

ITANENA - THE BORDER INTERVENTION

LANDSCAPE DESIGN FOR PORT SUDAN CENTRAL WATERFRONT

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ITANENA - THE BORDER INTERVENTION

LANDSCAPE DESIGN FOR PORT SUDAN CENTRAL WATERFRONT

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Laurea Magistrale: Sustainable Architecture and Landscape Design

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ABSTRACT

“The boundary is an edge where things come to an end, while the border is an edge where different groups interact” biologist Stephen Jay Gould.

The water has a potential to make cities as a cultural and heritage hub and bringing ‘cities on water’ around the world to a new position. Waterfronts that incorporates recreational facilities serve as a tourist attraction and enhances living quality.

The border between cities and water, where different components and materials interact, has always been attraction point for landscape architects, motivated them to create different experiences along the border. In Recent interventions, Key aspects were taken when designing a waterfront landscape, water quality, public and free access to water, public spaces, gradual and flexible development and the collaboration between public and private entities. In The "Confluence Of Lyon » waterfront development by Michel Desvigne, it shows how the landscape integrate with neighborhood by a park system that runs alongside the Saone river with branches into the interior fleshing out the whole of the site.

This thesis attempts to develop the central waterfront of PortSudan city along the red sea, within the framework of urban landscape design and public spaces, creating an interaction between the city and the sea, linking the city center with the waterfront visually and physically and adding vitality to the city through a community space layout.

This proposal creates a waterfront that is public, diverse and expressed through a multiplicity of experiences, and supports the existing cultural and social lifestyle of portsudan citizens.

Keywords: waterfront development, landscape design, public spaces. Community space.

ASTRATTO

"Il confine è un limite in cui le cose finiscono, mentre il confine è un punto in cui diversi gruppi interagiscono", il biologo Stephen Jay Gould.

L'acqua ha un potenziale per rendere le città un centro culturale e culturale e portare le "città sull'acqua" in tutto il mondo verso una nuova posizione. I lungofiume che incorporano strutture ricreative fungono da attrazione turistica e migliorano la qualità della vita.

Il confine tra città e acqua, in cui interagiscono componenti e materiali diversi, è sempre stato un punto di attrazione per gli architetti del paesaggio, motivandoli a creare esperienze diverse lungo il confine. Negli interventi recenti, sono stati presi gli aspetti chiave nella progettazione di un paesaggio sul lungomare, qualità dell'acqua, accesso pubblico e gratuito all'acqua, spazi pubblici, sviluppo graduale e flessibile e collaborazione tra enti pubblici e privati. Nello sviluppo del lungomare "Confluence Of Lyon" di Michel Desvigne, mostra come il paesaggio si integri con il quartiere con un sistema di parchi che costeggia il fiume Saone con i rami verso l'interno che espellono tutto il sito.

Questa tesi tenta di sviluppare il lungomare centrale della città di PortSudan lungo il Mar Rosso, all'interno del quadro del paesaggio urbano e degli spazi pubblici, creando un'interazione tra la città e il mare, collegando visivamente e fisicamente il centro cittadino con il lungomare e aggiungendo vitalità alla città attraverso un layout di spazio comunitario.

Questa proposta crea un lungomare pubblico, diverso ed espresso attraverso una molteplicità di esperienze e sostiene lo stile di vita culturale e sociale esistente dei cittadini di portsudan.

Parole chiave: sviluppo lungomare, progettazione del paesaggio, spazi pubblici. Spazio comunitario

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I would like to thank my parents and brothers for their love, sacrifices and unending support throughout my course and throughout my life and also to the rest of my family.

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I would like to thank my supportive friend Sylvia who have been there for me and sacrificed their time to see me through this thesis.

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Thank you all !

INTRODUCTION

PROJECT DESCRIPTION & OBJECTIVES



PROJECT DESCRIPTION

A Waterfront Development project by designing part of port Sudan waterfront, as One of The Urban Design Strategy, that calls for development of a visual identity at a pedestrian scale.

PROJECT CONCEPT

Interaction point : (new node for the city)

PROJECT OBJECTIVES

Make a pleasant a waterfront that can be used by all citizen categories, by provide a public access and improve the quality of the existing waterfront landscapes.

Orienting new development towards the waterfront, with keep in mind the activates that already existed on the waterfront and their economical importance .

enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development.

PROJECT VOCABULARY (KEY WORDS)

Public Spaces
Accessibility
Sustainability
Visual Clarity
Connectivity
Walkability
Landscape
Socialization

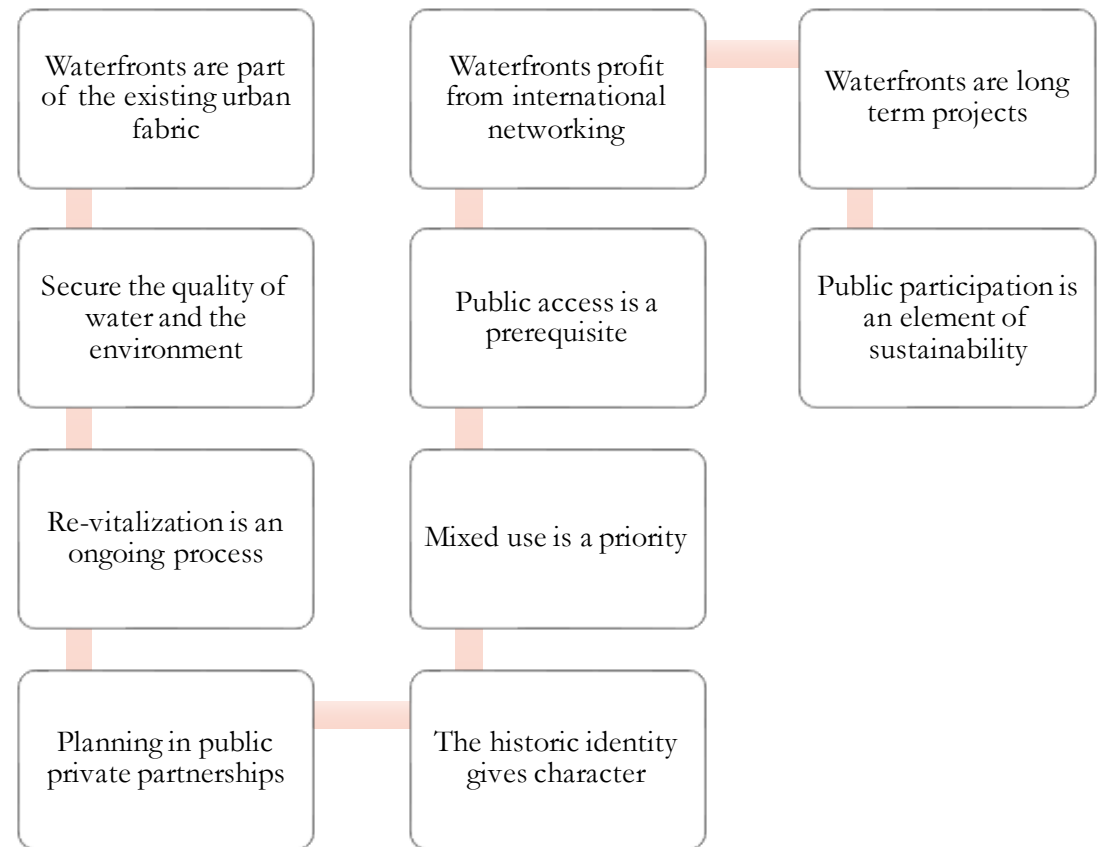
INTRODUCTION

DEFINITION OF WATERFRONTS DEVELOPMENTS

WATERFRONTS could be defined as interfaces of edge environments .

Waterfronts are dynamic places by nature. As an edge environment, the overlap of different communities of users and dramatically different conditions make for enormous amounts of complexity and energy.

The 10 Principles for the Sustainable Development of Urban Waterfronts



CASE STUDIES

1

MARSEILLE VIEUX PORT

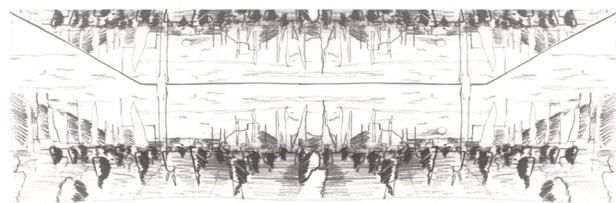
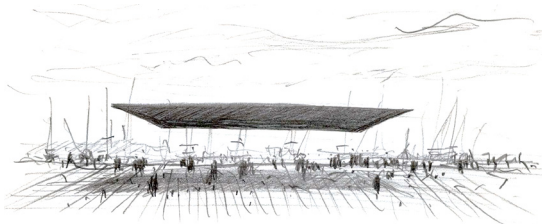
Old Harbour pedestrianisation Project

Client: Marseille Provence Métropole

Landscape Designer: Michel Desvigne

Area: 21.8 acres

Water spaces: 47 acres



The project restores and transforms old port of Marseille into exceptional civic space. The presence of traffic is greatly reduced with a vast mineral space given over entirely to pedestrians. Two new types of architecture go along with the new space. The first is the structure providing shelter from the sun, which being large in scale can be used for the daily activities of the old port as well as for hosting all kinds of large-scale events. The second are the new nautical clubs in wood, positioned directly next to the water.



