

Han Meyer

Can the New Waterway be a 'game changer' again ?

Rotterdam 1952 by Marius Richter

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Rotterdam 2022

Photo credit: Port of Rotterdam

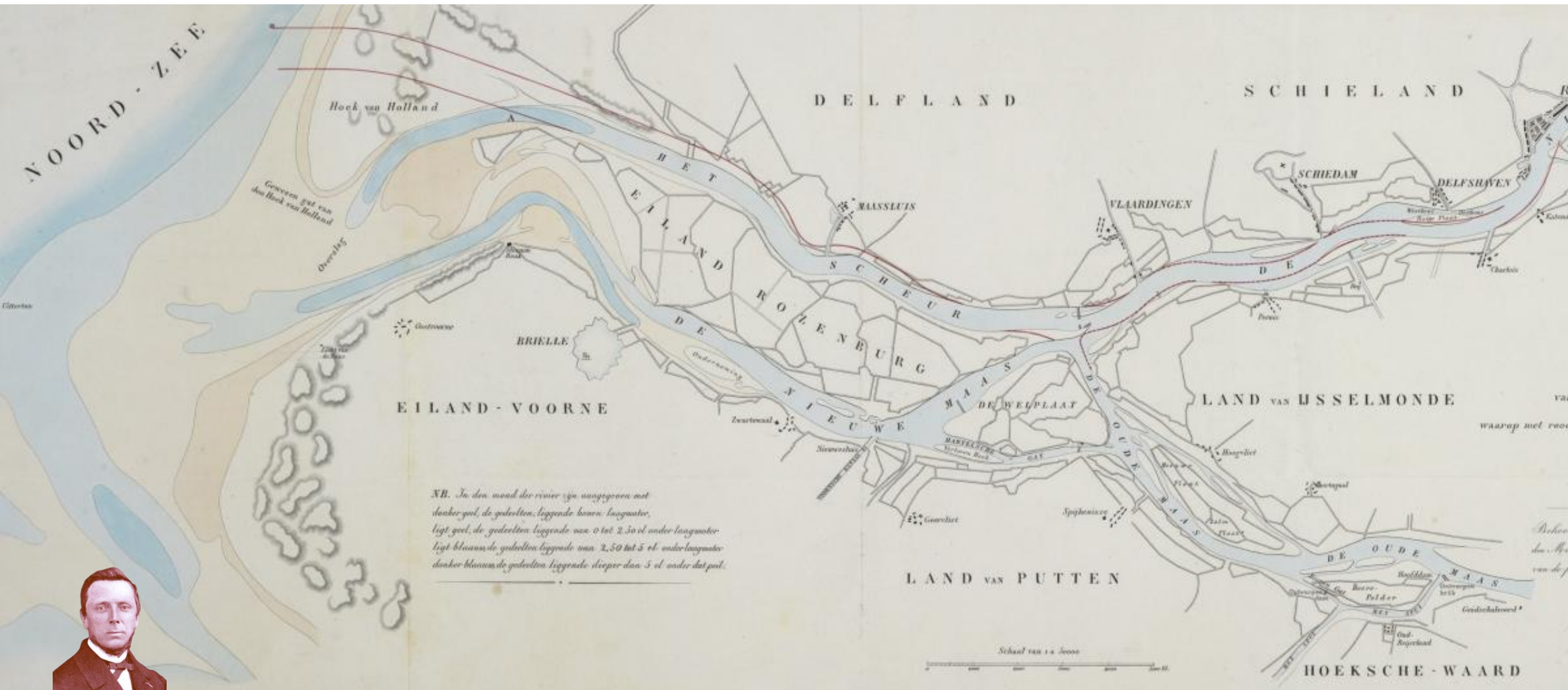
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Photo credit: Port of Rotterdam

Making a 'New Waterway': a Game Changer



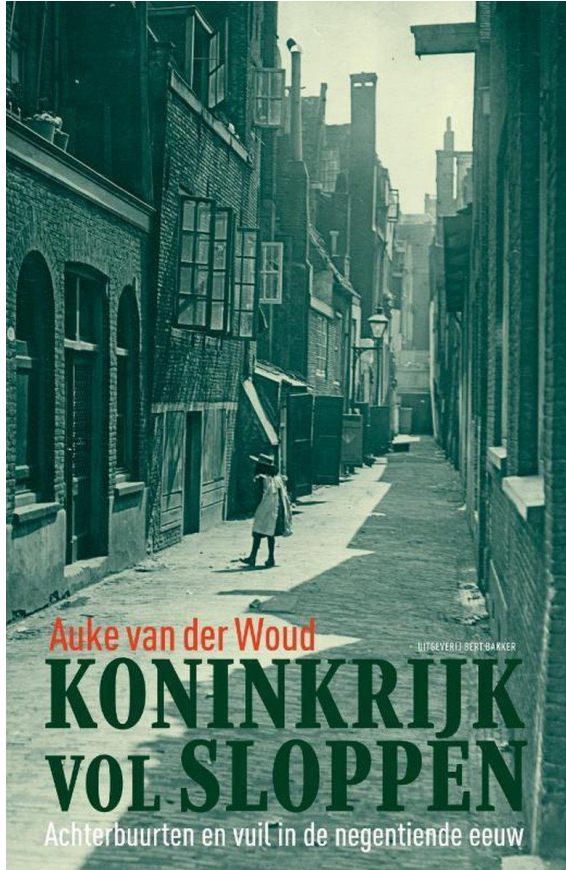
NB. In den naam der rivier zijn aangegeven met
donker-groen, de gedeelten, liggende boven laagwater,
ligt-groen, de gedeelten liggende van 0 tot 2.50 el onder laagwater
ligt-blauw, de gedeelten liggende van 2.50 tot 5 el onder laagwater
donker-blauw, de gedeelten liggende dieper dan 5 el onder dat punt.



Pieter Caland

Map from 'Rapport van de Raad van den Waterstaat', 1857

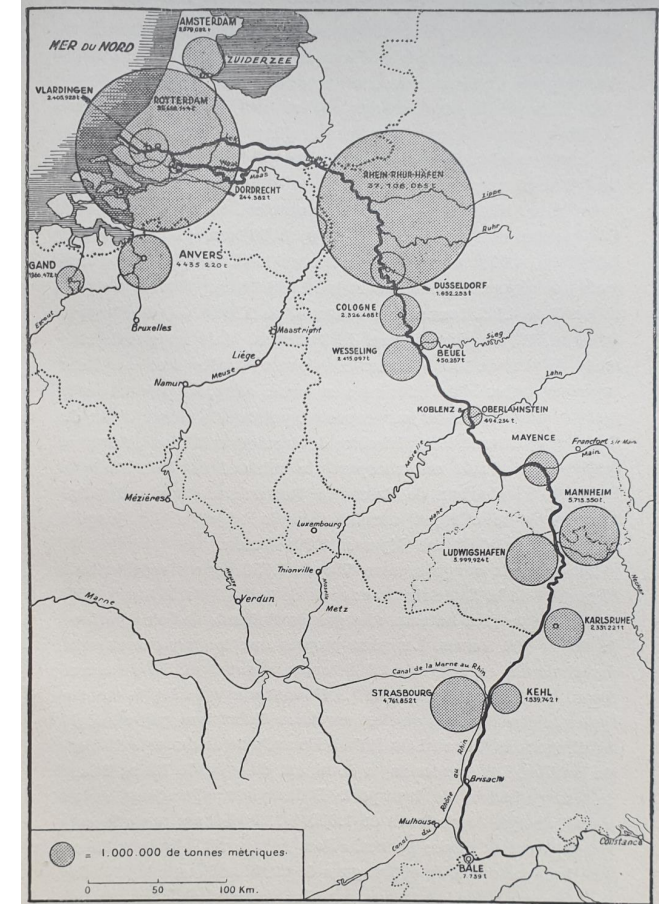
Mid 19th century: Three reasons “to do something”



