Urbanization and Civilization: A Legacy from Water

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ABSTRACT

The role of natural factors in locating, forming and developing the living spaces are of issues that play a particular importance. In this vein, water as a beneficial and natural element has an effective role in creating and shaping residential and urban centers. From ancient times, water devoted its role to locating and forming settlements and cities in the world. Rivers have also been important factors in the creation of cities as in fact the early embryo of cities. Factors such as defensive role of rivers, needs to have drinking and agricultural water, needs to produce goods and water mills to meet other needs of life and also communicative role through rivers as one way for traffic are the most important factors that have significant role in the development and growth of cities. This paper tries to investigate a total survey of the creation process of Isfahan from early centuries of Islam to Safavi era and the role of Zayandeh-Rood in creation, construction, development and improvement, also the use of the Zayandeh-Rood water and branching networks for water supplying as well.

INTRODUCTION

Islam doctrines and as Islam’s following Iranian culture introduce the water as a source of every living thing. As it comes in Holy Qur’an “وَعَمِلُوا ۛ مِنَ ۗ قَلِیۡلِ شَیۡءٍ حَی”, “And We appointed water to be the Source of life for all”.

Accordingly, water is a symbol of life, purity, cleanliness, and prosperity which in addition to its role in offering life to creatures, it plays a role in reviving lands and cities. Muslims respect for nature and its elements, especially water, originated from the doctrines of Islam and it is not incident that several cities in the Islamic world have abnomenment with Islamic countries with different and opposite climates and geographical environments. From old days, water has played an important role in shaping human settlements and living spaces are mostly created in locations in which there was enough raining or irrigation facilities through traditional methods, i.e. wells and springs for supporting water.

In general, villages and towns primarily rely on rivers and springs of water resources as core, system and former of cities in order to create harmony and balance between the built environment and human needs. Human beings attempt to create urban habitable environments by means of taking the advantages of the natural laws and the knowledge of natural elements such as water.

Water and it Role in Creation Process of Civilizations and Cities:

Undoubtedly, water and its resources are the foundation and basis of the ancient civilizations all the time. Numerous civilizations are evolved around the longest rivers such as Tigris, Euphrates, Nile and the like although arid lands become human settlement if they have access to water and water sources (Lahmian: 2004: 306). The cities are symbols of civilization and there have been stated many ideas about the creation and formation of cities that Hydraulic theory is an important one among many. It states that real human civilization has only appeared in parts of geographic areas that they had favorable climate and fertile soil. Hydraulic theory or surplus rural product has led to human beings create cities by supplying the essential needs and subsequently live in cities using these surplus agricultural production. According to this theory, the irrigation of suitable lands, increasing population and its concentration on favorable natural areas has led to the emergence of cities. (ibid: 308-309). Another theory that has role in creation of cities is Water Theory that has been originated from Marx works. He believes that evolution of civilization in the east has a different direction with that of evolution of civilization in the west. Wittfogel based on this theory states that water resources and water are as an effective factor in the emergence of social systems in cities and the way of managing them (Majid-zadeh: 1989: 2201).

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60). Although the spatial settlement and distribution of cities comply the natural condition in addition to the influence of historical, cultural, social, economic, political factors, it can be stated that water has a special place as an effective element; in other words, it has played its role in shaping cities [13].

Archaeological explorations have related the earliest periods of living together to those villages that are in the direction of natural waterways. In fact, the urbanization revolution has taken place in Mesopotamia and the beaches of Tigris and Euphrates. Nile Valley, Khuzestan Plain and the Indus Valley are also the cradle and nature of the urbanization revolution along the Tigris and Euphrates (ibid: 222). In order to create urbanization, those lands that have already navigable rivers or large lakes or they have way to reach sea, they would provide the most favorable conditions. Great lands with great populations can only make the river navigable by canals because they have possessed large human resources. For example, more than one million women and men have cooperated for constructing the Royal Canals in China in 6 century AD. These canals were prepared for agricultural usages and local transport food and other products as well [14].

