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## The creation of geo-tourism infrastructure and a strategy for conservation and sustainable development of Qeshm Geopark

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### Abstract

Geotourism is defined as geographical tourism which implicitly emphasizes geological and geomorphological features as the background of all human activities and geographical characteristics. However, it also has cultural and archaeological features and other tourist attractions with itself. Geopark is the remaining heritage of natural and human activities on the planet. Therefore, every country with more ancient history and greater geological complexities would have appropriate potential for development of this industry. Paying attention to the role of ecotourism and subsequently geotourism is essential for environmental protection and social responsibility in order to achieve sustainable development. In this study, the geotourism attractions of Qeshm Island are reviewed along with discussion of their impact on tourism development of Qeshm Island. In this regard, the present paper utilizes survey-based method and field studies to offer architectural solutions so as to develop proper architectural and civil infrastructures to attract geotourism. It also offers architectural and civil solutions to create proper infrastructures so as to attract, habilitate and transportation of tourists for realization of proper development of tourism so as to main the global geopark of Qeshm Island and guarantee the development of tourism.

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## Introduction

Geopark literally means “Geological Park” and in this sense, it means an area with sufficient expansion the boundaries of which are clearly marked and several distinctive geological phenomena (geological heritage) are located in it. This area might play a significant role in economic development of surrounding communities. In addition to geological phenomena, Geopark might also has historical monuments, ecology and other natural and cultural heritages managed under the supervision of the UNESCO and by the highest national authority of the country where it is located. The aim of geopark is sustainable development. Geopark is a new issue in tourism industry; as a result, eco tourists have paid special attention to it. The experiences of leading countries in development of geoparks confirm that the income obtained from geopark tourists is much higher than other sources of tourist attraction. Therefore, geoparks and geotourism can play major roles in national economy by creating a tourism boom, especially ecotourism. Geotourism is a new branch of ecotourism (Zandi, Rahman, and Hosseini, 2012). Geotourism is the basis of sustainable development and among its different effects and roles, offering financial benefits to local people living in the region is one of its most important roles. Up to now, 53 geoparks have been registered by UNESCO in 17 different countries. Among them, China has the first position and the largest share with 18 Geoparks. Iran is also among 17 countries that have global geoparks registered by UNESCO. Iran is one of the countries with special and unique natural attractions that beside of its historical and cultural background can be properly used to attract tourists. Qeshm Island is a great opportunity for sustainable development in the country. One of these opportunities is tourism, especially ecotourism and geotourism development, in Qeshm Geopark as the first and only international geopark in Iran and in Middle East. In this regard, the strategic planning of tourism development on the island is necessary. Considering all aspects of tourism, demand and supply, being familiar with social-cultural works, appropriate planning and

building required infrastructures, resources sustainability and increasing levels of total development can be useful in this regard. The first essential factors for attracting tourist in any region are creating civil infrastructures and architectural buildings needed to transportation, accommodation and meeting the minimum needs of tourists during travel based on proper studies, creating an appropriate geotourism area in the Qeshm Island and realizing its potentials especially geotourism in order to conserve a sustainable development of Qeshm Ecopark and global Geopark located in the middle of it which is like a pearl in the azure waters of Persian Gulf and the forehead of Iran. Therefore, efforts and supports of associated authorities, cooperating with scientists working in geology, environment, civil engineering, architecture etc. and establishing appropriate infrastructures and designs for ecotourism as well as statutory regulation of ecotourism and subsequently the large group of geotourists could be regarded as effective steps taken towards achieving the goals of sustainable economy, culture, and environment and preserving the Qeshm Geopark as valuable heritage of this ancient land from destruction. The purpose of this paper is defined as geographical tourism which implicitly emphasizes geological and geomorphological features as the background of all human activities and geographical characteristics. However, it also has cultural and archaeological features and other tourist attractions with itself.

## Material and methods

Iran was the cradle of civilization and culture in the past and there were large cities in this wide land. Unreasonable human exploitations will be followed by further disturbing of critical balance in the nature and unfavorable climate change (Darehshouri and Kasraian, 1998).

### *Geological heritage*

Despite of the fact that there is the potential for valuable geological heritage in Iran but unfortunately a serious attempt for studying this potential is not

taken. In 2005, researches in the western part of the Qeshm Island succeed in international registration of the Qeshm Island Geopark as the first global Geopark in Iran and Middle East.