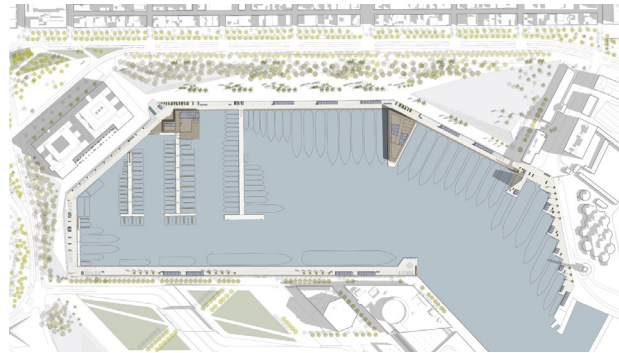
CASE STUDIES

2

PORT VELL BARCELONA WATERFRONT- SPAIN

Architect: SCOB Architecture & Landscape

Area: 19420.0 m²



In the 1980s, the waterfront revitalization projects Moll de la Fusta and PERI focused on the neighborhood of Barceloneta, which today includes the popular tourist destination Port Vell.

The public realm of Barceloneta's waterfront was re-imaged according to the following objectives (1) :

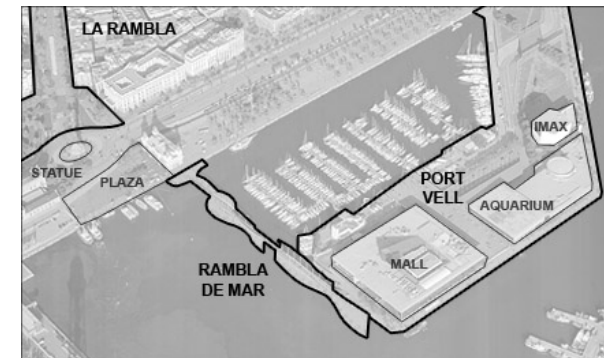
Harmonize the building heights and façades facing the waterfront

Increase average size of flats

Create better urban environment with rehab of buildings

Recover degraded squares with tree planting

These objectives were used to retain and enhance the character of the city's existing urban design framework in order to improve the quality of life for Barcelona residents as well as attract tourists to the area.



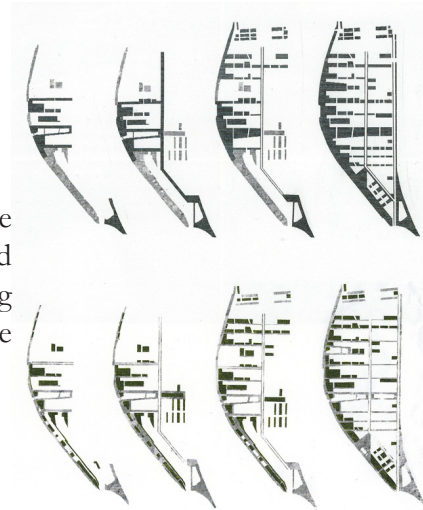
CASE STUDIES

3

THE "CONFLUENCE" OF LYON (1) (2) - FRANCE

Client: SPL Lyon confluence
Landscape Designer: Michel Desvigne
Area: 370 acres (1) 86.4 acres (2)

In 2000 it was decided to replace the initial idea of establishing a single park for Lyons confluence neighborhood. With a park system that would run alongside the Saone river with branches into the interior fleshing out the whole of the site. There were two fundamental reasons for the decision.



The 1st relates to the slowness and difficulties involved in the transformation of large infrastructure sites, the staggered timeframe in which the various plots of land become free. The 2nd reason relates to more than just an enhancement of the parks feasibility. For if the idea of a park in branches is easier to bring to fruition, its main interest lies in closely uniting together the space of the park with built spaces.



CASE STUDIES

4

THE LEÇA SWIMMING POOL

Location: porto - Portugal

Landscape Designer: Alvaro Siza

Alvaro Siza created one of his first solo projects. Situated on the beaches of Leça de Palmeira, The Leça Swimming Pool stands as a multi-functional complex, that satisfy the needs of vacationers. It consists of changing rooms, a café and two swimming pools, one for adults and one for children.

With a great theoretical and practical skills, he was able to create a perfect blend of the complex with the natural landscape. From almost every angle, the ocean's edge blur with the water level of the pool, what enhance the swimmer's experience and blurs their understanding of the nature and the idea of a man-made world.



BACKGROUND

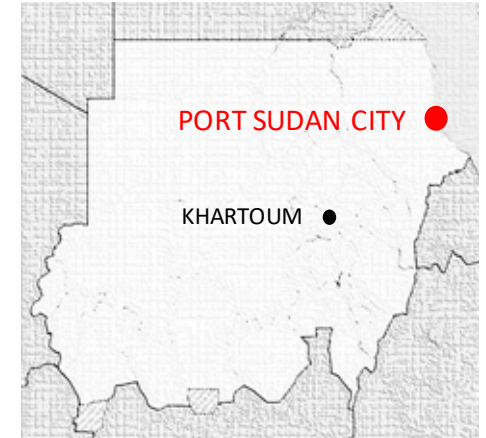
CONTEXT - PORTSUDAN

Port Sudan is a port city in eastern Sudan, and the capital of the state of Red Sea. Located on the Red Sea, it is the Republic of Sudan's main port city. With total population of 489,725 residents.

PORT OF PORT SUDAN

Comprises three main areas; **North Port**, **South Port** and **Green Harbor**. Port handles containers, dry and liquid bulk, Ro-Ro and general cargo. In addition, there are many berths handling repair, coastal trade and fishing.

SUDAN is the second largest country in Africa after Algeria, with an area of 1.882.000 Km². The eastern Sudanese coastal areas, represented in areas overlooking the Red Sea, have acquired significant strategic and economic importance. The most important areas and cities of the Sudanese coast is Port Sudan



BACKGROUND

TOURISM IN PORTSUDAN

The nature of the city is characterized by an ideal environment for tourism, especially the beaches of the city, which are characterized by its purity and warmth, making it a suitable place for diving and enjoying the coral reefs.

Port Sudan has 4 different corniches cover different activities, but unfortunately non of them is designed!

Also the port city has annually tourism Festival placed mainly in the waterfront zones, without having a proper or well designed area for this purpose.

DESIGN QUESTION :

Why Not To Experience All Activities In One Place ?

Why Not To Design The First Waterfront Project In Port Sudan For Tourist Attraction ?

Why Not To Provide A Permanent Places For All Events Held Seasonally In The Port City ?

