valuable architectural elements within the limits of Semnan's Bazaar. Source: Author's Archive.

heart of the city and the engine of its development, plays an essential role in the existence and unification of the concept of the city. This issue has shown itself in the form of concentration of various religious, cultural, economic, social, political, access, and activity functions. On the other hand, with the proximity and location of the center along the main watercourse as one of the important factors in the formation of the city, the continuous presence of trees in the urban structure that ends at the bazaar as the center of the city is a factor playing a role in the readability of urban elements. The age and layout of trees have made them natural signs in cities. These signs that are next to the watercourse make the most important place in the city readable for citizens and tourists.

• The role of the route in the perception of the city as a whole

The structure plays the role of a physical-functional axis connecting the main parts of the city. The formation of this component is mutually related to how important functions are established and directly influenced the organization of city spaces and their users' perception of them. In general, the structure is located under the influence of important regional roads, and its proximity to the centrality of the city implies the form and concept of the city functionally, physically, and semantically. Therefore, the structure, as a physical component connecting other components of the city, such as the fence, centrality, the neighborhood centers, and urban complexes, plays a key role in the formation of the whole of the Iranian city, and this connection established by the structure plays a semantic and mental role in the perception of the city as a whole (Mansouri et al., 2020). In several sources providing the narratives of Iranian cities, the important role of the routes connecting important urban elements has been mentioned. After the arrival of Islam, the mosque, bazaar, and the communication network of alleys and passages in Damghan can be identified as part of the main elements of the city until the end of the 4th century AH. In total, communication roads played a key role in the formation of Damghan until this period, and in each period when one of the roads was strengthened, the city was also developed around the axis of that road (Jafarpour et al., 1989, 35). With the beginning of the Seljuk era in Damghan, a Jameh Mosque with a more beautiful and huger minaret than the previous one was formed along the Rasteh of the bazaar. It became the center of the city, and afterward, it was located on the main route leading to the main city entrance. The roads, alleys, and passages finally led to one of the entrance doors of the mosque and from there to the city gate and the office of the governor (ibid., 38 & 45).

In the historical city of Semnan, the structure under the title of "main passages", which are generally straight paths with no curves and turns (Fig. 5), connects the city center to the city gates (Alehashemi, 2020). The structure follows the rule of hierarchy. According to this rule, in the structure, first, there are freeways whose most important instance is the bazaar. To describe this component, one can refer to its natural, access, and activity dimensions. In terms of the "access" dimension, the bazaar is a component connecting the northern gate of the city and the city center. In terms of the "natural" dimension, there is a watercourse along the same main route in a covered form under the bazaar of Semnan (ibid.). The historical documents also point to this dimension: "it flowed along the main road of the city, it passed across the bazaar and the Jameh Mosque, then passed near the Masoudiyeh School, and flowed under the plane tree attributed to Imam Samen Zamen (AS), and then, through the passage passing across the porch of the house of the chief justice, and finally, flowed out of the city" (Sahar Water Document, quoted by Jamshidian, 2012, 57). Moreover, due to the passage of water along the paths, vegetation is formed, which results in the formation of a shadow system and movement along the city structure. The sum of these natural factors is mutually related to the reading of the urban elements.

The organization of different elements of the city, including the center, neighborhoods, and urban complexes in many Iranian cities, is influenced by the communication routes and their development through the branching of the main and secondary routes (Fig. 6). Also, in specialized texts, words such as backbone, skeleton, configuration, plant veins, etc. were used to describe the significance of the set of the bazaar and the paths branching off from it. These words refer to the connection dimension of the bazaar and its role in the formation of the city as a whole. It is noteworthy that at the intersection of the main routes, important components such as the bazaar and the city center have been mainly the basis for the formation

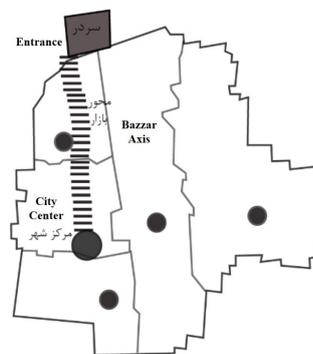


Fig. 5. The movement of the bazaar from the city entrance to the city center in Semnan city. Source: Alehashemi, 2020.

and organization of other urban functions and the connections between them (Mansouri et al., 2020).