1. Rotterdam in the 1800s: a poor city



2. Frequent floods in the upstream river area



3. Increasing German pressure to improve waterways



Rhine-Meuse delta 1850



Rhine-Meuse delta1910

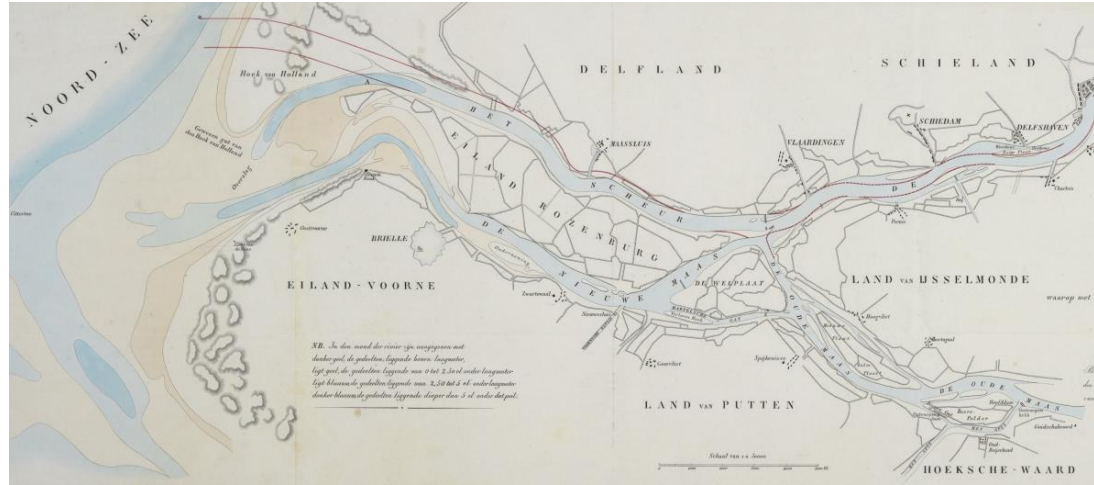


Rhine-Meuse delta 2018

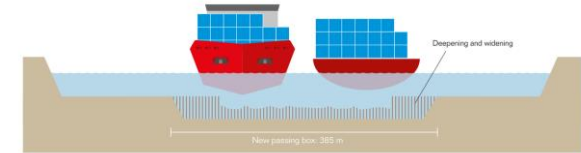
The big family of ship canals



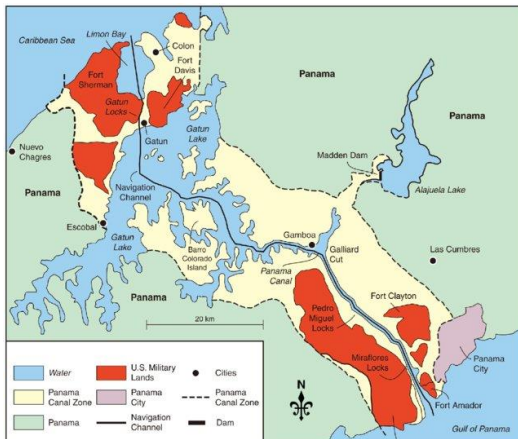
Suez Canal - opened in 1869



Nieuwe Waterweg - opened in 1872



Elbe estuary-channel to Hamburg port



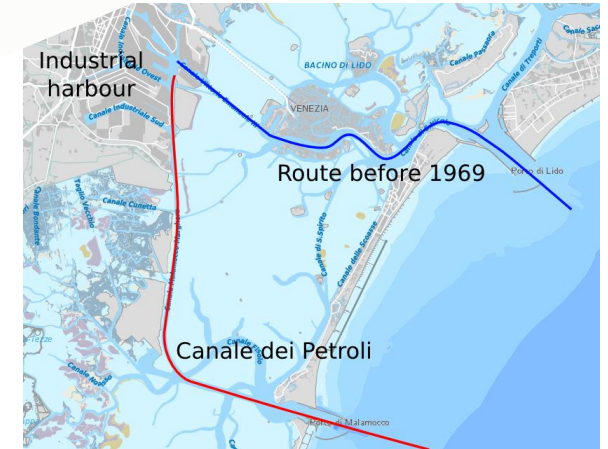
Panama Canal - opened in 1914



Houston Ship Channel - opened in 1914

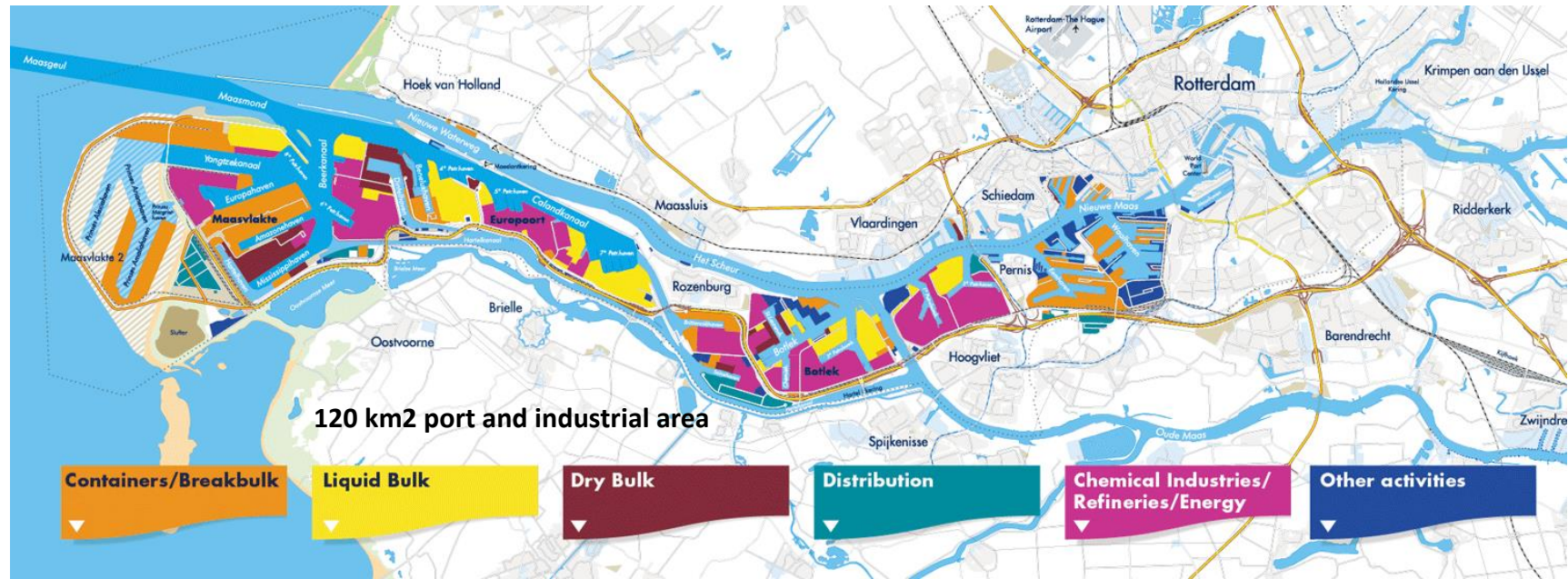


New Orleans Industrial Canal - 1923

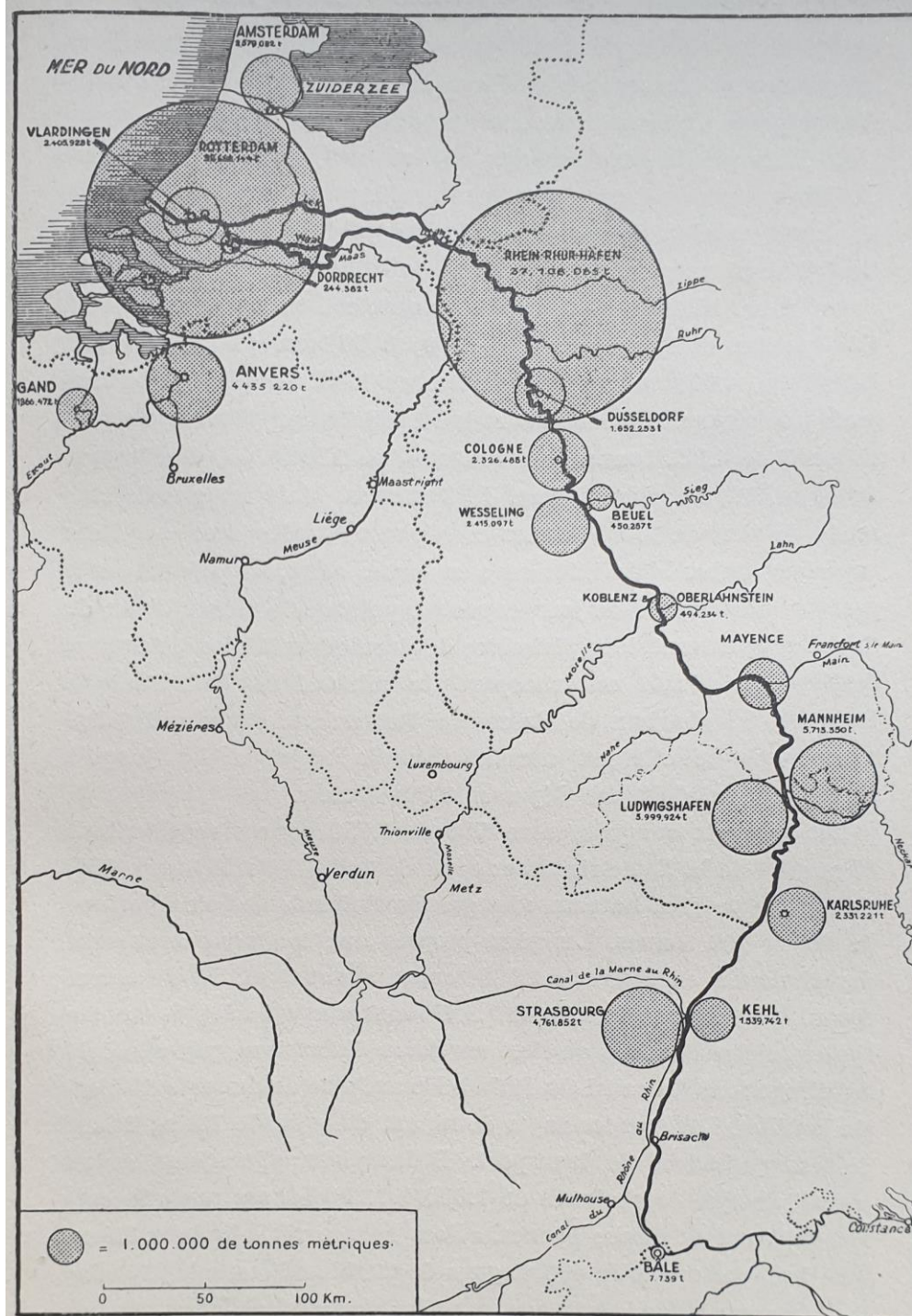


Venice Canale dei Petroli - opened in 1969

Port of Rotterdam: 2^e largest petrochemical complex of the world

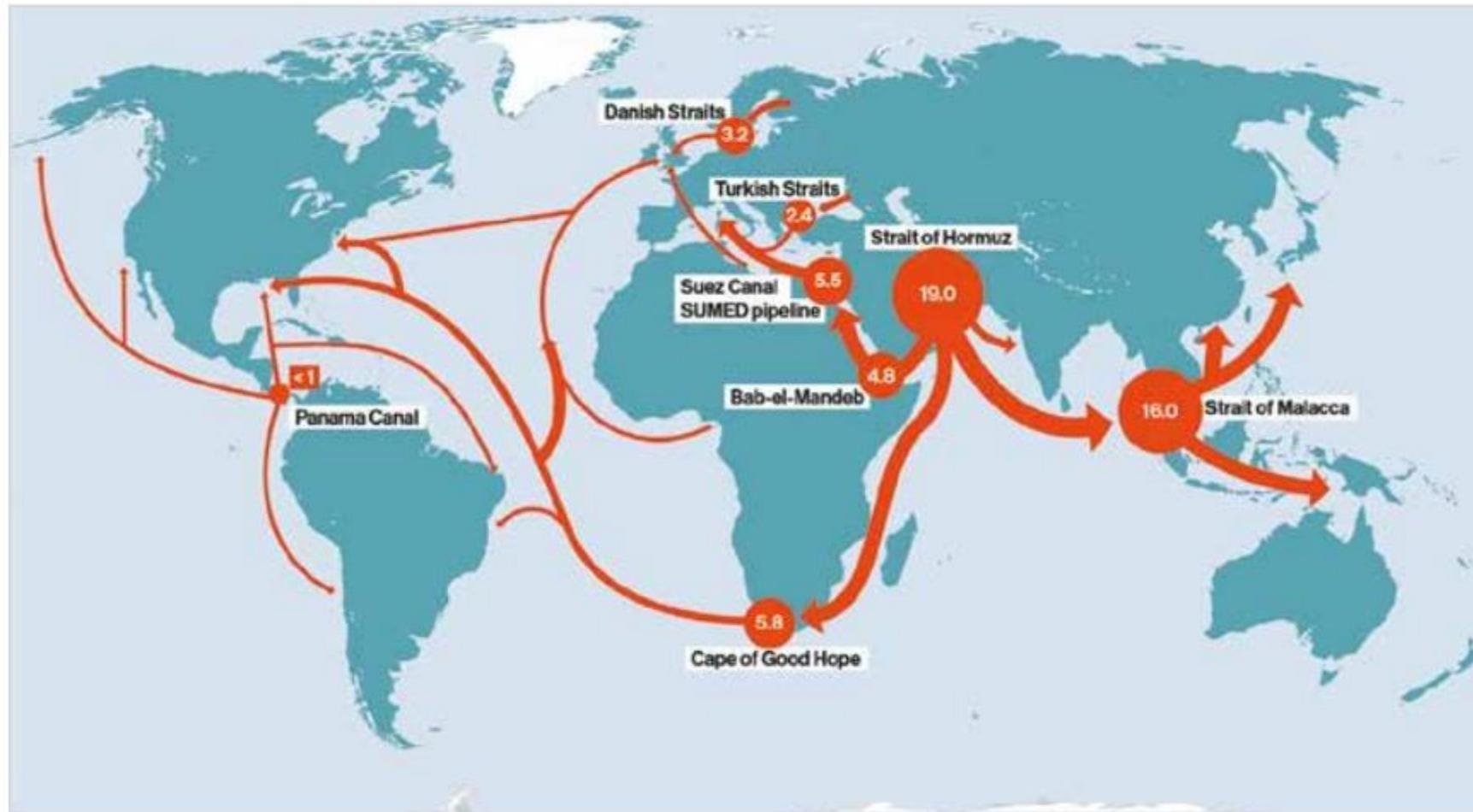


Port of Rotterdam: > 60% land use by transshipment, storage and processing of fossil fuels



The economic system of the Rhine corridor.
Demangeon and Febvre, 'Le Rhin', 1935.

