

## Feasibility Study on the Establishment of Ecomuseums in Areas under the Influence of Qanats in Iran

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### ABSTRACT

Since quite a while ago, obtaining water has been an important matter, causing many difficulties due to the arid and semi-arid climates of the different parts of Iran. Iranians' solution to this problem has been digging qanats in the arid plains in order to gain access to groundwater. This system of irrigation has become so vital that in some areas is the only source of water. However, in the current times, due to the development of technology and the excavation of deep wells and the development of the cities, the immaculate balance between man and nature has been manipulated and broken. Therefore, in order to keep the qanats (as sources of life in the arid lands) from drying out, establishing ecomuseums in areas under the influence of qanats seems to be a rather suitable solution to this matter. Ecomuseums can be correspondent with the system of qanats if paired with community management. In this regard, there are significant factors that connect ecomuseums with qanats, including social participation, community management, sustainable development, and tourism. Overall, Ecomuseums can help qanats to passing along to the future generations. This paper aims to extract the main criteria for ecomuseum and compare them with the different components of qanats in Iran. Through investigating the theories related to ecomuseum and a few of the ecomuseums running through the world, in order to evaluate the possibility of establishing ecomuseums in the context of the civilization formed around the knots. Feasibility Study on the Establishment of Ecomuseums in Areas under the Influence of Qanats helps us inspect the influences of establishing ecomuseums in areas under the influence of qanats and keep the amount of damage done to qanats to a minimum.

**KEYWORDS:** Qanat, Ecomuseum, Feasibility study, Iran, Social Participation, Sustainable Development, Tourism

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### 1. INTRODUCTION

The first idea of ecomuseum was formed in the early years of the 20<sup>th</sup> century, in the countries that were severely damaged in World War II, where modernism was born. The best interpretation of the developing process of ecomuseum shaping up has been expressed by Su Donghai (2008):

"After the Second World War, people turned against armed conflict and the industrialized society responsible for desecrating the environment, thus heralding the anti-ideological approaches of today's world. The ecomuseum was born into this climate of protest. Furthermore, in the post-war period, a considerably higher level of criticism was encouraged and traditional museums came under attack, thus facilitating the rise of the ecomuseum concept and a new form of museology." (Donghai, 2008:30)

It was with this idea that the first ecomuseums, before adapting any significant title were established under the name of "social museums". The first ecomuseums were found in France in the 60s. These ecomuseums were located in the national park in France, and were based on the idea of interconnection between the museums and society and the environment. The first ecomuseums can be categorized in two groups: community ecomuseums and discovery ecomuseums (Yi, 2010:5). However, in the 70s, and after the creation of the term "Ecomuseum" by Hugo de Varin and Georges Henri Rivie're, the term has adapted several new concepts to this day, In a way that the new ecomuseums are quite local and can be defined through the area they are located in, This is why ecomuseums can be compatible with any context with different features.

In Iran, due to our natural and cultural heritage, ecomuseums have the potential to be established and developed. Since one of the most important aspects of life in Iran is water and the ways of going access to it, the importance of Qanats as the oldest system for obtaining groundwater in a way that is completely environment friendly should be taken notice of, and due to the compatibility of qanats with different features of ecomuseums, they can be perfect context for establishing ecomuseums.

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## 2. RESEARCH METHOD

Based on the research goal, the qualitative research methodology is chosen and with applying logical reasoning strategy as well as "content analysis" and "logical inference"; this paper aims to analyze the content by recognizing and categorizing international theories and case studies. So, by determining main criteria for recognition of the notion of ecomuseums and comparing them with the different components of qanats in Iran; the context for developing a conceptual framework for establishment and design of ecomuseums in the areas under the influence of qanats in Iran is provided. Moreover, reading and evidential observation based on books such as "A sense of place!" and "The Qanat of Taft"<sup>2</sup>, papers and authentic documents are used as research tools

## 3. LITERATURE REVIEW

The term "ecomuseum" was first brought to notice in the 9<sup>th</sup> international conference on museums, with the French minister of environment as the chairperson in 1979. During this conference Henri Riviere as the head of the museum movement together with his colleague, Hugo de Vrigne, used the term "ecomuseums" to express their theory on the connection between nature and the heritage.