The urban structure of Semnan, including important urban centers in a significant hierarchy, makes the reading of the city possible, providing an opportunity to recognize the important and influential layers of the city. The bazaar and its connection with the surrounding neighborhoods have been the basis for the formation of the center of gravity and the nucleus of the city and the development of residential neighborhoods in the following periods. Considering the physical appearance of the structure in the form of communication routes, and passages, its most important functional role in Semnan, as in other cities of Iran, is to connect different elements of the city. That is the neighborhoods of the city were connected through a network of roads. Many prominent elements and signs of the city, such as the Jameh Mosque and Takaya, are located along the main road and in connection with other secondary passages. This spatial arrangement provides a deep understanding of the city as a whole. Therefore, the structure is considered an important component of the spatial organization of cities, and according to historical narratives, its manifestation in different cities has been a function of natural, functional, activity, social, and economic dimensions. From the 1920s onwards, Iranian cities have experienced significant physical changes. With the change of the government structure, in the Pahlavi I period, the structural changes in the Iranian cities have become a factor at the beginning of a new period of city formation. In this period, a modern structure was imposed on the cities of Iran following the urbanism of the Haussmann style. In modern urbanism, two approaches to transportation and separate functions in different areas were the basis of urban development. To realize this urban development, the cities have experienced ordered development and extensive destruction in their hearts (inner city). Accordingly, the territory of the city was removed and the previous structure of the city was replaced by a network of vehicle-friendly communication routes in the city. As seen in the oldest aerial photo of the city of Semnan (Fig. 7), the texture of this network has been interrupted and even destroyed at some points in the modern era by actions such as street construction in the Pahlavi era and unprincipled renovations, and today, there are no traces left of them, except for those on the walls of the city.

In Damghan, the construction of a wide street in the vicinity of the bazaar, the construction of a relatively large traffic circle, the demolition of two old caravanserais and the allocation of its space to uses inherently unrelated to the bazaar, the construction of a mall near the bazaar, and

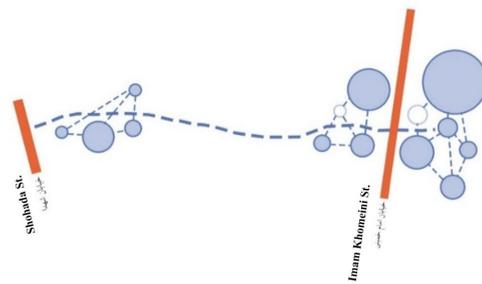


Fig. 6. Diagram of the connection between the bazaar and the neighborhood centers and Takya as religious-ritual landmarks in the city of Semnan. Source: Authors.



Fig. 7. An aerial photo showing the locations of the bazaar and the streets constructed during the dynasty of Reza Khan in the old fabric of Semnan. Source: Library and Document Center of the Cultural Heritage, Handicrafts, and Tourism Organization of Semnan Province, 2008.

finally, the development and construction of parts of the newly constructed streets at the far and near distances from the city bazaar have disrupted the excellence distribution of service and communication spaces in the city as a whole (Jafarpour et al., 1989). The disrupted integrity of the bazaar structure has influenced its concept from two sides: first, it has led to the separation of other organizational elements, for example, the interrupted connection between neighborhoods and emptying of the space around the city center, and second, it has disrupted the connection and integrity of the internal components constituting the bazaar body. As the main and important structure of the city, the bazaar was a factor connecting the main parts of the city, including the fence, the center, neighborhoods, and urban complexes. With the interruption of the bazaar structure and its replacement with modern streets, the abovementioned elements have been formed in a scattered and disconnected manner, so they have been not able to create the “whole” concept of the city. With the combination of the old and new structures, the main passages branching from the bazaar to the neighborhoods have been disrupted, making the location of the bazaar and its connection with other parts

of the city unclear. As a result, its role has been changed from a prominent place in the city to a heritage place.

