

Alexandria's Eastern Entrance: Analysis of Qaitbay Waterfront Development

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Abstract—Water is a fundamental attraction in all cultures and among all classes of people, tourists and citizens. It is a favorite location for major tourism initiatives, celebrations and ceremonies. The vitality of any city depends on citizen action to take part in creating the neighborhoods they desire. Waterfront can provide extensive new areas of high quality public open space in parts of the city that are popular venues for social activities and also have the highest land values. Each city must have a character that can be used as a key attraction for the development. The morphology of a waterfront can be identified by both its physical characteristics and the socio-cultural activities that take place in the area. Alexandria has been selected as an area of study because it has a unique character due to its possession of a variety of waterfronts.

This paper aims to set some criteria of successful waterfront development and then through these criteria analyzing the development of the Qaitbay waterfront in the eastern harbor in Alexandria, Egypt. Hence, a comprehensive improvement of the waterfront areas is certainly needed to ensure a successful waterfront development radiated the sense of uniformity and coherence.

Alexandria can benefit from these criteria to develop its urban waterfront in order to preserve and revitalize its unique waterfront character and achieve mixed uses and tourism development.

Keywords—Place making, Qaitbay, responsive environment, sustainable urban design, waterfront development.

I. INTRODUCTION

IF there is magic on this planet, it is contained in water [1]. "The waterfront becomes symbolic of our human limitations and of our potential. It functions as both a physical and a psychological frontier. By representing what is deep and knowable, it suggests both our hopes and our fears for the future. It is a shimmering mirror which reflects the sunlight of the day and the city lights of the night, breaking them up into millions of sparkling rays, abstracting and making poetic our work-a-day world." [2].

The waterfront is a special place within special context which must be integrated in the city life and respond to the wishes of its people. The waterfronts are vital, important, and far-reaching in the impact of their uses, also are regional places for they link one city to another [3].

Urban waterfronts are the focal points of many cities. These waterfronts began as commerce centers, transportation hubs and manufacturing centers. As transportation and manufacturing moved out of cities, old industrial waterfronts became unused areas. Therefore in the past thirty years, these waterfront areas have become essential for development

across the United States and all over the world [4].

Alexandria's waterfront has been chosen as a case study which is unique and has lots of potentially to develop in terms of recreations. Alexandria is the second largest city of Egypt, with a population of 4.1 million, extending about 32 km along the coast of the Mediterranean Sea in the north central part of the country; it is also the largest city lying directly on the Mediterranean coast. Its development is restricted to a narrow coastal stretch between the Mediterranean Sea to the north and Lake Maryout to the south. Over the course of time, Alexandria becomes the most important and largest seaport of the country, serving approximately 80% of Egypt's imports and exports. It is not only the main port but also a prime summer tourist resort.

II. WATERFRONT DEVELOPMENT

The waterfront development is a process that begins due to the desires of a community to improve its waterfront which contains mixed use development that are relatively homogeneous. This process proceeds in many developed countries through a series of planning steps and public review to adopt a plan. Moreover, the implementation of the plan must involve public and private actions to be occurring in an ideal way [5]. While, the scale and type of the waterfront redevelopment varies from city to city, the basic concept of development is similar [6].

Waterfront development has been an issue of wide concern and extensive discussion since the 1970s when Baltimore, Maryland began its famous redevelopment project, converting old waterfront property, into economically viable space. Numerous large and small scale developments have been undertaken since then in such glamorous cities as Sydney, Austria and England and in small towns, such as Portland, Grand Haven and Michigan [4].

Waterfront development is a wide spread phenomenon occurring in various communities all over the globe with the demand for leisure and recreational needs by increasing urban population. Hence, many cities have started to extend abundant waterfront's area for future development. The existence of water add sparkle of urban life, therefore, the current patterns of waterfront development were focusing more on recreational facilities and public use that increase the quality of life to the people. In addition, urban waterfront projects have dramatic and visible impact to improve the self-image of the city. Although urban waterfront projects differ completely, but by analyzing different projects, there are some common principles which lead to their success.

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III. DIFFERENT CRITERIA OF GOOD URBAN PUBLIC SPACES

Successful public space always creates strong connections between the places the user's personal lives. They should relate to their physical and social background. Although culture, topography, climate, history are individual for each place, there is much to learn. The following summarize some urban design approaches that have created principles of good urban places.