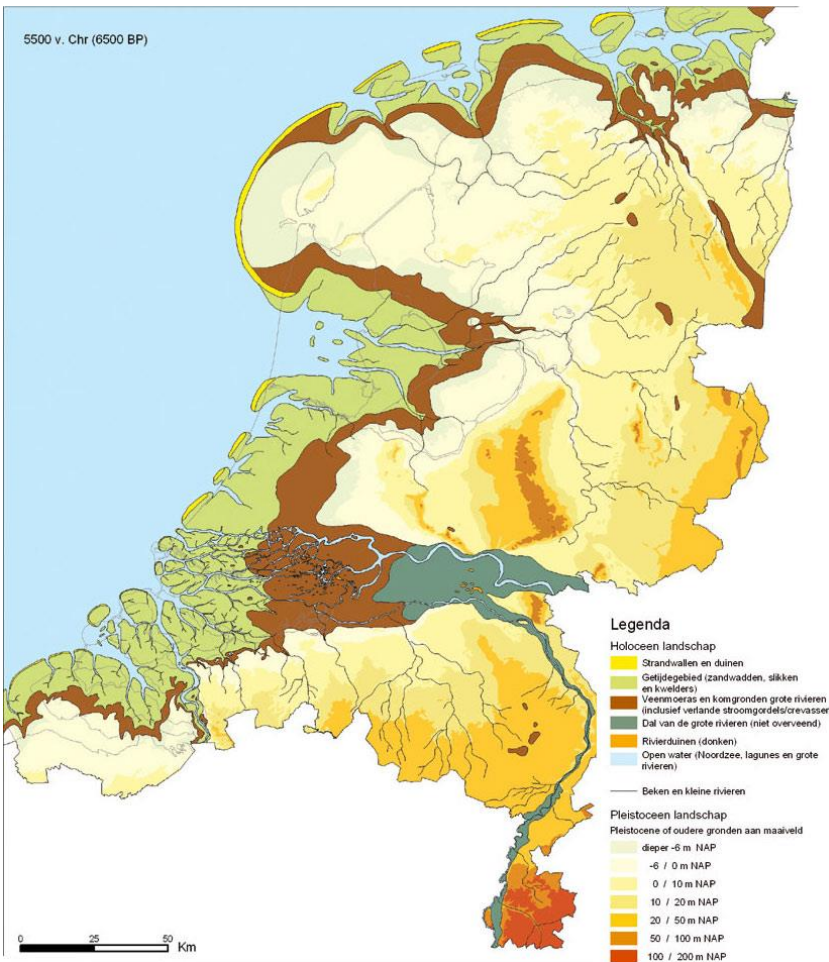
Figure 11. Daily transit volumes through world maritime oil chokepoints



Note: All estimates in million barrels per day. Includes crude oil and petroleum liquids. Based on 2016 data.

Source: U.S. Energy Information Administration.

The delta – a dynamic and adaptive territory



The Netherlands 5500 BC



500 BC



800 AD

The delta – a dynamic and adaptive territory

‘ecosystem services’ Costanza et al. 1997



Coast of Goeree-Overflakkee, © Rijkswaterstaat

Building with nature



Coast of Texel, © Threes Anna

Erosion by nature

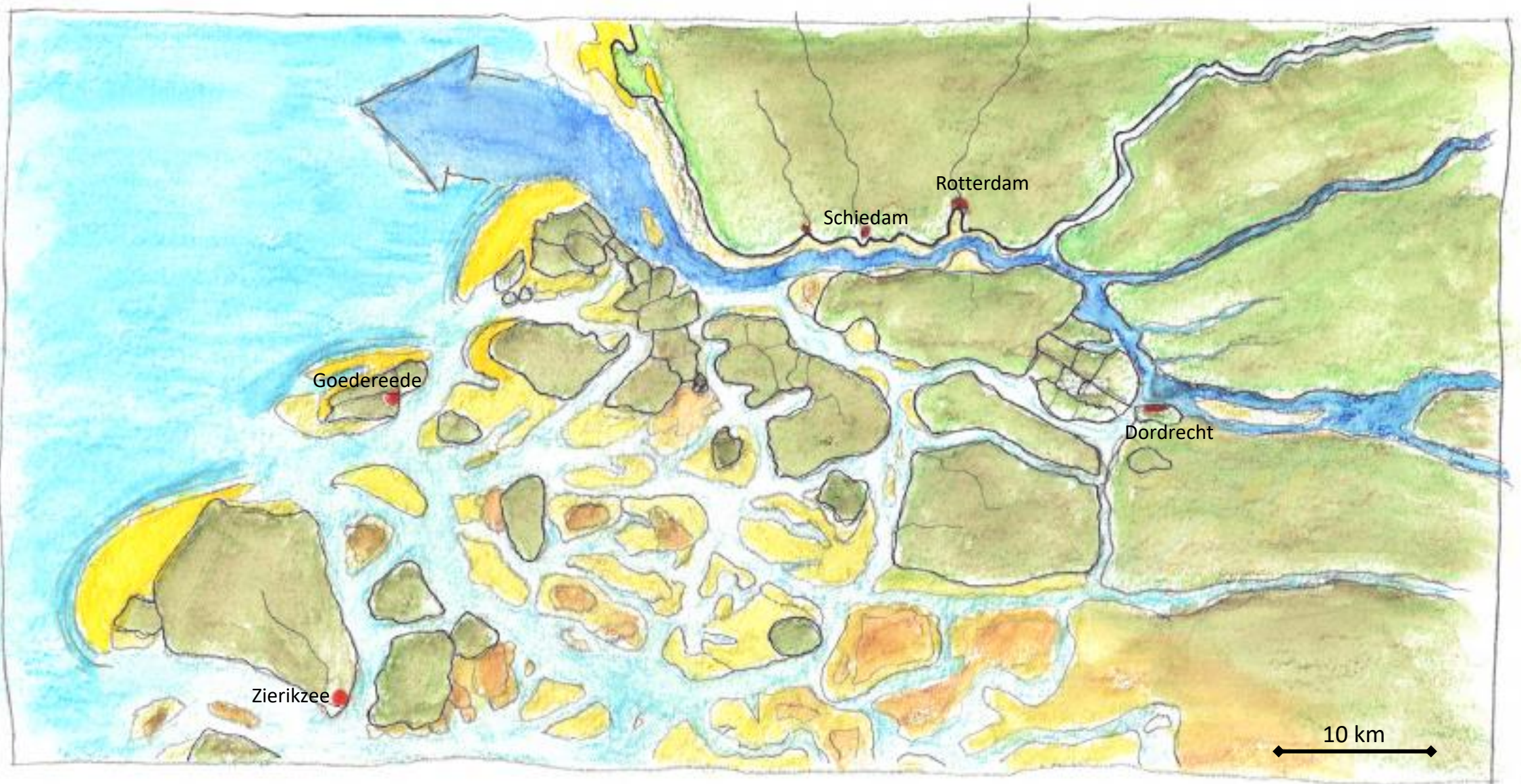
Working together with **water**

A living land builds for its future

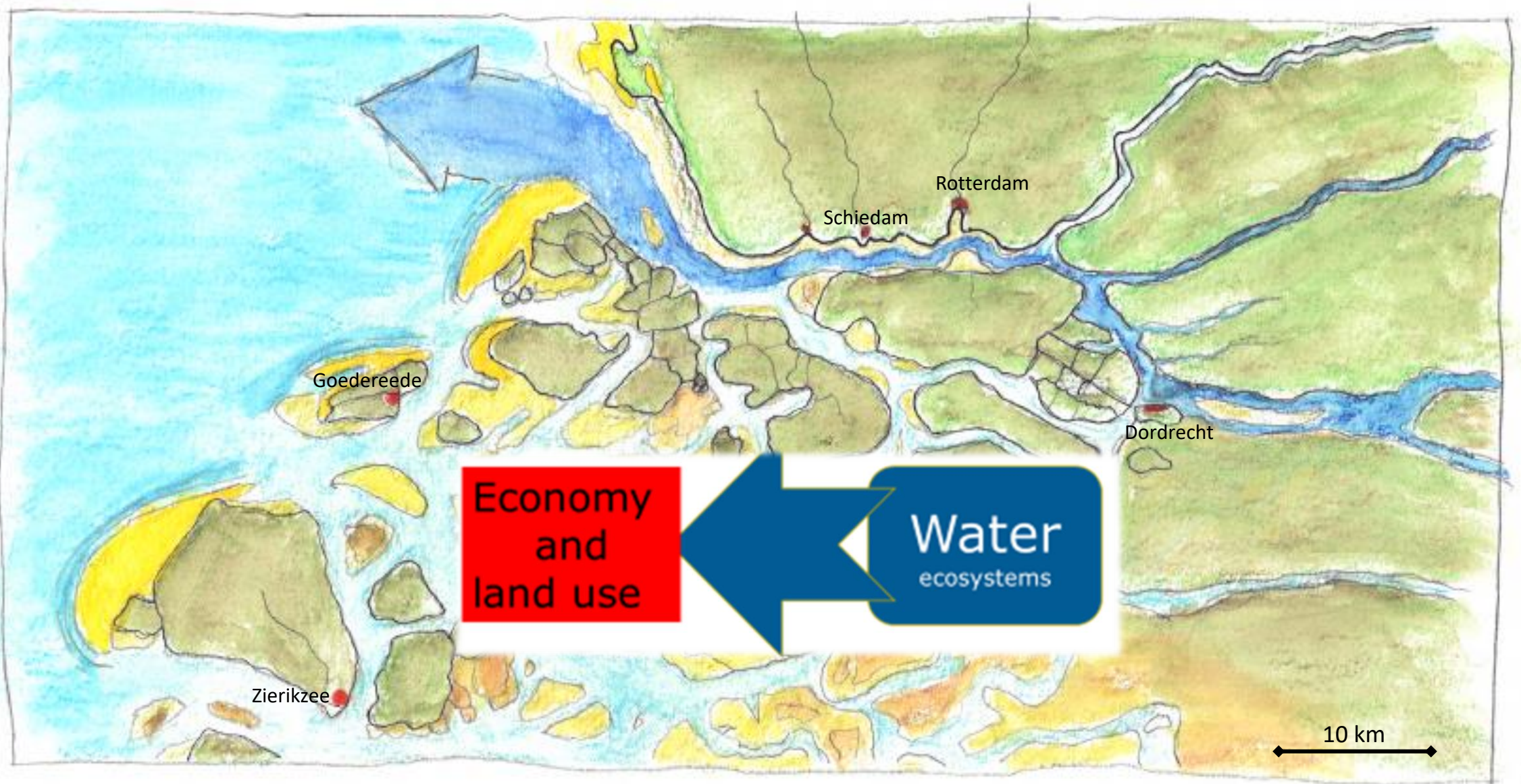
Findings of the Deltacommissie 2008 | SUMMARY AND CONCLUSIONS



