

A Study of Tourist Destination Capabilities at Water Structure Sites of Sistan and Baluchistan Province, Iran

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Abstract :Resources and attractions comprise world's tourism. Identifying and investigating these resources and attractions are the basic elements of tourism planning. In recent years, dams have become important in tourism. The construction of dams is considered an important factor of development in today's world. Dams create large bodies of water, providing a peaceful environment for tourists. Iranians were among the first world's civilization in dam construction. This article aimed to investigate dams in Sistan and Baluchistan Province and tourism and recreational development capabilities. EP (Ecotourism Potential) Model was used to investigate and rank tourist attractions at water structures. This is an analytical study. The statistical population consisted of the around 100 experts working in Regional Water Organization of Sistan and Baluchistan Province of Zahedan, Iran who were present in dam projects as well as the tourism experts. A sample of 75 was selected using Cochran's formula. The results showed that tourism services and facilities are not optimal at dam sites, which is mainly responsible for lack of tourism development of water structure tourism.

Keywords: Tourism, Water Structures, Services and Facilities, Sistan and Baluchistan Province, Iran.

INTRODUCTION

Tourism and leisure-time activities in a new way are a modern, inseparable phenomenon of industrial society and it is an important chain in its reproduction (Momeni, 2007: 15). Today, tourism in the world is one of the main sources of revenue and effective factor in cultural exchange among countries. It is also of great importance as the most extensive global service (Fani et al., 2012, 102). According to the statistics by the World Tourism Organization in 2000, the number of world's tourists was reported over 701 million. This has caused the entry of almost \$ 475 million directly into the global economy cycle. The number of tourists increased to 922 million in 2008 and the revenue was reported \$ 944 billion (ibid). Undoubtedly, many countries are engaged in an intense competition to obtain social, economic, and political advantages and increase the employment rate caused by tourism optimization (Hall & Jenkins, 1998, 17). Therefore, tourism is considered an effective tool for political, cultural, and economic development in policies and plans (Khataee et al., 2008, 3). Dams are among the newly-emerged tourist attractions in recent years. Dam reservoirs are increasingly used for recreational purposes; however, these have not been the primary goals of dams (Qaderi et al., 2007, 1-15). In Iran, dams are considered family tourist locations. For example, Karkheh Dam¹ is open to the public visit during the Iranian New Year. The families residing in Khuzestan province, Iran use the environment and lake behind the dam. The Shahid Abbaspour Dam² (also known as Karun-1 Dam) is a recreational center around Masjed Soleyman and Izeh. Amir Kabir dam³, also known as Karaj Dam, Sefid rud Dam⁴, and others are tourist destinations in Iran. No certain organization has been made for these dams and people visit these places because they are interested in spending the holidays there. Except for the employees working in dams, there are few people who know about the construction technology, technical specifications, and even the applications of dams. This shows lack of scientific tourism. Meanwhile, there is pristine nature around dams, adding to the prosperity of tourism in dams (Rahimi and Ranjbar Dastae, 2012, 3). This article aimed to investigate dams of Sistan and Baluchistan province and their capacities for tourism and recreational development. Certain

¹ The Karkheh Dam is a large multi-purpose earthen embankment dam built in Iran on the Karkheh River in 2001 by the Islamic Revolutionary Guards Corps. The dam is in the northwestern province of Khuzestan, the closest city being Andimeshk to the east.

² It is a large arch dam providing hydroelectricity from the Karun River; it is located about 50 kilometers (31 mi) northeast of Masjed Soleyman, in the province of Khuzestan, Iran, and originally completed in 1976 and formerly named "Reza Shah Kabir Dam". The dam was the first of a series of dams planned for development on the Karun River.

³ It is a dam on the Karaj River in the Central Alborz mountain range of northern Iran. It is located 63 kilometers northwest of Tehran and 23 kilometers north of Karaj.

⁴ Sefid Rud Dam is a buttress dam on the Sefid Rud in the Alborz mountain range, located near Manjil in Gilan Province, northern Iran. It was constructed to store water for irrigation and produce hydroelectric power

ecotourism and geo-tourism features have attracted many people to visit them. Proper conditions of dams and the necessity for planning led to the selection of these dams as case study. Therefore, using the experiences of other countries helps take measures in order to develop dam tourism in dams. To this end, some world-known dams from the perspective of tourism are as follows:

Shahsta Dam in California, USA: The dam and its lake have formed a tourist town. This tourist city has a website to introduce dam tour and services. In this website, very beautiful pictures are available from the dam and its surrounding areas.