A. Responsive Environment Criteria

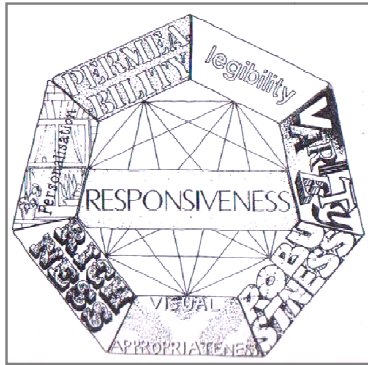


Fig. 1 Responsive Environment diagram [7]

The responsive criteria developed by Bentley, have attempted to overcome the challenge of linking human experiences to design a responsive and successful urban space. Therefore, the responsive criteria are chosen to achieve the built environment that should provide its users with an essentially democratic setting, enriching their opportunities by maximizing the degree of choice available to them to provide responsive places [7]. It is composed of seven criteria which are:

1. Permeability

It is a property of how easy it is to move through an environment and depends heavily upon the paths and objects placed within the space. Permeability is also influenced by the nature of spaces. The greater the number of alternative routes through an environment, the greater people's freedom of movement and, therefore, the greater the responsiveness of that place.

2. Variety

It refers to the range of activities, people and building forms which can be found in a space. The varied nature of people, forms and activities will create range meanings and in turn the meanings may influence the variety of options available

3. Legibility

It is how easy it is for a person to understand the layout of the place, construct a mental map of their environment and depends to a large extent to the form of the environment and the activities people undertake. Lynch discusses many features such as paths, nodes, landmarks, districts and edges.

4. Robustness

It explores how a single space can be put to multiple uses.

It is also influenced by temporal aspects. Places which can be used for many different purposes offer their users more choice than places whose design limits them to a single fixed use.

5. Visual Appropriateness

It strongly affects the interpretations people put on the place. It is how the design and details physically can make people aware of the choices the place provides.

6. Richness

It relates to the range of sensory experiences available, for example sight, smell, touch and sound.

It is also concerned with how the experience can have an effect on the emotional state of those visiting the place.

7. Personalization

It is the ability to customize an environment on a large or small scale. It makes possible for users to personalize places by putting their own stamps on their environment.

B. Place Making Criteria



Fig. 2 Place making diagram [8]

The process of Place-making allows diverse constituencies to identify how public spaces can be shaped to make them welcoming, well-functioning and attractive places for people. One of the most critical factors in achieving a public space that truly serves its constituents, improve the daily experience and draws people time and again [8]. According to Project for Public Spaces (PPS) which is a nonprofit planning, design and educational organization, public spaces have four major attributes to evaluate a place which are:

1. Access & Linkages

A place has to be well connected to its surroundings visually and physically and easy to get to and to get through. Also, place has to have a high parking turnover which is convenient to public transit.

2. Comfort & Image

The key of a successful space is to be comfortable and have a good image. Comfort includes perceptions about safety,

cleanliness, and the availability of places to give people the choice to sit where they want.

3. Uses & Activities

Uses and Activities are the basic building blocks of a place. Having something to do in the place gives people a reason to come and return. It is important to provide various well managed activities throughout the day for people of different ages, to be used by singles or people in groups.

4. Sociability

When people see friends, meet their neighbors, and feel comfortable interacting with strangers, they tend to feel a stronger sense of place or attachment to the place that fosters these types of social activities.

C. Sustainable Urban Design Criteria

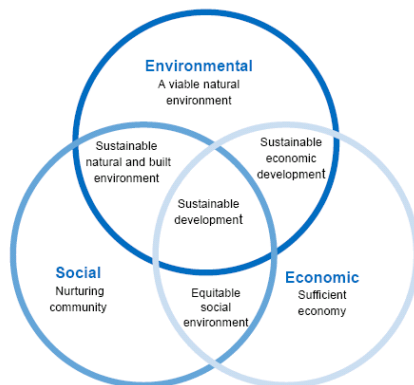


Fig. 3 Sustainability diagram [9]

Sustainable urban design is a process whereby all the actors involved work together through partnerships and effective participatory processes to integrate functional, environmental, and quality considerations to design, plan and manage the built environment [10].