Their goal was to officially introduce a suitable term for the museums that had been established in France since years ago, aiming to form a connection between man and nature and to assign the management of the collections being presented to the community, and being called social museums at the time. The term "ecomuseum" originates in French language; Eco is derived from the Greek term "Oikos", meaning habitat or settlement (Habibzad, 2010).

### 3-1. Reviewing the concept of ecomuseum in the views of experts

Since the introduction of the term "ecomuseum" as describing a new kind of museums until this day, many experts have made an effort to define the concept and goals of it. One of the first definitions was expressed by Hugo de Varine; here's how he describes the term "ecomuseum":

"The primary meaning of the prefix 'Eco' in the term 'eco-museum' as opposed to its use in such general terms of reference as 'economy' and 'ecology', is one that connotes a balanced system between society and the environment: people are central to the existence of social groupings or societies, as they are to human livelihoods and any consequent progress." (De Varine, 1985, cited in Donghai, 2008:33)

On the other side, George Henri Riviere describes the term as a reflection of long historic eras continued from prehistoric ages to the current times, being reactivated. He states that the ecomuseum provide centers for supporting natural resources and also protection and development of the natural heritage and their cultural identity. He indicates a difference between separate ecomuseums and shows that ecomuseums can show different characters compared to each other (Riviere, 1985:182-183).

After the initial definitions expressed by the two founders of ecomuseums in the 70s and 80s, there has been a vast spectrum of definitions for the concept of ecomuseum. The developing process of the term through time is shown in table 1.

**Table 1. The developing process of the theories and definitions related to ecomuseums from the viewpoint of theorists and experts, (Source: Authors).**

Theorists	Date	The main principles in relation to the Ecomuseum	Key criteria
Georges Henri Riviere (France)	80s	1. "Ecomuseums are to be conceived and designed by publicly accountable institutions and by local inhabitants; they should be jointly maintained and be an instrument for shared interests; 2. Ecomuseums demonstrate the nature of the relationship between humanity and nature." (Riviere, 1985:182-183)	1. Social Participation 2. Relationship between humanity and nature
Hugo de Varin (France)	80s	1. "People today understand their own responsibilities – protecting and making balanced use of their environment and natural resources; and protecting, transmitting and conserving, while also enriching, the individual and creative aspects of their cultural heritage. Such sustainable development can be ensured only in this type of ecomuseum environment" (De Varine, 1985, cited in Donghai, 2008:33)	1. Social Participation 2. Sustainable development
Pierre Mayrand (Canada)	1982	"The ecomuseum is a collective, a workshop extending over a territory that a population has taken as its own. It is not an end to itself; it is defined as an objective to be met" (Mayrand, 1982, cited Davis, 1999:69)	1. Social Participation
Sheila Stephenson	1982	"The ecomuseum is concerned with collections management – the collection being everything in the designated area... flora, fauna, topography, weather, buildings, land use practices, songs, attitudes, tools..."	1. Compatibility within environment

<sup>1</sup>Davis, P. 1999. Ecomuseum: A sense of place. Newcastle university press.

<sup>2</sup>Papoli, M. Labbaf, M. 2009. The Qanat of Taft, (in Persian). Mashhad: Papoli.

