

FLOOD RISK MANAGEMENT – PORT OF ROTTERDAM



Joost de Nooijer

Storms, Flooding and Sea Level Defense, Webinar, 9 November 2022

FLOOD RISK ADAPTATION STRATEGIES

Europoort
2019-2020

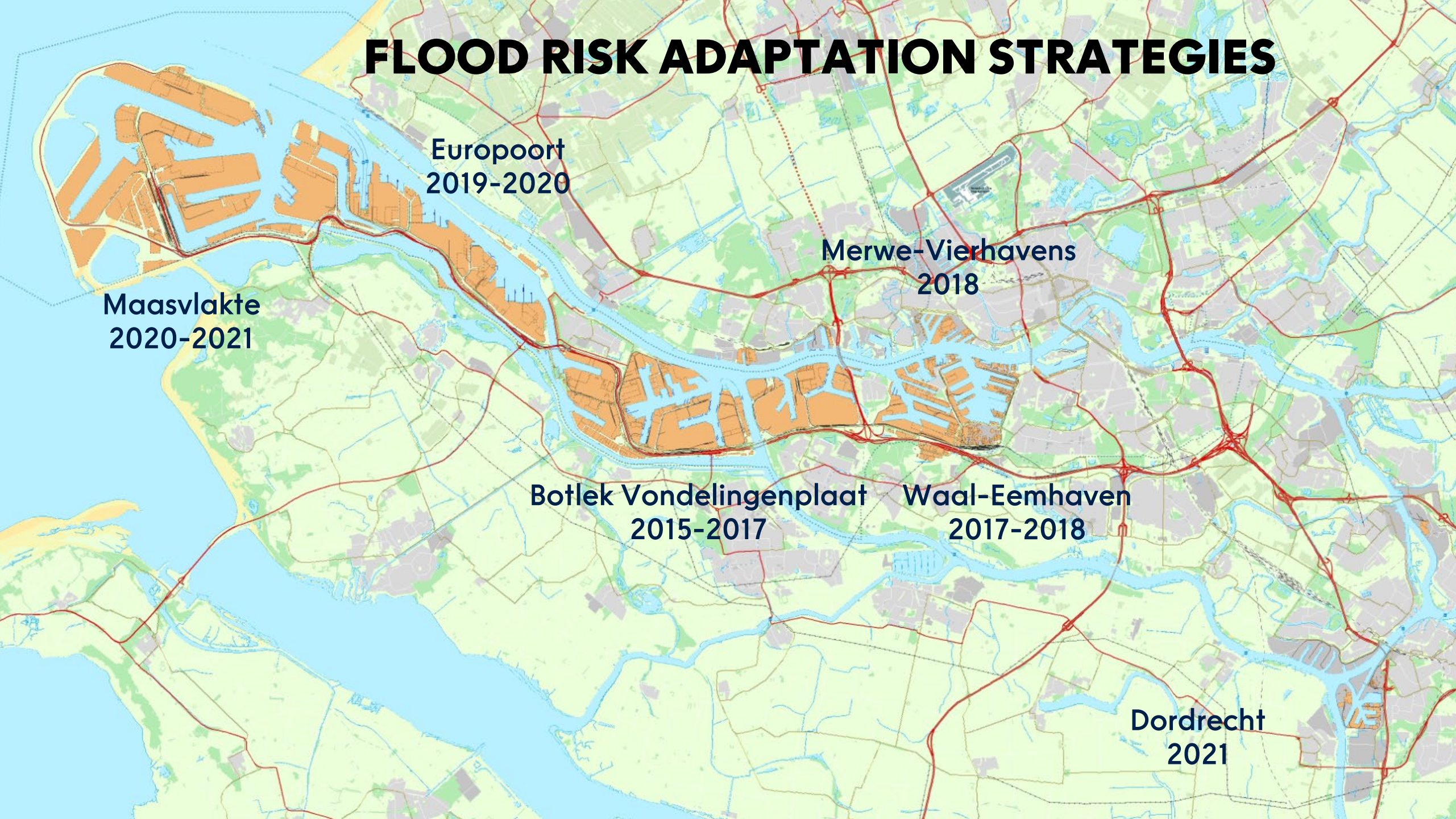
Maasvlakte
2020-2021

Merwe-Vierhavens
2018

Botlek Vondelingenplaat
2015-2017

Waal-Eemhaven
2017-2018

Dordrecht
2021



APPROACH AND STEPS

- IN PARTNERSHIP WITH COMPANIES AND PUBLIC ORGANISATIONS -

Approach:

- Creating awareness
- Information sharing + visualisation
- Joint Fact Finding
- Create common language and commitment!