The study of historic cities of Muslims show that despite being located in dry and hot areas, arranging and creating them was the nature and needs of human beings in order to create harmony and balance between the artificial environment. In this regard, attempts of Muslims are to create a harmonious, balanced and habitable area for humans by using natural laws such as water. In addition, water can revive the environment and its application in structures and urban space is a response to resolve the spiritual needs of users [1].

2- Building Cities in the Vicinity of Rivers:
Impact of natural and environmental factors can be titled as the most important factors in the formation and evolution of cities. Human adherence to the ground to meet the elementary needs is only possible in the presence of water. In this regard, the first sparkles of cities are rivers which as lifeline affect the forming, exposing and the way of communicating the areas with each other and the context and face of the city [15].

Rivers may have divided into two kinds in the formation of the cities:
1- Rivers which the primary cores of the city and forts are emerged nearby them such as Qazvin, Dezfool, Shushhtar and the like. We mention two kinds of factors that are important factors in shaping these cities along the river:

The first factor which is the main reason for emerging the cities in the vicinity of rivers is the use of water for agriculture, mills, food and other needs of life. The second factor which caused the formation of cities in one side of the rivers is its defensive role in time of war. For this reason, the majority of them have a bridge in order to prevent enemies in times of war as well as control the traffic at war times (ibid: 455–456).

2- Rivers dividing the main cores of a city into two sides of the rivers. These cities are of two various types:

The first type is those cities that have seasonal and dry rivers with more role of stream for example Tabriz and Kermanshah.

The second type contains many cities of the north part of Iran. These cities does not deal much with water as its defensive role because of locating Alborz Mountains in the south part of these cities and Caspian Sea in the north part. The salient example can be Langhroud where is located between two rivers and the center of Langhrood is emerged around the confluence of the rivers (ibid: 457).

3- Review of Isfahan Urbanization and its Forming on the River Bed:

The city which is known today as Isfahan was the only castle left from the ancient Sasanian era, according to Abu Ma‘shar al-Balkhi, Isfahan was built by Tahmuras order in the northeast edge of Zayandeh-rood and in parallel with it. Isfahan was pronouncing as ‘Isbahan’ for ease by Arabs. It has been called as ‘Sepahan’ in many sources. In early Islam, Isfahan had two parts, Shaharak Jei and Yahudieh where have two miles distance. Jei was also called Fort (Ghal’eh) which later renamed with Madineh (or Shahrestanesh). Yahudieh is also called Jahudestan [12].

Yahudieh was two times larger than Jei. These two cities had been composed the first form of the Isfahan. Its name is due to the time of Bakh-al-Nasr, the Babylonian Jews were brought to the place and were resettled there. As time went on, the two villages are connected with each other and formed today Isfahan [7]. The process of formation and development of Isfahan has started from the time that, according to the author of Mojmal al-tawarihkh, Arabs had built a mosque around the Zayandeh-rood in 21 AH after conquering Shushtar (ibid: 71). The win is got by Abdal-allah ibn-Tomban (ibid: 74).

Various governments and dynasties have ruled in Isfahan and have attempted to develop and increase prosperity. Dynasties such as Dynasties such as the Omavian, Abbasids, Khorramian, al-Abudelf, Homamian and Ziyarid have governed in this region of Iran and attempted to build several buildings. In the era of Hazrat Ali (pbuh), Muhammad ibn-Salih had been appointed as the governor of Isfahan. In that Time, a mosque was build by Abu-Khannas (ancestor of Omar Ibn-Khattab) in the Khashinan village around the Zayandeh-Rood (ibid: 74). This mosque had been exposed as a proper building from the point of security and its defensive role [2].
The first fence and fort of Isfahan was built in 152 AD during the government of Abu Ja'far al-Mansur, a ruler of the Al-Abbas, by Ayub ibn-Ziyad, the ruler of Isfahan [12]. After the stability of Arab government, the city was gradually formed along the perpendicular to Zayandeh-Rood and the first bazaar is settled near the village of Yahudieh [7]. By the time of winning Mard-Avich Ziyari in 316 AD over successors of Badr-Homami (Ibid: 83), new forts and fences were built around Isfahan. Five gates were built in various areas of city which they surrounded the city from North, East and west. From south it was bound to Zayandeh-Rood because the river itself had the defensive role by the south [2]. According to Hamd-allah Mostufi, the south fort was built by Rokn al-Dole with the length of 21000 Steps. Four areas namely Keran, Kushk, Jubare, and Dardasht were emerged around that fort [12].