(Corsane, 2005:375)			
Rene Rivard (France)	1985	Ecomuseums can be defined through their comparison with traditional museums: Traditional Museum = building + collections + expert staff + public visitors 1- Ecomuseum = territory + heritage + memory + population (Rivard, 1985:125)	1.Social Participation Include tangible and intangible heritage
Peter Davis (UK)	1999	"Ecomuseum is a community-led heritage or museum project that supports sustainable development" (Davis, 1999:228)	1.Sustainable development
European Network of Ecomuseums	2004	"An ecomuseum is a dynamic way in which communities preserve, interpret, and manage their heritage for sustainable development. An ecomuseum is based on a community agreement." (Corsane et al., 2009:3)	1.Sustainable development 2.Social Participation
Mirela Stanciu (Romania)	2007	"An ecomuseum is a museum interested especially on the identity of a particular place, based largely on the local contribution and aims to increase living standards and local communities" (Stanciu et al., 2008:126)	1.Social Participation
Su Donghai (China)	2008	1. "The concept of the ecomuseum can only flourish through a process of localization. Each ecomuseum can only prosper in response to its own particular surroundings and must co-exist with development endeavours. 2. The ecomuseum is not a panacea for the protection of ancient cultures. It goes hand-in-hand with the modernization of ancient cultures and is only one contributor to cultural development." (Donghai, 2008:38)	1.The theory of ecomuseums being localized against their globalization 2.Sustainable Development (Integrated Conservation and Development)
Zahra Habibizad (Iran)	2009	1.The philosophy of ecomuseums is mixed with a spectrum of different goals, including protection of the environment and cultural heritage in order to encourage tourism and economic development in rural areas (Habibizad, 2010:66)	1.Tourism

A study on the process of the development of ideas expressed by theorist over time shows their effort to define and explain the meaning of ecomuseum. A concept that was at first aiming to create a powerful bond between human beings and the environment, provide the social participation in founding ecomuseums and assigning the management of ecomuseums to the local community, with the passage of time and the necessities of modern life, has placed emphasis on the sustainable development along with the connection between man and the environment and the importance of local communities. The latest effort of the theorist in this field has transformed the meaning of ecomuseum into a modern structure for meeting the demands of the modern age, or in other word, a sustainable structure. Although a comprehensive definition of the ecomuseum seems to be out of reach, ecomuseums can be defined based on their facilities, features, and the cultural – environment needs of their area. In other words, ecomuseum is rather a local concept than a global one. Because of the fundamental role the humans play in the planning territory of ecomuseum, it cannot be imagined that the ecomuseum could have a universal definition, not considering the special features of its local context. That is why the ecomuseums try to maintain the local traditions with to the globalization phenomenon in comparison to the traditional museums. Besides, in the past few years, ecomuseums have moved towards creating sustainable tourism and how made tourism a priority for raising the living standards of the local community. Preserving the traditions of the local community along with preserving the structure has been a priority for the theorists. However, in the recent years, this matter has absorbed quite a lot of attention as an intangible heritage. Overall, reviewing the theories of experts about ecomuseum shows the importance of four criteria, including the Compatibility within the environment, sustainable development, social participation, and tourism.

### 3-2. Reviewing the case studies for the sake of defining the concept of ecomuseum

Establishing different ecomuseums around the world has to the uprising of new concept related to ecomuseums. These concepts have in some cases appeared in the extents of the area under the influence of the ecomuseum; therefore ecomuseums are diverse regarding their geographic location, from the Kalyna ecomuseum in Canada occupying several hundred square meters, to the Hemp ecomuseum in carnagnole in Italy, covering houses with the area of only a few square meters. In addition, sometimes these concepts have appeared in the basics of forming an ecomuseum; since ecomuseums protect their subject of display, subject such as tourism, revitalization old occupations, sustainable development, protecting the environment and living creatures, are the result of ecomuseums' activity.

An analysis of the ecomuseum observatory database ([www.irespiemonte.it/ecomusei/](http://www.irespiemonte.it/ecomusei/)) indicates that 98% of ecomuseums are located in rural areas and emphasize the link with local history, local landscapes, natural resources, biotopes, and agricultural practices. Since the advent of ecomuseums to this day, approximately 400 ecomuseums have been established throughout the world (Borrelli, Davis, 2012:34).

Each of these ecomuseums was founded considering the special feature fit for local condition and their relative factors.

Some of the world's ecomuseums are introduced in table 2, each one representing their society's special point of view towards the idea of ecomuseum.

