

Deltares in the Middle East MENA Webinar series

Digital twins for pipeline systems

Ir. Sam van der Zwan – Deltares

Eng. Mina Ibrahim - Exergia Engineering

Mr. Michiel Tukker - Deltares

Dr. Ahmed Elkadi - Deltares

MENA Webinar series – Deltares

<https://www.deltares.nl/en/webinars/>

Webinars

16 Dec	Digital twins for pipeline systems – focus on MENA region 10.00 am Delft, 1.00 pm UAE	
13 Jan	Supporting Sustainable development of the Gulf with the Gulf Comm... 10.00 am Delft, 1.00 pm UAE	

Past webinars

8 Dec	Understanding Health issues related to water systems – focus on M... 10:00 am Delft, 1:00 pm UAE	
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Slides and
recording available



Not-for-profit, independent knowledge institute

Working worldwide on smart innovations in the field of water, subsurface, and infrastructure



100 year expertise

The closure works of the Closure dam for the Zuiderzee needed new knowledge → Delft Hydraulics 1927





100 year expertise

The derailment near Weesp in 1918 required new knowledge of the soil → LGM 1934

Extreme weather



Deltares today



850+
employees



40
nationalities

Experimental facilities



Water



Subsoil



Data

Offices in **Delft**
and **Utrecht**



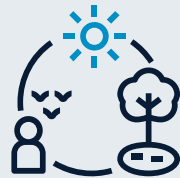
Region offices in **Singapore**,
Washington, **Jakarta**, **Abu Dhabi**

Deltares today

Our expertises



Flood Risk



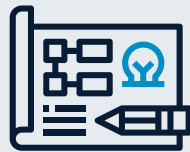
Environment



Water & subsurface resources



Infrastructure



Adaptive
Delta Planning



Enabling
technology

More than
100
years experience

“Dare to share”



we work closely with
governments,
businesses, other
research institutes and
universities at home and
abroad.