Sustainable development entails not only environmental sustainability, but also economic and social sustainability. As well as considering environmental impacts, urban designers need to have regard to social impacts and long term economic viability [11].

A number of planners and organizations have identified sets of criteria for sustainable urban design. Of these, Carmona's principles one of the most comprehensive which suggested ten criteria [12]:

1. Diversity and Choice

It concerns to mix uses along streets and blocks, design for walking and cycling, combat privatization of the public realm, and remove barriers to local accessibility.

2. Distinctiveness

It reflects urban form, townscape and site character in design. It retains distinctive site features, important building groups and spaces and designs for sense of place local distinctiveness.

3. Human Needs

It studies to provide high quality, legible public spaces, combat crime through space design and management, enhance safety by reducing pedestrian/vehicle/ conflict and design for social contact and for safe children's play.

4. Biotic Support

It is about to design in robust soft landscaping, plant and renew street trees, encouraged greening and display of private gardens.

5. Concentration

It concerns to reduce space given over the roads and space given over to parking and increase vitality through activity concentration.

6. Robustness and Resilience

It relates to design robust spaces, usable for many functions, serviceable space and spaces able to accommodate above and below ground infrastructure requirements.

7. Resource Efficiency

It involves designing layouts to allow sun penetration, spaces that reduce vehicle speeds and restrict vehicle circulation and spaces that reduce wind speeds and enhance microclimate, use local, natural materials, capture and recycle water

8. Self Sufficiency

It Encourages self-policing through design, provides space for small-scale trading and bicycle parking facilities.

9. Pollution Reduction

It is regards to reduce hard surface and run-off, give public transport priority, and design in recycling facilities and well-ventilated space to prevent pollution built-up.

10. Stewardship

It Responds, enhances context, manage the public realm, allow personalization of public space and introduce traffic calming.

IV. CRITERIA OF SUCCESSFUL WATERFRONT DEVELOPMENT

To achieve a successful waterfront development it is necessary to required responsive and place making criteria respecting sustainable urban design approaches. Based on the review of the previous criteria, the following six criteria are proposed to be used to enhance the waterfront development which is implemented by various principles.

A. Accessibility

The most pedestrian-friendly places offer a sequence of experiences to the pedestrian and the arrival point of a place must be attractive, friendly and welcoming because it forms the first impression of a place. Therefore when designing a promenade along the waterfront, it is important to encourage access and movement in the adjacent spaces and to keep people and activities at street level. The opportunity should be taken to remove barriers and provide greater accessibility and

pedestrian freedom to the waterfront.

To achieve accessibility, different design principles as applied in waterfront developments are explored:

- Improve accessibility with various modes of transportation (Boat, Bike and Foot)
- Connect Destinations along the Waterfront
- Optimize and increase Public Access to the waterfront
- Locate new routes through the site to improve connectivity
- Check the practicable sizes of blocks that define the streets

B. Diversity

Greater diversity will help to create a more livable city and to provide for culture, entertainment, leisure, recreation, civic life and the exchange of community views, ideas and opinions. Existing places demonstrate that most activities can be compatible and live harmoniously side-by-side. That's why the more well-used and varied they are, the more they are likely to have the quality of people friendliness. Furthermore, the best urban places offer a mixture of uses, a variety of activities, experiences and the presence of people on the street that make lively, interesting, public, safe and enjoyable environments. According to the needs of users, designing buildings should flexible change in space and over time which mean enabling buildings due to the technologies to be accommodated a mix of uses, adapted, personalized and changed in use over time.

The following principles should serve as the framework for creating a multiple uses and activities along the waterfront:

- Create Multiple-use Destinations and offering choices
- Integrate seasonal activities into each destination to go to throughout the Year
- Encourage 24-hour activity by limiting residential development
- Provide an Active Recreation waterfront
- Welcoming, Inclusive and Diverse waterfront
- Encourage Cultural & Activities and Promote Arts
- Ensure uses Balance
- Evolving and Flexible Design
- Iconic Buildings Serve a Variety of Functions
- Provide public spaces through incremental change
- Creativity
- Design and program buildings to enhance the public space

C. Sense of Place

Place, as understood through the senses, is differentiated from human beings' intellectual interpretations of the world, which create a mental construct. The test of the layout of a space is how well, or how badly, the visitor can find his or her way at first encounter. The public image of any city is the overlap of many individual images. The mental maps of individuals largely depend on their real or perceived place in social and economic hierarchies. The Elements regularly overlap; Districts are structured with nodes, defined by edges, penetrated by paths, and sprinkled with landmarks which offered more visual pleasure, emotional security, and a

heightened potential depth and intensity of human experience.