• **The neighborhood, the guarantor of the integrated perception of the city**

An important characteristic of the Iranian city established in the Islamic period is the presence of neighborhoods as subsystems and small units in the city. Each of these units, in turn, is fed by a center. This center is both productive and a factor for the survival of the neighborhood. The material aspect of the neighborhood is pluralistic and lacks unity. They include houses, roads, and services scattered among them. The sense of integration and unity obtained from this pluralistic space is the product of the observer's reading and understanding of it. If the observer can perceive unity among the pluralistic elements, the concept of neighborhood emerges. The existence of components is a prerequisite for the realization of the neighborhood. However, the possibility of integrated perception is another necessary condition for it. Therefore, the neighborhood should be considered based on two pillars of material components and its unique state. The former arises from the elements of the place and the latter from the spatial organization and the type of connection between the elements (Mansouri, 2022). Neighborhoods, as the original type of small units of the city, have had certain characteristics and have been responsible for specific roles. Among the characteristics of the neighborhood, one can mention its "mutual relationship with the whole city", "independence and self-reliance in managing the affairs of the country", and "independent social unit" (Mansouri, 2019, 60).

Regarding the neighborhood of Semnan, in the book "Travelogue: Astarabad, Mazandaran, and Gilan" in 1277 A.H., it has been mentioned: "...the city of Semnan has 40 takaya, 12 caravanserais, 41 bathhouses, etc., and five neighborhoods: Nasar, Latibar, Esfanjan, Choob Masjid, and Shahjoo..." (Mirza Ibrahim, 1976). Schindler mentioned five neighborhoods in Semnan, namely Nasar, Esfanjan, Choob Masjid, Latibar, and Shahjoq (Schindler, 1977). Semnan and Damghan have been established based on the presence of water and the spatial organization of Semnan followed its water-supply infrastructure. In these two cities, in addition to the different aspects defining the city, water as a natural and vital element has played a key role in organizing its various elements.

This technical-social infrastructure reveals significant dimensions of the link between water-supply infrastructure and neighborhood structures that have formed Iranian cities. In another view, it can be said that the city landscape has been influenced by the flow of streams in the alleys, the formation of residential areas next to them, and sometimes, the presence of a tree in the middle of the alleys

on the edges of these streams (Sheybani & Esmaeldokht, 2016). The water of the pools in the 6 neighborhoods of Semnan was directly supplied by Semnan's big pool. The old trees around these pools and along the watercourse in the city structure have become an effective factor in creating public spaces in the city. In other words, all neighborhoods have been formed and developed after the construction of pools, and then, have been organized according to the movement pattern of the water flow. In fact, the streets, passages, and alleys have been formed along the watercourse and residential houses or orchards have been formed on both sides of them (Jamshidian, 2012), (Fig. 8).

The link between the mental, cultural, and social structures of the neighborhoods and the water-supply infrastructure has been materialized in the management of this water-supply network in each neighborhood and also in the city. The neighborhood centers and sub-neighborhoods are considered the most important elements of a neighborhood, which are defined by takaya and water elements in Semnan city. The combination of these social and ritual-religious spaces is a response to the concept formed by the sanctity of water in the mentality of Semnan's residents. Semnani people seek to preserve a sacred concept that appeared in the form of a devotional space in ancient times and in the form of a ritual-based religious space such as takaya nowadays. The multiplicity of religious-ritual arenas in a relatively small area represents a ritual behavior toward the sanctity of water in the past, and today, to preserve a sacred concept and seek a ritual space, it defines the takaya in the most main space of each neighborhood and sub-neighborhood, i.e. their centers (Fig. 9).

In Damghan city, water is one of the important factors in the formation of urban organs. In his travelogue, "Curzon" mentions the functional role of water in defining the main structure of the city, i.e. the bazaar (Curzon, 1990). One of the equipment characteristics of the old city of Damghan, which can be seen in the modern body of the city, is its neighborhood plan. In "Travelogue: Khorasan" which was written during the Qajar period, there is a



Fig. 8. The mental and functional roles of water-supply infrastructure and trees in the neighborhood centers and city structure. The Bagh Faiz Neighborhood, Semnan. Photo: Zahra Amini Mastaneh, 2022.