**Table 2. The most important international case studies to define the concept of the ecomuseums, (Source: authors).**

Purpose of the project	Case study	Main content of the project	Key criteria
Ecomuseums aiming man and his habitats	Danish lake (Europe)	The Danish lake district ecomuseum offers an impressive nature, an interesting cultural history, important monuments and relics from different areas of Danish history. The area cover by this museum is the county Skanderborg, which was abolished in 1970, with 1719km <sup>2</sup> . This ecomuseum aims to strengthen and improve the presentation of culture and nature in the region to offer locals and visitors alike the best experiences and opportunities. (Stanciu et al., 2008:127)	1. Conservation of environment 2. Tourism
Ecomuseums aiming animals and their habitats	St. Lawrence Valley (Canada)	Montreal ecomuseum is a form close to the wildlife park, organized in nature, showing swamps and wooded areas, home to 30 different animals, all native to the land of Canada. (Stanciu et al., 2008:127)	1. Conservation of environment
Ecomuseums aiming human communities	Berslangen (Sweden)	The ecomuseum of Berslangen, Sweden offers a visit back in time to see how early industrialization process began. You can visit forges, coal mines, foundries, furnaces, mills, canals, dams and villages reconstructed. These ecomuseums are members of the "Federation of ecomuseums And society museums", created in 1898 at the initiative of 28 ecomuseums. (Stanciu et al., 2008:127)	1. Social Participation
Ecomuseums boost the tourism industry	Sibiu (Romania)	The ecomuseum in the sibiu district in Romania is one of the museums founded with the purpose of executing local & regional development programs for helping to support the cultural heritage and eco-tourism potentials and promoting tourism with rural qualities with the support of the Romanian ministry of culture. The beneficiaries are mainly locals who profit from the ecomuseum and its large number of visitors and users. (Stanciu et al., 2008:127)	1. Tourism 2. Increase living standards
Ecomuseums react to industrialization	Guizhou (China)	Ecomuseums in China were founded in reaction to the rapid procedure of industrialization in the Chinese society followed by the vast destructions of natural and social environment. The first ecomuseum in China was established in Guizhou province in the mountains in the city of Liupenshui, aiming to protect the Miao race and create a stable economy based on the woven crafts made by women and the ploughing done by men and finally preserving the ancient culture of the district. Knowing the fact that the people emigrate from the area in order to obtain water due to the aridness and high altitude; the ecomuseum can help the management of the district to improve the living standards of habitation. (Donghai, 2008:35)	1. Sustainable development 2. Reaction to industrialization
Ecomuseums help to revitalize the traditional occupations	Della Canapa (Italy)	This small site museum has preserved the last rope works that survive in the parish of St. Bernardo, Carmagnola, south of Turin; the project was initiated and is managed by the St. Bernardo Historical Association. The site was purchased in 1997 and since then a strong volunteer force has been established that manages the site and gives demonstrations. (Corsan et al., 2007:226)	1. Social Participation 2. Revitalization the traditional occupations

Reviewing the case studies in different area shows that all ecomuseums were founded with the participation of the local people and beneficiaries and most of them were turned into ecomuseums with the decision of different castes and under the supervision of local society. Thus, the local society can be regarded as the main criteria in founding ecomuseums, which with the participation of their founders; can take responsibility for the management of the district. On the other hand, due to the local nature of ecomuseums, the subjects' forming their activity varies from one district to another. Therefore, the main goals of founding ecomuseums in different areas may cover a variety of subjects including environment protection or revitalizing local occupations. Studying the different cases of ecomuseums around the world reveals the importance of social participation along with criteria such as sustainable development, tourism and environmental protection; which can be regarded as the main criteria for establishing ecomuseums.

#### 4. Qanat in Iran

Iran is located in a hot and arid area and the average annual precipitation is about 250mm, while the average annual precipitation throughout the world is 860mm (Behboodi, 2010:57). That is why providing drinkable freshwater has been one of the fundamental problems in Iran. Due to these conditions, the social life and the survival and growth of cities and villages depends mostly on their access to surface and groundwater flowing on the surface of the ground through qanats.