Hoover Dam: is near Boulder City in Nevada. That is why it is also known as Boulder Dam. 215 m high dam wall of gray awesomeness amazes tourists for moments. The structure of the dam has created huge and amazing lake called Mead Lake, suitable for boating, fishing, swimming and hiking to visitors as well as other recreational opportunities.

Gaborone Dam in South Africa: has been constructed on Notwane River. It is one of the most famous dams which have become a tourist attraction. High hills and woodland have surrounded the dam, creating a spectacular tourism vision.

The study by Daneshmand Sheikh Al-Eslami et al. (2011) on Recreational Use of Lakes behind Dams (Case Study: Fariman Dam, Iran) showed that a proper recreational planning plays a key role in regional tourism development, revenue for maintenance costs of dams, and economic development of the region. In this study, they proposed certain recommendations to develop recreational activities such as boating, fishing, swimming, and sight-seeing. The number of visitors was also estimated in this study.

The study by Rahimi and Ranjbar Dastae (2012) on the analysis of strategic planning for tourism development in Karun Dam using SWOT model showed that the region under study has 29 strengths with weight score of 3.461; 20 opportunities with weight score of 3.389; 26 weaknesses with weight score of 3.227; and 14 threats with weight score of 3.239. These figures show relatively high capability of the region for tourism development; however, the weaknesses and threats have blocked the implementation of capabilities. Finally, strategies were recommended for developing tourism.

Firuzi et al. (2011) investigated the ecological power of Shahid Abbaspour Dam Tourism Region with a focus on sustainable tourism development. Their findings showed that the region has two decentralized and vast areas. The results also showed that economic investment in centralized tourism was not cost effective due to high slope. Extensive recreation is believed to be the best type of tourism in this region due to high slopes and improper soil.

The study by Qaderi et al. (2007), entitled Iranian Dams: Objective of Construction and Necessity of Paying Attention to Domestic Recreational and Tourism Perspectives, investigated the recreational goals of dams in the world and developed countries such the USA. They concluded that, unfortunately, Iran has not paid much attention to dams in terms of recreation although there are numerous dams.

So far, no comprehensive study was conducted on water structure tourism. Sistan and Baluchistan province is located in south east part of Iran with multiple and various tourism capabilities. It hosts numerous tourists annually. However, it seems that tourism capabilities of water structure and lakes behind dams have not optimally been used and were not successful in attracting tourists. Tourists have been dissatisfied for different reasons.

