

The International Maritime Transport and Logistics Conference
"Marlog 10"

Digitalization in Ports & Maritime Industry



Emerging Technologies in East Port-Said Megaproject

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Outline



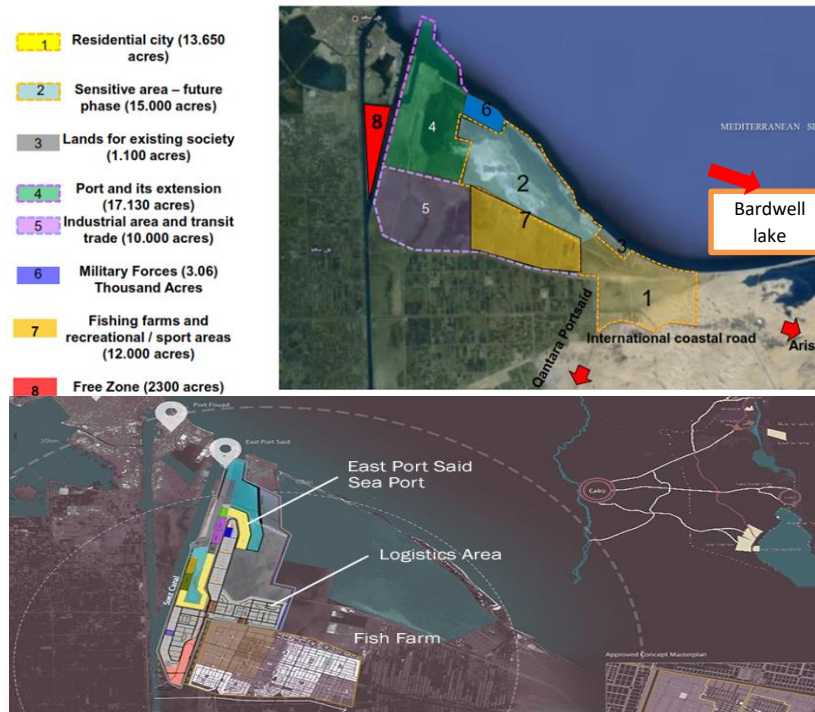
- **I- INTRODUCTION**
- **II-MITIGATION**
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- **IV- RISK ASSESSMENT TOOLS**
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I-Introduction

- East Port-Said Seaport connects between the Suez Canal and the Mediterranean Sea
- EPSD project is located in a very strategic and sensitive area, as well as the connection among three continents
- Moreover, the pressure on the port will increase because there are industrial, logistic, and residential areas adjacent to the port.



II-Mitigation



- **1- Air pollution:** using renewable energy as an alternative for fossil fuel (oil, gas, and coal).
- **2- Coastal erosion:** building with nature (like plant willows and mangroves in front of dykes).
Construction of seawalls, and periodical beach nourishment
- **3-Noise pollution:** for marine mammals and residents near the port: low steaming in approach area and Sound insulation fences and Noise monitoring station and green belt of plants could be a good barrier for noise.
- **4-Residential area:** according to UN 1992 people settlement plan must be carried out before construction starts, to avoid any cultural, tribal, and ethnical conflicts.





- **5-Dredging operations:**
 - dredging curtain and Proper disposal of dredged material should be done according to London dumping convention.
- **6-Water scarcity:** According to the UN report, Egypt could vulnerable to water shortage in 2025 as a result of:
 - Annual population growth
 - GERD
 - Climate change (MARKET FAILURE)
 - Disposed water from factories and industrials areas into the River Nile estimated at rate 150 million m³ / year and it is loaded with lead and heavy metals
- Egypt relies on the River Nile as the primary source of fresh water ,desalination plants, underground water, and rains.



- Environmental monitoring aims to attain economic utility and reduce environmental and social impacts .
- construction or extending new ports, cities, and industrial areas usually cause adverse impacts on the marine environment before, during, and after operating the project.
- By monitoring the air quality & water quality the competent authority can achieve strategic targets.
- So, modern environmental devices can help the competent authority in protecting biodiversity and achieving the sustainable development





- **Monitoring tools before , after and during construction can be by:**

1- Environmental drone:

Port Said city is one of the most vulnerable areas in the Nile Delta for land subsidence and coastal erosion.