Rhine and Meuse main river discharge 14th century



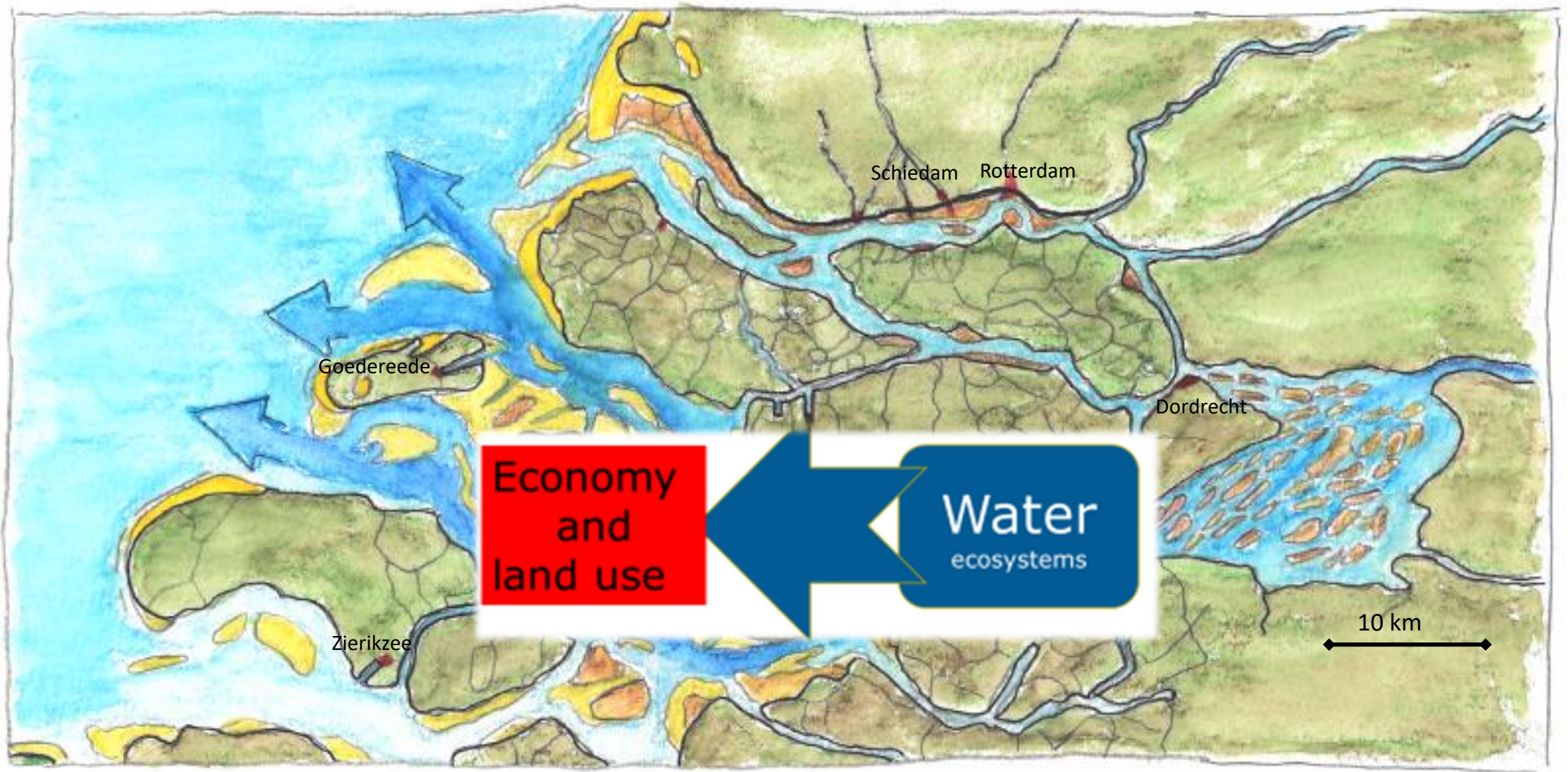
Rhine and Meuse main river discharge 14th century



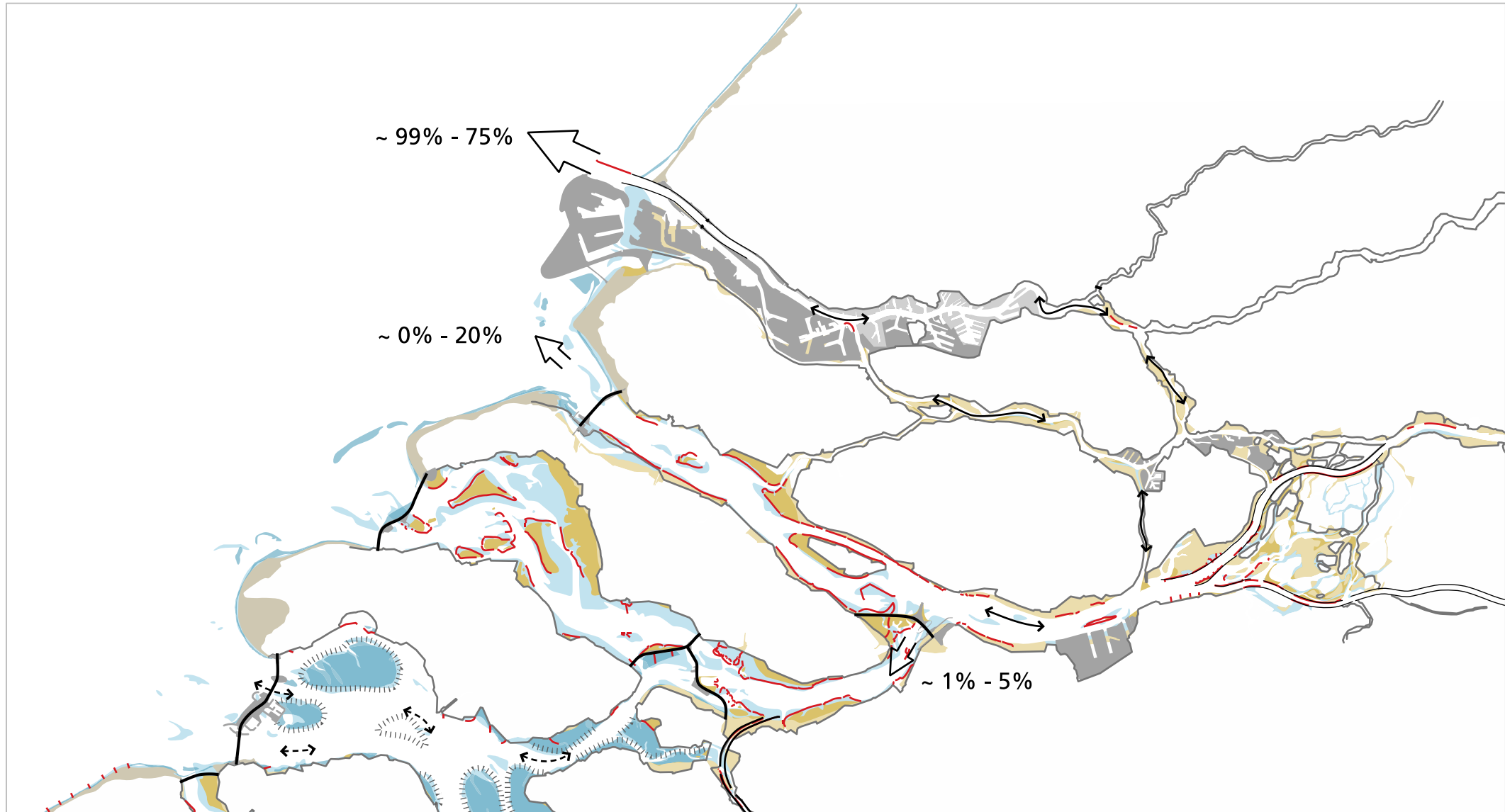
Rhine and Meuse main river discharge mid 19th century



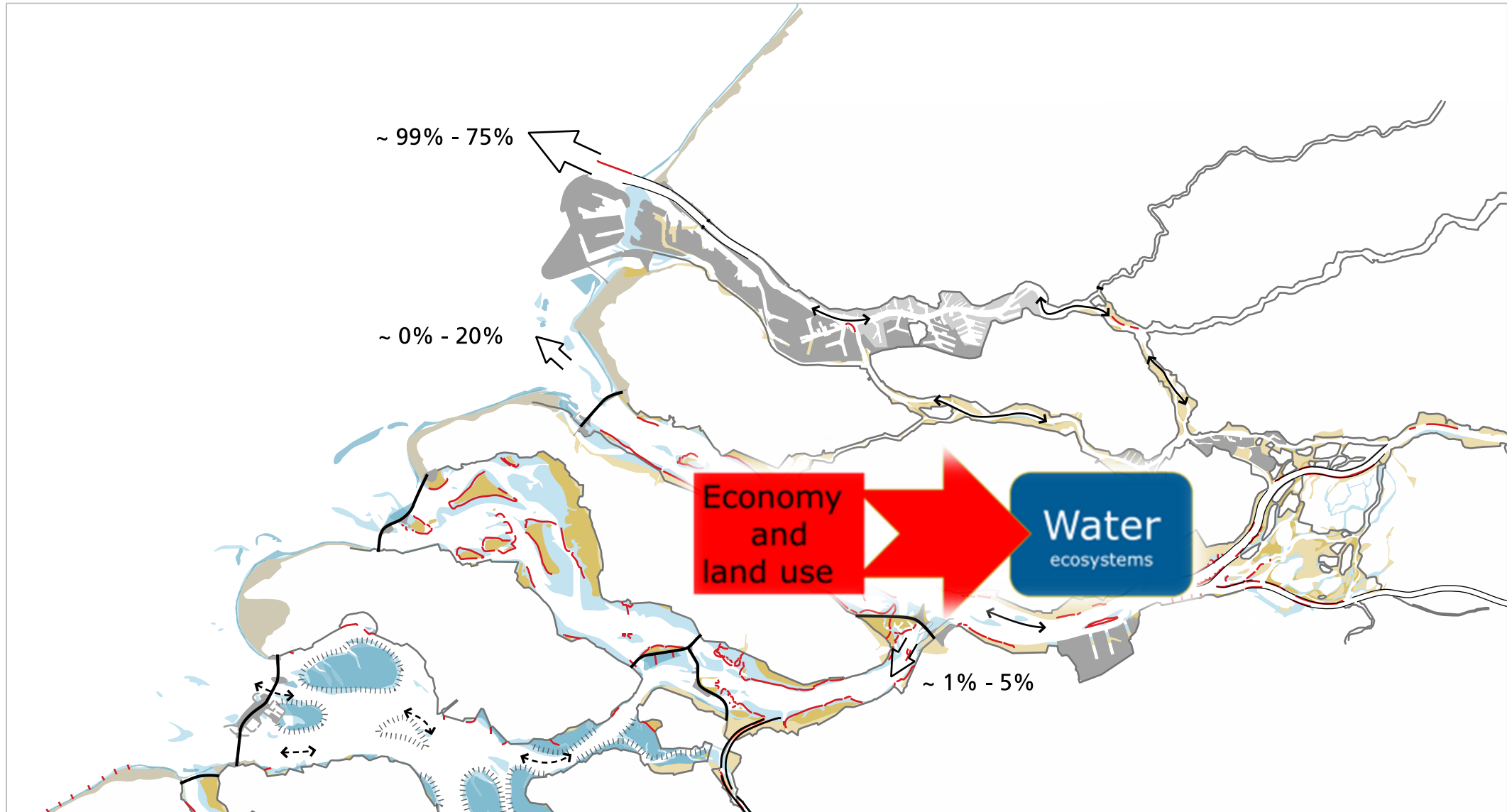
Rhine and Meuse main river discharge mid 19th century