Isfahan had not developed from the time of Al-Ziyar to Seljuq Era. The only development was resulted in urbanization which accounts the creation of a rectangular square in the city center (Ibid: 277). Bazaar and square have a key role in organizing the Islamic era cities. As mentioned above, the first bazaar was created in Yahudieh in early Islam era. The first square as a key structure was built in Seljuq era. Based on the remained tradition of Sasani city, the bazaar spreads and develops from city center towards the fort and after that time, it was developed gradually [4]. The square, another urban structure, often locates in and often out of the bazaar. This urban structure had had many implications like religious, political or scenic in the Islamic history of the city [2]. They had been accounted as great squares of the city in addition to other structures like school, bathroom and so forth as located in the city center. Other types of the squares were Lord which were small and sporadic in the city for distributing the goods [3]. In Seljuq era, fencing around the cities was important and totally much of the incomes of the kings were cost for building and developing cities. Isfahan was also involved and was faced most of the buildings (Ibid: 277).

In Ilkhanate era, Isfahan was not developed so much and there was not seen any significant activity about urbanization. But successors of Moguls (Timurid dynasty) had done great efforts to create and build cities.
Isfahan was of the most important cities of the time. According to Josafa Barbara, Isfahan was one of the Sunni cities in Iran [11]. In those days, Isfahan was developed from west and south (Zayandeh-Rood) and three gates were added to those of the previous. Tabarrok Fort which was located in the south part of the city was moved inside the city due to developing the city [2].

Picture 3: Location of Isfahan in Timurid Era (Source: Jahanshah Pakzad).

The most important urbanization activities had started in Safavi Era. The actions of the kings were mostly related to the development and repairing the old form of city center of Isfahan. Isfahan were developed from the south-west margin by the central core of Naghsh-Jahan square. Zayandeh-Rood had a role of a religion separator in a way that the territories of Jolfa and Ghobr-abad were the place of Armenian and Zoroastrian in south of Zayandeh-Rood respectively and the place for Muslims in the north part (Ibid: 402).

Picture 4: Isfahan Location in Early Safavi Era (Source: Jahanshah Pakzad).

The Safavi government obeying the old rules had taken some actions for creating water equipments and facilities, digging many wells and canals in order to irrigation and water supplying for important parts of Iran where are around rivers [4]. These activities were such as constructing various drainage networks in some parts of Isfahan which were created in order to recover of penetrating waters of Zayandeh-Rood so that that can help to develop the agriculture affairs [5].
Zayandeh-Rood is the only permanent river in Iran which originates from the Koohrang Mountains in the Province of Chahar-Mahal-Bakhtiari. Its middle part passes from Isfahan [8]. Upper part of the river is a closed basin. Uberloz, a great American scholar, has called it as a part of the Karun Basin and states that today permanent Zayandeh-Rood is a result of torn lake which its corners had changed into as a primary center for settlement (Ibid: 18). Although, historically, the antiquity of Isfahan is spanned less than 2000 years of history, based on the archeological and geographical researches, it has 4000 years antiquity for civilization (Ibid: 18).