Main Activities In Port Sudan



Diving



Boats trips



Coral reefs



Relaxation



Tea and coffee



Souvenirs



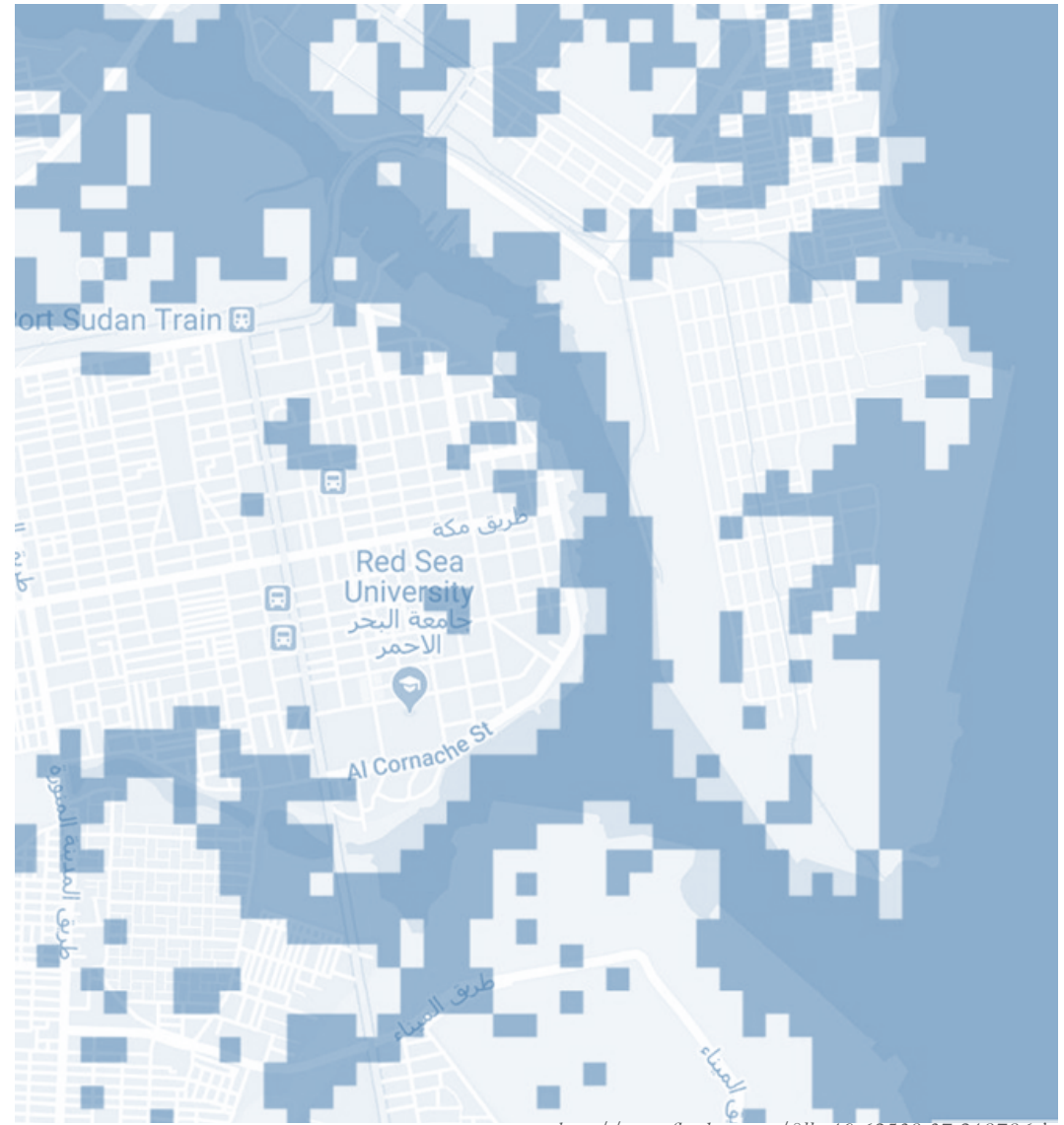
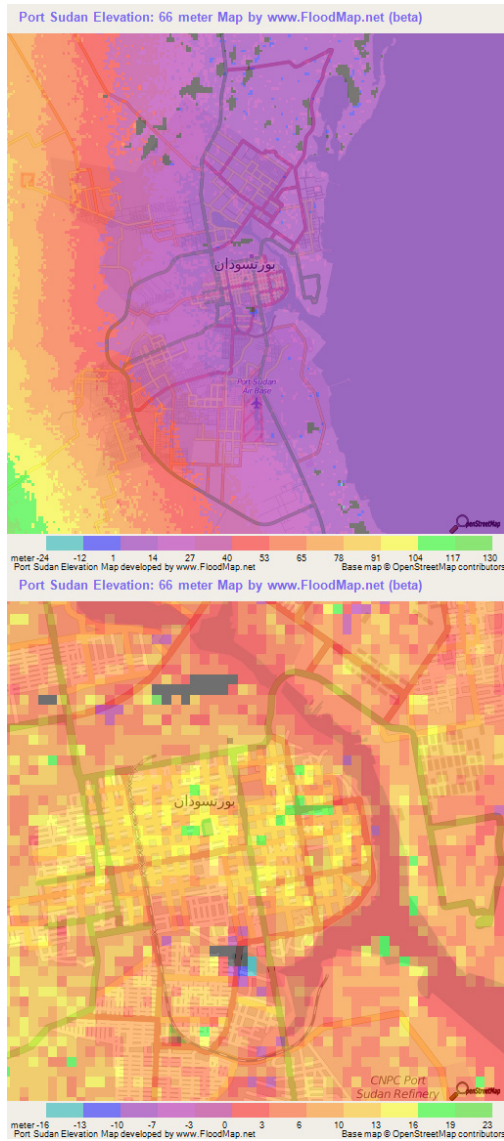
Fishing



restaurants

BACKGROUND

FLOOD MAP + ELEVATION

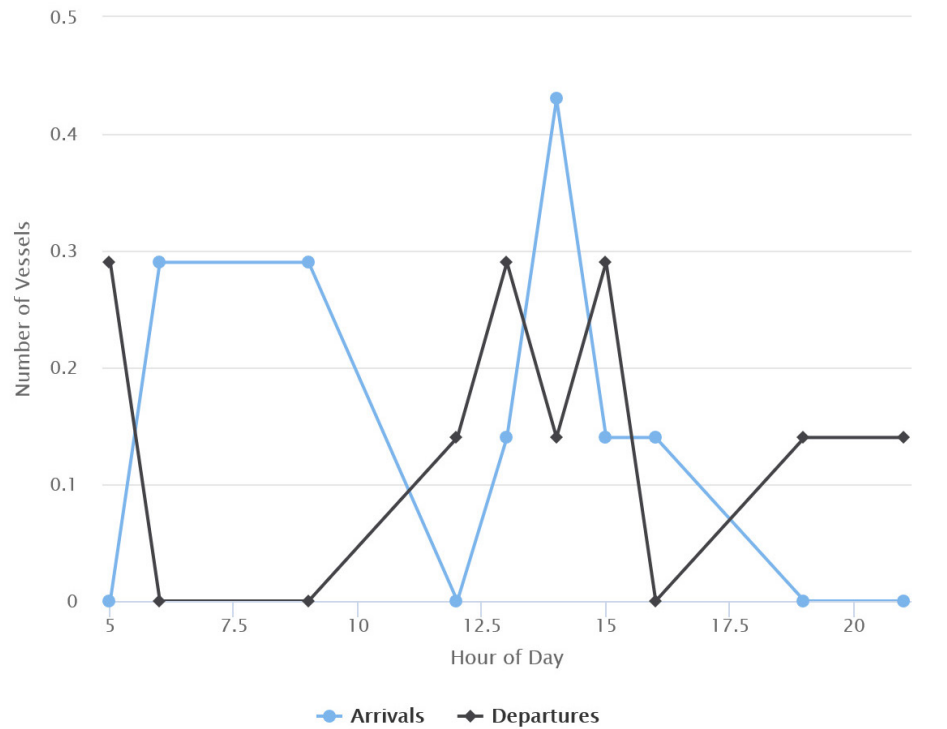


<http://www.floodmap.net/?ll=19.62538,37.218786&z=14&t=4>

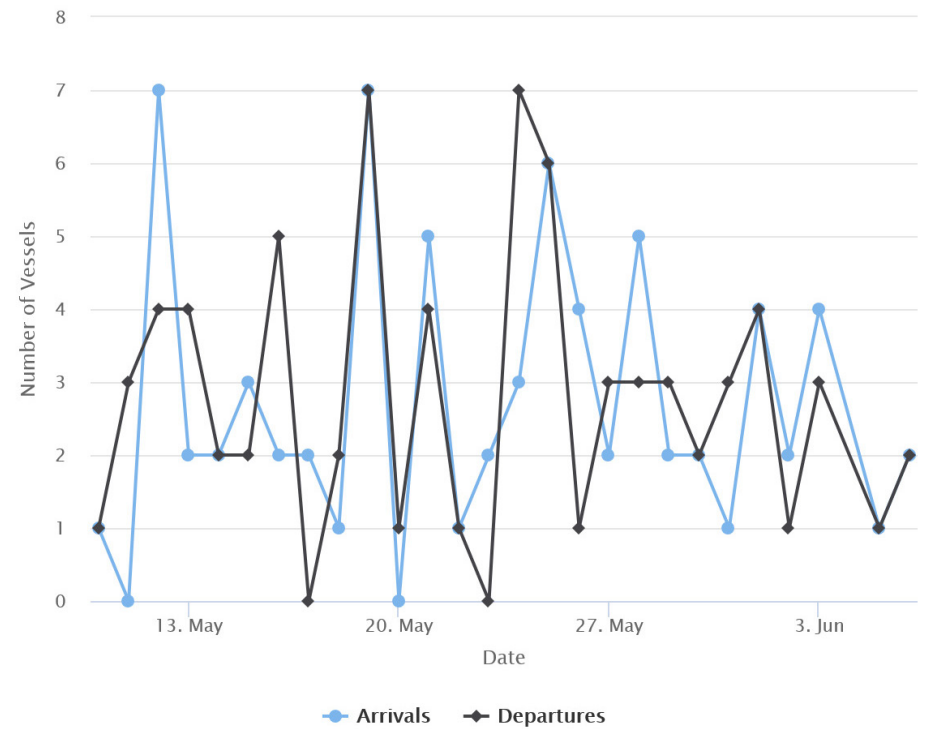
BACKGROUND

PORT SCALE

Due to economical situation in Sudan Only few number of vessels arrive and depart in the week.