Sea level rise Delta Scenarios 2014:

2050: +0,15m to +0,35m

2100: + 0,35m to +0,85m

Steps:

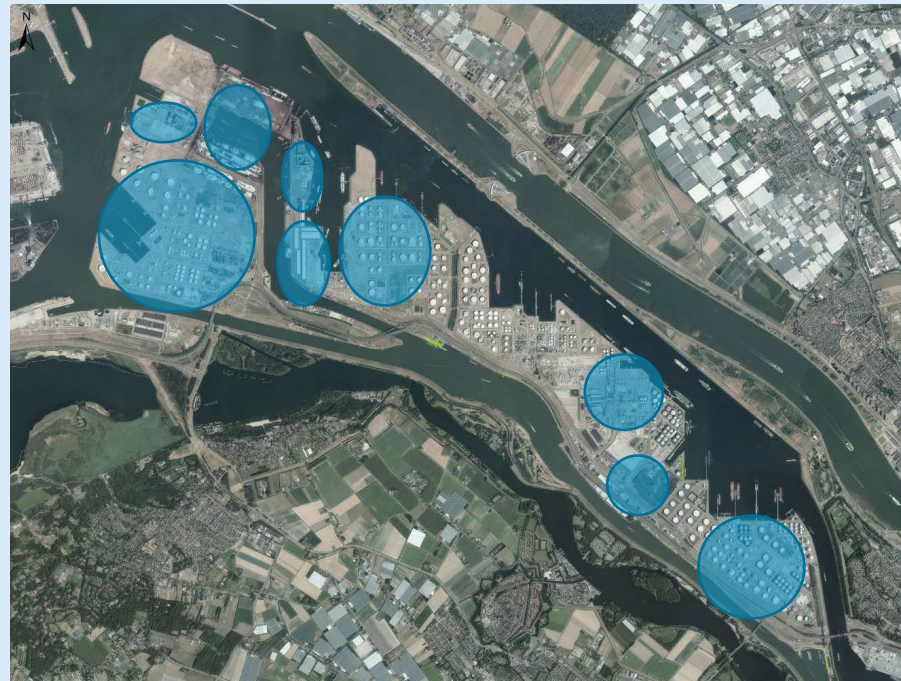
- Flood risk analysis
- Impact assessment (*workshop 1 with stakeholders*) + applying flood risk assessment framework
- Jointly building a flood risk adaptation strategy (*workshop 2 with stakeholders*)



STAKEHOLDER INVOLVEMENT RIGHT FROM THE START

- Companies

- Chemical industry
- Refineries
- Tank terminals
- Distribution centres
- Dry bulk terminals
- Break bulk terminals
- Power plants
- etc.