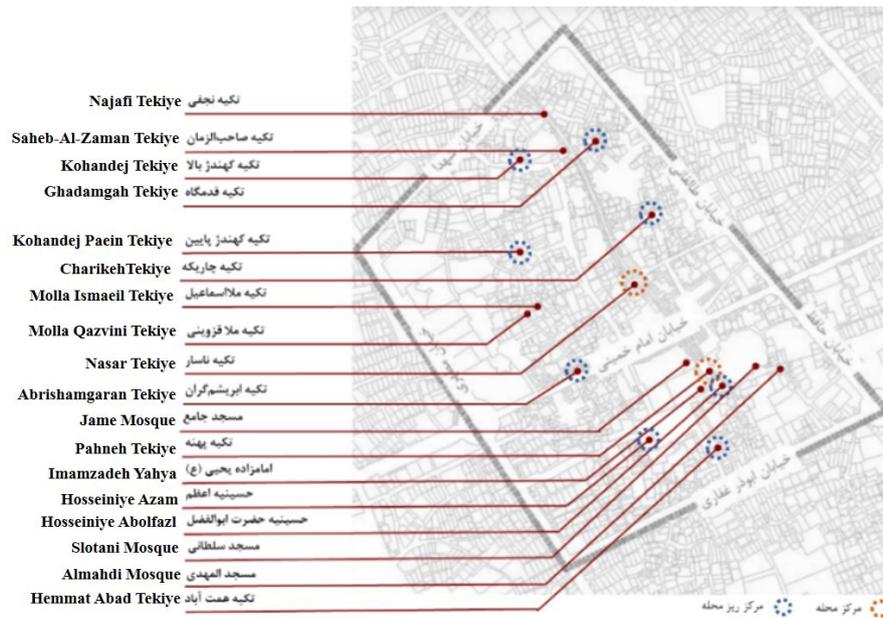


Fig. 9. Religious elements within the bazaar limits, the centers of neighborhoods, and sub-neighborhoods. Source: Authors.

vivid description of this city’s neighborhoods: “Damghan has 5 neighborhoods: Choob Masjid, Shah, Dabaghan, Saravari, Wazarjoob, and Ab Neighborhood, which is located outside the gate” (Naser al-Din Shah, 1982 cited in Jafarpour et al., 1989, 62-63) (Fig. 10).

Like Semnan, the neighborhoods of this city were formed based on the water distribution system and the presence of pools in the neighborhood centers. The pools, constructed in the form of water division ponds, provided drinking water to the neighborhoods of the city, and these divisions and later, the urban water supply system played an important role in the development of the neighborhoods (ibid., 38). Regarding the neighborhoods of Damghan city, Mirza Ibrahim mentioned: “In 1276 A.H., there were 4 neighborhoods in Damghan city including Dabaghan, Shah, Khoriab, and Q’ale (Mirza Ibrahim, 1976). In 1293 A.H., two neighborhoods were added to these neighborhoods. Sani-Al-Dowleh (Etemad al-Saltanah), in his book “Matla al- shams”, mentioned six neighborhoods of Dabaghan, Shah, Khoria, Q’ale, Balamahale, and Sadatmahale (1976, 267-271). Each neighborhood has a distinct identity formed by religious activities such as mosques and takaya and commercial activities such as shops on its main street leading to the center of the neighborhood, indicating the independence and self-sufficiency of the neighborhoods. Another important phenomenon in the organizational foundation of the city based on the neighborhood plan is the communication roads connecting the neighborhood to the city center and other urban organs forming a coherent whole. In the cities of Semnan and Damghan, the matching of the neighborhood structure and the relationships governing it

with the traditional water-supply infrastructure reveals that there has been a mutual relationship between the urban structure based on semi-independent neighborhoods and the traditional water-supply infrastructure of the city. This link is not only summed up in the physical structure of the neighborhoods, dimensions, territory, orientation, and location of the passages and neighborhood centers but beyond that, it is related to the socio-cultural relations of neighborhoods, diverse social, religious, cultural