The visual sensation and other senses such as smell, taste, motion, hearing, touch and time are the indications used to clarify and survival the life of the urban space to provide a unique and dynamic place to attract a range of people, they also should define people's experience and keep people coming back.

These clues have design implications such as:

- Theming and Place making
- Extend the Influence of Waterfront to the city
- Water edge attention achieved by paths, edges, districts, nodes and landmarks
- Safety and comfort
- Increase the variety of sense-experiences which users can enjoy

D. Aesthetic Appearance

Visuals cues strongly affect the interpretations people put on the place. To encourage social interaction, it is requires detailed attention to the structure of a space and its elements which involves the surfaces of buildings, public art, street furniture, lighting and signage. Therefore, the design should look in general terms and focus on details. There are different principles of visual appearance mentioned:

- Enhance Architectural buildings details
- Encourage Public Art
- Promoting site Landscaping
- Providing Parking facilities
- Creating streetscape Amenities
- Maintain Views to the waterfront

E. Environmental Quality

Successful waterfront development should enhance the natural beauty of the physical landscape and at the same time protecting the natural environment from any pollution. In most waterfront recreation project, the goal of environmental enhancement is closely related. Besides, the desire for clean water and quality living environment also one of the components of good waterfront design. Sometimes, the design of recreation space also incorporates with the pollution reduction measures. Furthermore, the creation of waterfront trail and the widespread tree planting is general associated with waterfront projects. The environmental quality principles are:

- Provide clean water, fresh air, sun penetration, less pollution and waste.
- Reduce wave energy to protect the coast.
- Use local, natural materials.
- Capture and recycle water
- Design well-ventilated space to prevent pollution built-up.
- Maximum separation of vehicles and pedestrians
- less automobile use and more pedestrian walkways included walkers, bicyclists, physically handicapped, and those of all ages on foot
- Protection from hot sun, cold winds and rain.
- Restore natural systems and preserve local culture.
- Plant trees and design good landscape

F. Identity

It communicates across the private and public boundary which affects the public realm. In personalizing a place, users are confirming their tastes and values to themselves, and communicating them to others by modifying the design to encourage the effects of personalization without destroying visual appropriateness or richness.

The high level of personalization may be degenerate into chaos, therefore, it has to take in consideration when designing buildings to not be detrimental the public impact and eroding the balance between pattern and variety. To achieve personalization there are some principles have to take in considerations such as:

- Achieving Local Identity and Character
- Make Public Goals the Primary Objective within the new development
- Create a shared community vision
- Good Management Maintains Community Vision

V. EASTERN HARBOR

The Eastern Harbor is situated on the Mediterranean Sea. It is considered on the Alexandria's main urban potentials and is a part of the city's urban fabric. It exists since antiquity symbolizes the different historical phases in the development of the city.

A. Location and Historical Background

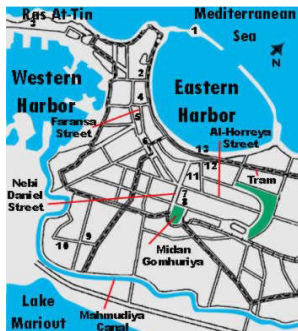


Fig. 4 Map of Alexandria [13]

Alexandria was founded by Alexander the Great in April 331 BC, Alexandria became the capital of the Greco-Roman Egypt, its status as a beacon of culture symbolized by Pharos; the legendary lighthouse that was one of the Seven Wonders of the World. Dinocrates built the Heptastadion, the causeway between Pharos and the mainland. This divided the harbors into the Western and Eastern. Of modern Alexandria, the oldest section is along the causeway which links what was once Pharos Island with the mainland and includes the districts of Gomrok that includes Anfushi and Ras el-Tin that are known to westerners as the Turkish Quarter.