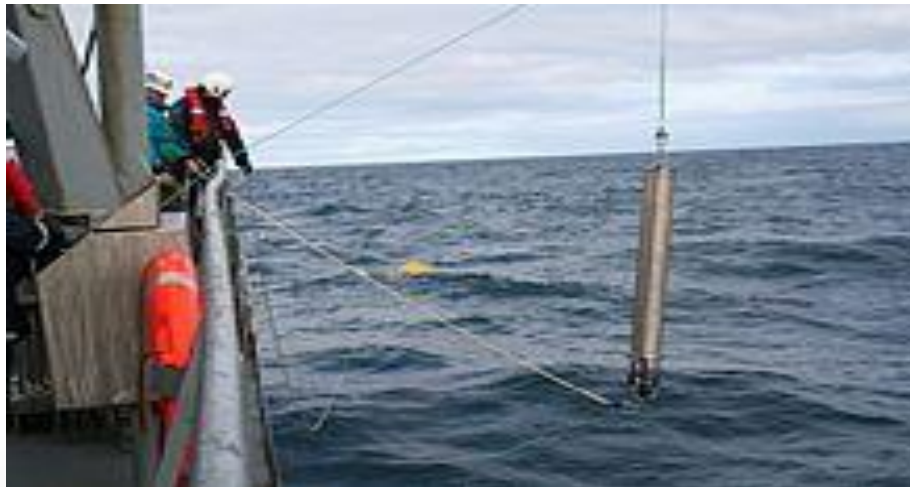
- cheap, and high accuracy, coverage area.
- Remote sensing issues and weaknesses:
 - cloud and dust
 - operational cost is very high



2- Hydrophones:

Measures underwater noise generated from such as merchant ships, mineral mining operations, and military exercises.

- underwater noise causes trouble and injury marine species
- Marine mammals migrate or strand on the beach in the high noise region



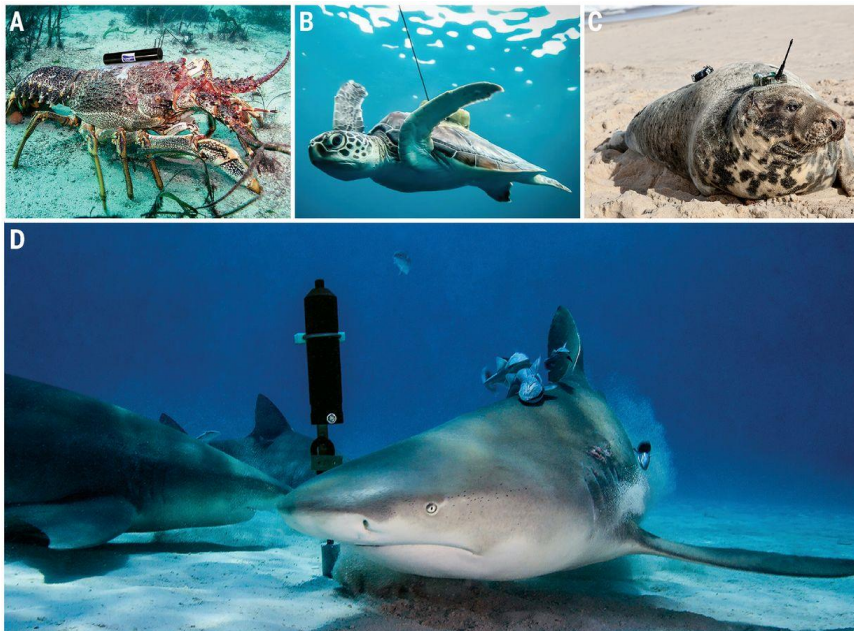
- **3- CTD:**

it uses in measuring the upper limit of water turbidity, temperature, and conductivity (salinity). deployed a group of sensors from a research ship



4- Satellite telemetry device:

- to track marine mammals
- to address their spawning position
- Detect individual trend, and annual migrant
- So, proactive actions could be taken to protect endangered marine mammals from extinction.





- **5- Air quality monitoring meter:**
- GHG emission from seaborne trade represents almost 3 percent of the total yearly emissions. Moreover, GHG emissions from ships are expected to increase to seventeen percent by the mid of 21st century if uncontrolled.
- Enable port authority to detect and address the sources of air pollution and its amount. So, they can take proactive actions to protect marine environment and people living or work in the port region.



6-eDNA:

- detect invasive species that can cause negative impacts on biodiversity
- invasive species are coming from the Red Sea and crossing the SC to the East Mediterranean





IV- Risk assessment tools:

- useful for predicting and monitoring impacts
- Quick response in any case of the oil spill in the port.

Oil contingency plan.

- Seasonal Restrictions during Dredging Operations.
- Sediments Concentrations and Threshold Reference Value.



V- RECOMMENDATIONS



- Implementing a cost-benefit analysis where the government may invest in commercial projects that attain benefits at present or produce a quick return on the short-term. However, investing in capacity building, education, and reducing global warming impacts would achieve the SDGs.
- Adopting Annex Six of the MARPOL convention is quite important because there is a global trend in transferring seaports to green ports to decrease GHGs emissions.
- Establishing Carbon Capture and Sequestration (CCS) and forestation nearby the project region is required to protect the environment and people’s health.
- Establishing Smart ports to maintain safety, security, and energy efficiency. Consequently, the environmental impacts in the port region will mitigate.



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thank you

tusind tak
謝謝 dakujem vám
ありがとう
ngiyabonga
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merci
baie dankie
धन्यवाद molte grazie
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