Average Arrivals & Departures by hour of the day (7 days)

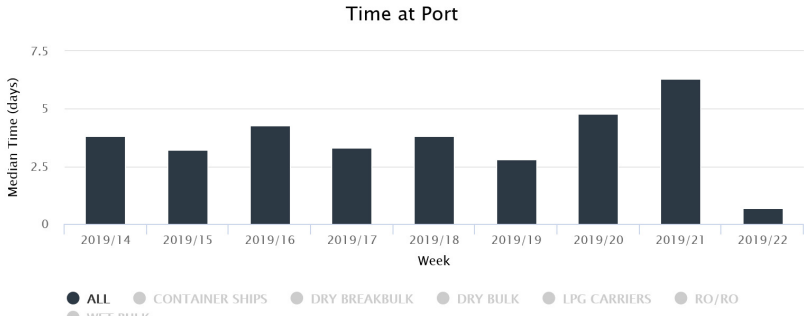
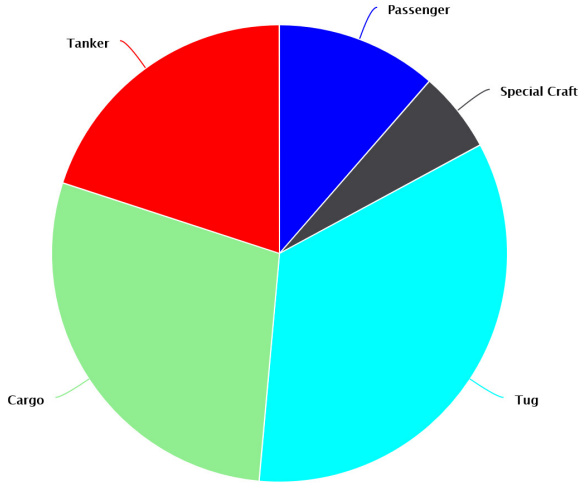


Arrivals & Departures

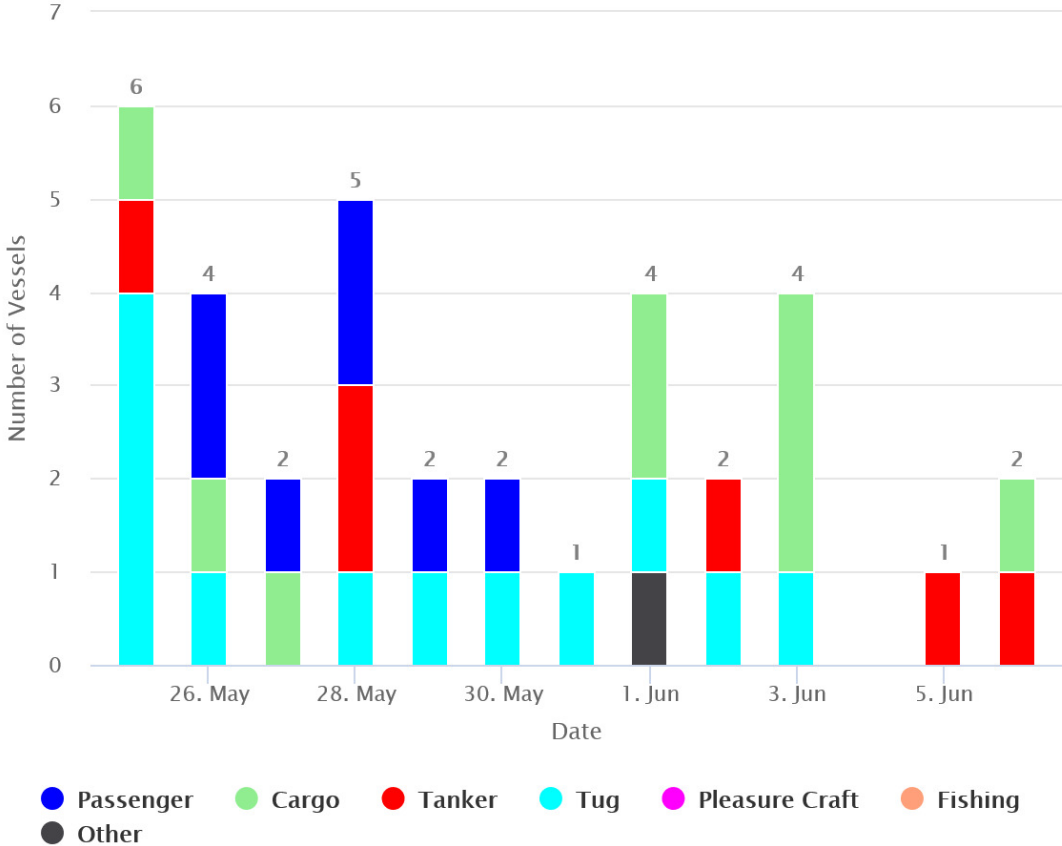
BACKGROUND

PORT SCALE

Most of port usage is for tug cargo & tankers.
 The only passengers' usage is to & from KSA (Jeddah) port.



All Vessels by Type (30 days)



Recent Vessel Arrivals by Type

BACKGROUND

RESORTS IN PORTSUDAN



BACKGROUND

ARCHITECTURE OF PORTSUDAN



BACKGROUND

MATERIALS IN PORTSUDAN



Cannaeus grows naturally in Sudan without cultivation, and it is classified into the weed family (Bamboo soideae)