Experimental facilities

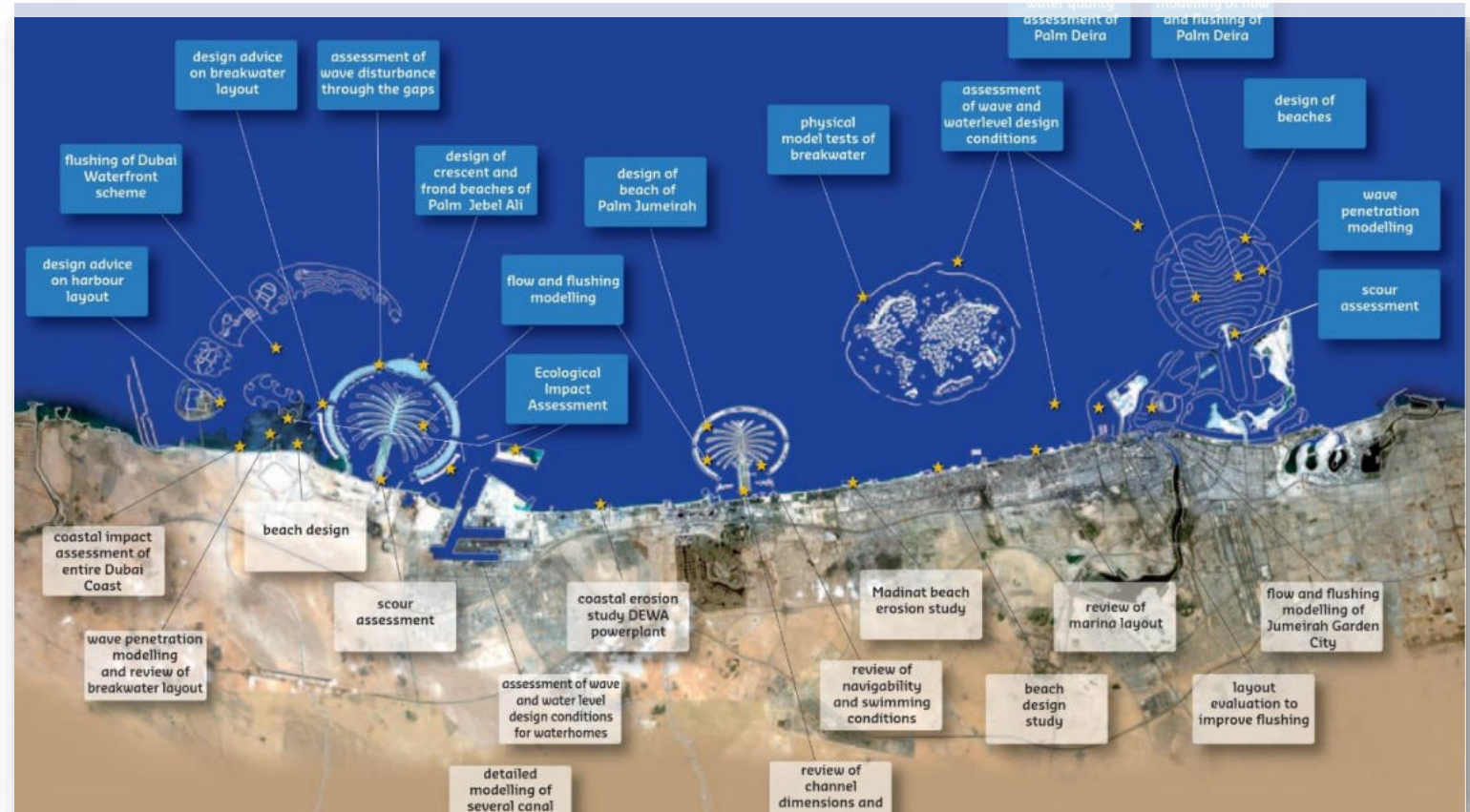
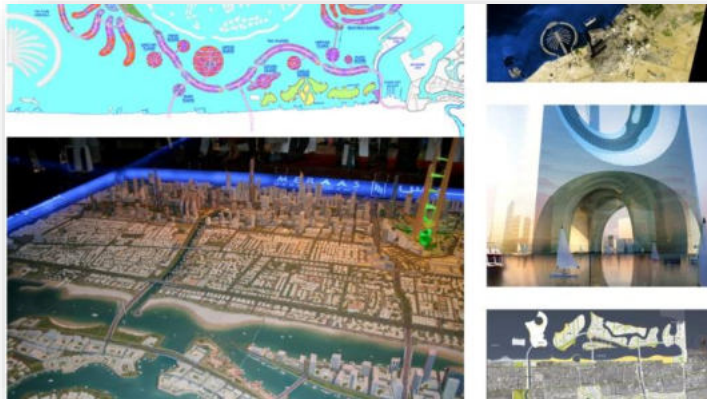
Risk reduction and cost reduction
through design optimization



Deltares Experience in the GCC, Red Sea, Egypt, Turkey and Levant

- Deltares active in the Gulf and Red Sea for 40+ years
- Worked on many iconic projects, such as the Palm Islands
- Local presence in the region (UAE)

Knowledge partner for early and strategic advice on coastal developments, climate change adaptation, energy and water safety and security in the Middle East region



Worst ever storm



Sand and debris from the storm

VIOLENT storms, which hit most of the Gulf last week, caused considerable damage in Abu Dhabi, resulting in the sea wall being breached and parts of Abu Dhabi itself being flooded.

The storm, which reached a peak on Thursday night, is reckoned to be one of the worst to hit the state in living memory. By Friday it had died down and mopping up operations had begun.

The breach in the sea wall, caused by the terrific pounding of wave after wave, occurred about half mile west of the big roundabout on the Corniche Road.

The sea managed to batter an immense 20 meter long hole in the wall and water flooded through to form a small lake full of debris between the wall and the road.