The area forms somewhat of a T-shape, dividing the Eastern Harbor from the Western Harbor. Where the Pharos Lighthouse once stood, is now occupied by the Fort of Qaitbay out on the area that circles up around the top of Eastern Harbor forming the eastern section of the top of the T.

Heading south from the Fort of Qaitbay, to an iconic mosque; Abu El-Abbas. West of this is the Anfushi Tombs, some of the oldest in Alexandria [13].

B. Easter Harbor Landmarks'

The Eastern Harbor represents the hub of the city center by including several important buildings such as banks, hospitals, faculties, residential areas and the most important landmark of the city such as The Citadel of Qaitbay, El Morsy Abou El Abbas and The Library of Alexandria. The Citadel of Qaitbay is selected to be the study area from the Eastern Harbor zone.



Fig. 5 Map of Eastern Harbor Landmarks

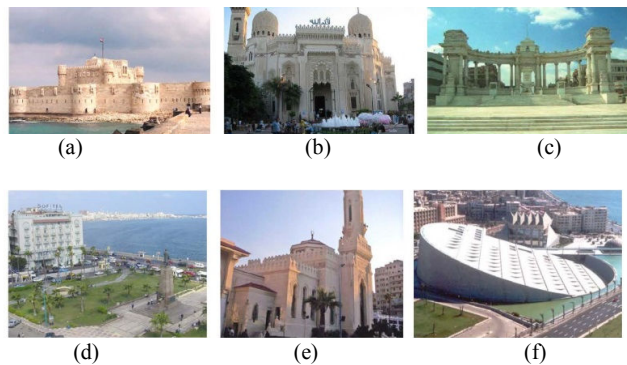


Fig. 6 (a) The citadel of Qaitbay, 6 (b) El Morsy Abou El Abbas Mosque, 6 (c) Unknown Soldier Tomb, 6 (d) Saad Zaghloul Square, 6 (e) El Quaed Ibrahim Mosque, 6 (f) Alexandria Library

VI. QAITBAY WATERFRONT

The Citadel of Qaitbay area is stretching 540 m along the Mediterranean Sea and its width varies from 40 m to 70 m. It has proven to be a major asset to the city and attract Citizens for gathering and tourist to enjoy its great view and enhance its monumentality

A. History of the Qaitbay Waterfront

The Qaitbay Citadel was built towards the end of the 15th century, stands on the site of The Pharos of old Alexandria which was one of the seven wonders of the ancient world and rising to a height of 120 m. it was built of white marble in the third century BC. From the 10th century, a series of earthquakes destructed the tower. Its remains lie underwater

near the entrance to Alexandria's Eastern Harbor. The coastal erosion threatening the Qaitbay Citadel and the controversy surrounding its protection led to study the area around the Citadel. In 1996, new discoveries of underwater sunken monuments take place around Qaitbay citadel that including the remains of the Pharos Lighthouse [14].



Fig. 7 (a) Eastern Harbor image, 7 (b) Eastern Harbor satellite image [15]

B. The Study Area of the Qaitbay Waterfront

The development is starting from "El Cornish Street" to "Qaitbay Citadel", bordered from the eastern side by a group of public buildings. From the western side the area is bordered by "El Anfoushy Gulf". This area represents the entrance of Alexandria from the Mediterranean Sea. This development extend to study the oldest areas of the eastern and western harbor of Alexandria from the east and the west and from on the south by the rest of the old city and by the Mediterranean Sea from the north.



Fig. 8 Satellite image shows the study area

C. Before the Area's Development

Before the development of Qaitbay Waterfront, the historical dimension of the site that represent a key element in the evaluation process of economic development and one of the criteria that must be taken into account when assessing the site.

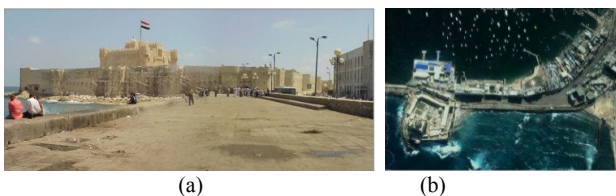


Fig. 9 (a) Qaitbay Waterfront Image before the development [16], (b) Qaitbay Waterfront Satellite Image before the development [15]

Also, the study of its social and environmental dimension can be summarized as points of weakness and deterioration of the previous location (before the development) in the following points [16]:

- There was no civilized gate that reflects the historical value of the area
- The uses and activities in the area did not fit with the region cultural
- Lack of architectural identity of buildings in the region
- Lack of places for public uses and leisure and cultural activities in the region and the uses were limited on private clubs
- The mal exploitation of the waterfront area
- The view to the sea was not well maintained.
- The overlap the movement of pedestrians and vehicles that lost the feeling of safety



Fig. 10 Qaitbay Waterfront before the development [16]

VII. ANALYSIS OF THE QAITBAY WATERFRONT DEVELOPMENT

The Qaitbay waterfront is full of rich history with a unique monumental building of the Qaitbay Fortress that adds to the value of urban waterfront for the residents and visitors. Also, it was estimated that the number of visitors during summer season reaches 5000 visitor/day. Therefore, The Main idea of development this area is to become an important touristic pole that adds to the feature of Alexandria and to transfer to a successful urban space that can upgrade the region. In addition, the main objectives for the development are: improving the region in line with the urban history and its unique and distinctive in the city, raising the economic value of land in the region and re-invested the area and finally, raising the aesthetic and architectural values of buildings. Furthermore, the project was studied and implemented over period of two years and its construction took six months from September 2001 to April 2002 and was financed by Ministry of Tourism in corporation with The Alexandria Governorate. The design was comprised of private participation of leading architects and planners: Prof. Dr. Amr El Adawi, Prof. Dr. Ibtehal Elb Bastawissi, Prof. Dr. Moustafa Gabr and Prof. Dr. Hany Ayad [17].

In order to upgrade the image and the tourist attraction of Qaitbay, the development of the waterfront is related to its environmental, social and culture context to be perceived as a

quality of life project. The Main Objectives for the development are:

- Improving the region in line with the urban history and its unique and distinctive in the city.
- Raising the economic value of land in the region and re-invested the area.
- Raising the aesthetic and architectural values of buildings



Fig. 11 The current situation of Qaitbay Waterfront [16]

The analysis of study area is based on the set of principles deduced from responsive environment, place making and sustainable urban design criteria which strives to weave the principles of waterfront development into criteria of design.

A. Accessibility

The Qaitbay waterfront accessibility is considered one of the great tourists experience. One of the important design task is to make it accessible to people and the disables. In this area there are three main paths: Two paths for the pedestrian and path for the vehicle. The Qaitbay Waterfront is connected to the city by the Cornish Street. In addition, the promenades are running for 310 meters along the Mediterranean Sea with a multilevel walkway and plazas.

The promenade encourages public access and includes safety railings along the walkway and different street furniture. Different mean of transportation are used to access to the waterfront by boats, cars, buses and horse cart. The walkway leads to the most attraction point in this area which is the Citadel of Qaitbay. Also along the promenade there are different activities.



Fig. 12 Map of Qaitbay Waterfront Accessibility

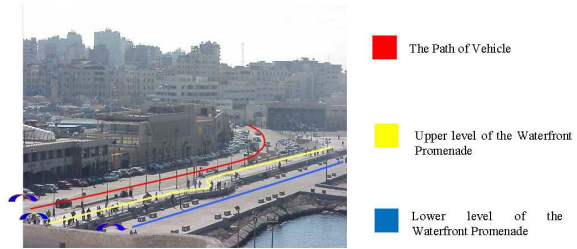


Fig. 13 Perspective of Qaitbay Waterfront Accessibility

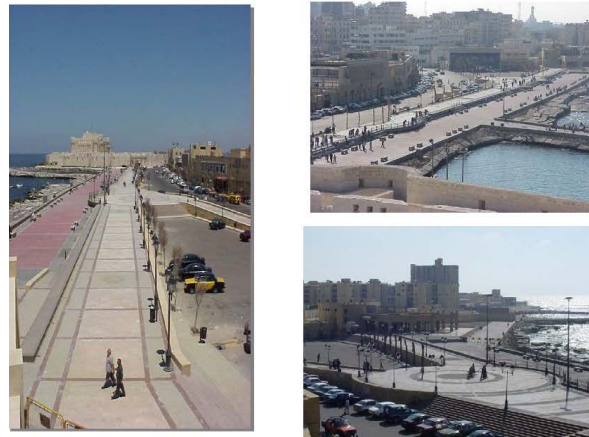


Fig. 14 Different paths of the waterfront

B. Diversity

A mix of facilities is provided along the waterfront that would appeal to visitors, and establish a specific local sense of place due to the Citadel of Qaitbay.

