# THE REBIRTH OF PARADISE

In 2011, a heavy storm hit Alexandria and caused a lot of devastation and sabotage. Unfortunately, the storm wiped out most of Alexandria's waterfront. And since then, the storm keeps hitting infrequently but Surely, every few years, with the latest one in 2020. This happened because of the geometrical shape of Alexandria. Since the city is located on a peninsula, it is surrounded by water, and most densely populated city of all of the Mediterranean regions, putting a third of the city's inhabitants at risk.

Through looking at the map of Alexandria, you can see that since the first century, we've been expanding the city through landfill. This landfill is exactly the area that is now prone to flooding. Accordingly, one could say that the areas we have been responsible for creating, are also the ones we need to take greater responsibility in protecting. A man-made problem requires a nature-based solution.

Yet, the main questions are, how can we protect the whole city of Alexandria without creating a wall concept that segregates the life of the city from the water around it?
**Can protective measures become the city's attraction?**
**Can we use the flood protection measures as a tool for improving for its future growth?**
**The idea also started from questioning that: "Maybe we could learn from the waterfront?"**

Since the beginning of time, Alexandria, has been in a continuous struggle against water, which has become a unique urban characteristic that reflects the succession of historical events Alexandria had witnessed throughout 2300 years of historical layers.
It led to Alexandria being known as the city of water.

Today, Alexandria is facing one of its biggest challenges ever. The Mediterranean coast and the Nile Delta have been identified as highly vulnerable to climate change induced by sea-level rise. As a result, this will have a direct and critical impact on 9 million inhabitants and on Egypt's entire future.

In addition to the sea-level rise challenge, Alexandria is among the cities that have the lowest percentage of public green spaces in the world, with only 40 cm square per person, which is 32 times less than the world standard.

"My property's main aim is to protect, not just Alexandria's city center, but actually the whole city. I came up with a concept called "We imagine the wall", rather than just fortifying the entire city series. I felt the Necessity to address public space and the
the local inhabitants' needs, by adding value to their everyday experience in the city, and also to find a solution, once and for all, for the challenges Alexandria face as a result of the sea level rise.

Therefore, my design wove those two ideas together into what I think will be a habitable landscape that happens to be pragmatic.

"We imagine the wall" is more than a protection system, it's an integrated, interlocking, and connected system of nature-based solutions interwoven throughout the urban fabric, which is the quintessential Alexandria.

It is about utilizing the urgently needed flood management infrastructure, to accommodate and combine new means of social infrastructure, in a very integrated manner. So, the park would be providing flood protection to the inland neighborhoods along the waterfront and the south-side spine facing the Nile delta, which could become a communal, cultural and active use of space.

In order to protect the city from such a threat, the local government built protection lines in the shape of concrete blocks on the waterfront side, and an artificial beach in front of the Corniche Road.
Such a development worsen an already harmed relations, between the city and the water, and developed a feeling of isolation and lack of safety among the locals.

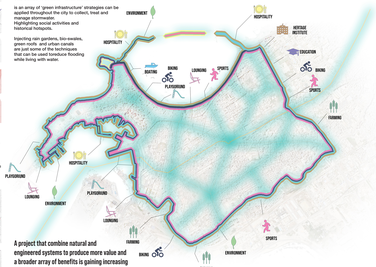
The waterfront is a piece of commissioned infrastructure, that despite its lack of quality, is now turned into the most popular promenade in the city, and people love it. Yet, during 100-year flood and the 250-year flood, you will realize that two-thirds of Alexandria's city center neighborhoods are threatened by future floods, as it's primarily a residential neighborhood.

The historical city center neighborhood is rather lower than the waterfront, and the Corniche Road, it has a highway cutting it off from the waterfront. This leads the city to have 90% of the surface as impervious surface, which makes the city even more prone to flood. Additionally, when you walk down the city, you can feel as if it is getting tortured through a love-hate relationship with the infrastructure.

## The concept of living with water and nature

is an array of 'green infrastructure' strategies can be applied throughout the city to collect, treat and manage stormwater.
Also provide recreational activities and historical hotspots.

Injecting rain gardens, bio-swales, green roofs and urban canals, are just some of the techniques that can be used tonreduce flooding while living with water.




**A project that combine natural and engineered systems to produce more value and a broader array of benefits is gaining increasing attention worldwide.**

## A HOLISTIC INTERVENTIONS

Climate change is not just a technical problem, or at least it needs to be technical plus political, environmental, and social needs in one integrated approach.