Experts commented afterwards that if the storm had not abated as soon as it did, considerably more damage could have resulted.

Another victim of the storm was a pickup truck which had been overturned as it tried to dump its load. It is thought the driver was trying to close the gap in the sea wall.

Work has begun on repairing the wall temporarily.

According to one Abu Dhabi official, this should be strong enough to prevent any further damage and prevent serious damage in the event of another storm.

The same official stated that ever since the Corniche wall had been built in 1968, to stop the drifting of sand and erosion, the Abu Dhabi authorities had been aware of the dangers of a really vicious storm.

As soon as the wall had been built it was found to be inadequate. It was also clearly not high enough to prevent the sea from coming over the top.

Two years ago the government appointed the Delft hydraulics laboratory to carry out a study and find a solution to the pressing problem.

After one year they came up with three proposals, all of which were highly expensive and involved changes in the shape of the Corniche wall. Modification plans have been shelved.

Now following last week's storm, Abu Dhabi residents are hoping that the government will heed the advice of the Delft company and carry out the changes proposed before a disaster overtakes the town.

NOTE: The only reported death caused by the storm was that of a dolphin washed up in front of the American Embassy.

Eid was also the time for celebrations and for visiting. Among the callers on President Shaikh Zayed bin Sultan Al Nahayan was Vice President Shaikh Rashid bin Said Al Maktoum.

4 February 1974
Gulf Weekly Mirror

Deltares historically embedded in the MENA/Gulf region...

Gulf Weekly Mirror 1974

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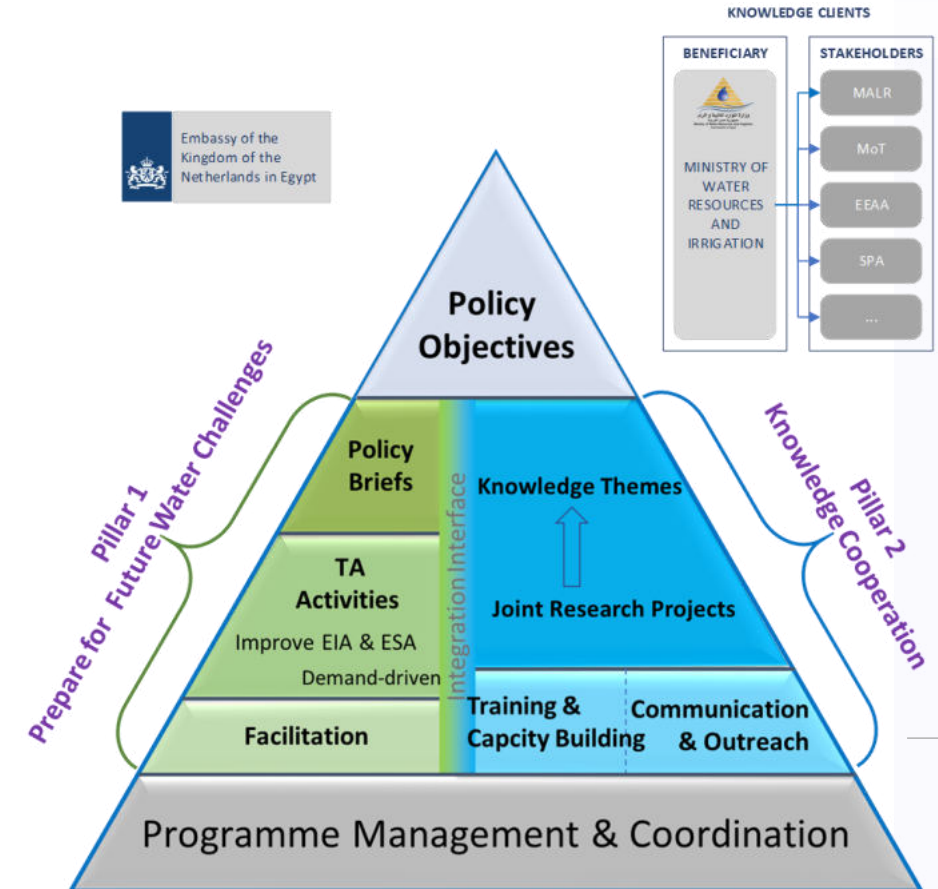
Deltares