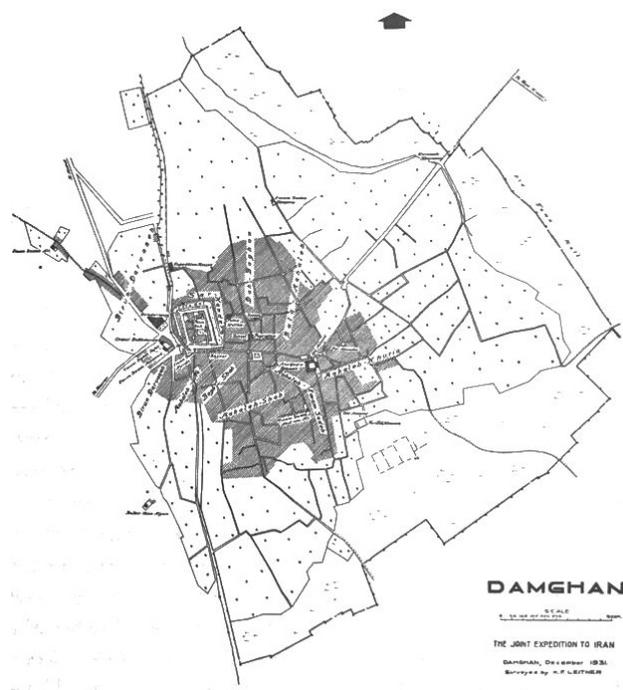


Fig. 10. General status and neighborhoods of Damghan city in 1931. Source: Jafarpour et al., 1989, 183.

streams, individual and collective lives of the residents of the neighborhoods in the city - especially in the city of Semnan. The water-supply infrastructure network forms a system with which all people have a strong connection, considering the neighborhood and ethnic differences in the city and their social and economic status in the neighborhood. Therefore, in the cities of Semnan and Damghan, unlike other cities, in addition to the social, livelihood, and cultural aspects, the natural infrastructure (water and vegetation) is an important and effective factor in determining the boundaries of neighborhoods and reading the elements of spatial organization.

Summary

The urban landscapes of Semnan and Damghan can be objectively and subjectively read based on the elements of spatial organization. The present study aimed to objectively read the elements of the cities from physical and natural aspects.

- The city center, based on its main attributes and its role in the city as a whole, has meaningful qualitative characteristics that are consistent with its physical and material bodies. It is considered the most important component in the legibility of objective-mental elements and the meaning of the city.

- Social settlements are formed around the center, and each settlement is a function of a single center and its connections with other parts of the city, especially the city center. The center is a factor playing a role in defining the nature of the city. These settlements, which are called neighborhoods or small units, depend on the physical and natural elements of the city, and whenever they are integrated with concepts, the citizens' perception of the city becomes complete. These neighborhoods, along with the city center, are a complementary factor to the integrated perception of the city. The connection between the center and the neighborhoods as well as the connection between the city gates and the center are made possible through various communication routes and accesses. The hierarchy of roads and the objective and behavioral characteristics of each represent such an attribute in the city. As described in historical narratives and travelogues, the bazaar plays the role of centrality as the most important structure of the city, and the roads branching off from it are a criterion for determining the neighborhoods and the value and position of the place in the city. On the other hand, at the intersection of the roads within the neighborhoods, takaya have been formed, each of which plays the role of the internal urban territory. In addition to the physical elements, the natural elements of water and trees also play an important role in defining the urban structure and landmarks.

The matching of the spatial organization elements and the relationships governing this organization in the cities of Semnan and Damghan with the water-supply infrastructure

and surrounding trees shows that there has been a significant mutual relationship between the elements of the spatial organization of these two cities and their natural infrastructure. The water system and the trees around it play an important role in the readability of the city center, its structure, neighborhoods, squares, and urban landmarks. Water and trees are among the place-making elements in the city. These elements have caused the place to be a perceptual phenomenon around which human factors have grown. In these places, water and trees have created different meanings in the spatial organization of the city. So, different places in the city have shown different behavioral manifestations and in this semantic range, different spatial experiences have been manifested.

- Territory has been undeniable in all Iranian cities established after the arrival of Islam and is considered an important part of the spatial organization of cities. It is so important that it functions as a factor that identifies the city's totality. In the two cities of Semnan and Damghan, territory exists with two different definitions. The fence has been considered an integral characteristic of the cities of Semnan and Damghan. It has different natural (orchards), physical, functional (security), and semantic (fundamental principle in the formation of the city) aspects. Therefore, according to historical narratives, the emergence of the fence in different cities has depended on political, livelihood, security, and socio-cultural dimensions. As in Damghan, the territory has a physical manifestation and it was formed due to the political and security dimensions of the city. In Semnan, it is a natural manifestation and it was formed due to the livelihood and social dimensions of the city. Although each of these aspects can be seen in different historical periods with various intensities and weaknesses and in different forms, the importance and role of the fence in determining the territory and physical and semantic limits of the city as a whole independent of its neighbors cannot be denied.