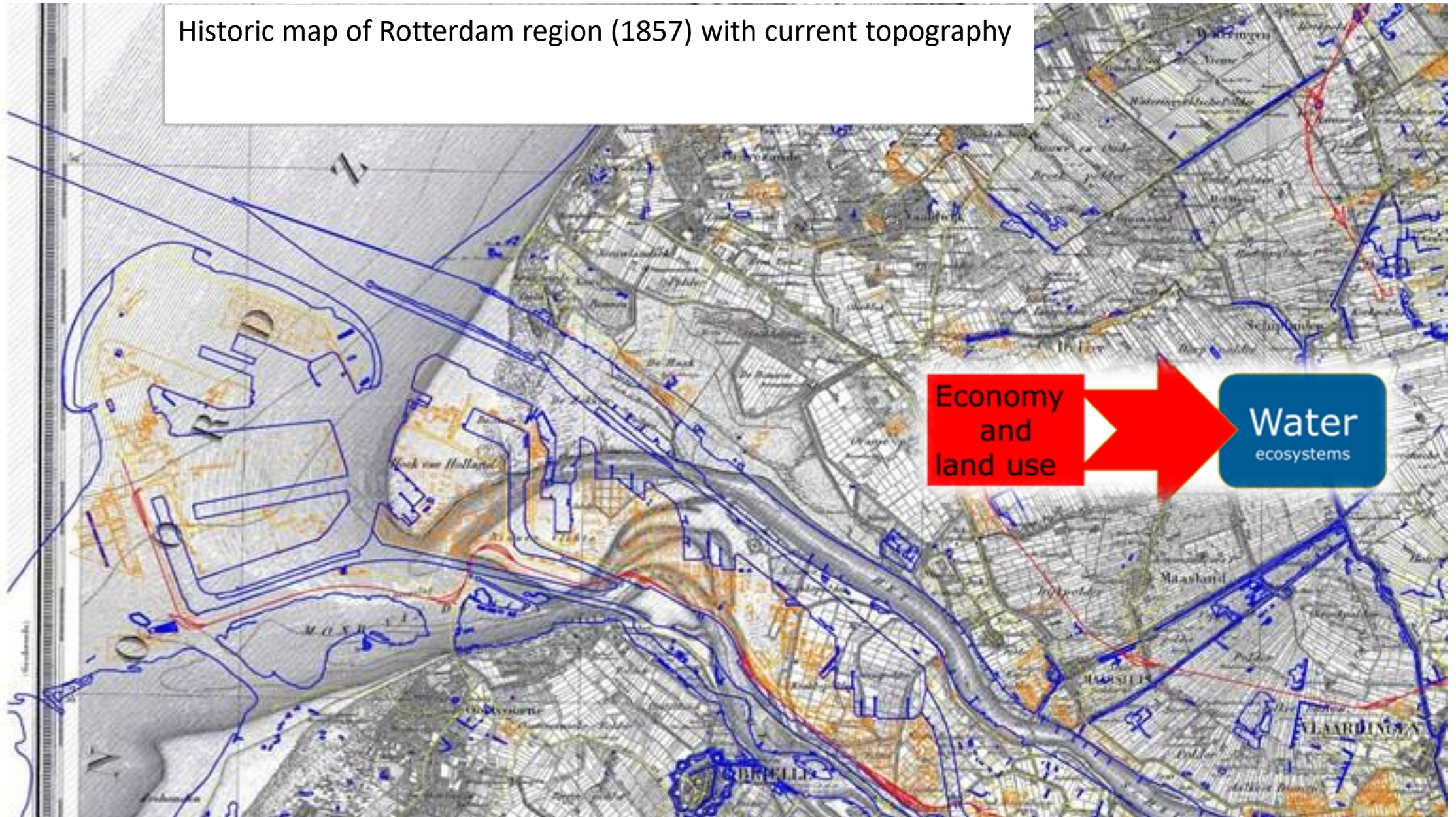
Rhine and Meuse main river discharge 2022



Rhine and Meuse main river discharge 2022

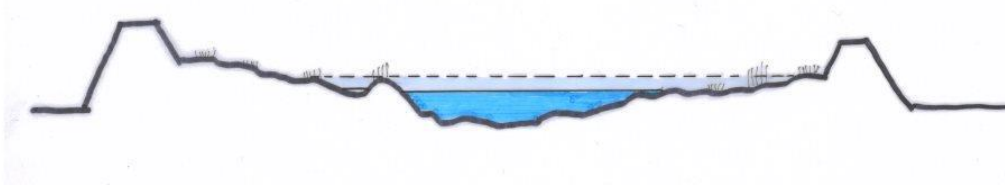
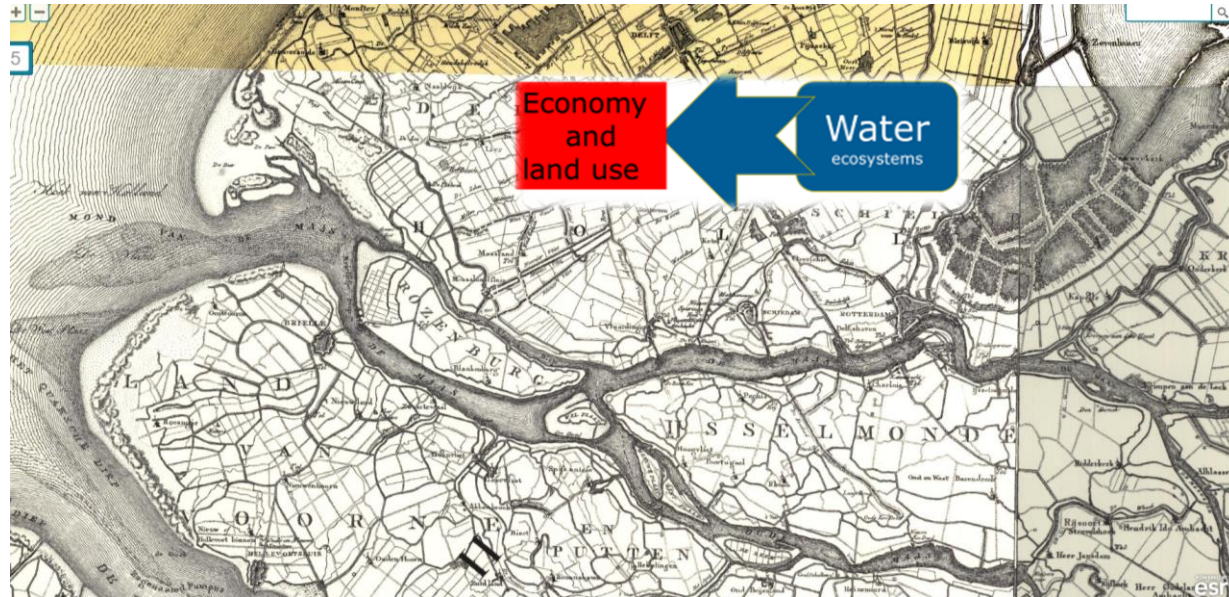


Historic map of Rotterdam region (1857) with current topography



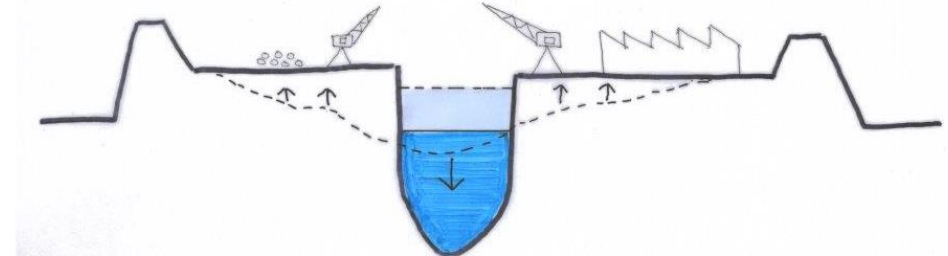
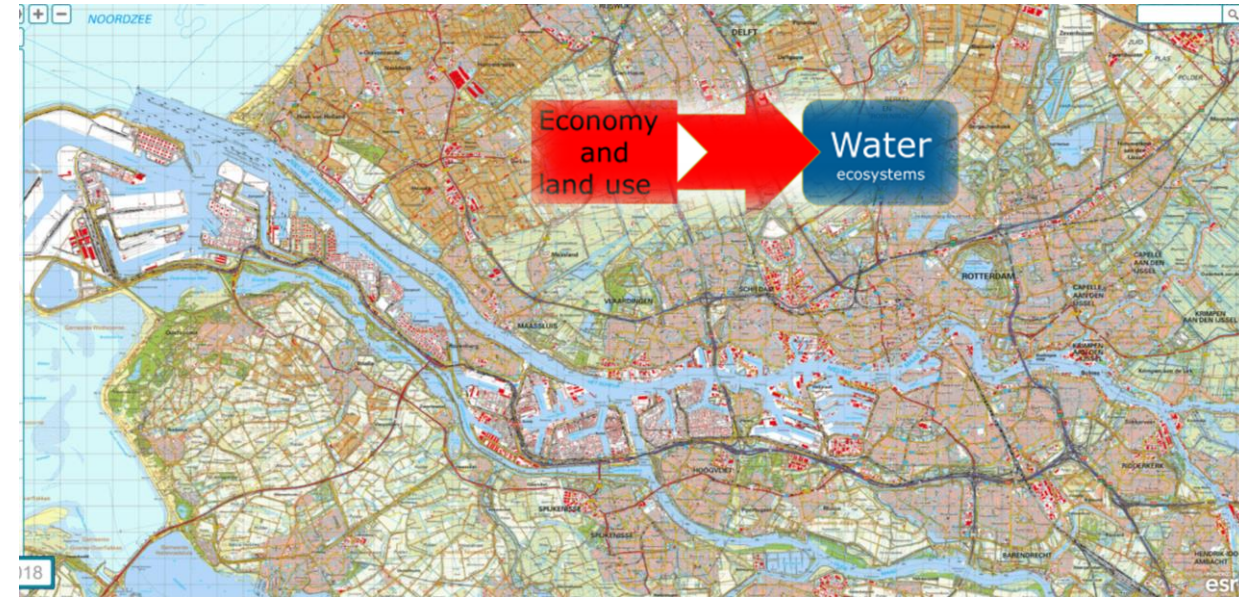
New Waterway: from estuary to ship canal

