# The Proposed Long Island Project in Singapore


**Is there a more sustainable way?**

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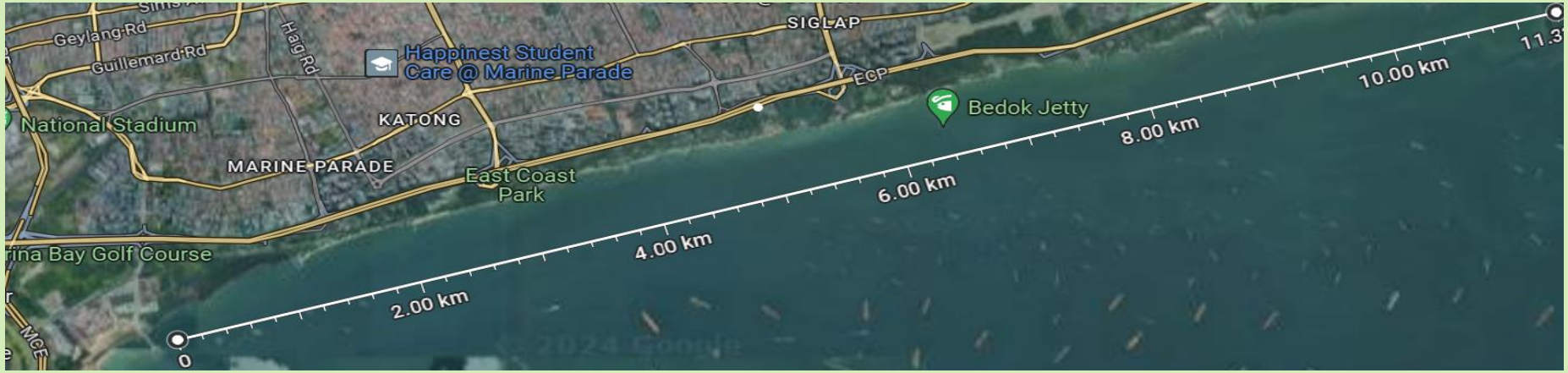
# THE SITE FOR THE LONG ISLAND PROJECT

**Singapore's popular East Coast Park/Marine Parade took 30 years to reclaim and mature**

# THE REDEVELOPMENT OF LONG ISLAND, AS PROPOSED BY MND


- 2 00 50-M CAISSONS NEEDED
- PROD CYCLE 0NE PER WK
- PROD RATE 4 NOS PER WEEK
- 50 WKS TO DELIVER 200
- PROGRESSIVELY INSTALLED
- 150 YEARS LIFE
- HIGH STRENGTH CONCRETE
- MAY BE REPLACED INCREMENTALLY

# RECLAMATION, MORALLY AND ETHICALLY UNACCEPTABLE

Carving out pristine forest to mine land fills

- Wanton destruction of the environment
- Inflicting a Biodiversity Holocaust
- Sediment flux kills corals over large areas
- Importing alien marine species incompatible with existing ecology
- Money does not entitle us to rape the fishing grounds and farms of 3rd world countries

# WHY IS LAND RECLAMATION A FLAWED SOLUTION?

**Aesthetics**

- Sediment flux & accumulation
- Construction machines
- Pollution (dust, noise)

**Technical**

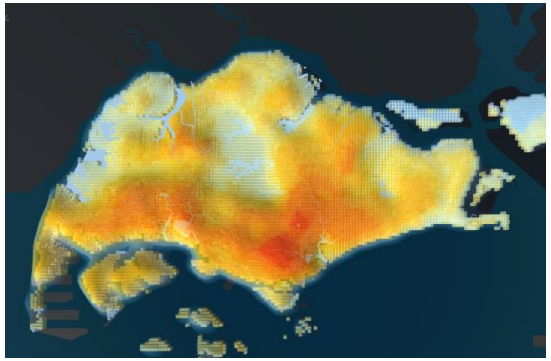
- Subsidence (Kansai still sinking 30 years later )
- Soil liquefaction due to tremors
- Sink hole (T Ayer Basin)
- Urban Heat Island
- Erosion (Dubai Palm Island)
- Reclamation size of Luxembourg since 2000.. Causing sea levels to rise.

