

## Sustainable Urban Development of Sv2 Tourism Sector in Kish Island, Iran

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### ABSTRACT

The tourist Island Kish, with an area of about 90 square kilometers, is located in the Persian Gulf about 20 km from the southern coast of Iran and about 1000 km from Tehran. With its status as a free port, the island has specialized as a successful tourist destination with large hotels and services. The airport is located at the center of the island and all around the settlements. The fortune of the island as a tourist destination has encouraged immigration for reasons of work, and at the same time has brought out the need for new residential areas to accommodate tourists and workers. The thesis explores the development of a tourist and residential sector located on the southern coast of the island, taking into account, in particular, the aspects of energy saving and environmental protection.

The work includes the following parts:

- topographical and urban analysis of the Island of Kish;
- verification of the general urban plan for the entire island.
- urban planning of a sector of approximately 114 hectares with a settlement capacity of 10 thousand people.

**Keywords:** Island Kish, tourist, urban, sustainable, Iran, landscape nature, project, area.

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### 1. INTRODUCTION

The Kish Island, located on the south coast of Iran, with an area of about 91.5 km<sup>2</sup>, with the large diameter of 15 km to the east and the small diameter of 8 km to the north-south axis and its shape is oval, falls into the area of the province of Hormozgan and city of Bandar Lengeh in terms of political status and administrative divisions. Some geographical features of Kish such as found in the strategic Persian Gulf, a desirable climate in 8 months a year and having coral beaches have provided this island with such a unique situation in terms of tourism and trade. It is located in 18 km of the southern part of Iran and in the northern part of the Persian Gulf. Its highest point above sea level is 45m. This island is located 1053 km from Tehran as the crow flies southwest of Bander - Lengeh, and northwest of Siri Island. It is close to Hendorabi and the island of Lavan. In terms of ecological conditions, Kish Island has a hot and humid climate. The average annual temperature is 27 °C with a maximum temperature of 49 °C and the minimum temperature in November and December between 2 °C and 7 °C. The annual rainfall is 170 mm, of which 82% rainfall is in winter, about 10% in autumn, and the rest in summer and spring.

From the point of view of the vegetation, the island has subtropical and tropical trees, including citrus fruits, coconut, and nuts. Distances between the island of Kish and other places are as follows: Hendorabi, 28 km; Faroe Island, 55 km; Sirri Island, 87 km; Abu Musa, 177 km; Qeshm, 225 km; Bandar

Abbas, 300 km; Chabahar, 740 km; Bushehr 675 km; and Dubai, 200 km. The distance from Kish to Tehran is 1052 km by air and 1600 km by land. The distance between Kish and Isfahan is also 1200 km by road.

The Island of Kish, called coral island is one of the most beautiful islands of the Persian Gulf from the point of view of the natural landscape, rich in greenery, coral sand beaches, and clear water with a variety of colorful fish. Entertainment activities on Kish Island include a variety of water sports. The main attractions are marine animal parks, shopping centers, and traditional markets. This island consists of shopping centers, tourist attractions, 5-star hotels, shops, markets, water sports, historical sites, and residences. Kish Free Zone is considered as one of the most important tourist destinations in the world with coral beaches and a pleasant climate most of the year. The choice of this delightful land as a free zone because of its inception in the economic, commercial, industrial, cultural, and social conditions has not only changed its peripheral but also made the other countries unattractive.

Territorial data of the island: Surface area: 91.5 km<sup>2</sup>, Population: 24 thousand inhabitants, Density: 262,2 inhabitants/km<sup>2</sup>. Kish Island has a positive demographic development, according to the census carried out in 2018, the total population of Kish shows a growth of 3.8% per year and according to various sources, Kish attracts about 1.7 million tourists a year, mostly Iranians. The Kish Island hosts important tertiary offices. It is a free commercial area with exemption or reduction of customs duties and entry visa for short periods. It houses the headquarters of some international Iranian organizations.

Some foreign universities (Multimedia Malaysia University and Monash University) have activities in Kish.

## 2. METHODS

The main objectives of the study were as follows.