**Geotourism industry**

The “Global Geotourism” written by Reza Kazemi, Prof. Dowling and Dr. Niusamin which geotops of Yazd and its attractions as potentials of geotourism have been discussed. In addition, an integrated study on geotourism industry in Sistan and Baluchestan Province by Sahebzadeh *et.al* (2007) are examples of good researches in this field.

**Result and discussion**

Qeshm is a beautiful island with rich and valuable tradition and history in which diverse and balanced mix of applications and functions play significant role in their harmony with each other as in the first and only global geopark of Iran and the Middle East, Qeshm Global Geopark.

The uniqueness of this collection in the island is particularly because of the influence of its physical-spatial structure in combination with mixed social and structural usages which give a distinct identity to it as represented in the integrated and detailed plan of Shibderaz New Town of Qeshm.

Qeshm Geopark recorded as the first geopark in the Middle East and the first natural heritage of Iran was internationally registered. The western part of the island with an area of about 32000 hectares was intended for establishment of the geopark. The area is located 73 kilometers away from the west of Qeshmas shown in the annex.

QeshmGeopark is a longitudinal area which ends to Tabl-Salkh village from east, Goori-Kani village from west, northern coast from north and southern coast from south.

The length of QeshmGeopark is about 50 km. There are various sites in the geopark which made UNESCO

call it the first geopark in Iran and the Middle East (as shown in map 1).



**Map 1.** Location of Qeshm Geopark.



**Map 2.** Location of tourism attractions near Qeshm Geopark.

*Introduction of Perspective Statement*

The perspective statement of this island due to its location in warm and humid weather of Persian Gulf and near to Strait of Hormuz was codified as followed:

“This ecotourism and geotourism island located in southern waters of ancient and beautiful land of Iran is the window of Iran to the universe; it is the heart of Persian Gulf oil and energy and geotourism hub of the Middle East. It can be an attractive place for vacations, a calm place for tourists and an ideal location for therapy services centers, with distinctive Iranian and Islamic characteristics and identity based on its culture and architecture through creating proper infrastructures and using sustainable and eco-friendly planning” (Ghasemi, 2013).

*Window of Iran to Universe*

Qeshm Island has an outstanding potential in showing Iranians' brilliance, authority and identity more than what it is expected of it due to its location in forehead of Iran, its exposure to oil and gas resources and owning ancient biological cores, civilized and patriotic people.

*Top tourist hub in the Middle East*

Different kinds of tourism in the island can be planned and designed without any problem. There are different types of tourisms including MICE, recreational tourism, educational tourism, scientific tourism, medical tourism, beach tourism, shopping tourism, nature tourism, etc., that might make the island become a tourism hub in the region. Ecotourism will be most successful type of tourism in the island due to its high potential, especially geopark.

*Benefiting from sustainable and eco-friendly design*

Involving ecological principles into the process of urban planning and architecture can give a natural appearance to the Qeshm Geopark. Therefore, climatic comfort, energy efficiency and general health of tourists should be the first achievements, which bring a sustainable and identifiable residence to the island in long term.

*Top therapy service center*

Qeshm is an island that has the potential to offer best therapy centers in the region due to the presence of plant and animal ecosystems, and a favorable context for hydrotherapy, salt therapy, algae therapy, sand therapy, etc. Therefore, by creating therapy centers for offering hydrotherapy, mud therapy, halo therapy, etc., one can provide different and appropriate environments for ecotourism.

*Various Tourism Resources and Attractions of Qeshm*

Various resources and attractions of Qeshm can be classified into three general levels among which natural attractions (for nature's fans, coastal and

marine recreational sports fans, geological scholars, zoology researchers, etc.) are the most important of them and abundant in Qeshm such as salt cave (Namakdan), Chahkooh Valley, Aali Valley, Setareha Valley, Tandisha Valley, mountains of Qeshm Geopark, Kase Salkh Desert, Avicennia Marina Jungle, etc..