Qanat is a gently sloping tunnel which drains groundwater from aquifer and leads it to the surface by using gravity flow conditions. In fact Qanat benefits from the differences between earth surface elevations to convey water from the upstream aquifer to the earth's surface down slope. To do this, Qanat enjoys a number of vertical shafts, a subterranean canal and a mouth. In other words, a qanat is a combination of some shaft wells and a horizontal tunnel with a gentle slope (less than surface gradient) to collect the underground water and drain it

out to a place down the slope. Therefore, qanat can be considered a groundwater drainage system that conveys underground water to be used for drinking or irrigation.

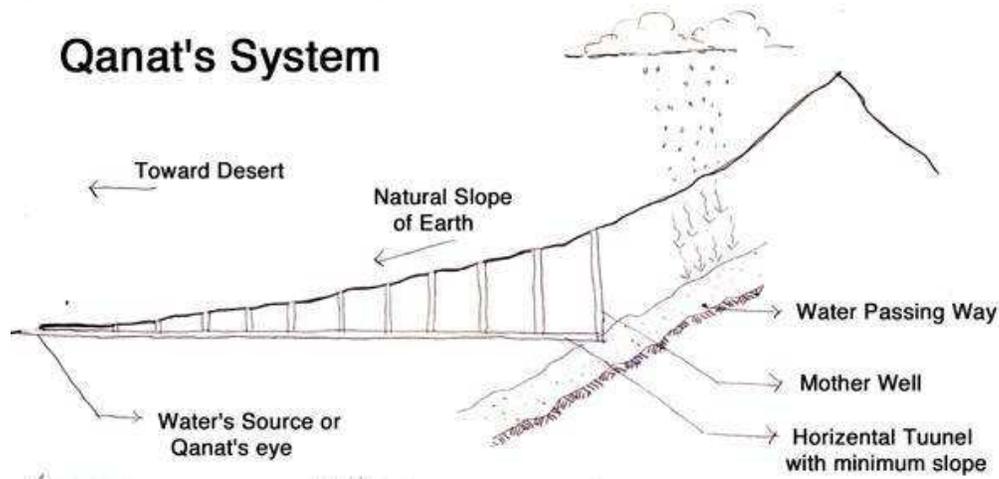


Figure 1. Qanat diagram in Iran  
(Source: International Centre of Qanats and Historical Hydraulic Structures (ICQHS))

In Iran, in the course of history, qanat has had many ups and downs. Sometimes the qanats as well as the qanat diggers were supported and encouraged by the governments, and at other times were deserted. Over the past 3000 years, the system of qanat has underlain many technological, social, moral, economic and legal principles that have formed an important part of the Iranian culture. This principle has evolved into the present state by being passed from generation to generation. The present generation is supposed to build on these principles behind which there are three thousand years of history, not to forget about them. The most important factor in repairing and cleaning qanat is manpower (Papoli et al., 2009:1-3).

In the course of history, almost all the agricultural societies in the central plateau of Iran lived off the groundwater resources obtained from qanats. Although the advent of modern pumped wells leading to over-exploitation of groundwater has taken a heavy toll on the qanats in this region, in some areas this technique has retained its vital role. At present, throughout the country 37,000 active qanats are running, with a total discharge of 7000 million cubic meters a year, making up 11% of the overall withdrawal of our groundwater resources. This considerable volume of water from the qanats goes to the agricultural sector. The diagram below shows the portion of qanat output in the country. (International Centre on Qanats and Historical Hydraulic Structures (ICQHS))

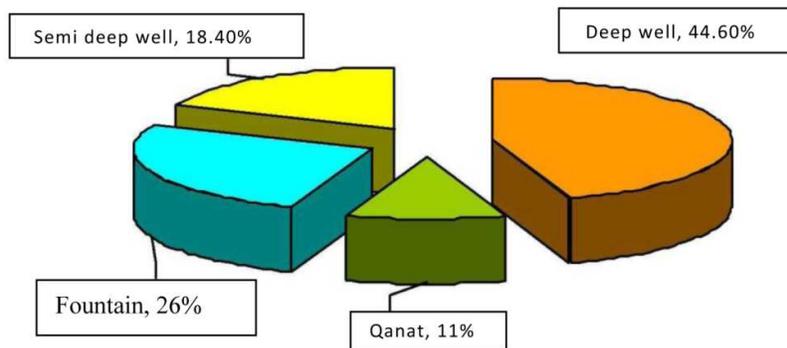


Figure 2. Portion of qanat output in the country  
(Source: International Centre of Qanats and Historical Hydraulic Structures (ICQHS))