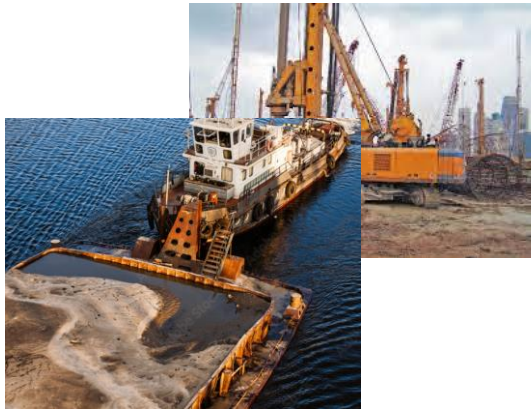
**Ethical**

- Livelihood of others
- Biodiversity is the heritage of humanity

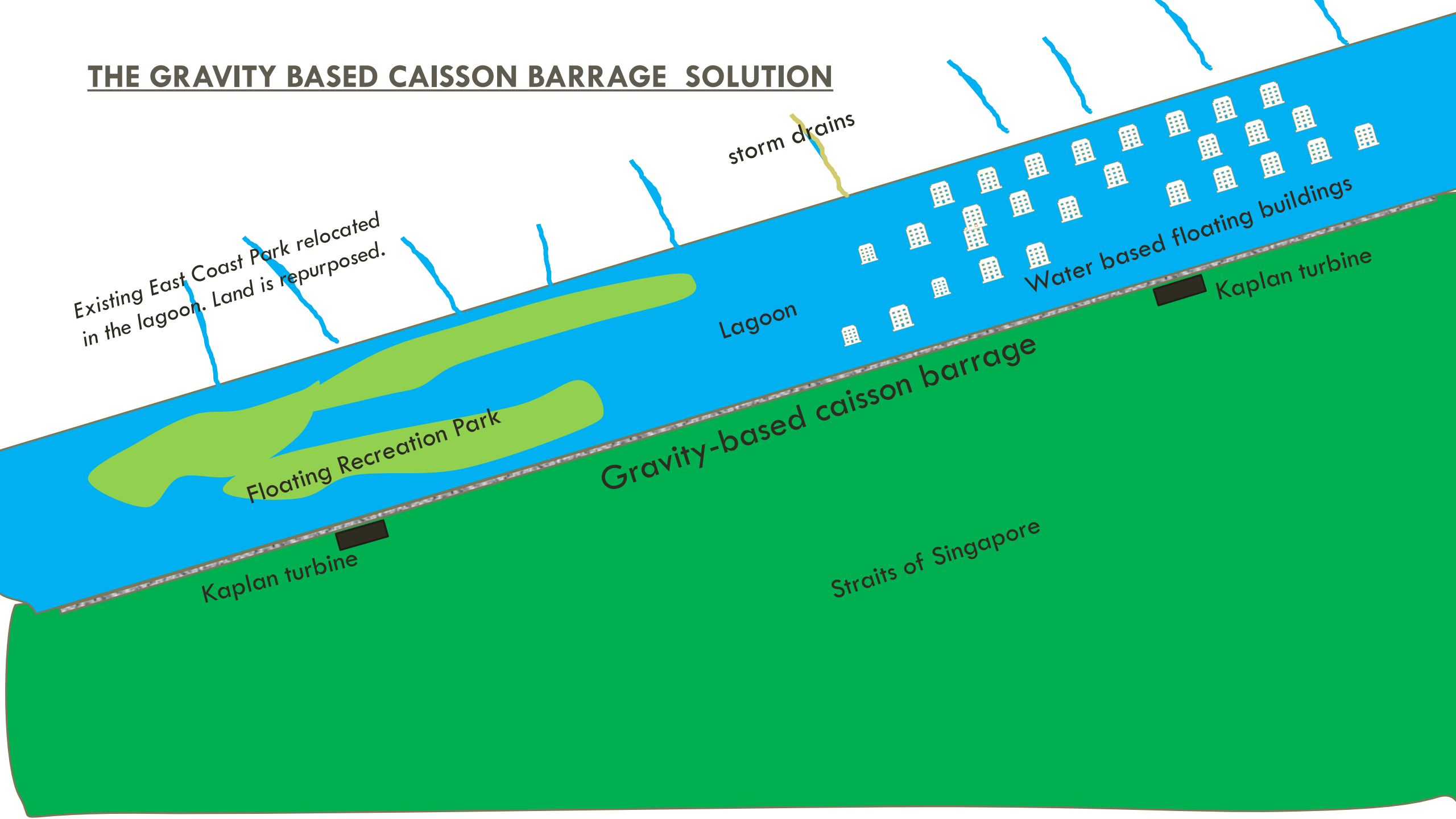
**Ecological**

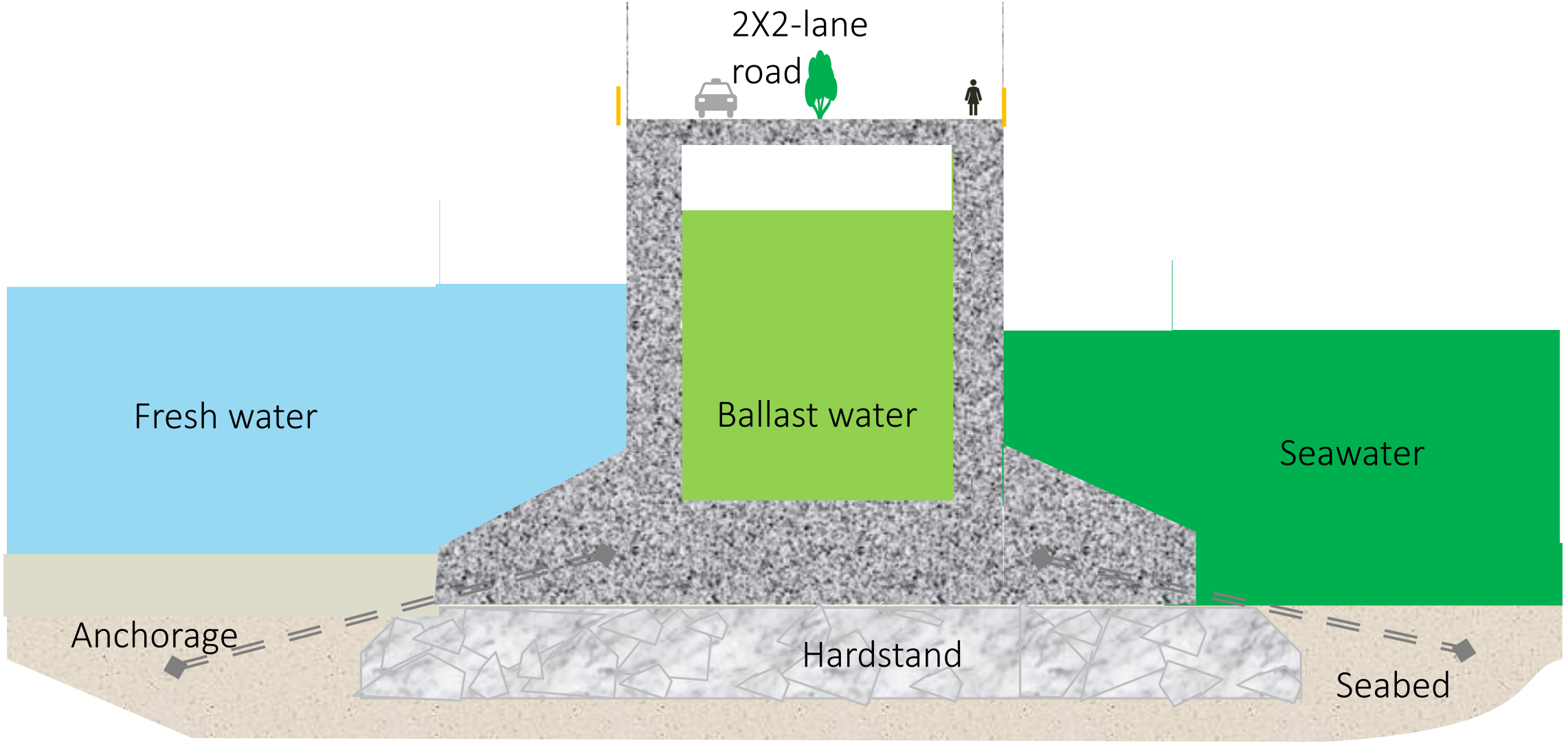
- Degradation of Biodiversity
- Invasive aquatic species