*Natural attractions of Qeshm Geopark*

Salt caves and domes, mangrove forests (Avicennia marina), sulfur springs, amazing valleys, mineral springs, Chahkooh Valley, Iranian gazelle habitat, Tandisha Valley, surrounding islands, Aali Valley, Setareha Valley, mountains of Qeshm Geopark, dolphin habitats, sea turtles spawning, birds of Qeshm Island, various beaches, Maabedfig tree, Kase-salkh Desert and many others are among the natural attractions of Qeshm Geopark (map 1 in appendix).

In addition to these landscapes and natural attractions within the limits of the geopark, there are historical and cultural attractions such as phenomena occurring inside or outside of the geopark. This attractions include historical Kharbas Caves, traditional architectures, Laft Port's vents, Tal-ab Wells, historical castles (i.e. Qesh, Laft, Basaeidu), shrines, etc. (map.1 in appendix).

The most important factor in international registration of Qeshm Geopark is presence of 200 Km of marine mangrove forests on this island, which is the largest marine forest in the world and acts as the main habitat for migratory birds and dolphins. The tidal zone of mangrove is a suitable habitat for mollusks, crustaceans and fishes which constitute a nutritional source for fishes and wild birds (Free Zones Monthly, 2011). This forest has high biodiversity and it is the most important site of Qeshm Geopark just like the salt cave.

*Strategies Based on Ecotourism Value Chain of Qeshm Island*

- Constructing access roads to different sites of geopark.

- Using geotourism abilities and natural attractions of Qeshmgeopark in the vicinity of the studied area in order to attract tourists' interest in natural heritages of the earth as the most important goal in management and conservation fields
- Expanding public awareness and advertising through mass media.
- Developing marketing offices and agencies specialized in offering geotourism tours in different and markets
- Creating research centers equipped with facilities for studying in the fields of geology and geomorphology to attract researchers, students, etc.
- Various festivals and events in the geopark during the year to maintain and introduce geotourism potentials of the region and introduce the local community culture to tourists
- Creating stands for representing handicrafts and other local products along with selling products related to the geopark
- Building hotels for tourists interested in geotourism with a various accommodations and catering facilities, as well providing comfort for tourists by constructing temporary accommodations and caterings in the form of camps and cottages with innovative architecture using materials environmentally homogeneous with the geopark.
- Offering a variety of entertainment, education, and sport activities like flying with balloons, gliders and para gliders, aircraft and helicopter over the geopark.
- Setting up signage and maps for navigation, and also giving map of geopark area to tourists in order to guide them
- Using globally successful experiences of tourism development in geotourism areas such as determination of carrying capacity, issuance of traffic card, special tickets and tourists' registration in the list of environmental organization in order to provide better services
- Creating sustainable job and preventing environmental damages
- Using the guides trained and familiar with various languages
- Providing background for private sector investment under careful monitoring of Qeshm Free Zone Organization and granting loans by banking institutes and state-based financial exemptions for service sector serving the geotourists such as hotels, restaurants, equipment required for adventurous tourists, etc.
- Management development planning, optimal utilization of geotourism systems and gathering specialized geological, hydrological and economical information in the Qeshm Geopark area by experts
- Prioritizing each one of zones in the park based on the variety of geomorphologic, flora and fauna, microclimatology and cultural, social phenomena and identification of potentials and limitations of geotourism in each zone
- Rejection of cost-benefit calculations as the criterion for decision making in development of geotourism and special focus on visual attractions, landscaping and other knowledge and scientific aspects of geosites
- Spending a part of the incomes of geotourism for geosites's protection and creating service centers for tourists based on demands of geotourism in the region