16th – 19th century



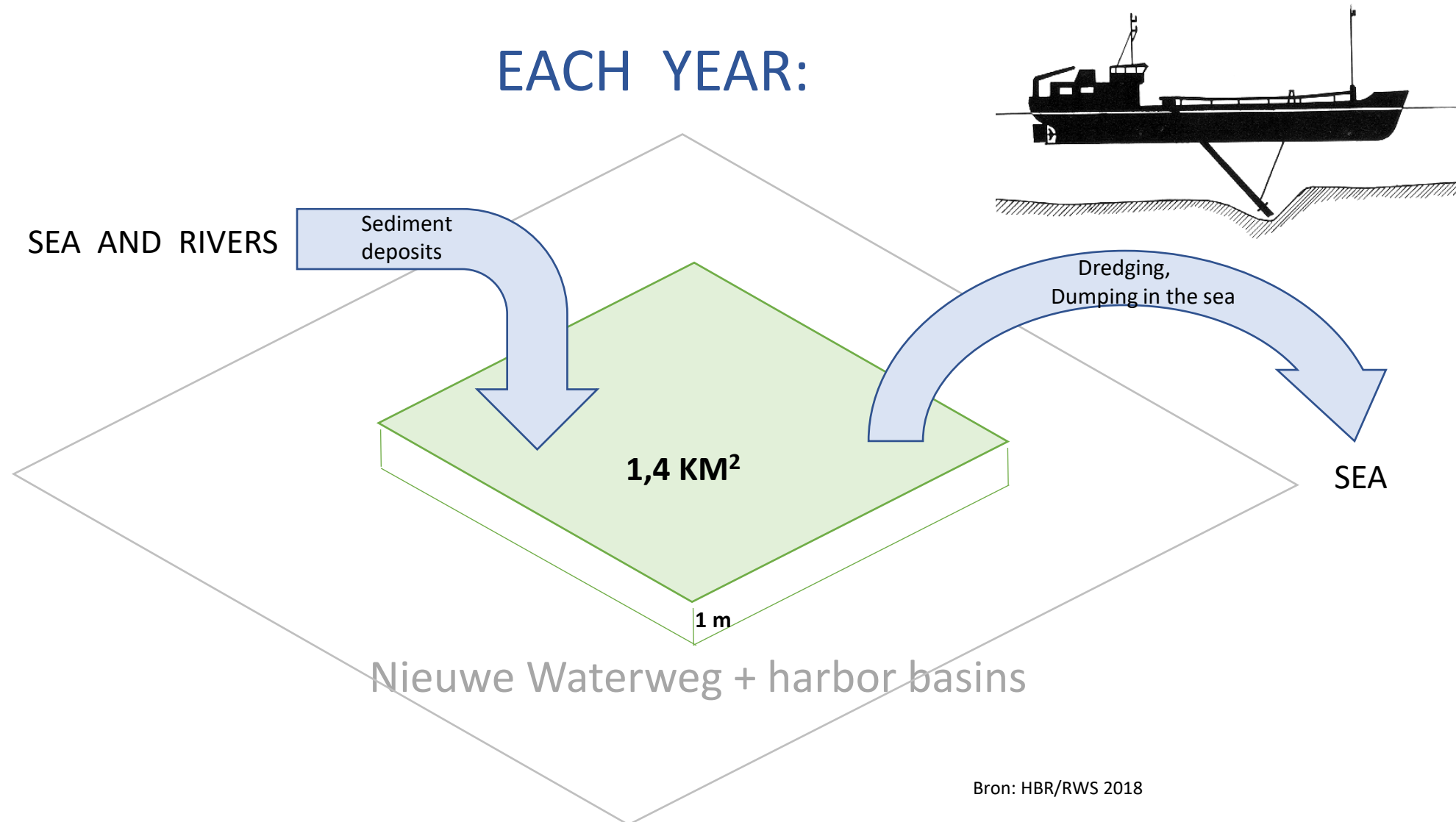
The river mouth as an estuary: broad and shallow