Coral reefs bricks & stones



ANALYSIS

LAND USE



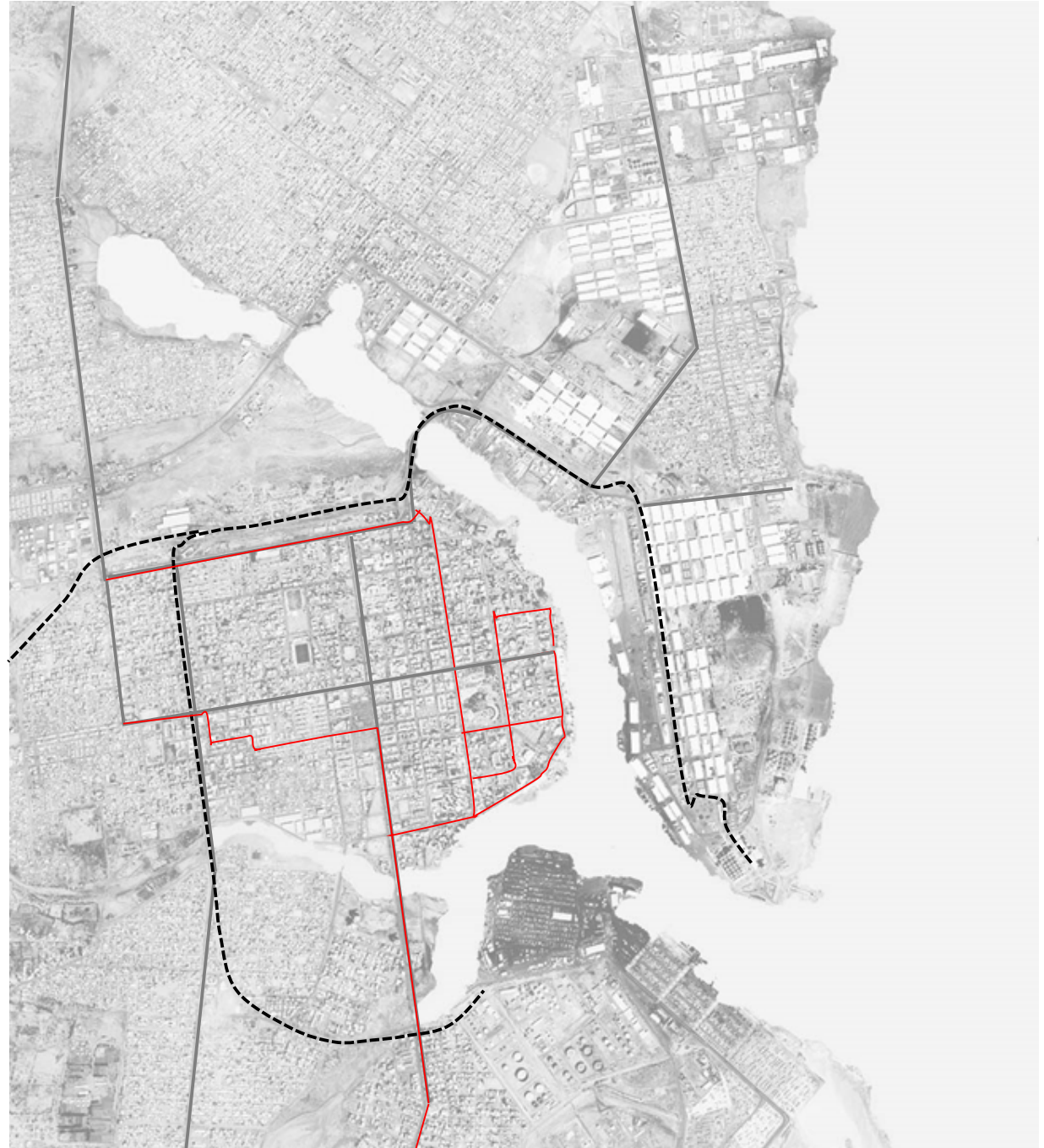
PORT ZONE 

ROADS 

WATERFRONTS 

ANALYSIS

ROAD NETWORK



MAIN CITY ROAD - - - - -
TRANSPORT ROADS _____

ANALYSIS

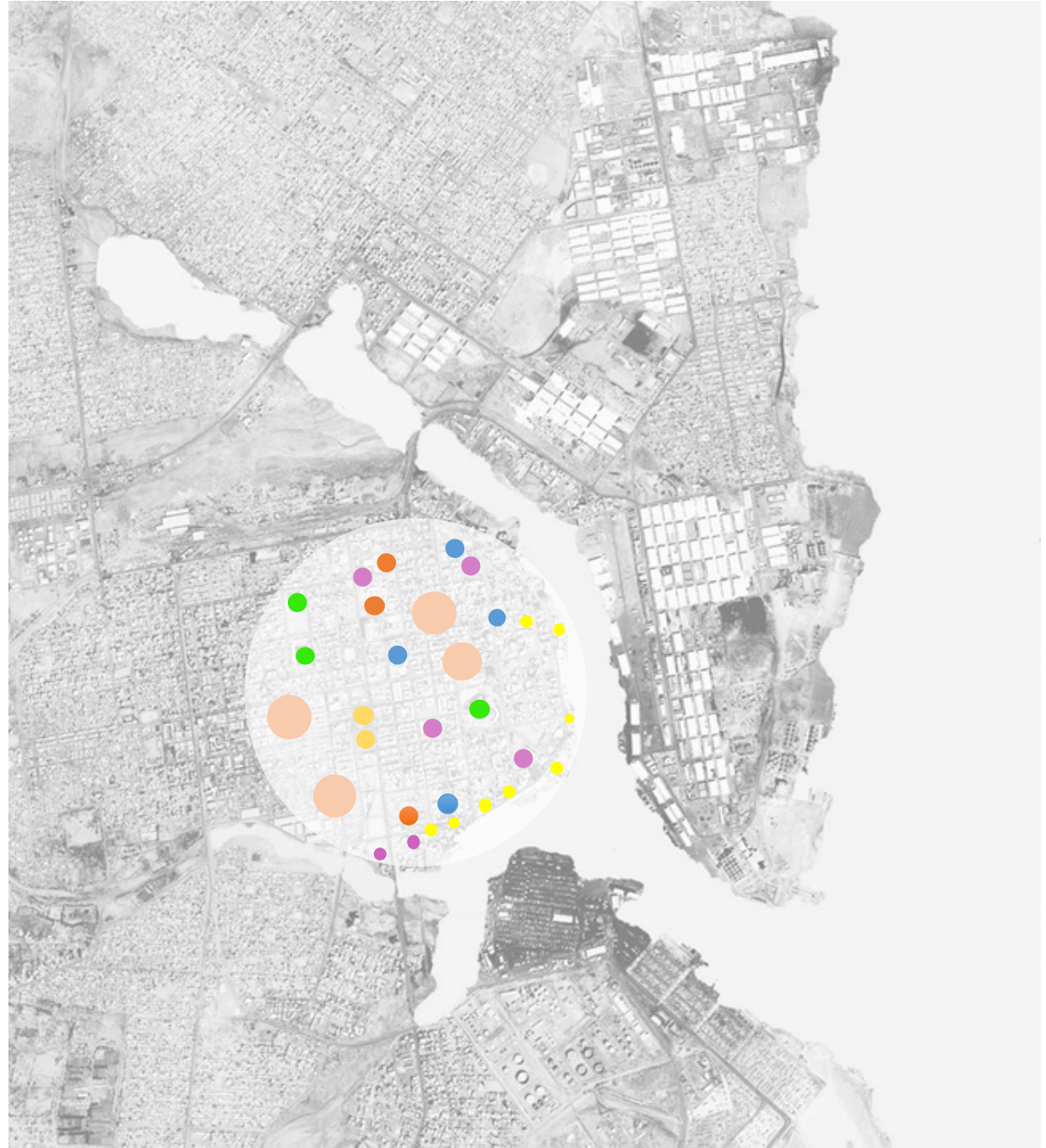
ACCESSIBILITY



MAIN TRANSPORT STATIONS ●

ANALYSIS

CITY CENTER DENSE AREA



- EDUCATIONAL ●
- HOTELS ●
- GREEN AREAS ●
- HEALTH CARE ●
- PORT ZONE ●
- COMMERCIAL ●

ANALYSIS

RESIDENTIAL AREA



ANALYSIS

QUESTIONNAIRE

To ensure that new development fits within the community's vision A questionnaire was used as a methodology and distributed to about 100 people from PortSudan (residents) and people who visited PortSudan for tourism.

Questionnaire question link:
<https://www.surveymonkey.com/r/YV5BPRD>

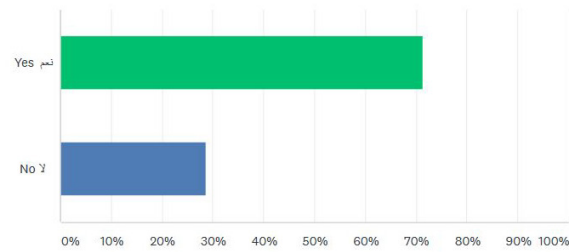


1. Main Corniche (ALSOOG)
2. Corniche Abo Hasheish (ALSIGALA)
3. Sea Land Corniche
4. Hay Alamleen Corniche (ITANEINA)

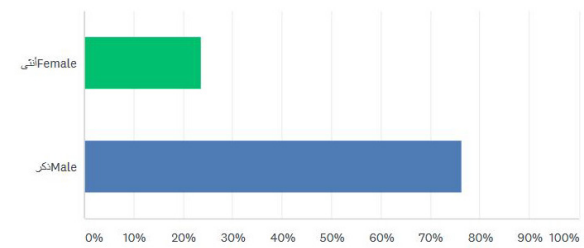
ANALYSIS

QUESTIONNAIRE

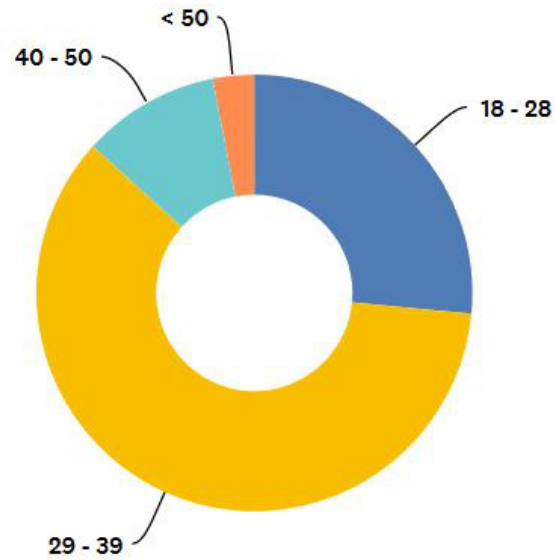
1. Are you a PortSudan resident?



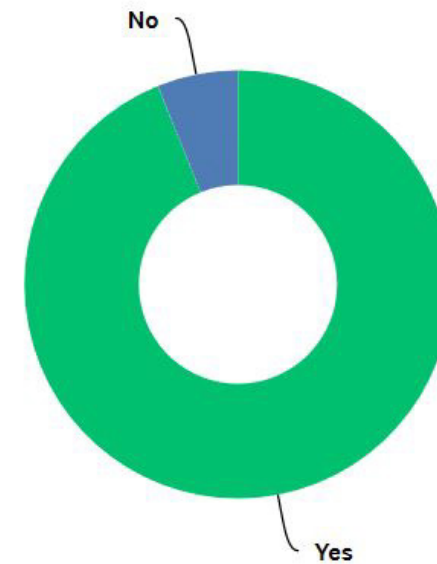
2. Specify your gender



3. Which category below includes your age?



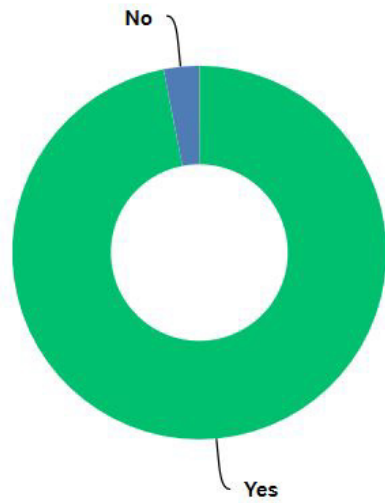
4. Do you consider PortSudan as a tourist destination?