# THE GRAVITY BASED CAISSON BARRAGE SOLUTION

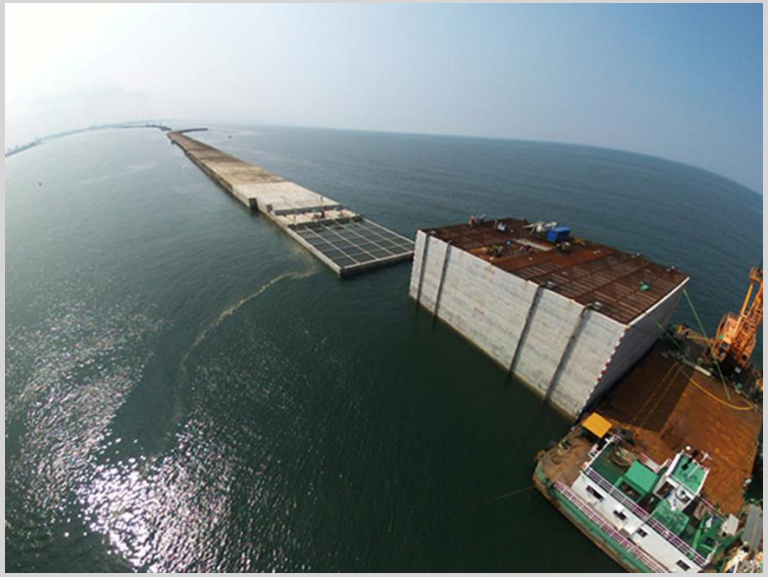





## CROSS SECTION OF TYPICAL CAISSON

# GRAVITY BASED CONCRETE CAISSONS AT TUAS MEGA PORT

CAISSON READY FOR LAUNCHING



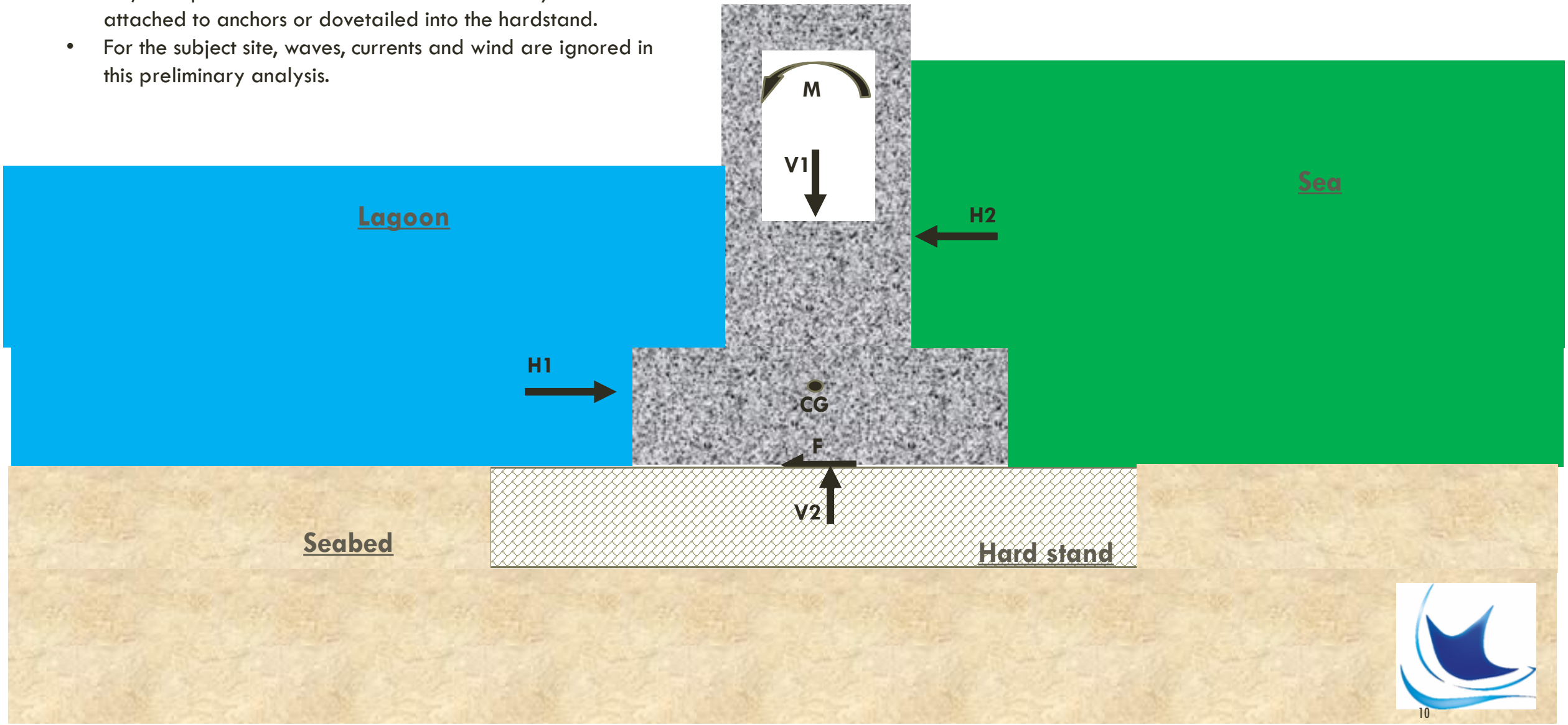
CAISSON BEING POSITION FOR SUBMERGING

- CONCRETE BOX WITH ADJUSTABLE BUOYANCY
- SUBMERGE BY BALLASTING
- PRODUCTION ONE PER WEEK
- 100 T0 200 YEARS SERVICE LIFE

# FORCES AT PLAY

- H 1 = total hydrostatic pressure due to water in lagoon
- H2 = total hydrostatic pressure due to water in sea
- F= friction from hardstand (less than limiting friction = H2-H1) As a precaution the base of the caisson may be attached to anchors or dovetailed into the hardstand.
- For the subject site, waves, currents and wind are ignored in this preliminary analysis.