Qaitbay waterfront can be divided into two zones which are: Zone A which represents a historic zone and Zone B include different uses and recreational facilities. In addition the existing building facades are rehabilitated by providing a design that reflects the historic style of the area. Also in this area there are shops, toilets, bank and restaurant

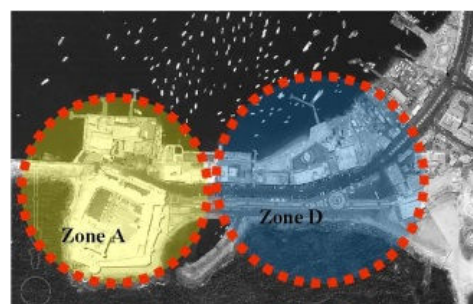


Fig. 14 Satellite image shows the two zones

In addition, some time there are event and festival that present a traditional music and dance. Also, enjoying the waterfront can be achieved through the day hours for just taking the air.



Fig. 15 Sports Clubs and restaurants



Fig. 16 Qaitbay Waterfront Land use [16]

C. Sense of Place

Qaitbay Citadel is bordered from the eastern side by a group of public buildings. From the western side the area is bordered by "El Anfoushy Gulf". At the northern western end the citadel of Qaitbay is located and at the southern western end there are few public buildings, with a sea retaining wall connecting both ends and used by the public as a promenade. A mix of facilities is provided along the waterfront that would appeal to visitors, and establish a specific local sense of place due to the Citadel of Qaitbay.

Qaitbay waterfront has a different sensual experience due to its historical background and its features. A strong Sense of taste and smell are provided due to the restaurants in the clubs

Qaitbay waterfront has a good visual aspects a strong edge which is represented by the Mediterranean Sea and clear path (pedestrian promenade and vehicle path) that end by the Qaitbay monument and the other side of the path there are an important node that intersect between the Cornish street and Kasr Ras El Tin street.

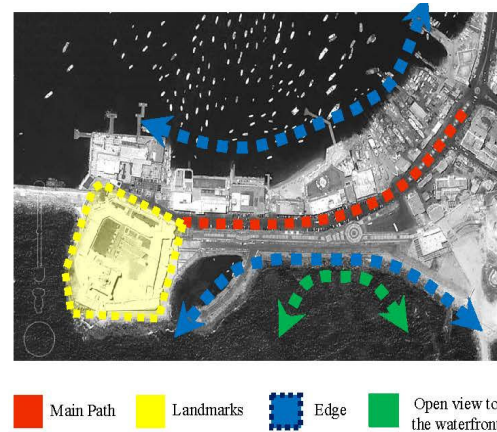


Fig. 17 Satellite image shows the waterfront visual aspects

D. Aesthetic Appearance

There are good visual experiences due to the open spaces that maintain the view to the waterfront. Furthermore there are art works, handrail along the water edge.

The street furniture is adequate such as sheds, seats and lighting units for pedestrian, car and for decorations that are designed to be comfortable and durable. In addition, there is a beautiful landscape and palm trees provide shaded areas. In the area after the rehabilitation of the building there are simple details. Also, Parking areas are provided for all mean of transport and the promenade is well designed and paved by a great and durable patterns. Also, there are different pattern used in the vehicle path to decrease the car speed. Furthermore, the river walk is very crowded by visitors and citizens

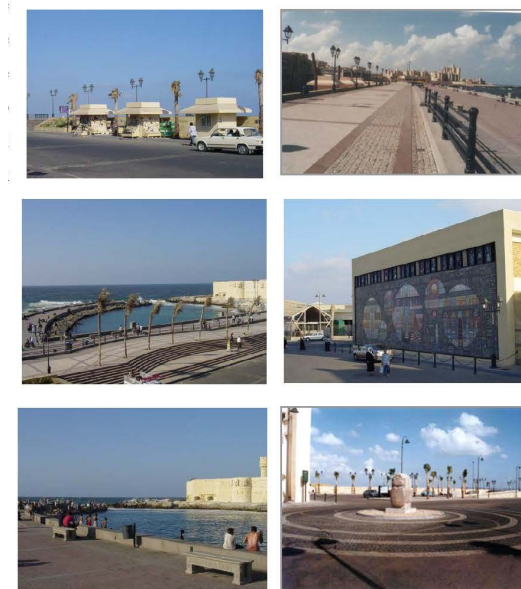


Fig. 18 The art work, street furniture and landscape

E. Environmental Quality

Qaitbay waterfront provides an excellent opportunity place

to enjoy the spectacular view and relax by the clean water, the fresh air and the beautiful sun.