- 2.1. The settlement system, urbanized areas
- 2.2. SWOT Analysis
- 2.3. Identification of the project area and detailed urban analysis

### 2.1. The settlement system, urbanized areas

The urbanized areas are located in the east of the island covering around 30% of the soil.

Note: Ports with residential, administrative, and military areas; to the east the tourist areas at the center of the airport The urban system.

The settlements are located mainly towards the Iranian coast (in the east) where the merchant port is located. The airport is located in the middle of the island. There are two settlement polarities:

- A west-facing residential and tourist dominant
- A mixed east

The ancient settlements

The strategic geographical position served as a road and connection station in antiquity.

The island is mentioned in the memoirs of the Greek admiral Nearco to the themes of Alexander the Great (4th century BC). It was colonized by the Portuguese and the English. The remains of the ancient city of Harireh lie to the northeast near the coast.

#### Kish Residential Area

The Shahrak-e-Mirmohana residential area, mainly second homes, extends for about 300 hectares to the north. The road system of the residential areas is of recent configuration: geometric network, large roads, and dense settlements.

#### Tourist Area

The road jersey of the tourist area to the east follows the course of the coast. In the strip (about 460 m) between the Ferdosi Boulevard (about 60 m section) and the sea are the largest tourist facilities. The beaches are relatively small: 40-60 m.

The Kish free zone offers the following exclusive benefits:

- Enormous attractions of tourism;
- Access to the world's free waters;
- No visa is required for foreign visitors;
- Strategic situation and proximity to Asalooeyeh oil areas;
- Energy resources (fuel gas) independent of the mainland;
- Airlines and independent shipping lines with the possibility of transporting vehicles;
- High level of social security and peace and low rate of social disorders;
- Appropriate intercity transport facilities;
- Relative control of environmental pollutants;
- Access and proximity to international ports and cities such as Dubai, Sharjeh, Manama, and Doha.

#### International exhibition center

The international exhibition center aims to develop commercial tertiary settlements on the island to develop international transactions.

Transportation and ways of communication

The island's transport system consists of three sub-categories: Land - Sea - Air (Land, Sea, Air).

By road, Kish's transport network is a free network that is well served by public transport, with several bus stops, parking areas, and parking areas with petrol stations.

By sea, the two ports of access to the island are in the northern part of Kish where there are some installations. The airport is the most important area of the territory because it is not only a preferential terminal for access to the island but also the main area of economic and social development.

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Kish International Airport is one of Iran's most active and economic airports and is the fourth place in terms of volume of flight operations and passenger transport. This airport offers regular flights to 15 national runways of which 12 are to provincial centers and 2 are to free and economic zones of the state. Furthermore, some development measures are to be taken regarding the increase in the number of domestic tracks. Bike paths The island of Kish has over 50 km of cycle path, which extends over the whole island. Cycling is a popular sport in Kish and public cycling days are organized by the "Kish Free Zone Organization".

Objectives and development perspective

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The objectives of the development plan are:

- Creating images and unique identities for Kish Island A suitable environment for economic investments with particular attention to trade and business.
- Physical development maintaining ecological, economic, and social sustainability;
- Development of tourism in a broad sense to attract travelers to the island;
- Development of human resources by teaching sciences and skills;
- To institutionalize participatory management and the exploitation of natural, human, and economic resources.

#### Kish International Airport

Kish International Airport is one of the most active and economical Iranian airports and is in fourth place in terms of volume of flight operations and passenger transport and a large international airport is located in its center. The whole system seems to be an application of the urban idea of Aerotropolis. Likewise, this airport connects Kish Island for global transportation system through international tracks in Dubai, Turkey, Iraq, and other countries. The surface amounts to 12.34 Km<sup>2</sup>. Air flights connect Kish airport to many Iranian cities: in 2016 there were 23,914 airplanes and 2,825 tons of cargo, and 30 million passengers.

#### Organizational model – similitudes with aerotropolis

The large international airport is at the center. The whole system seems to be an application of the urban idea of Aerotropolis.

