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NEW DEVELOPMENT OF FARASAN ISLAND

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Abstract

Harbour development is a regeneration project for an existing location of a city seaport to add and improve the quality of services for seagoing ships and city citizens. It is the marine connection of an island, city or country to its surrounding environment. This project make use of the existing environment of Farasan Island and the attraction sites that has Ottoman Castle and Gendal Forest in order to plan a complete future development for the island. The program will mainly contain the facilities such as hotel restaurants, cafes and food stalls, shops and markets, cruise terminal, and cultural performance zone. Several projects with similar concepts were chosen as the case studies. The space program of the project was proposed and the site location was selected based on the criteria of accessibility, views, demographic pattern, surroundings, utilities, future development plans, image and visual quality, visibility, topography, noise levels, and shape and site proportions. In addition, this project making use of a natural retail resource and a special combination of culture, retail, and economy, also encouraging the government to make great steps in developing the area.

Keywords--Farasan Island, Environment, Marine Connection, Harbour Development, Culture

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INTRODUCTION

All countries around the world are seeking for developing and maintaining the services that are being provided for their people [1, 2]. And according to the resources that each country has, the governments should try to make use of these resources to increase the stability of the people's outcomes and quality of life. The third world countries as specific are trying to be on the same track of progressive improvements that has been imposed by the rest of the world countries [3, 4]. These trials are by searching for the areas that could be developed to meet the needs of the people and creating solutions for their daily problems that they face.

The natural resources are being used by all courtiers around the world for economic development. One of these resources is the natural islands that are gifted for many countries and Saudi Arabia is one of them. Saudi Arabia has more than 1300 islands scattered in the Red Sea and the Arabian Gulf [5]. The problem is that most of these islands are neglected, undeveloped, unlinked and unknown for the Saudi citizens and the world visitors. Farasan Islands are one of the biggest and most beautiful islands in the Red Sea that lacks the basic services and need to be developed [6]. Farasan need to reach and to be reached by the coastal cities of the Kingdome and the whole world by providing it by easier connections through bridges, airports, and seaports. Therefore, this project proposed the new development of Farasan Island by initiate the link between the coast line of the Kingdome and the Island as well as introduces the island to the investments and the world list of touristic islands.

CASE STUDIES

The Kaohsiung Port Terminal and New Keelung Harbour Service Building at Taiwan were chosen as the main case studies due to its uniqueness design style and attractive concepts. The thematic studies that considered in this study are City Of Art And Science located in Valencia, Spain and Darling Harbour located in Sydney, Australia.

Kaohsiung Port Terminal, Kaohsiung, Taiwan

The Kaohsiung Port Terminal was designed by REISER and UMEMOTO, reflecting three-dimensional urbanism, using the site's extraordinary horizontal position relative to the city grid (Figure 1). [7]. Kaohsiung Port needs an appropriate gateway to the metropolis to promote cultural, entertainment and green building urban design. An important part of the port terminal project is the connection with the proposed waterfront elevated public space. In general, the project is a mixed used area for visitors and citizens of Kaohsiung that creates a new service and entertainment focal point. Kaohsiung Port Wharf will have a series of undulating horizontal structures, each with a glass curtain wall at the end, converging towards the center, and shooting upwards at the other end to form a tower [7].

New Keelung Harbour Service Building, Taiwan

The New Keelung Port Service Building is a new port project that is only part of a larger green network that connects public open spaces with the city's waterfront facilities designed by PAR (Platform for Architecture & Research) and Sérièset Sériès (Figure 2). The design of Terminal intervenes in this process by providing continuous open spaces at the water's edge [8]. The terminal hall appears like a prism through the green roof of the building, creating a state that is both a building and a landscape. In this manner, new city expansion and public spaces can be developed deprived of replacing natural leisure areas. By maintaining this continuity of the system, the development of the waterfront and port terminals will make it easy for many residents of the central city to reach. The terminal hall passes through the green roof of the building like a prism, creating a state that is both a building and a landscape. The shape of the tower has a geometric shape relative to the mountains and the transportation network. The tower faces the true north, with the highest elevation on the land-sea axis, and is actually the hub between the port and the city [8].

City of Arts and Sciences, Valencia, Spain

The City of Arts and Sciences, designed by Santiago Calatrava and Felix Candela, is an entertainment-based cultural and architectural complex located in Valencia, Spain (Figure 3).The City of Arts and Sciences is the most important modern tourist resort in the city of Valencia. It is located in the city of Valencia at the end of the river bed in front of the Turia River. The Turia River was drained and diverted after the 1957 flood. The old

riverbed turned into a picturesque sunken park. The first phase of the project was carried out in July 1996. With the opening of L'Hemisfèric, the completed "city" was unveiled on April 16, 1998. On October 9, 2005, the Valencia Community Day, the last important part of the City of Arts and Sciences, El Palau de les Arts Reina Sofia was presented [9].