Whereas with the help of western technology in providing cities and village with water in the past few decades, since the 60s, irreparable damages was done to Iran's natural resources. Thus, it is feared that the life of Iranians could be a danger due to these destructions, since the limited source of groundwater would suddenly run out, in a way that recovering them would be impossible according to the hot and arid climate of this country.

With the source of groundwater running out, the qanats that were once considered as the only source for obtaining water in many of the plains in Iran will be drying out, turning into derelict structure, abandoned in the plains, leading to the abandoning of the village. For example, in the plains of Gonabad in KhorasanRazavi province, qanats are the only source of water and many occupations are directly linked to them; for about 89.4 percent of the income of people in Gonabad comes from agricultural activities, therefore the qanats' water supply is of the crucial importance for life in many areas (Taleshi et al, 209:54).

Aside from all these matters, the science and techniques of digging qanats and dredging them, which is essential to the life of qanats, is being forgotten which endangers the continuity of life of qanats, although many communities in Iran depend on them for survival. Thus a comprehensive program is needed to organize this complex system and cultural heritage and adjust it to the modern age changes.

### 5. Result: Ecomuseums and qanats in the land of Iran

Ecomuseums, presenting a new way of displaying cultural product in modern time, are the closest in philosophy to the qanats' civilization, so that according to one of the definitions of ecomuseums by Peter Davis, an ecomuseum is a place to encompass different features such as the participation of local people, museum, and the cultural, social and natural environment (Eshrafi, 2010:65). Although all of these are part of the philosophy of qanats, one of the chief goals of ecomuseum is protecting its subject of display. Many solutions can be brought up for the protection of qanats' civilization, but in the case of establishing ecomuseums in areas under the influence of qanats in order to protect them together with a balanced development, they can be a multifaceted solution that covers the variety of different aspects in this land. In this regard, the harmony between ecomuseums and qanats and the methods of protecting qanats can be reviewed under the following topics, according to the factors derived from tables 1 and 2;

- **Compatibility within environment**

It is impossible to imagine the concept of qanats, not having any interaction with the surrounding environment. The philosophy of qanats is interaction and compatibility with the environment, for example, qanat system works only with the force of gravity and does not consume any kind of fuel unlike pumped wells and it just drains out the overflow of groundwater and does not throw the aquifer inflow-outflow off balance. On the other hand, the tireless efforts of our people in this country for dominating nature has been through adaptation to the environment, whether in digging qanats or in obtaining water and utilization of groundwater resources in order to improving the surrounding environment for people who try to survive in a hostile environment. Whereas one of the main principles of ecomuseums is the environment they are aiming to protect; the environment that has qanats as an inseparable part of them after many centuries.

On the other hand, qanat is the only source of life in many parts of Iran, such as Yazd in the central part of Iran, where the main reason for the existence of the city, it's the surrounding green areas were the qanats, they were constructed many years ago; Therefore, any changes that endanger the qanats, also the life of the communities depending on them in jeopardy.

Not only does not establishing ecomuseums in the plains of Iran prevent the protection of qanats, but also qanats can be the main subject of the ecomuseums according to the definition given to the concept of ecomuseums.



Figure 3. Qanat wells excavated in the desert, near the city of Yazd, Iran  
(Source: International Centre of Qanats and Historical Hydraulic Structures (ICQHS))

- **Sustainable development**

Qanat has always been a sustainable natural system and ecological very valuable, since this system is not a threat to the groundwater resources and is the most suitable method for obtaining and utilization of ground water towards sustainable development. This procedure has gone on for many years ago to this

day, but nowadays, due to the unbalanced development of the city, the maximum usage of fresh water, the high agriculture productions, excavation of pumped wells, and economical profits in large scale, an unbalanced development has occurred, causing the qanats and groundwater resources to dry up.