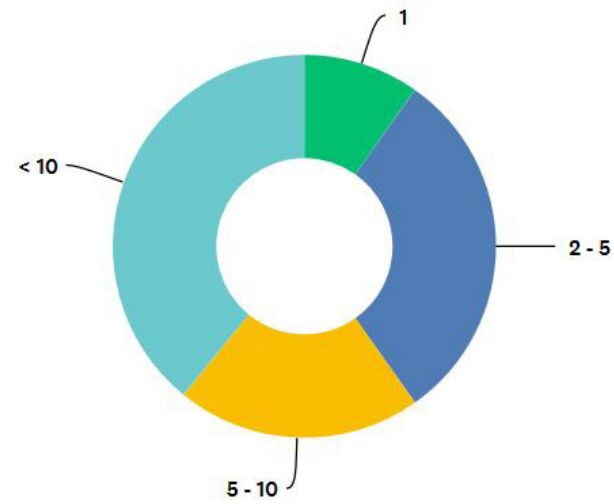
ANALYSIS

QUESTIONNAIRE

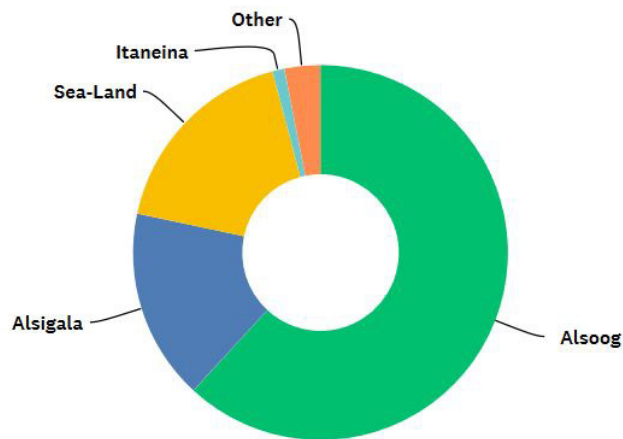
5. Did you visit PortSudan corniche before?



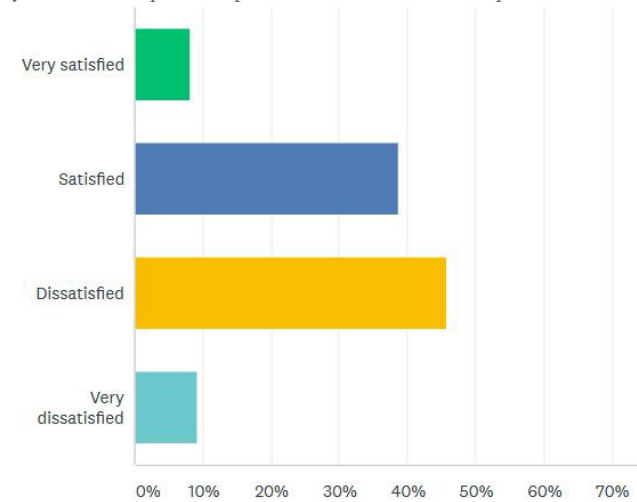
6. If yes, how many times you visit the Corniche monthly?



7. Which of the following options is your favorite?



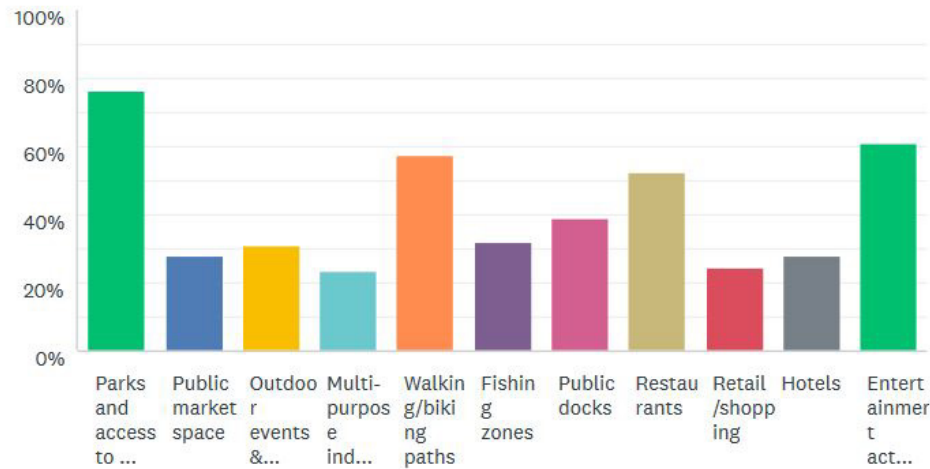
8. How satisfied are you with the public spaces and waterfront of port Sudan



ANALYSIS

QUESTIONNAIRE

9. What features and additions would you like to see in PortSudan's waterfront development? (choose top five)



10. What excites you most about the future of the waterfront? (Choose two)



CONCLUSIONS

The main corniche visitors is youths from the group age of 18-39.

Most of the people used to visit the corniche more than 10 times in a month.

The most popular corniche, citizens visit ordinarily is the Main Corniche (Alsoog)

People Satisfaction About Port Waterfront Is Variable Between Satisfy And dissatisfy But More In dissatisfy.

PortSudan residents wish to have more green spaces and specific paths for pedestrians (walking/biking).

Chosen waterfront for project is **1. MAIN CORNICHE (ALSOOG)**

Questionnaire Result link:
<https://www.surveymonkey.com/results/SM-TRFXWMGZV/>

SITE CONTEXT

MAIN CORNICHE (ALSOOG)



LAND USE

1. Social club
2. Social Club
3. Privat Area
4. Social Club
5. Office Building
6. Office Building
7. Aquarium
8. Office Building
9. Amphitheatre
10. Social Club
11. Hotel
12. Central Park
13. Hotel