Conclusion

Elements of the urban spatial organization represent a concept. What can be read in the city are instances of the concept of spatial organization. These instances can be the same or variable in every city and region. The criteria determining the meaning of the city and its main indicators are rooted in the history and culture of the people of any land and can be read according to a set of relationships between concepts, symbols, and objective and natural signs. The main sense and concept of the city indicate the citizens' mastery of the physical comprehensiveness and use of the city. It is a mastery that considers meanings regardless of quantities and strengthens quantities according to qualitative definitions. According to the intellectuals' narratives of the two cities of Semnan and Damghan and historical sources, what is read

as a city relies on objective elements that are concentrated in certain places of the city. These elements generally have a social and macro aspect and play an identifying role for the general citizens. The instances that were more mentioned in historical sources refer to the important components of the city such as the road, the bazaar, the Jameh Mosque, Takyas, and social and economic activities. Where the road was interpreted, it was mentioned hierarchy according to which one can imagine a network of roads in the city. It has been mentioned that the main road has been generally constructed between the gates of the city and has necessarily led to the bazaar. That is, for the tourist who reads the city, it starts from the territory and its perception is completed while visiting the bazaar and the different parts of the city. From the bazaar, the roads are divided into different branches to other parts of the city such as neighborhoods. Along the roads, the element of water is mentioned for a more accurate reading of them that flows from the main roads of the city to the fields downstream following the slope of the land. In some other narratives, the element of the bazaar is an instance of reading another important aspect of

the city, i.e. its center, where all religious, social, functional, and cultural activities and functions are gathered. It is a place where there are the built and natural landmarks of the city such as the minaret of the Jame Mosque and the single old tree inside the bazaar. Another important role of this place is its functional role, i.e. the connection of other important organs of the city, i.e. neighborhoods.

Finally, what is narrated about the city in different sources refers to instances that are concentrated in specific places of the city. In the narratives of different aspects of the city, these places overlap or have a lot of semantic and functional relationships with each other. From this point of view, historical narratives are the reading of the concept of the city with the instances in it, that a communication chain can be easily established between them in terms of meaning, function, and body. This example chain, in general, defines the city in the reading of the four conceptual elements of the center, structure, territory, and neighborhoods. In Table 1, the semantic role of the elements of the spatial organization of the two cities of Semnan and Damghan in understanding the city as a whole is stated.

Table 1. The semantic roles of the two cities of Semnan and Damghan's spatial organization elements in the perception of the city as a whole. Source: Authors derived from Abarghouei Fard and Mansouri, 2021.

The elements of the spatial organization	Main indicators	Instances	Approach	Relationship with the city as a whole	The valuable role of the elements in the city organization
Centrality	Aggregation of public spaces Market (socio-economic dimension) Squares (social-political dimension)	Market Squares Aggregation and diversification of activities (mosques, takaya, economic activities) Social diversity and conflict Maximum communication roads The spatial arrangement of neighborhoods around the center Urban signs and landmarks (natural and physical) Water Tree	Ritual-religious Cultural Social Economic Access Political Activity Functional Natural	Meaning of the city	Semantic
Small units	Neighborhoods / urban complexes: Similarity and mutual relationship with the city as a whole Independence and self-sufficiency in managing affairs Independent social unit	Neighborhood Urban squares Water Tree	Social Economic Natural Activity	Matter of the city	Nature (quiddity)
Structure	A physical concept and a connecting element An element defining the hierarchy of accesses The skeleton of the city Social institution A factor for understanding the city as a whole	Main roads (bazaar) Side passages Alley Quarter Water Tree	Natural Access Functional Social	City's relations	Functional
Territory	A prominent physical element A functional and security element Determining the territory and limits of the city A semantic element and a fundamental principle in the definition of the city	Fence Gate Orchards	Security Political Livelihood-social	Platform of the city	Geographical

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