RESEARCH METHOD

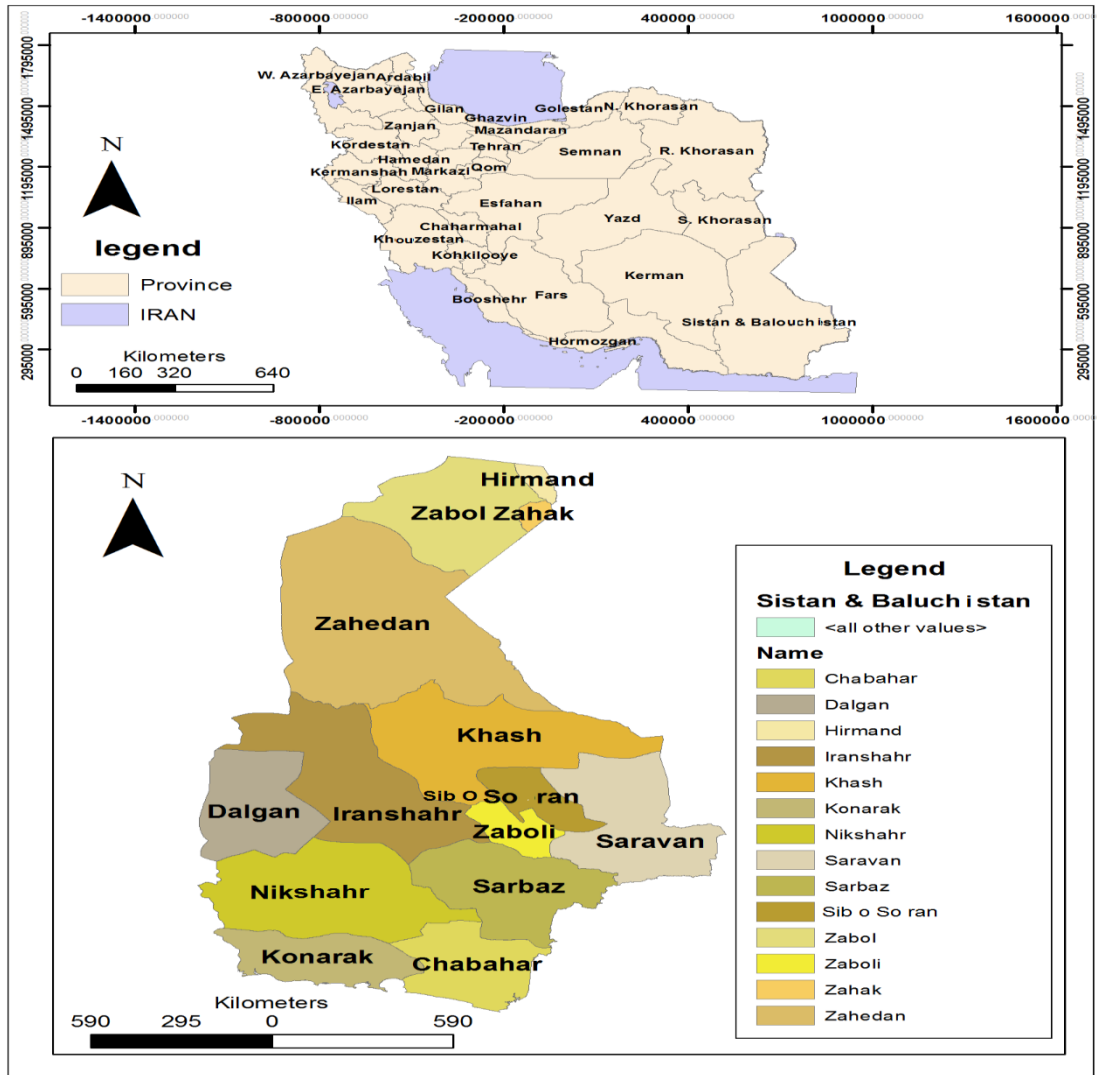
This is an applied study in the field of geography. It is also a descriptive-analytical study. A desk and field study was performed in descriptive section. Ecotourism Potential (EP) model was employed to evaluate and rank tourist attractions at water structure site. Five components were ranked: Tourism Resources (Natural, Cultural, and Man-Made), Surrounding Attractions, Welfare and Infrastructural Facilities, Access, and Local Communities. The score of each component shows the extent of tourist attraction potential.

AREA UNDER STUDY

With an area of 187,502 km² accounting for 11.8% of Iran's area, Sistan and Baluchistan province is located between 25° 3' and 31° 28' N latitude and 58° 49' and 63° 20' E longitude. The province borders with Southern Khorasan Province to North, the Oman Sea to South, Afghanistan and Pakistan to East, and Kerman and Hormozgan provinces to the West. On the east, Sistan and Baluchistan has 1800 km land border with Afghanistan and Pakistan and 300 km water border with the Oman Sea to the south. According to the national divisions in 2011, the province has 14 cities, 36 towns, 40 districts, and 102 villages. According to the last General Census of Population and Housing in November 2011, the population of Sistan and Baluchistan is

believed to be 2,534, 327 (50.1% male and 49.9% female) (Statistical Year Book⁵ of Sistan and Baluchistan Province, 2011)

Sistan and Baluchistan Province consists of two distinct areas: Baluchistan with an area of 172,305 km². Zahedan, Khash, Saravan, Iranshahr, Nikshahr, Chabahar, Sarbaz, Konarak, Dalgan, Zabol, Sib o Soran, Qasr e Qand, and Fanooj are located in this region. Sistan, however, covers Zabol, Zahak, Nimroz, Hamoon, and Hirmand with an area of 15,917 km² (Sistan and Baluchistan Portal). Map1 shows the geographical location of Sistan and Baluchistan Province in Iran.