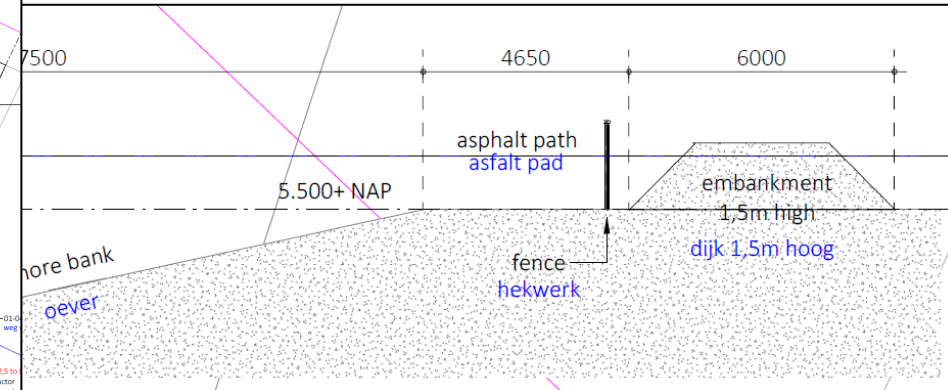
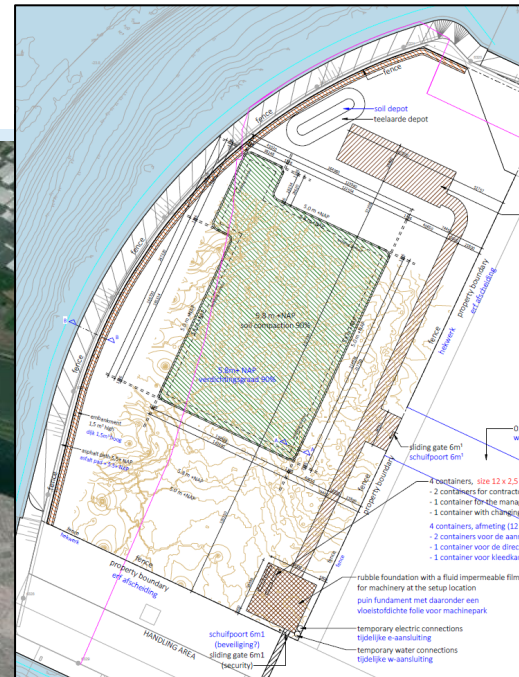
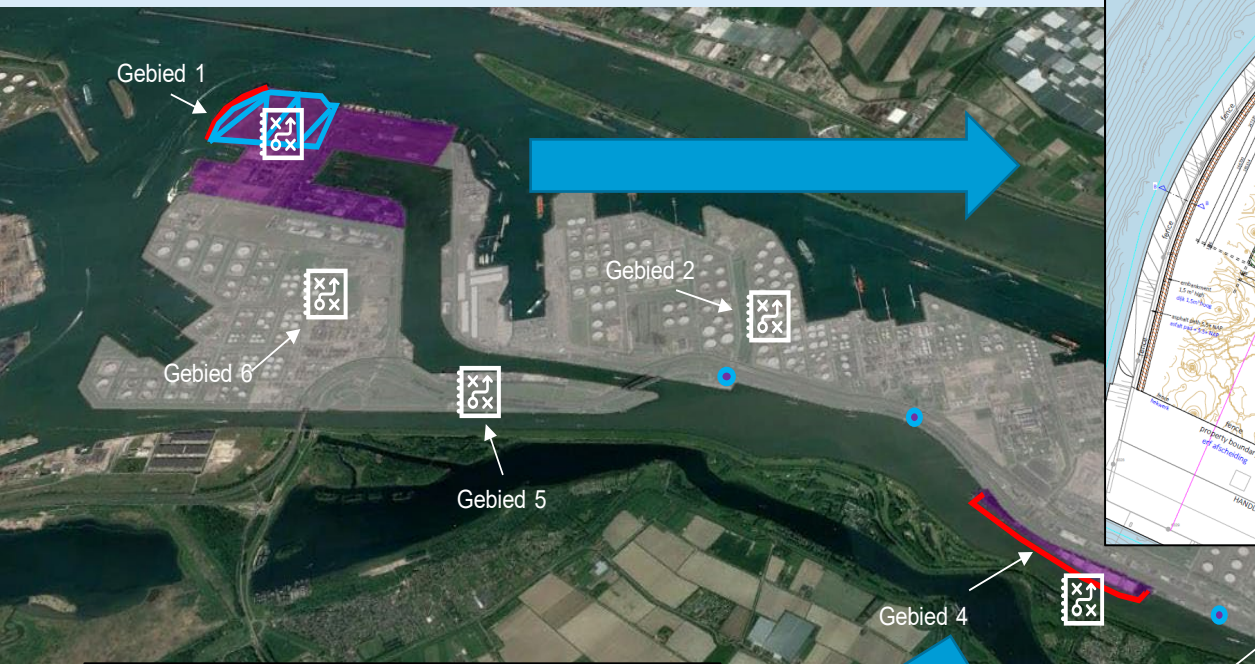
- Public organisations:

- Municipality of Rotterdam
- Rotterdam-Rijnmond Safety Region
- Environmental Protection Agency
- Ministry of Water Management
- Rail and road authorities