20st century

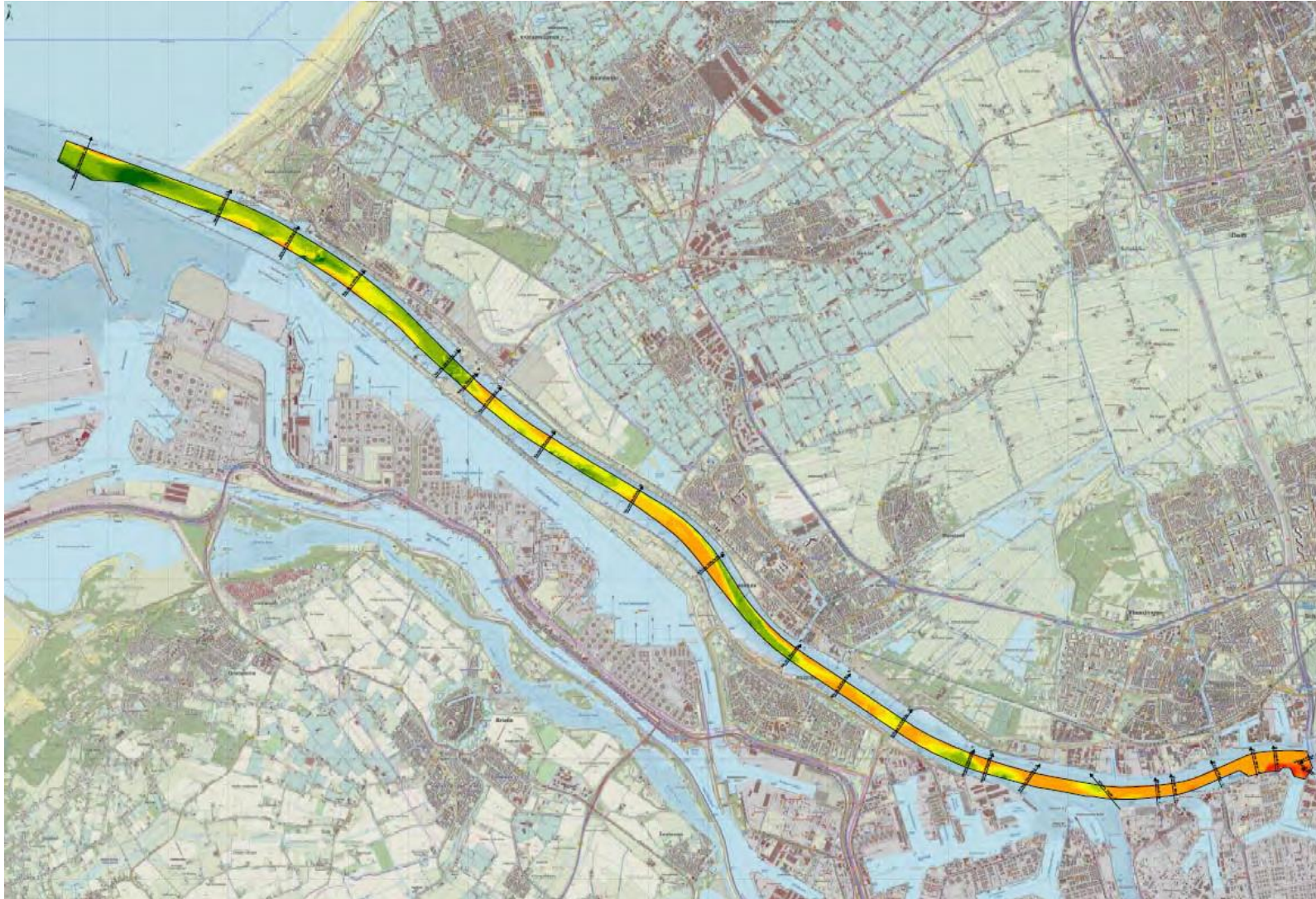


The river mouth as a shipping channel: narrow and deep

New Waterway: from estuary to ship canal

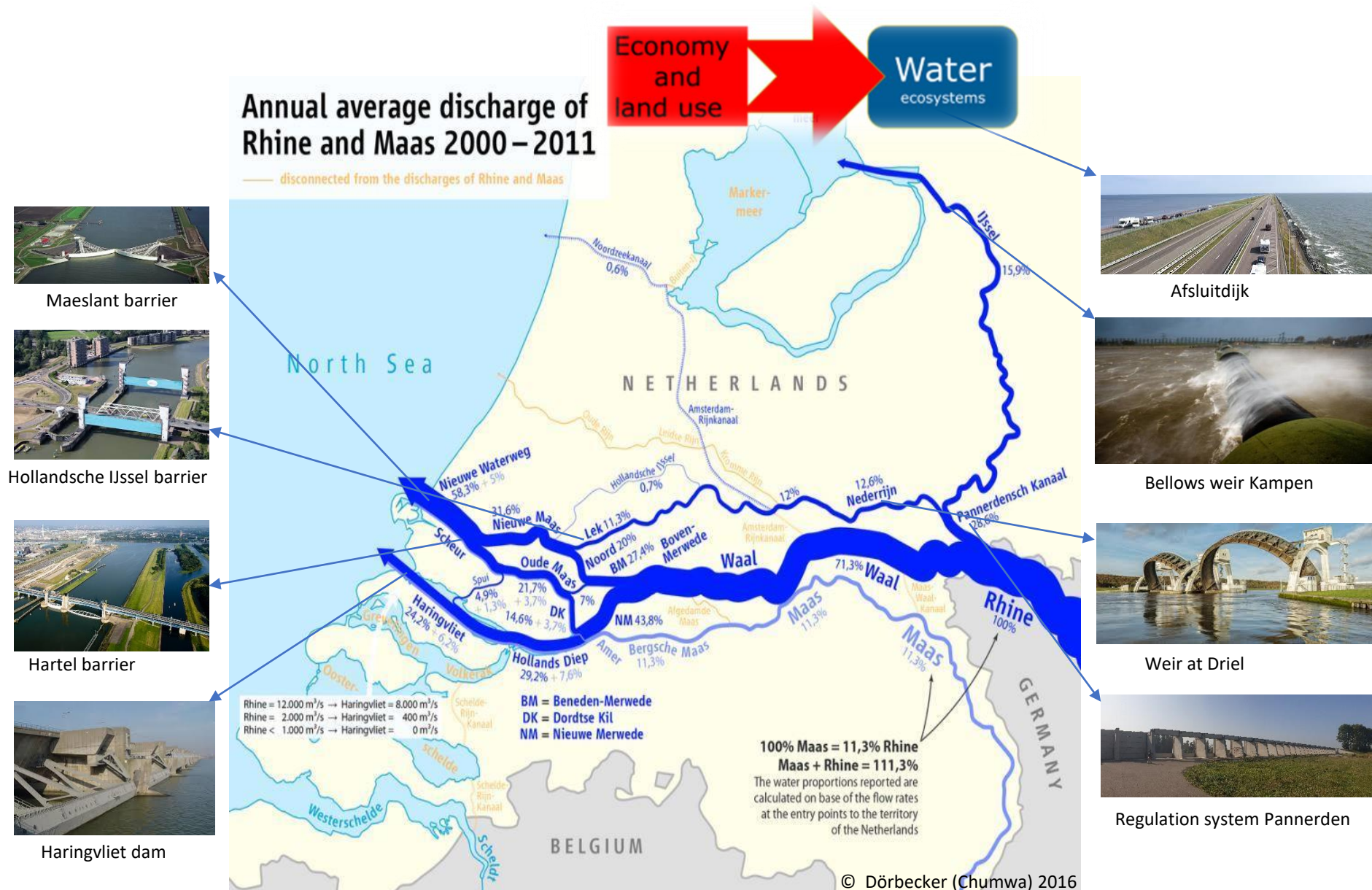


New Waterway: from estuary to ship canal



2017 – 2018: Deepening Nieuwe Waterweg from 14,8 to 16,3 m -MSL

The lower Rhine river basin as a machine



1: Ecosystem under threat

Loss of ecosystem services



Coast of Goeree-Overflakkee, Rijkswaterstaat

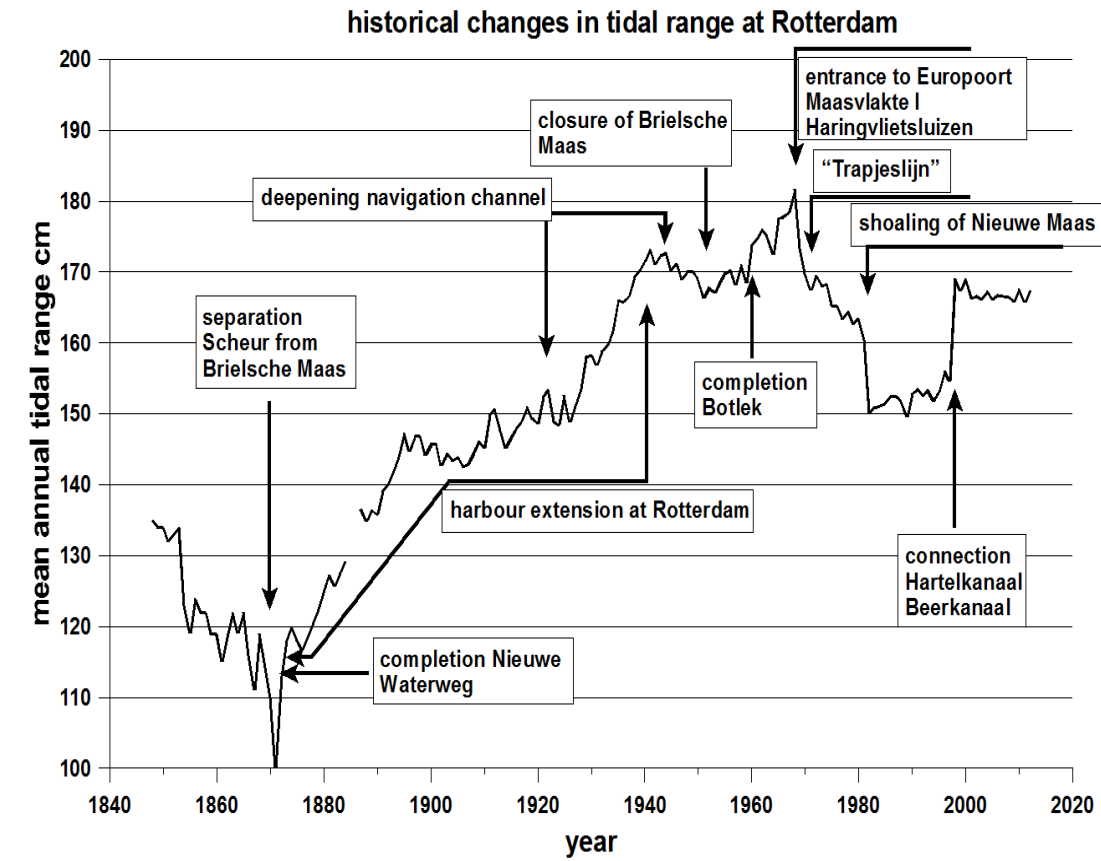
Building with nature



Coast of Texel, © Threes Anna

Erosion by nature

2: More high water events in the Rotterdam region



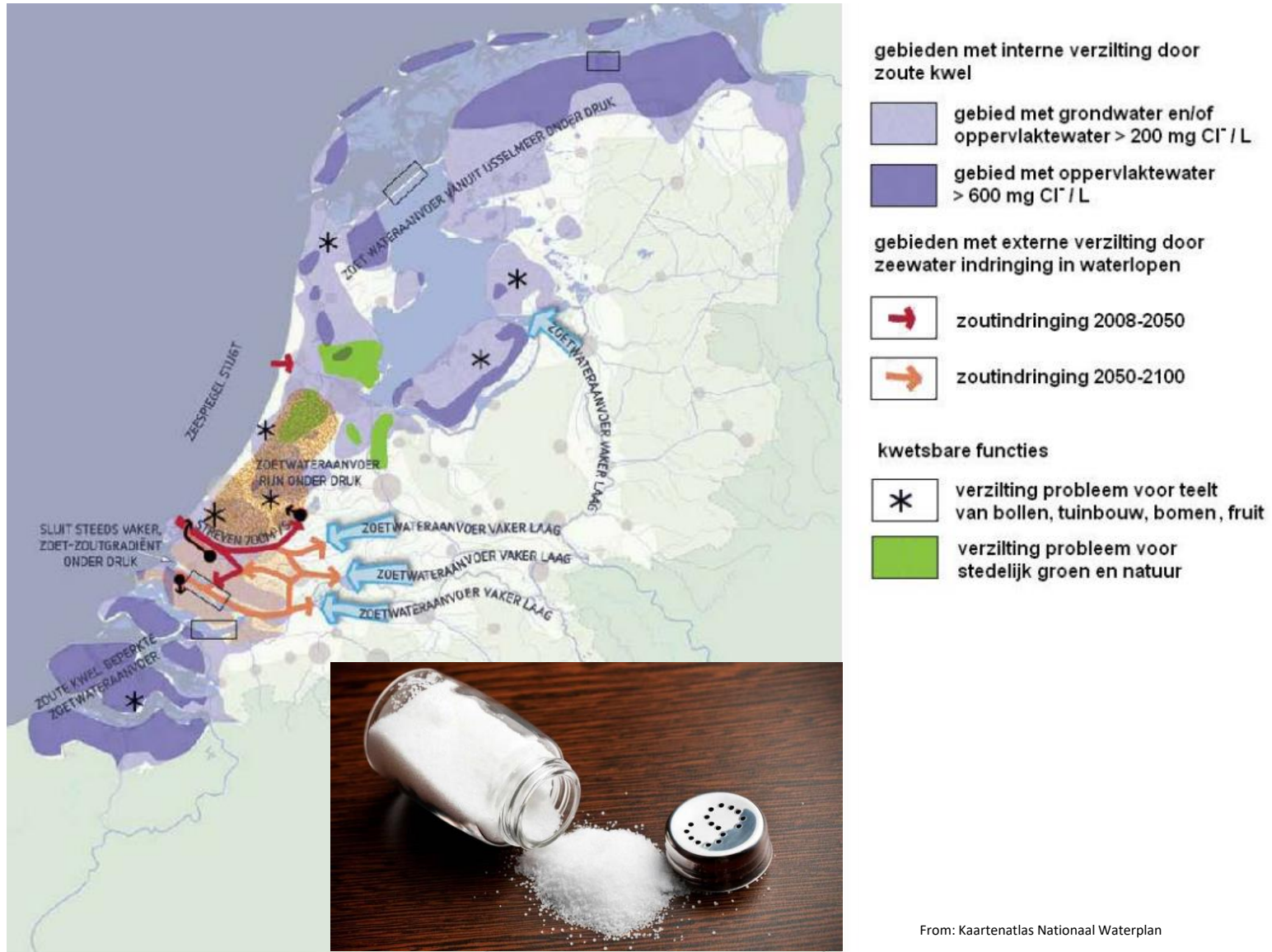
Source: Paalvast 2014