Map 1: Geographical Location of Sistan and Baluchistan Province, Iran

Sistan and Baluchistan has semi-desert and desert climate. Average annual rainfall in the province is about 100 mm and the average temperature varies from 22 to 37 degrees Celsius. July and August are the hottest and January is the coldest month according to almost all the synoptic stations in the province. The maximum temperature varies between 36°C - 44 °C and the minimum temperature varies between 14°C - 25°C. The maximum humidity is reported in the province's coastal areas (Chabahar and Konarak). Minimum relative humidity is reported in Zabol station and around Khash, Saravan, and Zahedan stations. Relative humidity varies between 28% - 66% (Statistical Year Book of Sistan and Baluchistan Province, 2011)

Water Structures in Sistan and Baluchistan Province

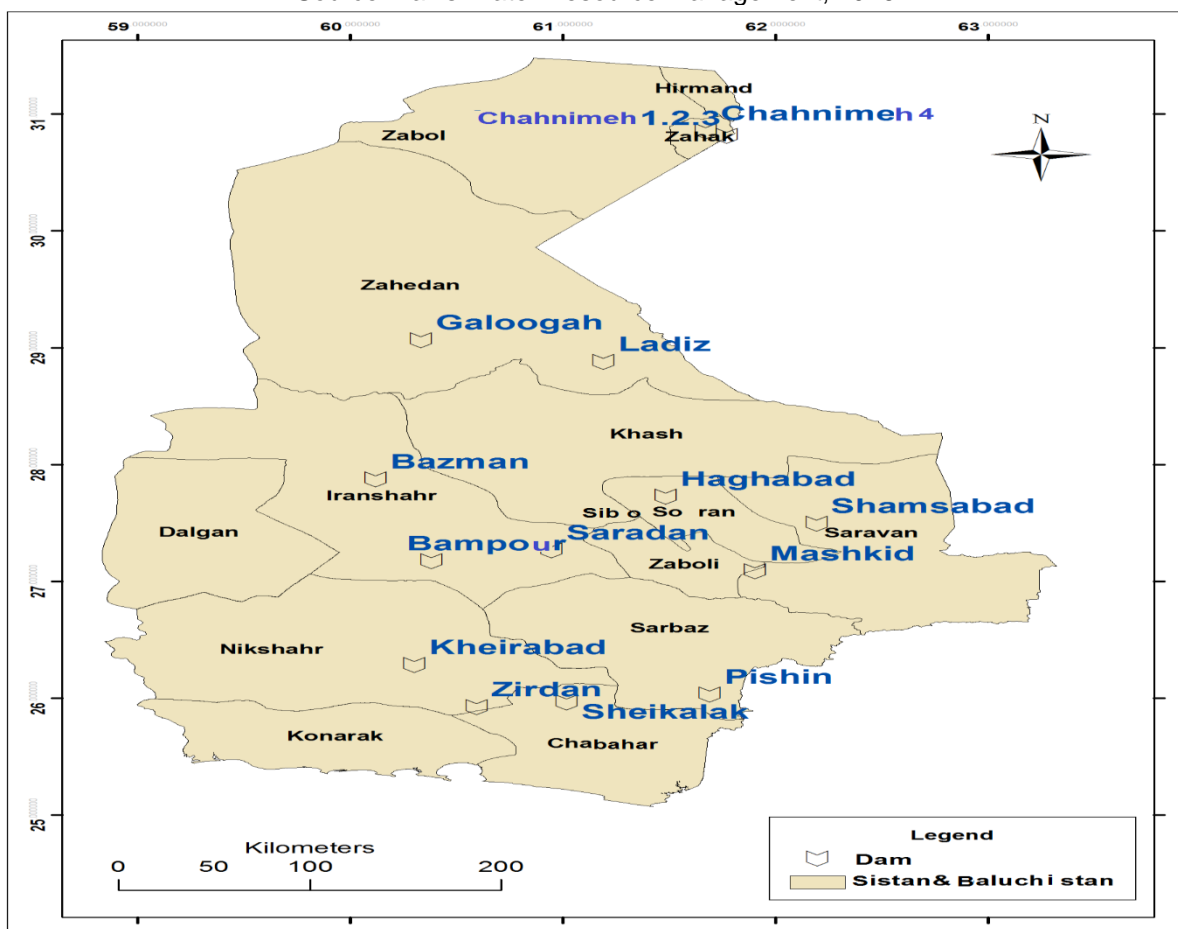
There are total number of 21 operational dams, 2 under construction, and 17 under this study (Table 1). Out of this number, 14 operational dams are significant in terms of tourism. Fig. 2 shows the geographical locations of the water structures.