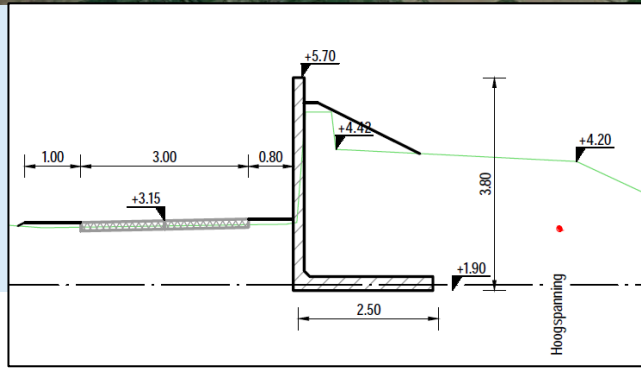
- Utility owners

- Electricity
- Gas
- Water

FLOOD RISK MEASURES IN PORT DEVELOPMENT PROJECTS



new embankment

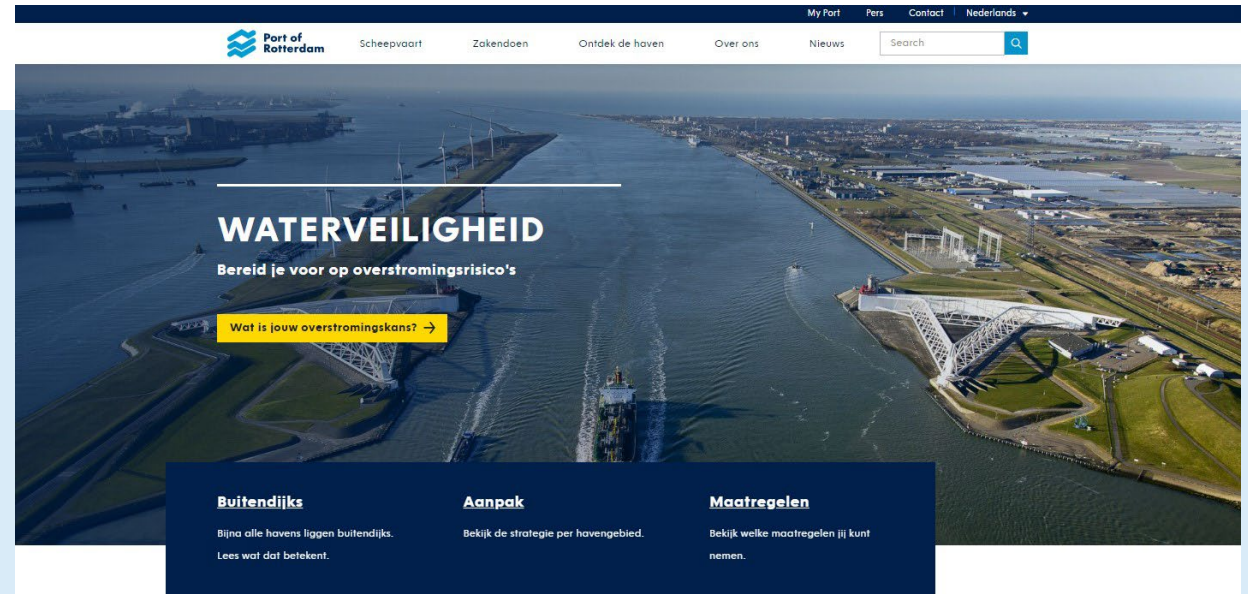


elevated quay



STAKEHOLDER COMMUNICATION

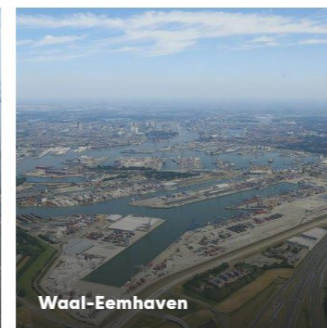
- New website [Waterveiligheid | Port of Rotterdam](#) (only in Dutch, but English version will be available end 2022)
 - Adaptation strategies and reports
 - GIS tool
 - Toolbox with potential measures
- Letter to all tenants
- Webinar
- Brochure / leaflet
- Approach specific stakeholders



