

FLOOD RISK STRATEGIES @ PORT OF ROTTERDAM



Joost de Nooijer, December 3rd 2019
PCNC Sea level defense Conference, Port of Oakland

Port development



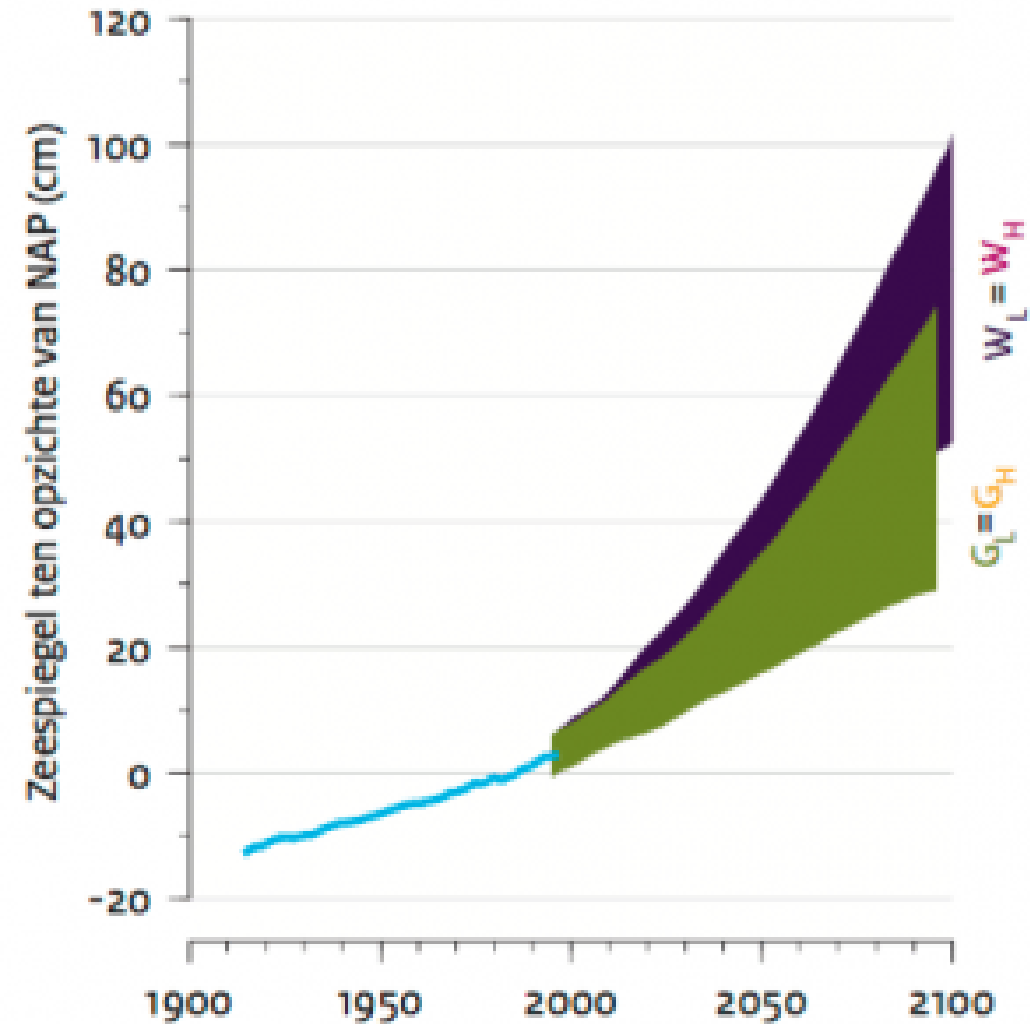
Flood risk management

Port located outside the flood defense system



Climate change – sea level rise

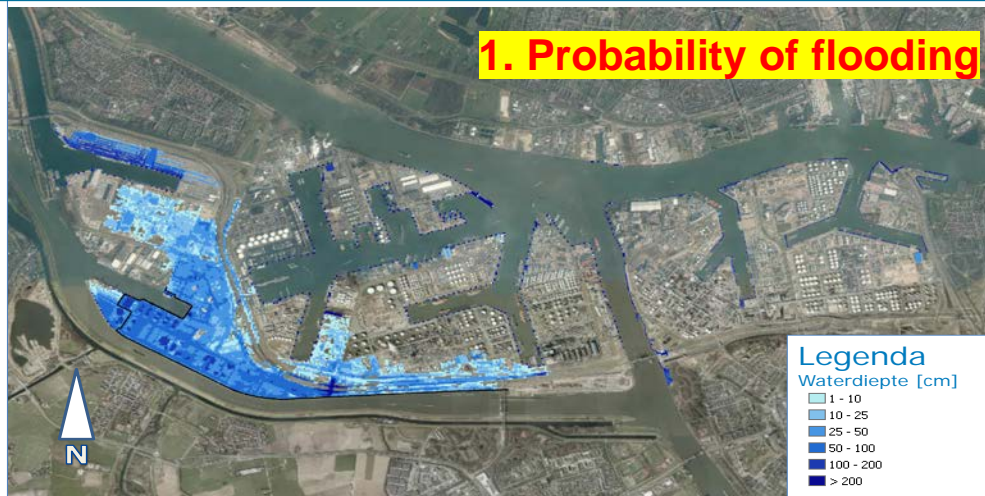
- Possible impact?
- Governance unclear, many stakeholders
- Limited awareness
- PoR takes the lead → Flood Risk Management Programme. Main goals:
 - Gain insight in risks and vulnerability for flooding of the whole port area
 - Enhance awareness
 - Adaptation strategies with feasible measures



Methodology

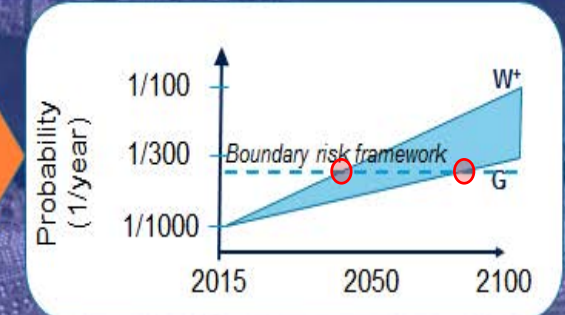
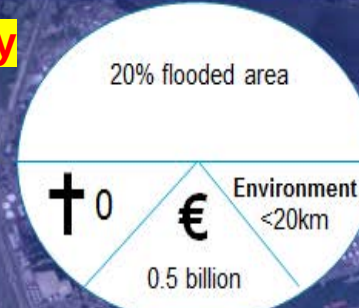
Example water depth in 2015 - 1/1.000* year storm

1. Probability of flooding



3. Risk acceptancy

1/1.000 year in 2015



2. Consequences

Assessment of effects on:

- Economy (direct and indirect)
- Environment (air, water, soil)
- (Deadly) casualties

Social disruption



4. Measures



5. Strategy

Stakeholder engagement

- Joint Fact Finding
 - Start discussing the subject, not governance
 - Measures are most effective if part of other investments
 - Cost-benefit ratio of measures
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- Governmental organisations: Municipality of Rotterdam, Rijkswaterstaat, Dutch Ministry of Infrastructure and Water Management, DCMR
 - Companies: BP, Exxon Mobil, Shell, Nouryon, Vopak, LyondellBasell, Indorama, EECV, ProRail, RWS Asset Management, Stenaline, Steinweg, Air Products, Deltalinqs, etc.
 - Utilities: Evides, Gasunie, Stedin, TenneT, etc.



Actual status

- Maasvlakte adaptation strategy with newly reclaimed land Maasvlakte 2
 - Infrastructure access corridor 0,50 metres higher than surface area (1/10.000 year storm)
 - Specific risk assessment for chemical industries
- Implementation @ Port of Rotterdam
 - Advice in every asset management and development project
 - Contract clauses if necessary
 - Long term strategy for Port Planning
- Implementation @ stakeholders
 - External communication