⁵Statistical Year Book includes the latest information on economy, population, and cultural and social affairs helping decision makers, planners, researchers, etc. in different fields. It has annually been published since 1966.

Table 1: Dams in Sistan and Baluchistan Province

No.	Type of Dam	Name of Dam	No.	Type of Dam	Name of Dam
1		Pishin	1		Lond
2		Kalak Hasarouyieh	2		Karyani
3		Galoogah	3		Bandini
4		Bazman	4		Teradan
5		Kheirabad Nikshahr	5		Roud Mahi
6		Zirdan	6		Karvandar
7		Saradan	7		Irandegan
8		Sheikalak	8		Malounchegan
9		Morad Abad	9		Dalga, Dour, Kalae
10	Operational	Markouk	10	Under Study	Abkhan (Chah Shahi)
11		Kalan	11		Kalehgan
12		Mehran	12		Ghasreghand
13		Ashar	13		Gazou
14		Gosht	14		Sergan
15		Haghabad	15		Sarabdouk
16		Mashkid	16		Esfand
17		Shamsabad	17		Shitab Bamposht
18		Bampour	1	Under Construction	Kahir
19		Chahnimeh 1, 2, and 3	2	Construction	Goharkouh
20		Chahnimeh 4			
21		Ladiz			

Source: Iran's Water Resource Management, 2016



Map 2: Geographical Locations of Water Structures under Study, Sistan and Baluchistan Province, Iran

DISCUSSION AND RESULTS

Out of 21 operational dams in the region, 14 were selected to rank the water structure attractions and tourism components, as shown in Table 2. Other dams are either located in impassable locations or have problems to serve the tourists. EP model was employed for the analysis. Five components were taken into account to evaluate and rank the natural attractions: Tourism Resources (Natural, Cultural, and Man-Made), Surrounding Attractions, Tourism Welfare Facilities (Educational, Recreational, and Infrastructural), Access, and Local Communities. According to these components, the dams were ranked using the scores. Formula 1 was used to rank the dams as following:

Formula 1: $EP = P / N$

EP= Ecotourism Potential

P= Total Sum of Positive Points

N= Total Sum of Negative Points

Positive or negative points were given based on the opinions of experts and interviews (Karimi and Mahboub Far, 2011, p 83).

EP Model Procedures

Scoring Attractions Based on Components

Table 2: Matrix for Tourism Scores and Potentials of Water Structures, Sistan and Baluchistan, Iran

Component	Location															Total	Positive	Total EP
		Mashkid	Shamsabad	Bampour	Bazman	Pishin	Haghabad	Kheirabad	Sheikalak	Chahnimeh 1, 2, and 3	Chahnimeh 4	Ladiz	Saradan	Zirdan	Galoogah			
Tourism Resources	Natural	-	-	-	-	-	-	-	-	+	+	-	-	-	-	12	2	0.61
	Cultural-Historical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	
	Man-Made	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	14	
Surrounding Attractions	Weather	+	-	+	+	+	+	-	+	+	+	+	+	+	+	2	1	2.18
	Special Landscapes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	14	
	Rivers and Lakes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	14	
	Water, Winter, and Mountain Sports	-	-	-	+	-	-	-	-	+	+	-	-	-	-	11	3	
	Educational Experiences (Rituals)	-	-	+	-	+	-	+	-	+	+	-	-	-	-	9	5	
Tourism Welfare and Infrastructural Facilities	Recreational	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	14	2.5
	Catering Centers	-	-	+	+	+	-	+	-	+	+	+	+	-	-	6	8	
	Gas Station	-	-	+	+	+	-	-	-	+	+	+	-	-	-	8	6	
	Medical Facilities	-	-	+	+	+	-	+	-	+	+	+	+	-	-	6	8	
	Shopping and Information Centers	-	-	+	+	+	-	+	-	+	+	+	+	-	-	6	8	