Deltares Experience in Egypt, Turkey and Levant area

- Deltares active in Egypt, Turkey and Levant for over 30 years
- Primarily in the fields of Integrated Water Resource Management
- **Egypt: Long lasting institutional cooperation**
Completed the GERD impact assessment study (published in Cairo Water Week 2019 & 2020)
A 4-years Joint Cooperation in Applied Research (JCAR) Program (start January 2021)
- **Turkey: focusing on EU funded projects on WFD and FRM**



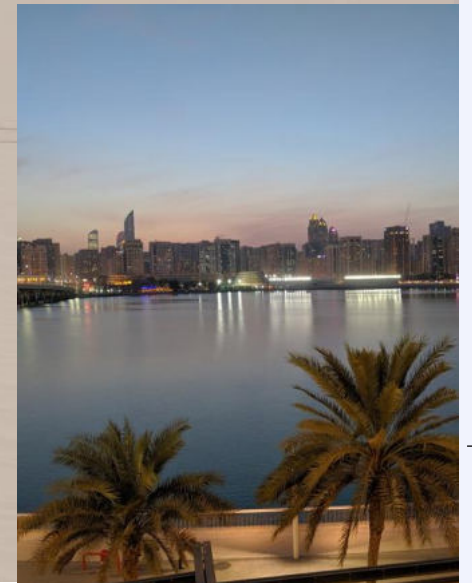
Queen Beatrix in HRI - EGYPT



Deltares activities in the Middle East Region

Topics

- **Climate Change Adaptation Strategies**
- **Integrated Coastal Zone Management**
- **Integrated Water Resource Management**
- Environmental Hazard and Risk Assessment
- Groundwater Modelling Studies
- Marine Spatial Planning
- **Hydraulics for Infrastructure & Industry**
- **Water Security, Quality, and Ecology Studies**
- **Nature-Based Solutions**
- **Resilient Infrastructure**
- Geotechnical engineering studies
- Data management and services
- Port navigation, mooring, wave penetration and sedimentation studies
- Earth Science Services
- **Offshore and Coastal Engineering**
- Dredging and reclamation
- **Numerical Modelling**
- **Physical Modelling**
- **Open Source Software**
- **Training and capacity building**



Deltares in the Middle East



MENA Regional Coordinator: Ir. Robin Morelissen (Robin.Morelissen@deltares.nl)



GCC area (local) manager: Dr Ahmed Elkadi (Ahmed.Elkadi@deltares.nl)



Egypt, Turkey and Levant manager: Dr Mohamed Yossef (Mohamed.Yossef@deltares.nl)

Keep connected, share our knowledge and invite you to collaborate with us for creating a positive impact in the region & beyond

Digital twins for pipeline systems – focus on MENA region

During the webinar we will discuss the advantages of using a digital twin in the operation of pipeline systems. This will be followed by a demonstration of the digital twin system WANDA-FEWS, which is developed by Deltares. WANDA is the hydraulics of pipeline simulation tool and Delft-FEWS is the data integration platform both developed by Deltares and used world-wide. Combining these two, results in a high-quality performance monitoring platform.

Outline of the webinar

- Presentations
- Q&A on the topic



Our speakers



WEBINAR SERIES FOR MENA, PART 2

Featured speakers

[Sam van der Zwan](#), *expert pipeline hydraulics*

[Mina Ibrahim](#), *hydraulic surge protection lead engineer*



Digital twins for pipeline systems

December 16 – 1:00 pm UAE, 10:00 am Delft