DEELGEBIEDEN



Botlek en Vondelingenplaat



Waal-Eemhaven



Merwe-Vierhavens

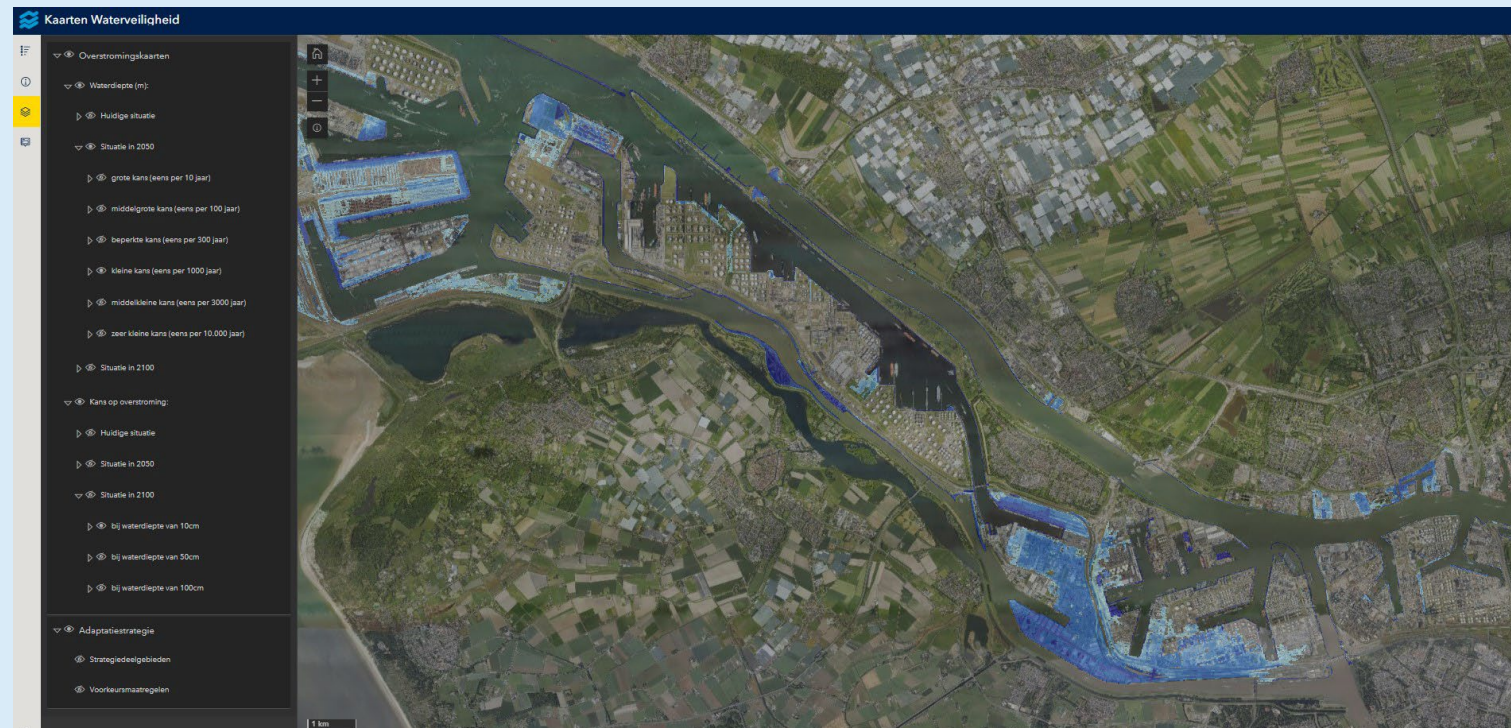


Eur



FLOOD MAPS AND ADAPTATION STRATEGIES

- GIS tool, Rotterdam specific
 - Flood maps (18 combinations of year and probability of exceedence)
 - Flood probability maps (9 maps with probability of exceedence, given a certain water depth)
 - Adaptation strategies
 - Specific measures



TOOLBOX WITH POTENTIAL MEASURES

- Potential measures against flood risk, not Rotterdam specific:
 - 46 measures
 - Filter by type of asset, investment costs, permanent or temporary measure
 - 1 page of explanation for every measure

The screenshot displays the 'MAATREGELLEN WATERVEILIGHEID' (Flood Safety Measures) section of the Port of Rotterdam website. The page features a navigation bar with the Port of Rotterdam logo and links for 'Scheepvaart', 'Zakendoen', 'Ontdek de haven', 'Over ons', and 'Nieuws'. A search bar is also present. Below the navigation, there are filters for 'Resultaten filteren', 'Assets', 'Investering', and 'Maatregelen'. The main content area is a grid of six illustrations, each representing a different measure: 'Waterdichte barrière' (Waterproof barrier), 'Rioolwaterzuiveringsinstallaties leegmaken' (Emptying sewage treatment installations), 'Voorkom schepe' (Prevent ships), 'Waterdichte barrière' (Waterproof barrier), 'Rioolwaterzuiveringsinstallaties leegmaken' (Emptying sewage treatment installations), and 'Voorkom schepe' (Prevent ships). To the right, there is a detailed page for 'Preventief afschakelen' (Preventive shutdown), which includes a description of the measure and a list of bullet points: 'Toepasbaar bij nutsvoorzieningen, fabrieken en installaties;', 'Crisisbeheersing;', 'Tijdelijke maatregel;', 'Substantiële investering;', 'Voorkomt economische- en milieuschade;', and 'Toepasbaar bij alle overstromingsdieptes.' Below the text is an illustration of a factory with a lightning bolt and a crossed-out power symbol, indicating a power shutdown. At the bottom right, there is a 'Deel dit op' (Share this) button.

A SAFE PORT, NOW AND IN THE FUTURE!