Even so, the ecomuseums, being born from the sustainable development movements, are compatible with the philosophy of sustainable development, so that they guarantee the sustainable utilization of natural resources and the culture and durability of the target society. In this regard, Peter Davis reckons ecomuseum to be a heritage project based on sustainable development (Davis, 1999).

As a result, establishing ecomuseum can lead the process of development toward creating a good balance between heritage resources, urban development, and the needs of human beings in the modern age. In other words, ecomuseum can reduce the effect of the consequences of the unbalanced development and guarantee the durability of qanats in their cultural context.

- **Social participation**

Without doubt, the participation of local people is a fundamental principle in the philosophy of the existence of qanats and is one of its social purposes, since the procedure related to the excavation and dredging of qanat depends on a group effort and cannot be performed by one person (Behboodi, 2010:58). This is also in the same direction as the goals of sustainable development. Traditionally qanats are built, protect, repair and restore by a group of skilled laborers, *muqannīs*, with hand labor. The profession historically paid well and was typically handed down from father to son (Kheirabadi, 1999). In addition, a qanat is an extended system which is subject to a variety of detrimental factors, from crumbling soils to water pollution, so a qanat system has to be repaired and cleaned once in a while. The most important factor in the repairing and cleaning of qanats is manpower. A qanat construction team is between three and six people, depending on the length of the qanat and the depth of the wells. This participation and groupeffort has turned into an inseparable and vital tradition for excavation of qanats over the years, which has formed a connection with the religious, cultural, and social roots of Iranians and depends its life on them. The structure of an organization formed by local people stayed untouched for many years in line with the life of qanats and could possibly be the main reason for protection of qanats all along. The management structure of this non-governmental organization has stayed intact being exposed to many political, economical, social, and cultural changes through time. Probably one of the advantages of the structure of qanats in Iran compared to other cultural heritage is the community management discussed above, continued since the times of qanat excavation. Manipulating the qanat based civilization in any way that will affect its structure must be with hesitation.

However, ecomuseums are a different matter in this area, since an ecomuseum is a museum that focuses on the identity and characteristics of the area and is formed with the help of social participation (Habibizad, 2010:37). In other words, not only are the ecomuseums not in contrast with the tradition of community management, but also they support the idea of it, so that they reinforce this structure by assigning other aspects related to qanats, including tourism, economy, etc. to people.



Figure 4. digging a well of qanat by *muqannīs* in Yazd

(Source: International Centre of Qanats and Historical Hydraulic Structures (ICQHS))

- **Tourism**

The fact that our ancestors extracted the water from the ground and revived the parched field with it using great intellect is not only extraordinary, but quite astonishing beyond imagination, whether from the technical and engineering aspect or their world view or attitude towards the matter, which together reveals more wonder about this hidden structure in the heart of ground.

Introducing a few examples of qanats in Iran could probably clarify these wonder a bit more; such as the qanat in the town of Gonabad which is the deepest qanat in Iran with the depth of 320 meters in

mother well, or the longest qanat located in Yazd, reaching 70 kilometers in length, the two-leveled qanat of the Moon in Ardestan or the Vazvan qanat with underground dam in gallery of qanat for the storage of water during winter (Iran Cultural Heritage, Handcrafts and Tourism Organization, ICHTO) and many other examples that are awe-inspiring.

In this regard, it's fair to say that one of the regions that can draw the attention of capitalism and the tourism associated with it is life in the shadow of qanats' civilization. What explains this attention is the tourists' emotional experience of the special geographic ambience in the qanats' environment through connecting with all the original aspects of this civilization, staying intact over the years. But how can tourism be in collaboration with this culture? Probably what makes ecomuseums special in this regard is the fact that in ecomuseums, the environment and culture of the area is turned into tourist sites with decision of Local associations; therefore, ecomuseums project an image of the cultural heritage that pleasant for the people of the district. In other words, the tangible and intangible heritage of the area is selected defined by its own people and then introduced to the tourists (Habibizad, 2010:39). On the other hand, one of the goals that ecomuseums try to achieve is the improvement of the living standards of people in the area through establishing a sustainable economic development in the district via leading the tourism towards a more sustainable form that meets the demands of the local communities. Running the programs for revival, aiming to increase the number of tourists and development in the economy, and preserving the local values of the region is some of the goals of ecomuseums, which are all necessary for the qanats' civilization.