- Creating special therapy centers for hydrotherapy, mud therapy and massage therapy with different qualities by taking into account the needs of all ages and income groups and according to available capacity
- Creating special centers for cave salt therapy due to high number of salt caves and domes in the island. One can provide proper conditions for therapeutic tourists of the region by equipping the island with the facilities needed by patients, offering therapy centers and special tours. Also, the authorities can attract therapeutic tourists by creating salt therapy centers or artificial salt cave therapy in the areas where there are no natural salt domes and caves. In addition, secondary incomes can be obtained by selling products related to salt therapy such as sanitary and washing salts, dietary salt, inhaled salt, and salt lamps in the form of handicrafts.
- Providing various services that can be offered in association with cave-salt therapy. Some of these services include massage with salt (salt scrubbing), ionic foot detox, light therapy, smear the body with minerals, sauna under infrared light, breathing in the salty air, skin care, crystal therapy, etc.
- Using modern and standard equipment in therapy centers and creating therapy centers in innovative and creative forms.
- Constructing therapeutic tourism villages that contains all amenities and services needed by tourists including therapy services, accommodation and catering.
- Considering appropriate facilities for patients' relatives, including residential and catering services, etc.
- Reducing costs for therapeutic tourists by providing insurance services and contracting with reputable international insurance companies.
- Building hotels for therapeutic tourists based on international standards. Some defined standards for health care hotels in some important therapeutic tourism destinations in the world are:
  - Identifying target markets based on the cultural and religious affinities.
  - Advertising and marketing for generating development and introduction of products related to therapeutic tourism in target markets. Some of advertising activities in target markets are:
    - Publishing papers in international journals and magazines to introduce therapeutic tourism and its advantages compared to competing destinations.
    - Active participation in international health and medical tourism exhibitions and holding local festivals including travelling fairs and health conferences
    - Offering context for enhancing culture of local community by education and increasing awareness of the positive and negative effects of medical tourism development.
    - Considering some units of therapy centers for gathering statistics and information of medical tourists and surveying tourists' satisfaction in order to create a balance between demands and expectations of tourists and the quality of health services.
    - Providing various service packages for medical tourists based on diverse levels of costs and services, especially for the elderly, the disabled and the blind.
    - Establishing an independent management organization to manage geotourism activities in the area and provide legal and financial frameworks of geotourism the main goal of which is good coordination among main organizations in geotourism in the area (Shibderaz-Qeshm integrated and detailed plan).

*Literature review*

- Extensive and increasing changes in industrialized societies, uncontrolled increase in world population and growing need for resources have caused destruction of the earth as a result of which the environmental factors have critically gone endangered. The identifying and introducing some areas as geoparks, can guarantee the protection of this heritage which seems an essential move (Goldsmith, 1973).

- Several geoparks have been founded in different countries and for many years they have been used some of which have become natural and tourism attractions of their countries. About 10 years ago, UNESCO decided to establish a serious and international organization for the new concept "geopark" and pay attention to the natural heritages of the earth which are internationally important, and try to reasonably protect sustainable use of them through geoparks.

- The concept of geopark, from viewpoint of UNESCO, is connecting people with nature in a way that they might pay attention to potential of geological heritages in economic development (Tumer, 2005).

- In this field, different countries began to establish geopark and offer attractions according to their natural potentials. The main aim of creating a national geopark is to protect and conserve heritage of the earth which is at risk of damages caused by human activities (Edington, 1993).

- China is one of the countries that achieved excellent results in this field, and many tourists visit its geoparks each year so that the income of the geotourism for China increases every year (Haghipour, 2004).

- Tunisia's income from tourism during the first five months of 1999 reached 503 million dollars. The number of visitors of Tunisian natural landscapes and deserts in the first quarter of 1999 reached 1.147

million people that shows an increase of 31.7% compared to the previous year. Now, Tunisia gives special attention to its deserts for geotourism and has an annual income of 3 billion dollars from it.

Iran has a good potential for development of this industry due to its ancient history and diversity of geological environment. The Information System of Iranian Geoparks was developed in 2001 by National Geoscience Database of Iran with assistance of National Geology and Mineral Exploration Organization and based on the model of the international network of UNESCO Geoparks (Amiri Kazemi, 2003)

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geotourists could be regarded as effective steps taken towards achieving the goals of sustainable economy, culture, and environment and preserving the Qeshm Geopark as valuable heritage of this ancient land from destruction.

### Conclusion

Earning the livelihood of people of the island and introducing its rich culture and architecture to the world, the Qeshm Geopark could act as an introduction for development of other geoparks in the ancient plateaus of Iran and flow of money into the country. Therefore, sustainable development by tourism in this area should be based on community-based tourism. In this respect, the interactions of tourism and community in the process of planning and development of tourisms of different types provides benefits for local communities which should be paid attention to. In this approach, benefits from tourism development will be guaranteed to residents and residents' benefits will maximize. As a result, tourism will be accepted better and participation in maintaining the Geopark will increase. Participation of local people in conserving these natural resources is an effective and major step in protecting them.

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