The main idea of the project is to restore the neglected areas of Valencia and provide a linear park throughout the city. The project will become a link in the industrial chain aimed at entering the third millennium. Five architectural series in urban planning will make the cultural axis more linear [10]. The project is a hallmark of unsurpassed Calatrava, it adds characteristics to Valencians, provides nearly two kilometers of open space and public spaces with an area of 350,000 square meters [10].

Darling Harbor, Sydney, Australia

Darling Harbor is designed by Lend Lease and Philip Cox (Figure 4). The Darling Quarter is the intersection of the city and the western edge of the park, and is celebrated through a series of well-defined public spaces, including pedestrian streets, parklands, passages, children's playgrounds, and event venues filled with cafes and coffee shops restaurant. This is a great place for lunch for city staff. This place is suitable for everyone, families, children, tourists and locals [11].

Darling Harbour will be home to Sydney's new world-class conference, exhibition and entertainment venues. It will develop into one of the world's greatest living, conference and entertainment venues based on the success of the area. Haymarket is planned for a new urban residential and commercial area at the southern end of Darling Harbour. New streets, alleys, apartments, public gathering places, boutiques, restaurants and cafes will bring new vitality to the area [12].

Figure 1. Kaohsiung Port Terminal, Kaohsiung, Taiwan [7]

Figure 2. New Keelung Harbor Service Building, Taiwan [8]

Figure 3. City of Arts and Sciences, Valencia, Spain [10]

Figure 4. Darling Harbour, Sydney, Australia [12]

SPACE PROGRAM

The proposed project consists of several main zones namely terminal, marina, hotel, cultural and environment, administration, and retail. Figure 5 demonstrates the bubbles diagram of the proposed project. The terminal zone and hotel zone dominated the biggest size of the program by 30% and 24% as shown in Table 1. The total net area of the project is about 28401m^2.

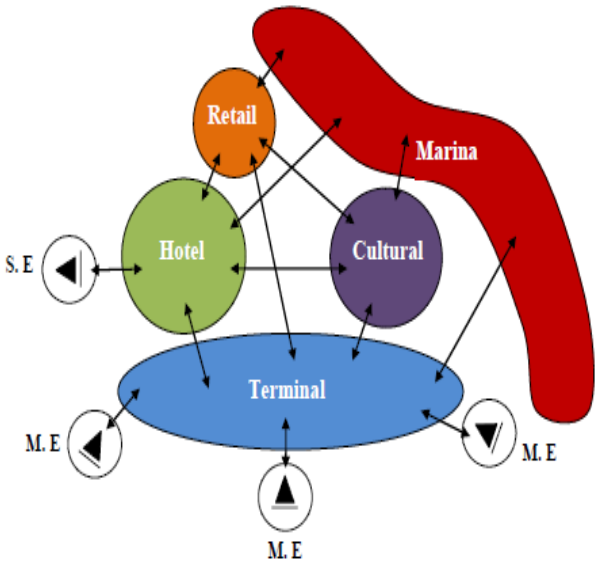

Figure 5. Bubbles diagram

Table 1. Space Program

Description	Percentage (%)	GFA (m²)	Number of floors	Foot Print (m²)	Net Area (m²)
Terminal	30	12000	3	4000	8609
Marina	12	4800	1	4800	3352
Hotel	24	9600	10	960	6720
Cultural and Environment	20	8000	1	8000	5800
Administration	8	3200	1	2240	2240
Retail	6	2400	1	2400	1680
Total	**100**	**40000**	**17**	**22400**	**28401**

SITE SELECTION AND ANALYSIS

Figure 6 demonstrates the proposed three site location in Farasan Island for the project. Figure 7 shows site 1 is situated on the southwest side of the island. It is Characterized by the cleanest shores and being in the zone of the future development plan of roads, infrastructure and tourism. Figure 8shows site 2 is located on the west of the island close to the most populated square in it and it is accessed easily by the current road map. Figure 9 shows site 3 is situated on the east of the island nearby the existing boat deck which is the closest location to Jaizanport.

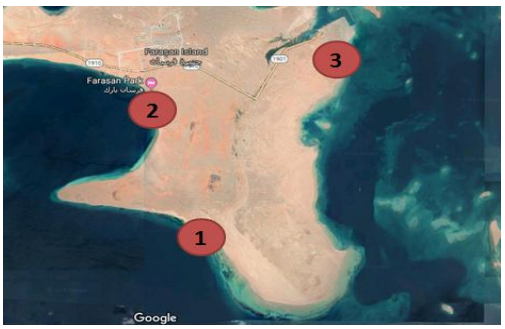

Figure 6. Proposed sites

Figure 7. Site 1 [13]

Figure 8. Site 2 [14]

Figure 9. Site 3 [15]

This project considered eleven site evaluation criteria for site location selection. They criteria are accessibility, views, demographic pattern, surroundings, utilities, future development plans, image and visual quality, visibility, topography, noise levels, and shape and site proportions. Each criterion is given a value called Weighting Factors (WF), used as a multiple factor in evaluating the selected sites. Weighting factor of 3 mean very important, 2 is somehow important and 1 is less important. The site evaluation result is shown in Table 2.