Only a solution that spawns out of the city's DNA itself and speaks to the needs and issues of the local communities, has the chance of successfully dealing with climate change. In other words, to resist a certain amount of storm, you need a certain geometry that could be made in a way that is very integrated and holistic, and you won't be able to tell that it's part of a protection system but rather a natural continuum of the city fabric.

CONCEPTS
**WATER CAPTURE & GREEN TREATMENT**

**35.8 KM**
TOTAL SIDE WALKING PATHS

**8.9 KM**
SHORELINE

**3.8 KM2**
NEW POOLS & GREEN SPACES

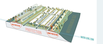
**1.9 KM2**
SUM POOLS & GREEN SPACES

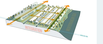
1 **CAPTURE**
TREE PITS WITH STRUCTURAL SOIL, GREEN ROOFS, RAIN GARDENS, PERMEABLE PAVEMENT, BIO-SWALES, AND DISCHARGE CANALS

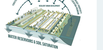
2 **STORE & RECHARGE**
RECHARGE WELLS, AQUIFER RECHARGE, AND DISCHARGE INTO SURFACE WATERWAYS FOR GROUNDWATER RECHARGE

3 **FILTER & CLEAN**
PRETREATMENT, FILTRATION, AND POLLUTANT SETTLING

4 **RE-USE**
FLUSHING WATER TOILETS, IRRIGATION, AND DISCHARGE INTO SURFACE WATERWAYS FOR IRRIGATION







## CORE FUNDAMENTALS

**INTEGRATION PROTECTION**
that does not look like concrete barriers, but is an upgrade to the social and urban condition while connect the city to the water, and benefit from every new intervention to its made.

**LIVING WITH WATER**
The concept that willing to find new ways to live in which foster a new identity for the city.

**SUSTAINABILITY**
with been areas works as a natural climate filtration cooling system , natural water resource management, and a carbon sink.

**WATER HOLISTICALLY**
Water behaves as water, whether it arrives as standard precipitation, rain bombs, tidal flow, rising sea or storm surge. Protecting what we value requires seeing how each dynamic interacts with the other, in space terms, in tandem or in concert.

**CULTURE**
The protection chosen should respond to Alexandria's identity and be woven into the urban fabric that speaks to Alexandria's unique character

**OUTCH DIALOGUES**
The wisdom shared throughout the workshop, the discussions, and the common vocabulary we developed through our participation, should serve as the foundation for major infrastructure projects moving forward.

**LAYERING BENEFITS**
Water is part of the context of this place and most big cities provide here for thousands of years. The solutions offer benefits beyond storm surge protection, such as improved water quality, cooling, and carbon sequestration, in addition to improved flood control and water quality, enhanced aesthetics and carbon sequestration.

**FEASIBLE**
A designer working over a few months can develop a feasible and implementable plan, not design-table outcomes result from financial cost-benefit analyses based on property values. Instead, we need to see the city as a complex adaptive system, and the design team hope to ignite conversation that brings us closer to protection outcomes that are the result of genuine community-based design.

LEGEND

- TRANSPORTATION HUB
- GREEN PUBLIC SQUARE
- WATER RESERVOIR
- INTEGRATED DEFENCE DAMS
- FISHING VILLAGE & MARKET
- ELEVATED PARK
- HERITAGE & RESEARCH CENTER
- SPORTS & OUTDOOR PUBLIC FACILITIE
- SLR OBSERVATION & EARLY ALARM SYSTEM
- ALEXANDRIA PORT AUTHORITIE
- TOURIST INFORMATION CENTER
- URBAN AGRICULTURAL TRADING CENTER
- FINANCIAL & TRADING HUBS
- GREEN AND BLUE SPINES
- FOUCES ZONE

## The plan

proposed a combination of large- and small-scale interventions that, combined together, would radically improve the city's ability to protect itself from sea level rise and storms threats, while bringing Alexandria back to its position state as the role model of the Middle East.

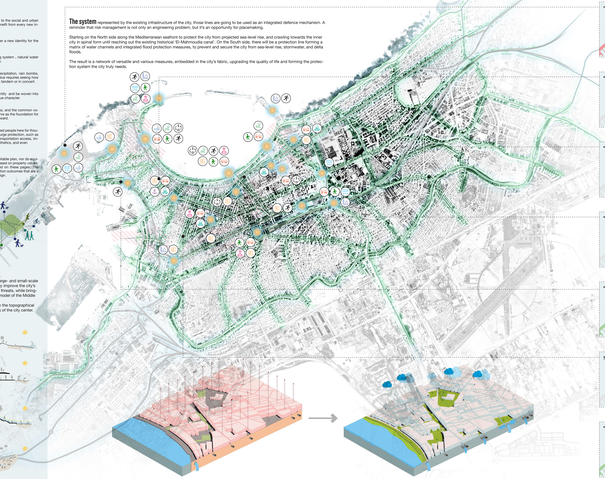
A series of strategies have been formulated to match the topographical and social character differences of the different parts of the city center.