MAIN ACTIVITIES

-  Relaxation
-  Tea & Coffee
-  Souvenir

HISTORICAL TIMELINE OF BORDER CHANGES



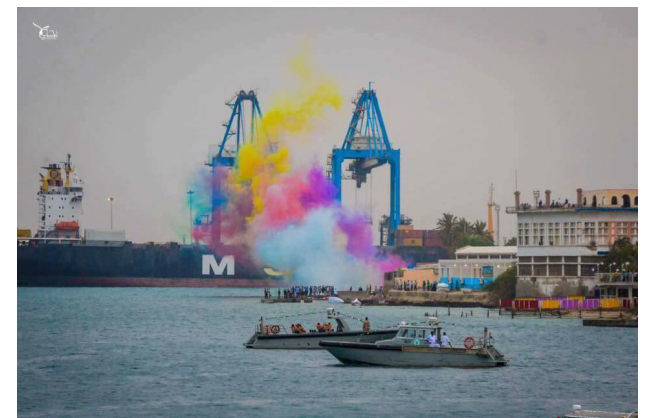
SITE CONTEXT

COMMERCIAL ACTIVITIES



SITE CONTEXT

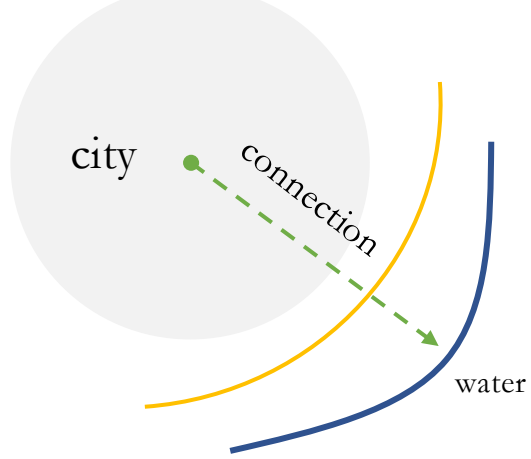
SPORT ACTIVITIES/ FESTIVALS



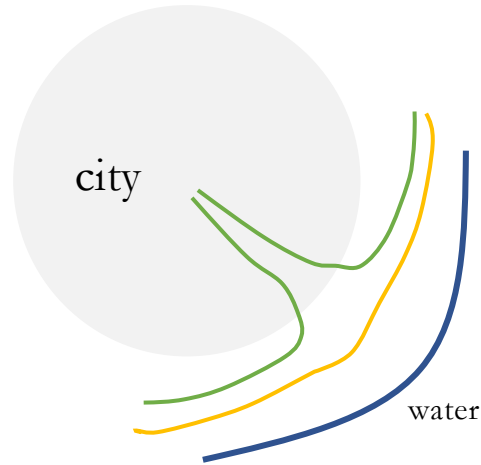
DESIGN

CONCEPT & STRATEGY

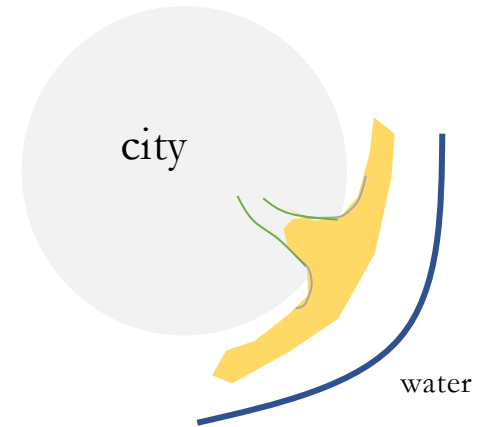
BRING CITY TO THE WATER



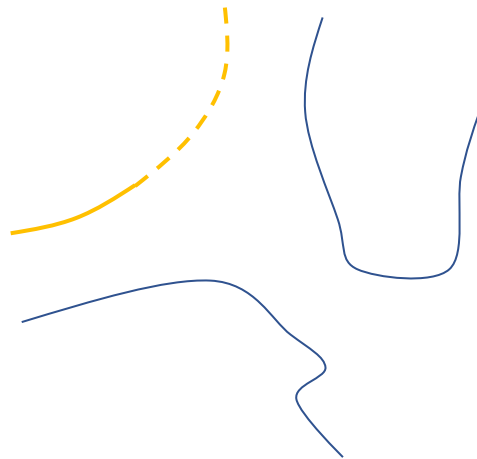
Border



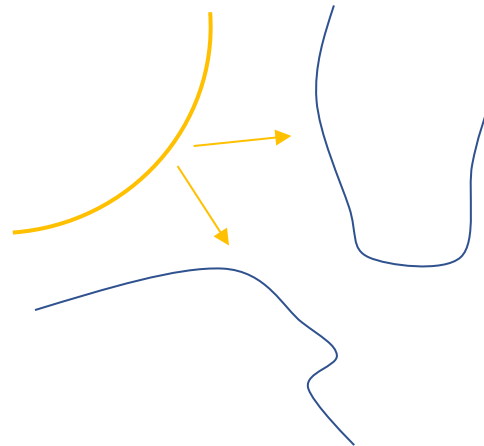
Landscape connection



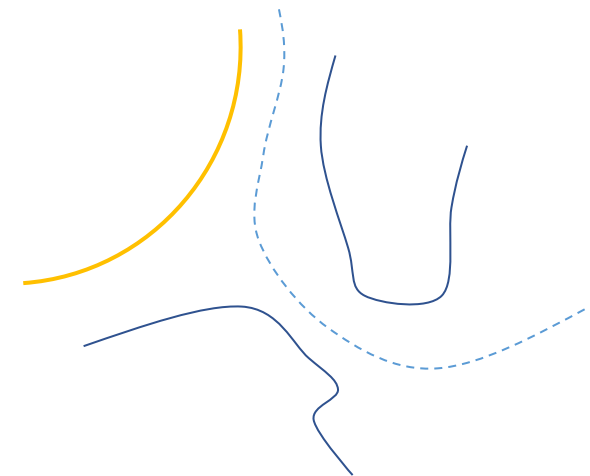
Waterfront



Extend existing



Visual connection

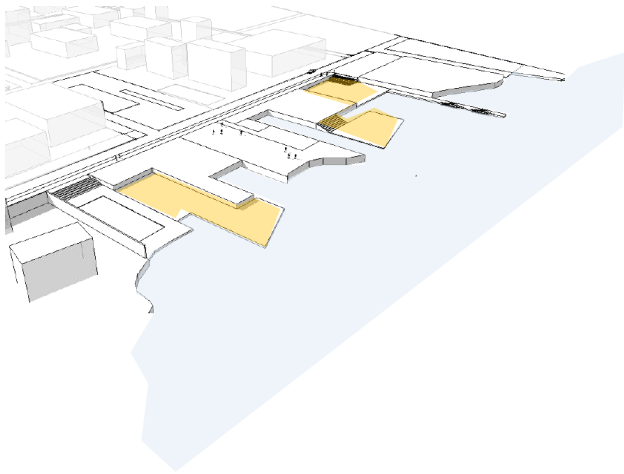


Water connection (transport)

DESIGN

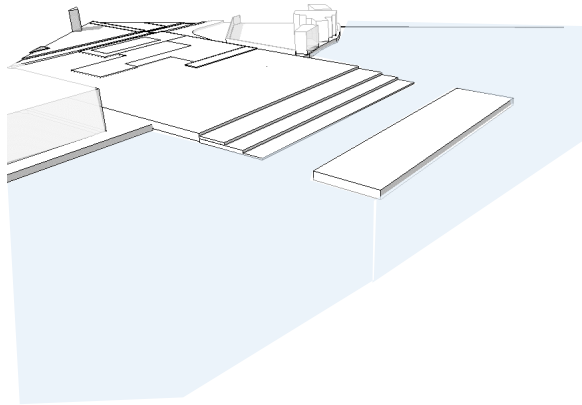
LANDSCAPE STRATEGIES

TOUCH THE WATER



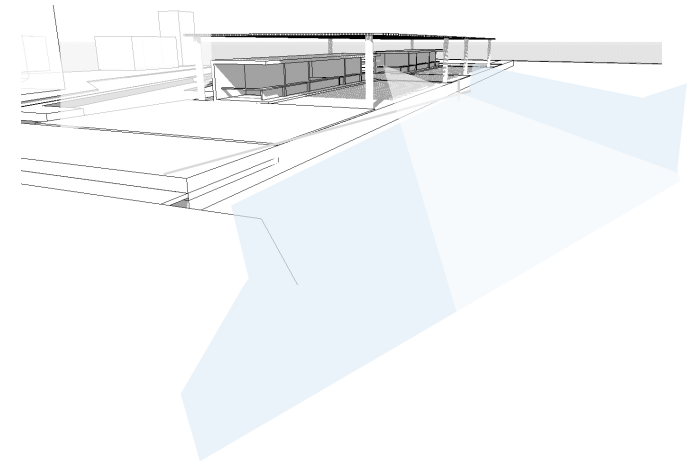
From the lower level on the site, people experience going more down till they can touch the water.

ON THE WATER



Coming from the city center through the open community space to the water border, people will enjoy a wide platform where they can be surrounded by water.

POINT OF VIEW



From the highest level on the site, people experience the point of overview from the restaurants zone.