Table 2. Site Evaluation

Criteria	Weighting Factors	Site 1	Site 2	Site 3
Accessibility	3	12	15	9
Views	3	15	12	9
Demographic Pattern	3	12	15	9
Surroundings	3	9	12	9
Utilities	3	12	15	9
Future Development Plans	3	15	12	9
Image and Visual Quality	2	15	9	12
Visibility	2	10	8	6
Topography	2	10	8	6
Noise Levels	1	5	4	3
Shape and Site Proportions	1	5	4	3
Total		**120**	**114**	**84**

Site 1 marks the highest score and chosen as the site location based on the site evaluation result that tabulated in Table 2. The selected site benefited by natural beauty, less pollution, clean and sandy beach where it is suitable for most water activities. Next, the selected site located near to the international waterway which is convenient for the visitors. Also, the centre for the ship maintenance, which could offer easy and near maintenance services for the yachts and ships. In addition, the site has sufficient area for future development.

Figure 10 shows the climate analysis of the site, where the weather here is summer thought the year and experience prevailing winds from the direction of northwest. This site is exposure to massive sun light and the project should consider this phenomenon in order to develop a conformable environment for the visitors.

ZONING AND PROJECT DESIGN

Figure 11 demonstrates the final site zoning of the project. The terminal and the marina are located closed to the see, while the hotel, retail and cultural zone are located to the main land. The service entrance of the site is situated near to the hotel zone. Farasan Island is one of the natural islands that were gifted to Saudi Arabia to be one of the catching locations for the whole world. By regenerating its harbour, Farasan will create a new hub for tourists and Saudi citizens to be economically developed and culturally connected. Figure 12 and Figure 13 show the

cultural zone and the marina zone of the project respectively. The main perspective of the project is shown in Figure 14.

Figure 10. Site climatic analysis

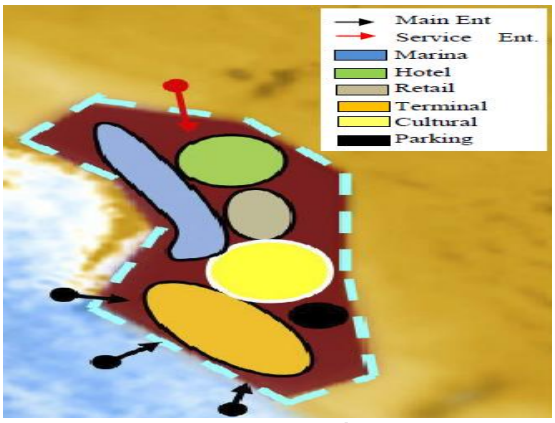

Figure 11. Site general zoning

Figure 12. Cultural Zone

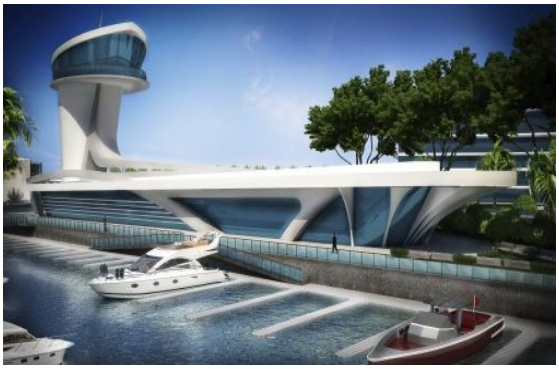

Figure 13. Marina Zone

Figure 14. Main perspective view of the project

CONCLUSION

This project provides Farasan Island with appropriate connection to the rest of the Kingdome's cities and the whole world through the redevelopment of its harbour in able to make it a world class hub for retail and natural tourism services. The proposed space program consists of several main zones such as terminal, marina, hotel, cultural and environment, administration, and retail with net area of 28401m^2. Three sites at the Farasan Island were proposed and the site selection is based on the evaluation of the criteria such as accessibility, views, demographic pattern, surroundings, utilities, future development plans, image and visual quality, visibility, topography, noise levels, and shape and site proportions. In addition, this development may help enhancing the economy of the island citizens by marketing their work through cultural events, as well as enhancing the facilities supporting fisheries and pearl extractors as a local activity.

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