- V1 = total weight of caisson and ballast minus buoyancy uplift
- V2 = reaction from hardstand (=V1)
- M= overturning moment



# BENCHMARKING THE SOLUTION AGAINST THE 17 SDGs

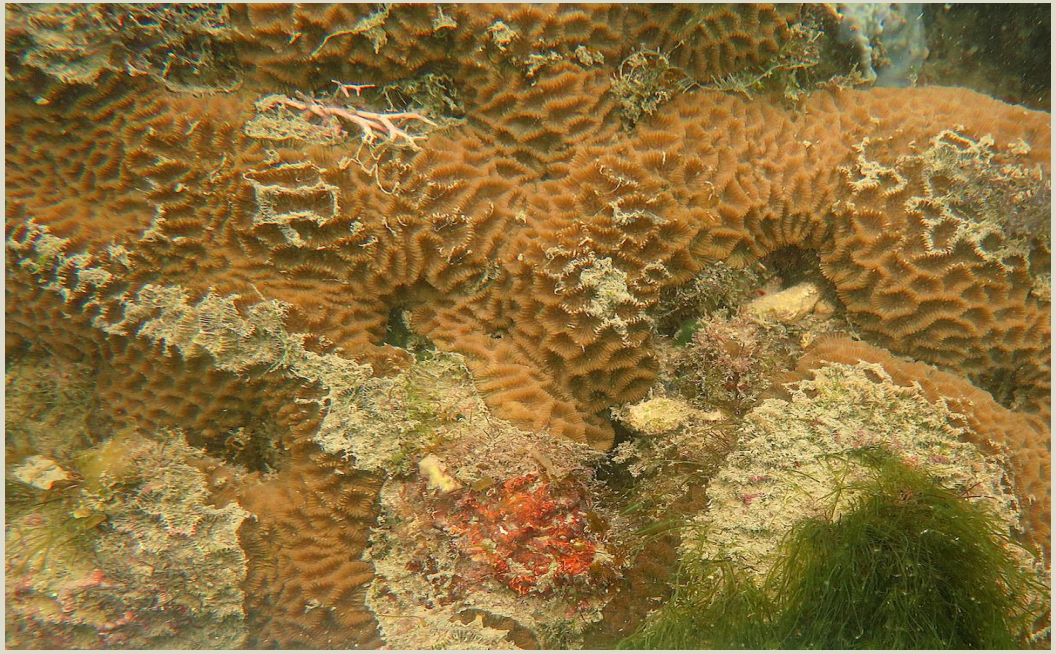
MEYER Group has unveiled the world's very first floating cruise terminals.


"MEYER Group had recognized great potential in the floating solutions business", Kaj Casén, CEO at MEYER Floating Solutions.

# INDUSTRY, INNOVATION AND INFRASTRUCTURE

Goal 9 concerns industry, innovation and infrastructures.

## SOLUTION STIMULATES & FOSTERS INNOVATION




## SOLUTION CONSERVES BIODIVERSITY

Coral reefs are believed by many to have the highest biodiversity of any ecosystem on the planet—even more than a tropical rainforest. Occupying less than one percent of the ocean floor, coral reefs are home to more than 25% of all marine life.

https://coral.org/en/


Saudi Arabia plans to develop the world's largest floating industrial city, named Oxagon,


A modular design of a floating resort


## SOLUTION PROVIDES SPACIOUS AND CLEAN LIVING & WORKING ENVIRONMENT

# THE BOTTOM LINE

- Procuring excavated material from poorer nations is morally and socially improper.
- As one of the world's richest nation, it behooves us to act ethically and to respect the life sustaining resources of poorer nations.
- Biodiversity & Climate are interlink. We need to preserve both.
- Reclamation damages the viability of biosphere.
- Material use for reclamation may be infested with alien species that could obliterate the natural resources of LEDC.
- A barrage  is a maintenance-free solution and sustainable for impounding water.
- Floatable caissons are proven technology and ideal for forming barrages.
- The proposed solution embodies at least 3 SDGs (9,14 & 16).