The aerotropolis is a new urban form based on an airport and its integrated surface transport infrastructure to quickly

connect high value, time-sensitive companies to distant suppliers, customers, and business partners. It consists of a multimodal shopping center (Airport City) and corridors and groups of companies connected to aviation and associated commercial/residential developments associated with each other and their accessibility to the airport. The aerotropolis works as an "urban tube" reducing the time-cost frictions of space and distance, increasing operational efficiency both at the enterprise level and at the regional level.

#### The Port

The main maritime route to and from Hormuz runs close to the island of Kish. Kish maritime traffic is national to and from Bandar Abbas. There are three main ports:

- Tourist (near the Mirmohana area) and fishing in the northwest with a basin of about 10 ha
- Commercial of 90 ha in the north with logistics area behind
- Tourist of 5 ha south-east near the twin residential towers

## 2.2. Analysis

### S. Strengths

- (S1) The presence of Island International Airport as an effective development factor in Tourism;  
 (S2) The attraction of coral reefs for tourists;  
 (S3) The desirable price of services and facilities for foreign tourists;  
 (S4) The abundance of indigenous peoples and labor at low cost compared to neighboring areas;

### W. weak points

- (W1) Lack of accommodation facilities for workers;  
 (W2) The inadequacy of the environmental infrastructure (roads, sewers and so on), etc;

### O. Opportunity

- (O1) Expansion of cooperation with the Middle East in the tourism sector and commercial opportunities;  
 (O2) Quick and cheap connection through the new port to the mainland;  
 (O3) Optimization and visualization of cultural identity through tourism;

### T. Risks

- (T1) Competition with the Gulf States and the conquest of tourism markets;  
 (T2) The loss of traditional culture and typical language, customs, and architecture;  
 (T3) Recreational facilities and services in neighboring areas;  
 (T4) The cost of the opportunity due to the pursuit of an objective and the loss of other advantages.

## 2.3. Identification of the project area and detailed urban analysis

Characteristics of the new settlement in the study area

General objectives of the project

- A neighborhood with ecologically sustainable tourist mixed uses of privacy, following the recommendation of the urban UN unitement of 2016
- A hierarchical road system with mixed uses
- A capillary urban green, specific for arid areas
- The population density that is equal to at least around 100 inhabitants/h excluded tourists.

### Boundaries

The project area is bordered to the north by the airport, from which it is separated by a large motorway infrastructure, and a small wooded area; to the west, it borders a non-urbanized area, to the south with the sea and to the east with the Dolphin park.

The area is located in the southeast of the island. It is part of a development program already approved by the Kish administration with a total area of 114 h. It divides two parts Sv1 gia` realized and Sv2 object of the present study.

### Initial hypothesis

The project idea complies with the existing program.

It includes:

A central commercial area

Residential and tourist areas separated by strips of greenery

Tourist facilities at sea

The destination for residential use is also planned for the SV2 sector because this place is very safe and therefore suitable for the construction of a new settlement.

Based on the map below, the eastern part of the island, in general, is very suitable for the construction of new buildings. Kish Island plan is taken to develop an integrated and strategic approach and the general lines that the island offers. Thus, rules, regulations, and a general framework are the general policies, governing the development of the island. It is essential that the next steps are the preparation of detailed plans (thematic and local plans); faith, based on the principles and vision, goals and plans; master plan of development; rules and regulations of all island bases and subjects related to it, including the design of existing and future urban residential, tourist complex, mixed, administrative, and educational areas, as well as open and public green spaces, coasts, various network-accessible residential and non-residential buildings and other residential confirmative criteria with the ceiling set in the plan for the island development. Local developed plans and regulations are subject to this Privacy Statement.

## 3. RESULTS AND DISCUSSION

The main points of my concept are:

- Expansion of the residential safe area near the sea  
Arrangement of a safe space to live
- The positioning of the entertainment area near the park
- Commercial activities are divided into two main parts
- The industrial area, developing at the ring road, is separated from the residential area
- The industrial area has the possibility of future expansion towards the southeast
- Presence of green areas closely integrated with the houses with the adoption of succulent plants and cactus, which are suitable for dry areas.