**The system** represented by the existing infrastructure of the city, those lines are going to be used as an integrated defence mechanism. A reminder that risk management is not only an engineering problem, but it's an opportunity for placemaking.

Starting on the North side along the Mediterranean seafront to protect the city from projected sea-level rise, and crawling towards the inner city and turned form until reaching out the existing historical "El-Mahmoudia canal". On the South side, there will be a protection line forming a cognate of water channels and integrated flood protection measures, to prevent and secure the city from sea-level rise, stormwater, and delta floods.

The result is a network of versatile and various measures, embedded in the city's fabric, upgrading the quality of life and forming the protection system the city truly needs.

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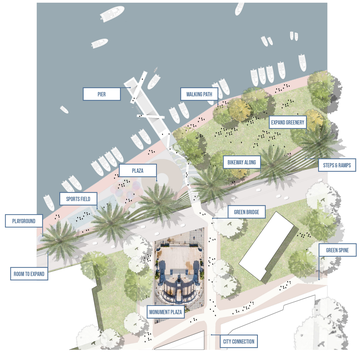
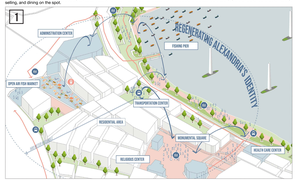
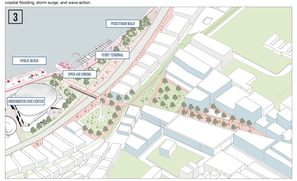



**ALEXANDRIA IS THE HUB FOR FISHING**, on the West side of the city, you can find what is called "the fisherman village". The area is re-imagined to regenerate Alexandria's fishing identity by upgrading the existing structures and proposing more platforms for fisherman and hobby fishers, while giving space to the society to participate. A new fish market will be created on this part of the water front to enjoy the whole experience of fishing, selling, and dining on the spot.

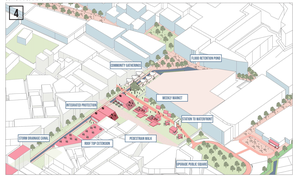


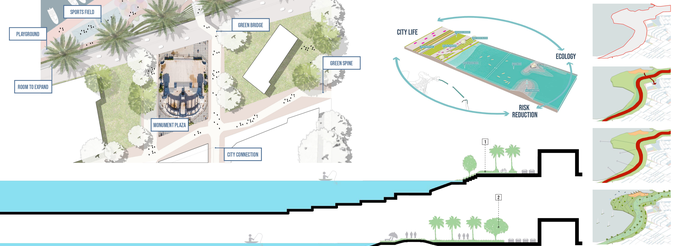

**IN THE MID SIDE OF THE CITY**, the park is replacing part of the highway and extending towards the sea side, creating a space for sports and activities, and introducing a cycling infrastructure as a valid alternative to a city dominated by cars and engines. A terrace step holds benches and seating areas for social activities as a hanbouge design, while integrating landscaping that is derived from the local and vernacular vegetation as soft scape design.

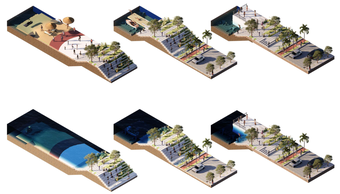
**ON THE EAST SIDE OF THE CITY CENTER**, A waterfront Park has been created to serve the connection between city and water, so residents can enjoy easy access and peaceful walk, cycling, or running across the waterfront. With a possibility for the structures to be created to host temporary music or cultur al events, those activities can be done while being protected with a horizontal levee along its sloped shore to absorb wave energy and reduce the impacts of coastal flooding, storm surge, and wave action.

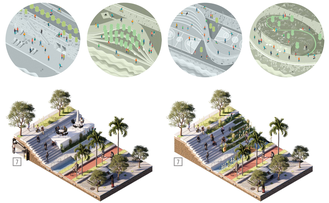


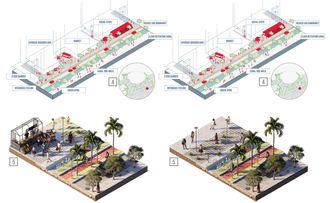

**ON THE SOUTH SIDE OF THE CITY**, you can find one of the main inner-city spines. The historical city wall that was neglected for decades, and its little presence becomes a burden to the ancient edge. Throughout some interventions, a hiding defense system parallel to the old city wall is implemented, with a setback where it creates an urban passage and alleys. These alleys visually resemble an old market, or "souk" in Arabic, where people can exploit the spaces inside and balance the heterogeneous.