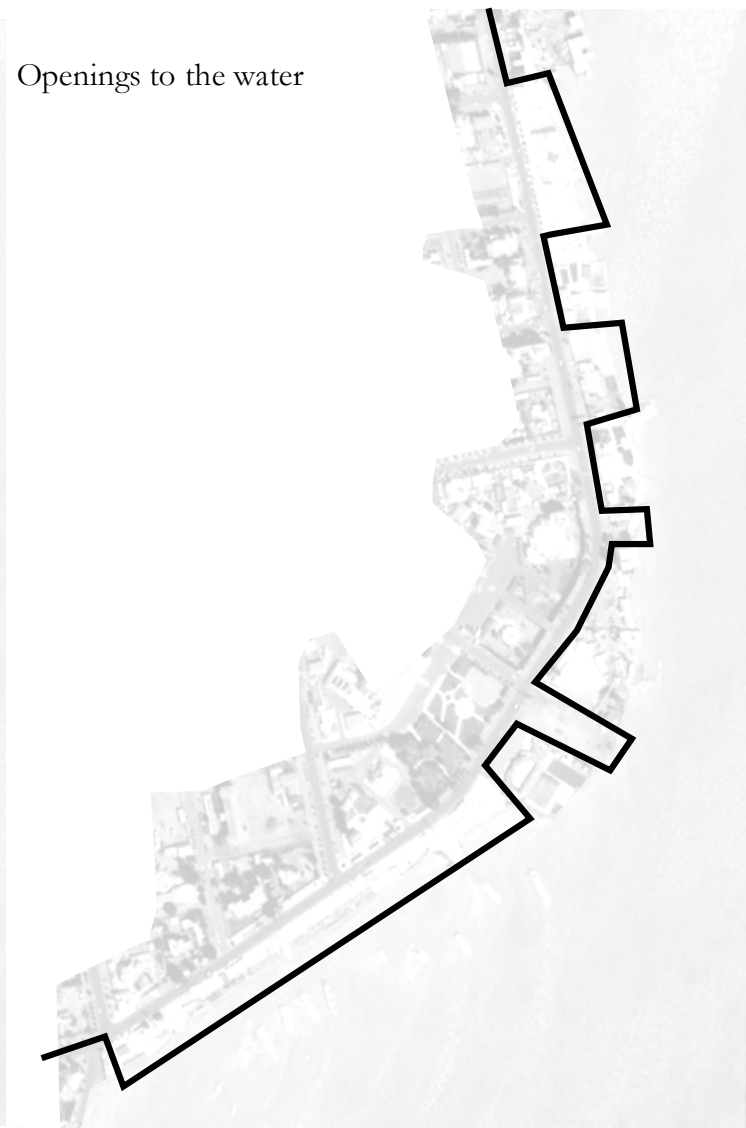
DESIGN

INTERVENTIONS

Closed areas



Openings to the water



Access to the main road



DESIGN

INTERVENTIONS

Main intervention points



border intervention



DESIGN

INTERVENTIONS

Multiple destinations

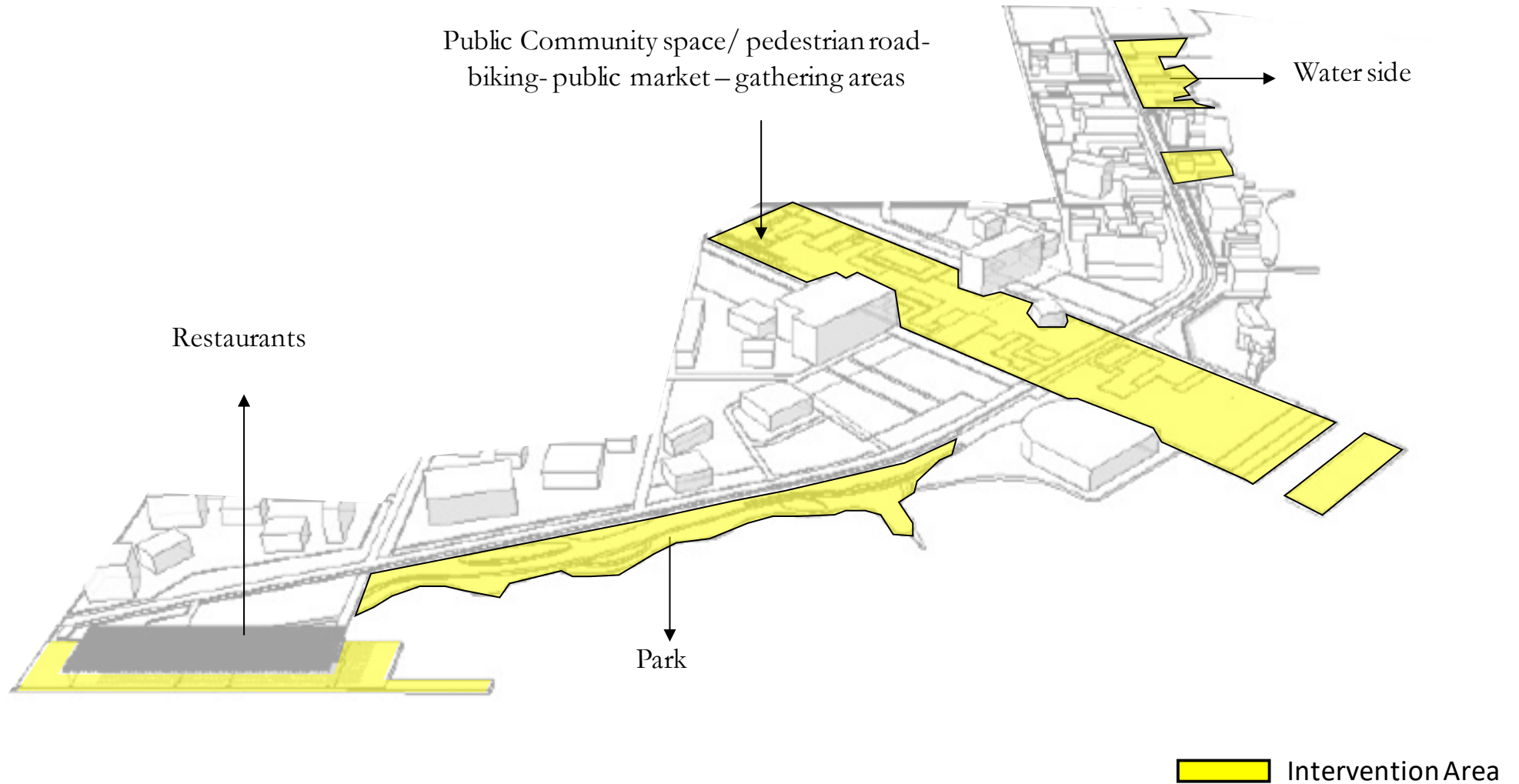


Areas for physical connection with water



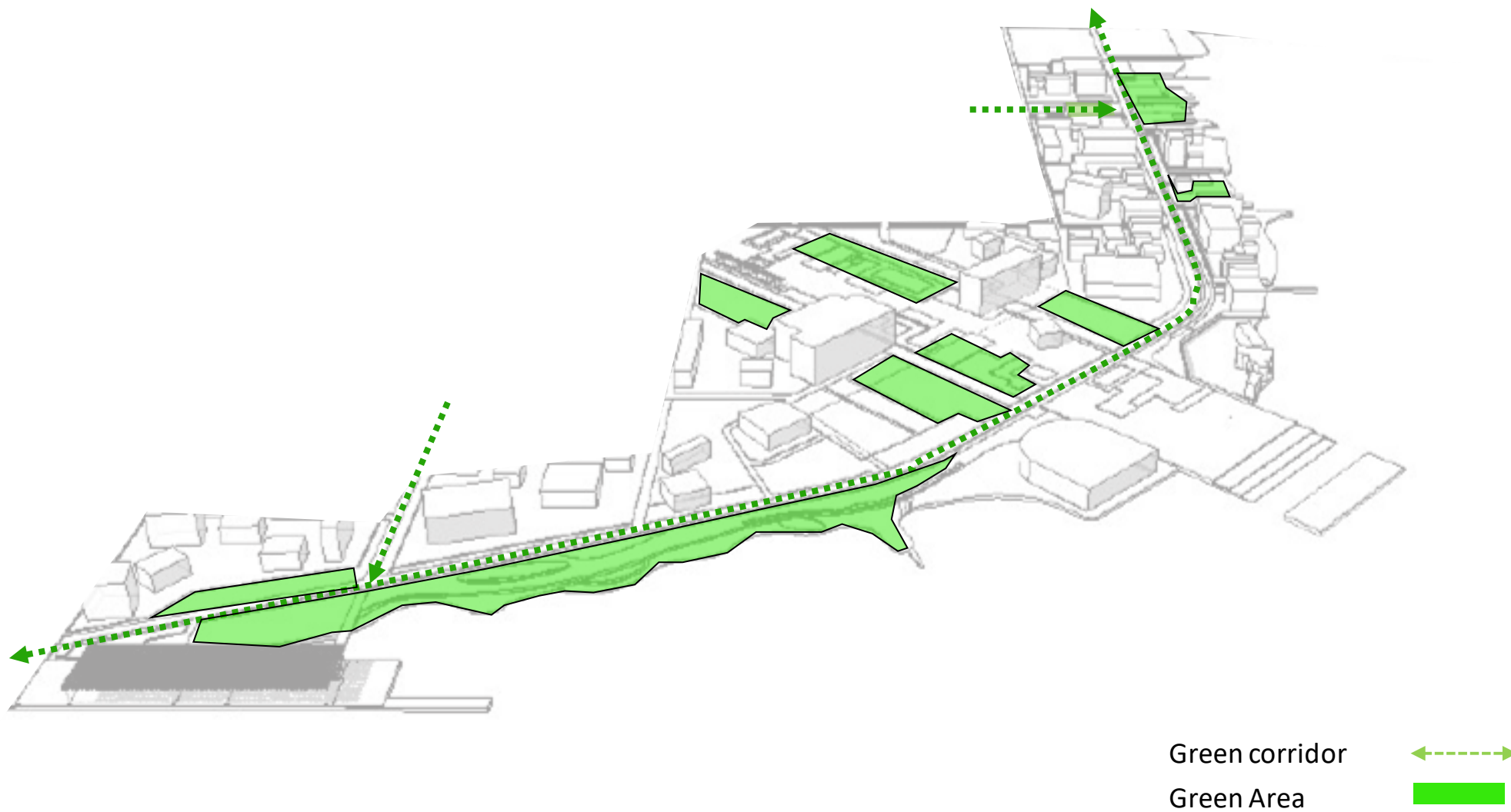
DESIGN

INTERVENTIONS



DESIGN

INTERVENTIONS



DESIGN

INTERVENTIONS