Access	Near Accommodation	+	+	+	+	+	+	+	+	-	+	+	+	+	-	-	3	1	
	Post Office and Communication	+	+	+	+	+	+	+	+	-	+	+	+	+	-	-	3	1	
	Water and Power Network	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	1	
	Proper Roads	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	1	
	Local Transportation	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	1	
	Access within Half an Hour	+	+	+	+	+	+	+	+	-	+	+	+	+	-	-	3	1	
	Access within an Hour and Over	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	11	3	
	Local Communities	Village and City Proximity	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	1	1
																		3	13
	Total Scores	Positive	12	12	17	17	17	12	16	8	19	19	1	1	9	10			
Negative		9	9	4	4	4	9	5	13	2	2	5	6	12	11				
EP		1.3	1.3	4.2	4.2	4.2	1.3	3.	0.6	9.	9.	3.	2.	0.7	0.				
		3	3	5	5	5	3	2	1	5	5	2	5	5	9				

Source: Reserach Findings

To calculate EP, the total sum of positive scores was divided by the total sum of negative scores. Final score has been written at the bottom of each column. To calculate the EP for each component, the same procedures were taken into account. These EPs have been written at the end of each row. Here, the score of each section was calculated and expressed as total score. For example, total positive points of Natural, Cultural, and Man-Made sections were divided by the total negative scores. It was reported 0.61.

EP of Attractions (Ranking Dams based on Potentials)

EP was calculated by dividing the total positive points by the total negative points, showing the raking of tourist attractions. The results are shown in Table 3.

Table 3: Water Structure Ranking

Rank	Dam	EP
1	Chahnimeh 4 Chahnimeh 1, 2, and 3 Bampoor	9.5
2	Bazman Pishin	4.25
3	Kheirabad Ladiz	3.2
4	Saradan	2.5
5	Mashkid Haghabad	1.33
6	Galoogah	0.9
7	Zirdan	0.75
8	Sheikalak	0.61

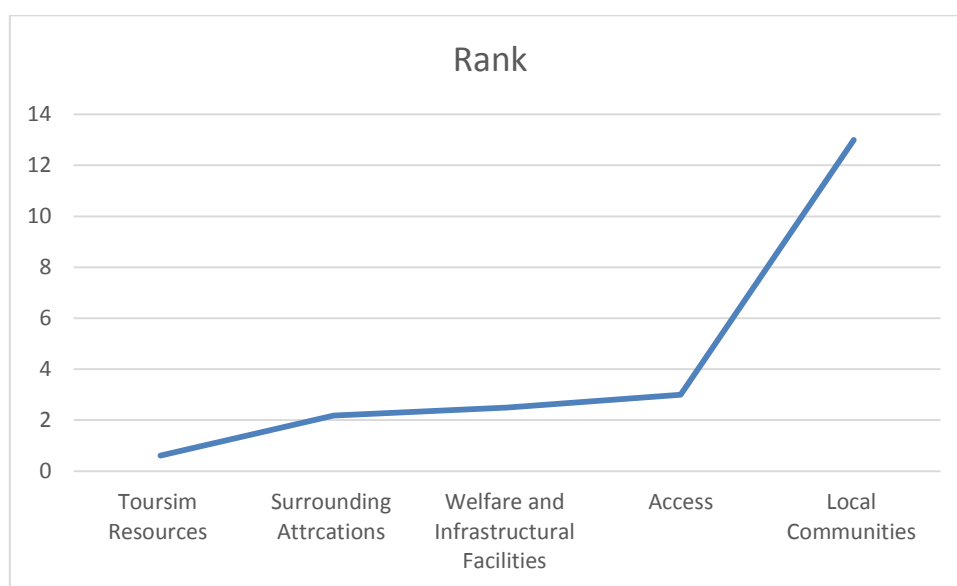
Source: Research Findings

According to the results, Chahnimeh 1, 2, and 3 and Chahnimeh 4 were ranked first in terms of attracting tourists. Water structures on Chahnimeh have ecotourism and geo-tourism attractions, adding to their