Zayandeh-Rood has been taken many names during eras. Geographers, historians and explorers have called it with many names. Ibn-Rustah, 4th AD historian, calls Zayandeh-Rood with “Zarrin-Rood” and states that “the sun time in a day is neither long nor short in Isfahan so that the weather, circumstances, bodies, and intelligence of people are moderate as well. Its water is of the best groundwater because it is from Zarrin-Rood” [16]. In Ibn-Rustah explanations, Isfahan has four gates towards the sunset and sunrise of Polaris and Cancer Star (crab); for this reason, it is called Khur Gate. Isfahan’s important gate is the closest one toward Zarrin-Rood and is the best and most beautiful gate when leaving the city (ibid: 126).

Ibn-Hawqal, 4th AD historian, states that “the origin of Zayandeh-rood is from a big mountain and fills up Isfahan with water. Zayandeh-Rood Water divides into some branches as enters Isfahan and is drunk when needed”.

Martin Sansone, resident clergyman in Safavi court, in his book remembers Zayandeh-Rood and points to Koohrang and Shah-Abbas’ actions for increasing water of Zayandeh-Rood but Sheikh-Alikhan (Raeis-al-Vozara) Prevented shah-Abbas (ibid: 139).

Based on these statements, it can be claimed that Zayandeh-Rood and its branches has a high-important role in agriculture and water supplying affairs in throughout history. Because civilization and urbanization are the result of living together, cropping affairs, agriculture, fertile lands and finally water resources, it is appropriate that we talk a little about the history of irrigation from the basin of Zayandeh-Rood.

Utilization of Zayandeh-rood water refers back to the ancient times of human settlement in this territory. The first utilization of it and divide it into every village have been occurred in Ardashir Babakan government. He was the first person who determined for each village the proper shares. [5]. According to Sheykh Baha’i’s scroll, water of Zayandeh-Rood and its expenses are divided for each village and territory [5]. The boundaries of some villages such as Lanjan, Marbin, Baraan and Kararj are distinguished in this division for where water of Zayandeh-Rood is distributed according to the seeding seasons (ibid: 107). For two reasons, it is attributed to Sheykh Baha’i:

1- Importance of water and water issues in the low water areas such as Isfahan plain;
2- Insufficient amount of water needed in the seasons that it reaches its peak.

Zayandeh-Rood water is divided into many runnels from source to destination which compose the Zayandeh-Rood’s branches and they provide water of a certain area [16]. These runnels are divided into six runnels, Niasarm, Farshadi, Shah, Madyan, Tiran and Ghamesh. River flooding becomes a strong defense system for protecting the city especially in the spring and for this reason, its bridges had been had the military and defense role all the time (ibid: 139). Generally, the divisions of Zayandeh-Rood water and its runnels were programmed based on scientific rules and providing changes into the system may create disturbance in irrigation.
system. In recent years, Koohrang water is attached to Zayandeh-rood through Koohrang Tunnel in order to use better and more of Zayandeh-Rood water [5].

**Conclusion:**

Based on the above-mentioned materials, it is generally concluded that water and water resources have played an important role in the formation and creation of cities with the priority over other natural resources. Usually, the cities are built and developed in the areas that either they have had access to water or the water resources or the rivers and their link with each other have been the main reason for forming cities. The rivers are flowing in the cities as natural elements and are the developmental factors of city and cleaning its environment as well as their important role in improving agriculture and production of goods for people. Isfahan owes its historical and artistic privileges as well as its constant streaming to Zayandeh-Rood due to its location in the margin of the most significant river of Iran. Isfahan’s favorable weather makes the agricultural and horticulture productions desirable which it is the result of water of Zayandeh-Rood. Isfahan has allocated a prominent position for itself because of two logics, on the one hand Because of Isfahan’s special status and special geographical conditions (Being located in the center of Iran and its relation to other major cities from main directions) and on the other hand being located in margin of Zayandeh-Rood in order to attract people for urbanization. This location has been specially considered by government and the strict supervision of Iranian urbanization. This location has been specially considered by government and the strict supervision of Iranian urbanization. Isfahan had being boomed just in time of the Timurid to Ziyaryan government al first fort and tower as re

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**REFERENCES**