The project idea complies with the existing program including a central commercial area, residential and tourist areas separated by strips of greenery, and tourist facilities at the sea.

The project provided in the study area Originally the municipality identified two transformation zones in the south of the island, SV1 with an extension of 21 hectares and SV2 with an extension of 93 hectares. The SV2 sector, currently free, is destined to be transformed for residential use, while SV1 is occupied by a factory that is being discontinued. The new district (SV2) of the Kish Island is spread over an area of approximately 114 hectares, which I planned with a total population of 10404 inhabitants per tourist area. The central axis of the neighborhood is the most important and significant urban space.

Territorial density: 91.26 ab/ha

Residential volume:72420 m<sup>3</sup>

Commercial volume:123428 m<sup>3</sup>

Number of buildings: 610



Figure 1: Project plan



Figure 2: Project envisaged in area sv2

For the Residential part, I used different building types based on those actually used in Kish for contemporary tourist settlements.

The green system

The green system is based on the idea of enhancing the most suitable species for arid climates both in terms of resources and aesthetic enjoyment. Previous advanced studies by FAO proposed the use of the opuntia cactus (fig of India) in its different families. I have elaborated the following suggestions: Landscape nature, also territorial for the arid lands bordering the urbanized areas;

Architectural character for the land belonging to the houses



Figure 3: Three - dimensional view of the settlement ( free hand drawing )



Figure 4: Cultivation of Cactus



Figure 5 : Example of private gardens

#### 4. CONCLUSIONS

The results demonstrate the feasibility of the new planned settlement over a medium-long time period when the northern areas will be completely built. The similarity with Aerotropolis is appropriate. The neighborhood, unlike what was expected, tends to integrate tourist activities with residential ones. The adopted building typologies proved to be compatible with the additions of the green spaces. It also takes into account the permanent usability over time (summer has prohibitive temperatures). It is suitable for international tourism. The values of urban planning standards are lower than those of the reference legislation. The values of tourist services have not been considered, because they are to be found within private areas. The plant has a traditional form, based on some large road signs located in the center of the new neighborhood. The viability is reduced compared to what is expected in the official project.

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#### REFERENCES

1. Abbas Ali Espanani, (1999). Climatic characteristics of indigenous architecture.
2. Akbari Namdar, Hasan Imani Bakhshani, Bliss Oshana Lil Abad. (2017). Study of green nature (plant and tree) on the architectural design approach.
3. Chung, S.-H., et al. (2005). "Network analytical approach (ANP) for semiconductor product mix planning;
4. Fatemeh Heravi Brothers, Mehdi Hamze-Nejad. (2018). Develop the eligibility of residents of traditional hot and humid climates.
5. <http://iranarch.blogspot.com/2006/05/discovery-of-glassblowing-workshops-in.html>
6. Kahraman, C., et al. (2003). "Decision of the Fuzzy group for the selection of the position of the structure." Information Science;
7. Maliheh Shahraki Nader, Ali Shahraki Nader, Seyyed Mojtaba Hashemi, Seyed Jalal Beheshti, Hamideh Rakhshani Bajd. (2018). Evaluation of the design of urban green spaces in relation to sustainable urban development.
8. Opricovic, S. and G.-H. Tzeng (2004). "Compromise solution with MCDM methods: a comparative analysis of VIKOR;
9. Paolo Ventura, (2018). The new city Elements of urban planning,.
10. Saaty, T. L. e M. Takizawa, (1986). "Dependence and independence: from linear hierarchies to non - linear networks ". Rivista europea di ricerca operative.
11. Salman Shooshtarian, Hasan Sahi, Ali Tehrani Far. (2011). Investigate the characteristics of growth and development of ten capture plants in the green area of Kish Island in the warm season.
12. Seyed Majid Zargarian, Ali Tehrani Far. (2012). Energy saving with plants covered in the architecture of the green walls and the roof garden.
13. Venerated Goddess, Mehdi Sahragerd, Leyla Chizghaghi, (2018), Effect of climatic factors in the space of traditional Iranian houses in the hot and humid climate.