beauty. Chahnimeh dams have become booming centers for tourist activities due to pleasant weather conditions, natural landscapes, water sports such as fishing, and scientific-educational experiences. They also have acceptable infrastructural and welfare facilities for tourists such as resting area and catering; however, they are not utilized for national or even international advertising. Bazman, Bampour, and Pishin dams (Score of 4.25) took the next positions. Further focus is required on the role of water structures in order to create potentials to attract tourists. In addition to having pleasant weather, special landscapes, and mountain climbing facilities especially in Bazman, they also have scientific-educational experiences and the universities in Sistan and Baluchistan province visit Pishin and Bampour dams. Ladiz and Kheirabad dams (Score of 3.2) were ranked third in terms of importance. Ladiz Dam has numerous surrounding attractions including cave and valley, adding to the number of visitors. Other 7 dams were in the next ranking. Lack of welfare and recreational facilities, being far from local communities, and access were found to be the main reasons for low importance.

EP Calculation of Components (Ranking Components)

The total sum of positive points was divided by the total sum of negative points to calculate EP, as shown in Table 2. The component EP states that which weak points were observed and require qualitative promotion and which points are capable of attracting tourists. Fig. 3 shows the greatest and lowest scores and the potentials of the water structure components.



(Drawn by: Author)

Figure 1: Ranking Water Structure Components in Area under Study

According to the above Figure, "Local Communities" scored the top where the vicinity of urban and rural communities is considered. Except for two dams (Zirdan and Galoogah), all dams lie next to the villages, around half an hour far from. Therefore, they have received the greatest scores. In addition to natural, cultural, and man-made attractions, shown in Fig.1, infrastructural facilities and installations such as road, hotel, recreational and welfare facilities, etc. are considered other important factors to develop tourism in a certain region. Welfare facilities ranked the third position with the score of 2.5. It is essential to strengthen this component to attract tourists. Much reception facilities cannot be found at dam sites except for few workshops locally serving the locals. The closest restaurants are located in villages or cities such as Bazman⁶. Accommodation consists mostly of residential rural and beach houses located in Chahnimeh dams. Access to these dams is easy because most are located next to villages and the roads are appropriate; for this reason, "Access" scored the second rank.

CONCLUSION AND RECOMMENDATIONS

In the world, the recreational use was not a primary goal of dam; however, over the course of time, recreational facilities were created along the lakes with dams. Accordingly, various studies have been conducted in the world to develop and correctly manage the recreational uses. Dam tourism is a new phenomenon in Iran which has received limited attention in recent years. Over hundreds of dams have been

⁶ Bazman is a city in and capital of Bazman District, in Iranshahr County, Sistan and Baluchistan Province, Iran.

constructed by the Iranian and foreign engineers and consultants to meet different goals including power supply and water supply for cities and villages. However, no certain plan has been developed to use these dams for recreational purposes. According to the potentials of the Iranian dams in terms of tourism and progress took place in other countries in this regard, it is essential to pay a special attention to water tourism for the local economic development. Proper and economic planning is the first step for developing recreational activities. Secondary goals can be defined along with other purposes of dams by scientific studies and accurate planning of officials working in the Ministry of Energy and Iran's Tourism Organization. This leads to the creation of various and high-income job opportunities, responsible for Iran's economic prosperity and development.

This article aimed to investigate the conditions of dams in Sistan and Baluchistan Province, Iran and their capacities in terms of touristic and recreational development. Certain conditions of some of these dams have annually attracted many people from surrounding cities to this region. Proper conditions of dams and the necessity for planning to develop facilities led us to select this region as the study area.

The data analysis and findings showed that most of tourist destinations of water structures are capable of attracting tourists in Sistan and Baluchistan Province, Iran. Chahimeh 1, 2, and 3 Dams have eco-touristic and geo-touristic attractions, adding to the beauty of the region.