Figure 5. Qanat of Kish in south of Iran that prepared to visit  
(Source: Iran Cultural Heritage, Handcrafts and Tourism Organization, (ICHTO))

According to what was mentioned above, the following conceptual framework is introduced:

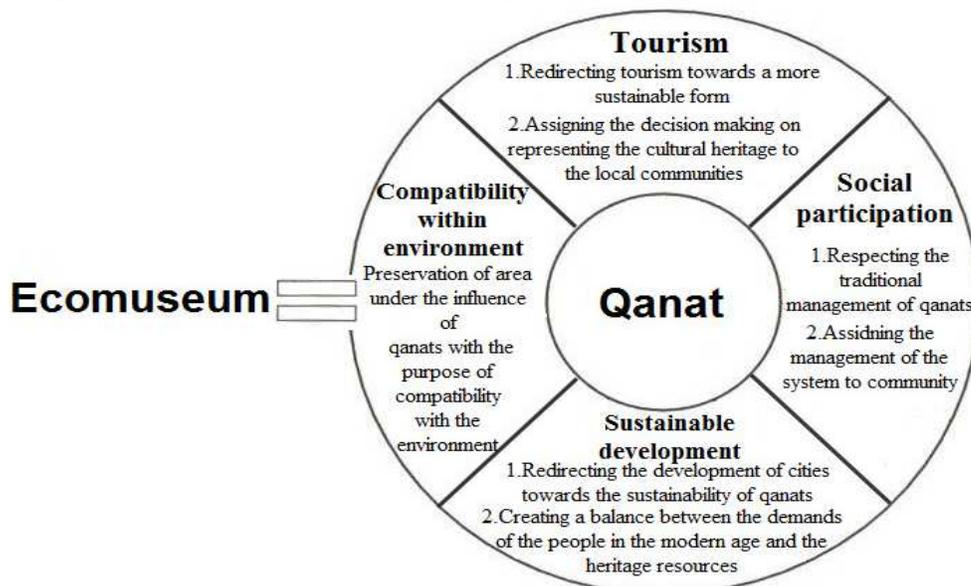


Figure 6. The conceptual framework of relation between qanat and ecomuseums, (Source: Authors).

## 6. Conclusion

Thousands of years after the excavation of qanats in Iran, followed by the civilization generated in their area of influence, a significant part of Iran is still under the domination of qanats and the system associated with them. The transformations due to the urbanization and urban development in recent years have exposed the qanats to the danger of annihilation. Which, if taken place, can destroy many of the populated areas in the vicinity of the desert. This alone is enough to realize the importance of stability and sustainability of the life of qanats; though there are many other aspects that would be endangered if qanats were to die. Ecomuseums have been established holding the title of social museums since many years ago, to create a bond between human beings and their environment, and are considered to be one of the best solution for preventing the destruction of qanats, due to the similarity of their principles to the qanats' philosophy; principles such as compatibility within environment, sustainable development, social participation, and tourism, each one covering a significant aspect of the qanats' system. The establishment and design of ecomuseums in the areas under the influence of qanats, not only is highly compatible with the criteria of qanats, but also prepares the qanats for continuing their life in today's world. Ecomuseums, introducing a new concept of museums with all their human aspects, present the culture and different aspects of a civilization, together with an effort to strength the traditional structures and redirecting the unbalanced development to a sustainable development. Overall, if ecomuseums were to be designed and built in the areas under the influence of qanats, considering the four main criteria, not only would they strengthen this traditional structure, but they would also be effective in passing it along to the future generations.

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