The Qaitbay waterfront promotes maximum safety by separating vehicles and pedestrians by two levels, lower level used for vehicles and horses and the upper level used as a Promenade primarily for pedestrians and cyclists but not well defined and interesting.

In the upper level, the benches fabricated by natural materials are sited in front of water and the lower level has two continuous rows of trees and has buildings along one side providing shade on the streets. To create safer harbors in the winter, breakwaters are constructed in the water to reduce the intensity of wave action in inshore waters and during the summer people sit on and can fish, boat, watch the water, and Seagulls.



Fig. 19 Breakwater and the natural materials used in site



Fig. 20 The pedestrian and the vehicle ways

F. Identity

The identity and the character of Qaitbay waterfront comes from the people, the goods, the movements, the life, and the economic activities that are running daily. Fishermen some time sell there also some handcraft man sell their product to the visitors. Also, there are some stores that buy some souvenirs. Finally the presence of the Citadel of Qaitbay gives the space a very strong character.

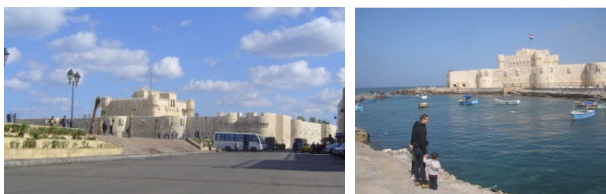


Fig. 21 The Qaitbay citadel context

VIII.CONCLUSION

The Qaitbay waterfront development was transformed into a major tourist attraction of the city. It contains a great promenade that is lined restaurants, shops, clubs, and streetscape amenities. Nowadays it is classified one of the most livable waterfront in Alexandria. Table I summarizes the main criteria and the principles implemented in this example to achieve a successful waterfront.

TABLE I
ANALYSIS OF QAITBAY WATERFRONT DEVELOPMENT

Criteria	Principles	Check
Accessibility	Improve accessibility with various modes of transportation	✓
	Connect Destinations along the Waterfront	✓
	Optimize & increase public access to the waterfront	✓
	Check the practicable sizes of blocks that define the streets	
Diversity	Locate new routes through the site	
	Create multiple-use & destinations and choices	✓
	Integrate seasonal activities into each destination to go to throughout the Year	✓
	Encourage 24-hour activity by limiting residential development	
	Provide an active recreation waterfront	✓
	Welcoming, inclusive & diverse waterfront	✓
	Encourage cultural & activities & promote arts	✓
	Ensure uses balance	
	Evolving & flexible design	
	Iconic buildings serve a variety of functions	✓
Sense of place	Provide public spaces through incremental change	
	Creativity	
	Design and program buildings to enhance the public space	
	Theming and Place making	✓
	Extend the Influence of Waterfront to the city	✓
	Water edge attention	✓
Aesthetic appearance	Safety and comfort	✓
	Increase the variety of sense-experiences	✓
	Enhance Architectural buildings details	✓
	Encourage Public Art	✓
	Promote site Landscaping	✓
	Provide Parking facilities	✓
Environmental Quality	Create streetscape Amenities	✓
	Maintain Views to the waterfront	✓
	Provide clean water, fresh air, sun penetration & less pollution	✓
	Reduce wave energy	✓
	Use local, natural materials	✓
	Capture and recycle water	
Identity	Design well-ventilated space	✓
	Maximum separation of vehicles& pedestrians	✓
	less automobile use & more pedestrian walkways	✓
	Protection from hot sun, cold winds and rain	
	Restore natural systems& preserve local culture	✓
	Plant trees and design good landscape	✓
Identity	Achieving Local identity & Character	✓
	Make Public Goals the Primary Objective	✓
	Create a shared community vision	✓
	Good Management Maintains Community Vision	✓

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