Chahimeh dams have become booming centers for tourist activities due to pleasant weather conditions, natural landscapes, water sports such as fishing, and scientific-educational experiences. They also have acceptable infrastructural and welfare facilities for tourists such as resting area and catering; however, they are not utilized for national or even international advertising. Bazman, Bampour, and Pishin dams took the next positions. Further focus is required on the role of water structures in order to create potentials to attract tourists. In addition to having pleasant weather, special landscapes, and mountain climbing facilities especially in Bazman, they also have scientific-educational experiences and the universities in Sistan and Baluchistan province visit Pishin and Bampour dams. Ladiz and Kheirabad dams were ranked third in terms of importance. Ladiz Dam has numerous surrounding attractions including cave and valley, adding to the number of visitors. Other 7 dams were in the next ranking. Lack of welfare and recreational facilities, being far from local communities, and access were found to be the main reasons for low importance. According to the results of the study, the following recommendations can help the water tourism in the province:

Developing Tourism Master Plan for each of 7 mentioned dams in order to better know the region for and efficient and effective tourism planning. The plan can maximize the economic benefits and minimize the adverse social and cultural abnormal effects.

Attracting private-sector and governmental investors and increasing the investment at dams.

Tourists are willing to transfer their positive experiences to others and repeat the trip. Knowing the factors affecting tourist satisfaction is an important tourism research fields. Providing welfare facilities around dams is an important factor for tourist satisfaction.

Tourism planning is a process based on evaluation and optimization of the role of tourism in host community's welfare and quality. Therefore, familiarizing tourists with local customs and rural life is a solution to increase revenue.

Efforts need to be made to introduce the regional capabilities due to the proximity to Iran's important road system

Introducing dam tourism as one type of tourism and touristic capabilities of Sistan and Baluchistan dams through the media.

Adopting marketing activities and specialized services in terms of advertising regional water structures

Promoting accommodation and catering facilities at national and international levels and continuously monitoring the accommodation centers.

Creating recreational villages through establishing walking paths with spaces overlooking the dam and bicycle lanes, horse-back riding, etc.

Providing essential facilities for boating and recreational fishing

REFERENCES

- Colin Hall, Michael and John M. Jenkins (1998). *Tourism Policy Making*, Trans: Arabi, M. and Izadi, D., Cultural Research Bureau, Tehran, Iran.
- Daneshman Skheikh Al-Eslami, A. and Khanjani, M.J. (2010). Modeling the Effect of Fluctuations in Water Level of Lakes on Recreational Use, 1st International Conference of Plant, Water, Soil, and Air Modeling, The International Center for Advanced Science and Technology and Environmental Sciences, Kerman, Iran.
- Daneshman Skheikh Al-Eslami, A.; Khanjani, M.J.; and Ghezel Soflu, A. (2011). Recreational Operation of Fariman Dam Lakes, 6th National Conference of Civil Engineering, Semnan University, Semnan, Iran.
- Fani, Z.; Barghamadi, M.; Eskandarpour, M.; and Suleimani, M. (2012). Tourist Satisfaction Measurement of Gorgan, Iran. *Tourism Management Studies*, 7 (20).

- Firuzi, M.A.; Goudarzi, M.; Zareiee, R.; and Akbari, A. (2013). Ecologic Power Evaluation with Focus on Sustainable Tourism Development (Case Study: Abbas Pour Dam), *Geographical Science*, 13 (28). Iran's Water Resources Management, 2016.
- Khataee, M. et al. (2008). Measuring Efficiency of Tehran Hotels using DEA, *Quarterly Journal of Economic Studies*, 8 (2), Tehran, Iran.
- Momeni, M. (2007). *Urbanization Development and Tourism Industry in Iran (From Concept to Solution)*, Armed Forces Geographical Organization, 1st Ed. Tehran, Iran.
- Qaderi, S.; Nategh Elahi, F.; and Ramezani, F. (2007). Iranian Dams, Objective of Construction and Necessity of Paying Attention to Domestic Recreational and Tourism Perspectives, 1st Specialized Workshop of Dam and Environment.
- Rahimi, D. and Ranjbar Dastae, M. (2012). An Analysis of Strategic Planning and Capabilities of Karoun 4 Tourism Development using SWOT Model, *Regional Planning*, 2 (7).
- Sistan and Baluchistan Portal (www.sbportal.ir)
- Statistical Year Book of Sistan and Baluchistan 2011 and 2013, Sistan and Baluchistan Planning Management.