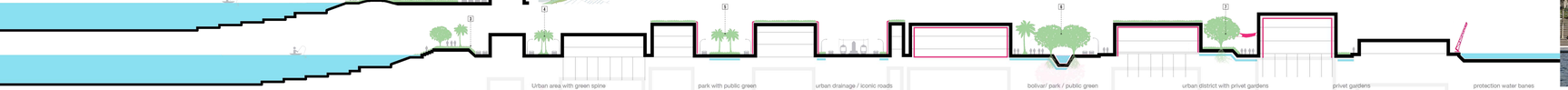








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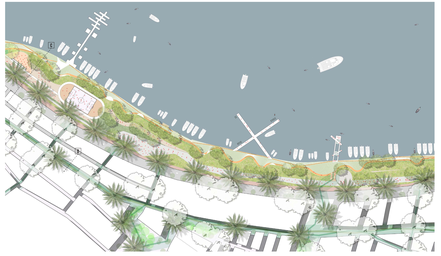
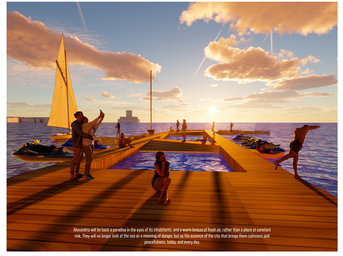
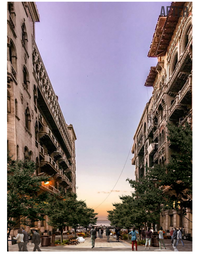


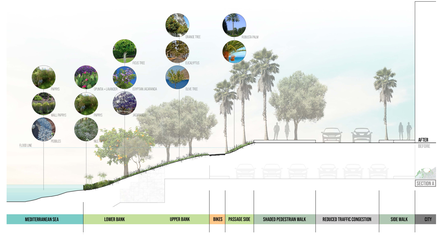
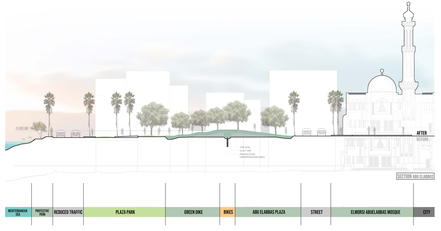
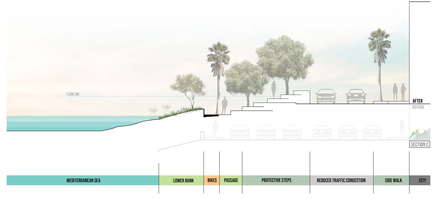
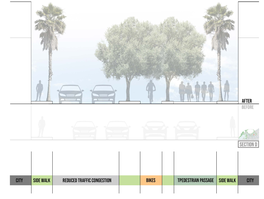
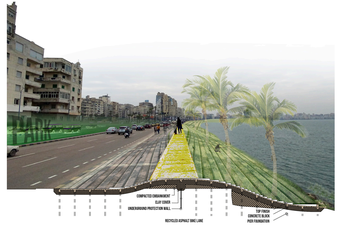
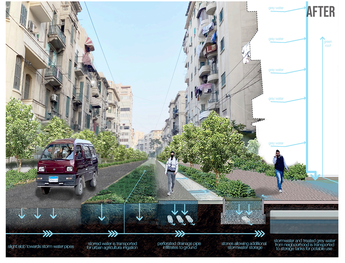


This project will encourage a different design dialogue in any future flood protection decision, and can be a powerful guideline to any future expansions. Not only for Egypt, but also for the rest of the Mediterranean region.

So next time when you move along the coast, you won't sense an incarcerated city, but actually a re-opened city. A city that is safe from the water and it's going to remain a lively place with a beautiful and safe environment.

lovely enough to walk across its coast line without the fear of getting caught up by cars or waves. lovely enough to forget about the past years of the pain, mold and devastation that comes with the water flood can be forgotten




The design of the inner-city streets aims to close the water loop by increasing water reserve capacity, recharging the groundwater reservoir, improving cleaning wastewater locally, and implementing water design into the landscape and architectural designs. The new road system aims for slow traffic and for a safer walk back to the pedestrian.

All done without blocking the view from the side streets, so you always look un-interrupted down to the water. And then you have a street that is safe and can temporarily come out and actually stop a flood from coming in.