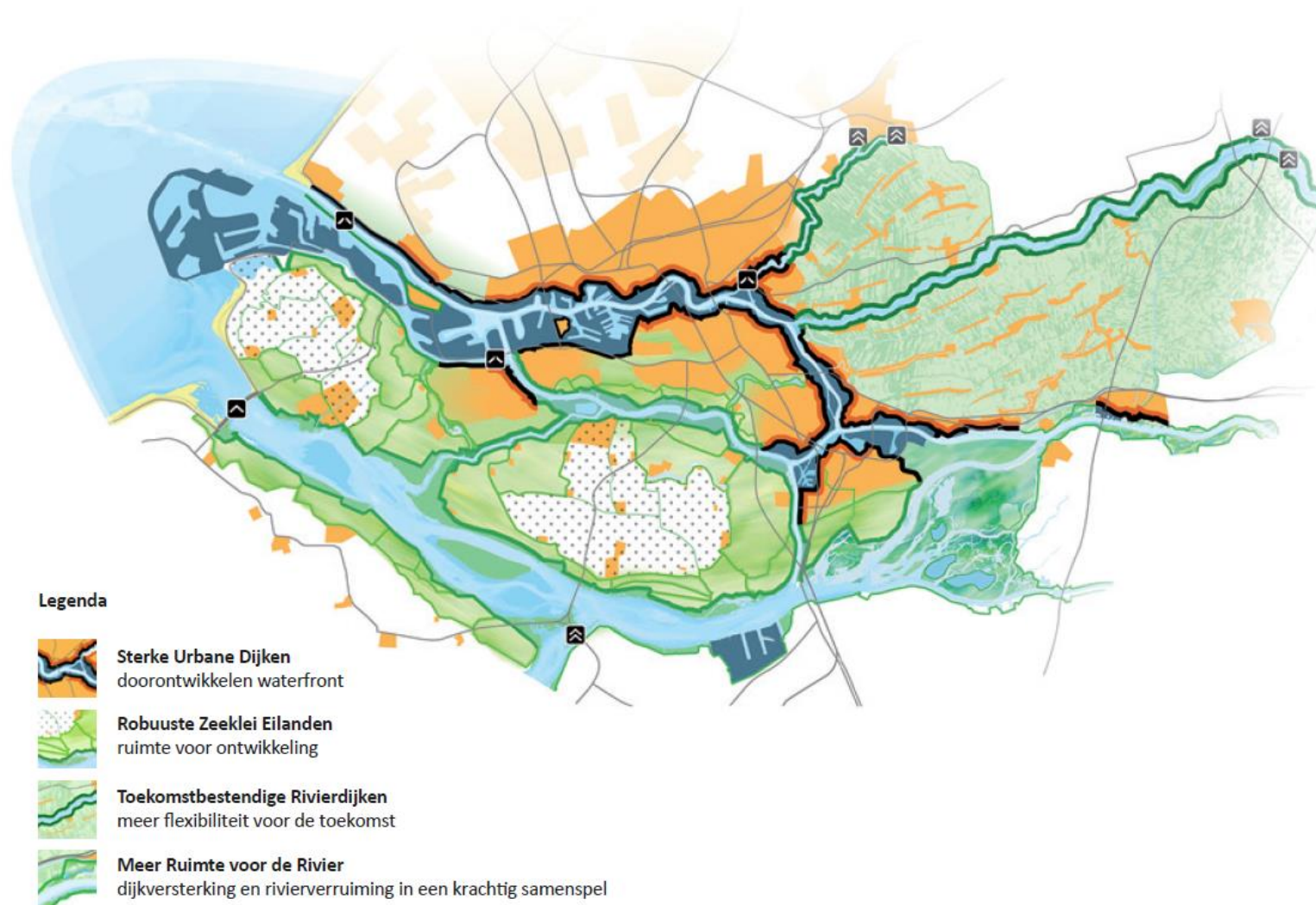
Vlaardingen, November 2020

© Flashphoto

3: Increasing salt water intrusion; problems with fresh water supply

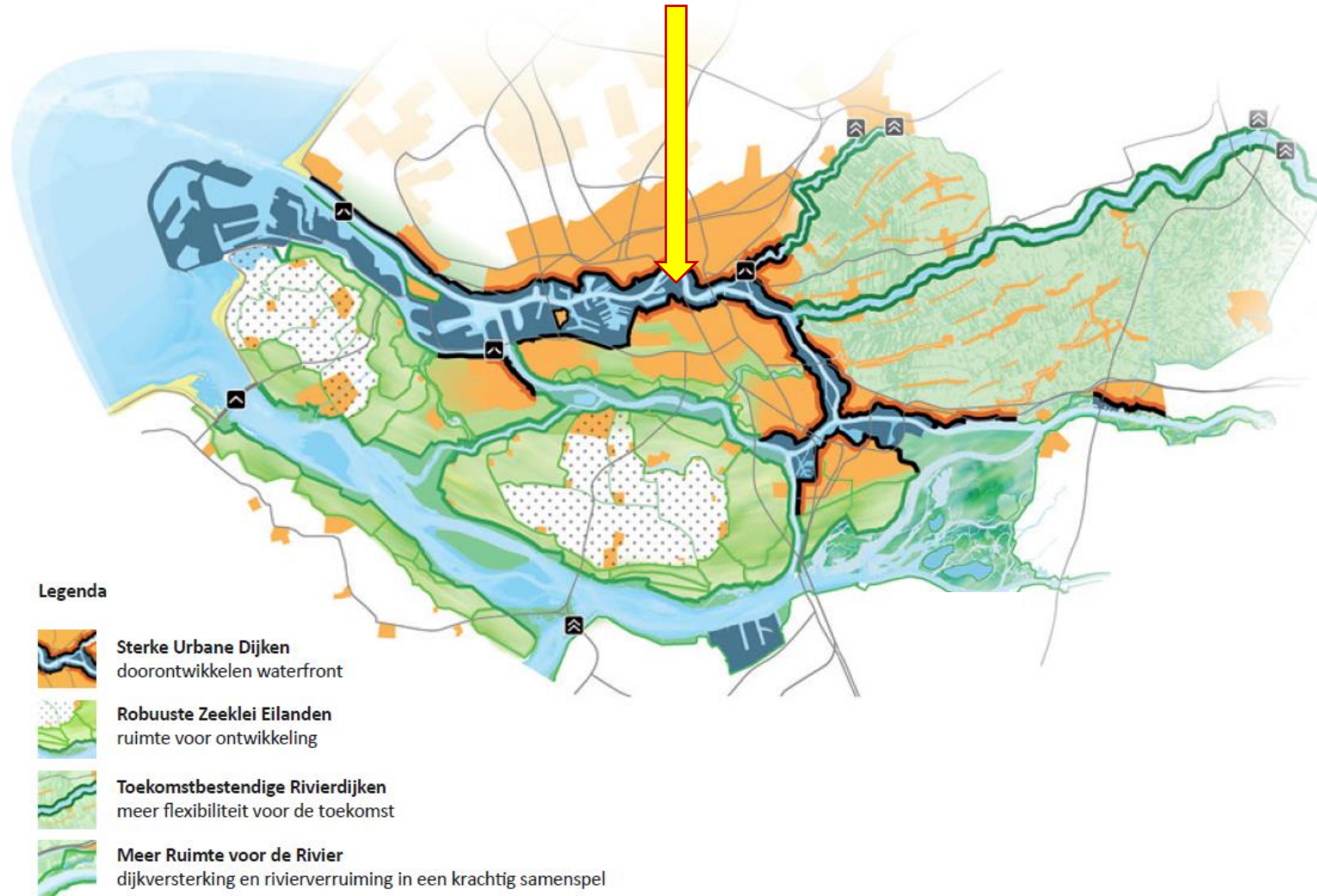


Delta program Rijnmond-Drechtsteden



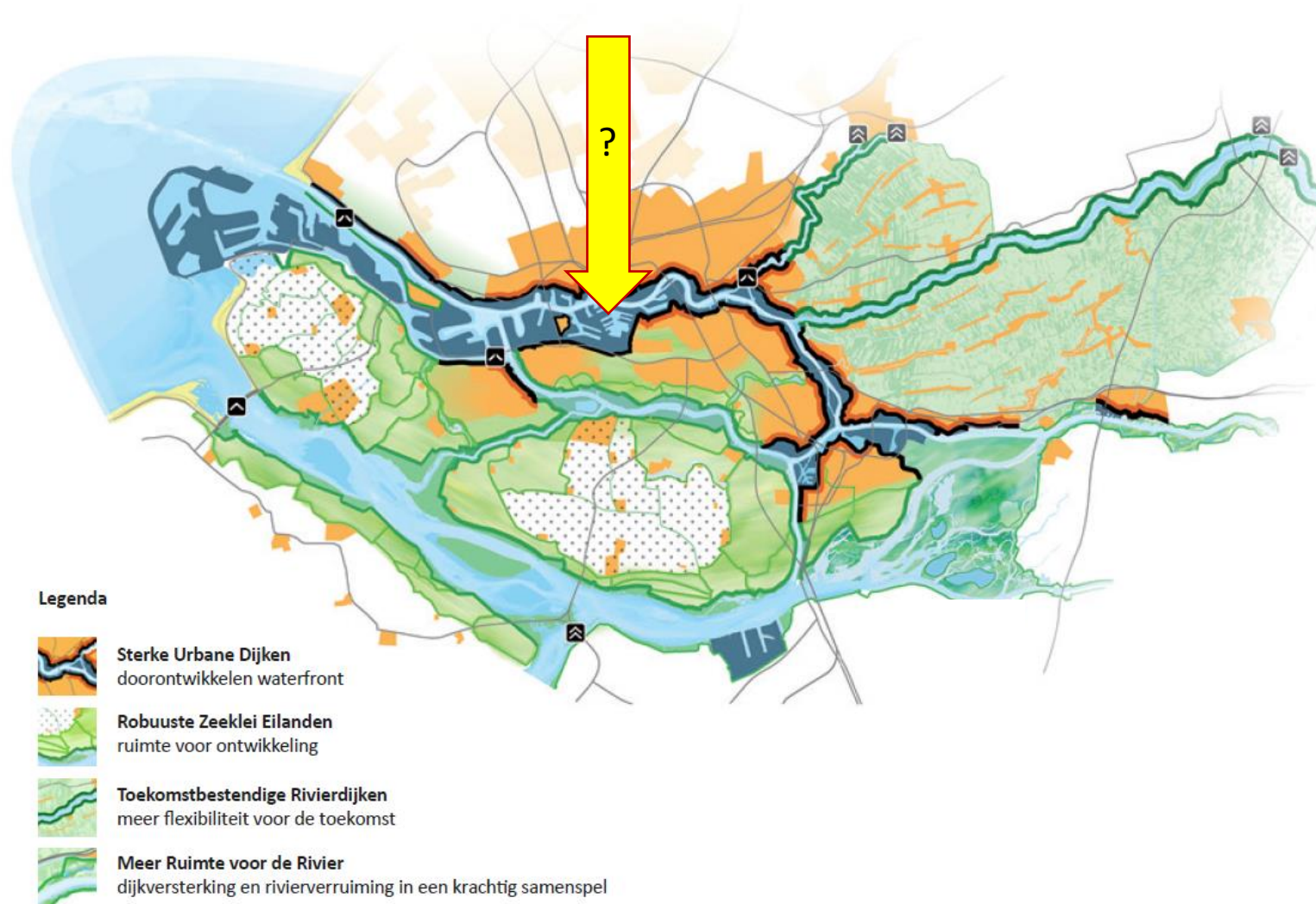
Delta program Rijnmond-Drechtsteden

Now: 60.000 people living in unembanked areas



Delta program Rijnmond-Drechtsteden

Future: Rotterdam wants to build 50.000 new houses



4: City at the river

Rotterdam 1960



Rotterdam 2020



Rotterdam 2080 ?



5: Climate crisis → energy transition !



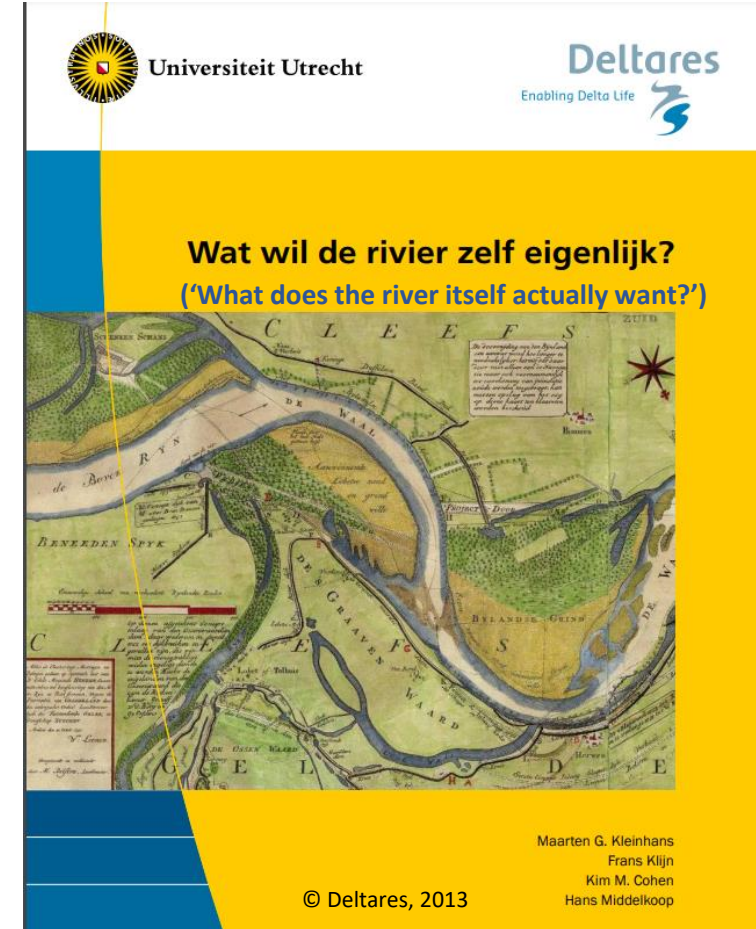
Water system as a machine



Water system as a subject



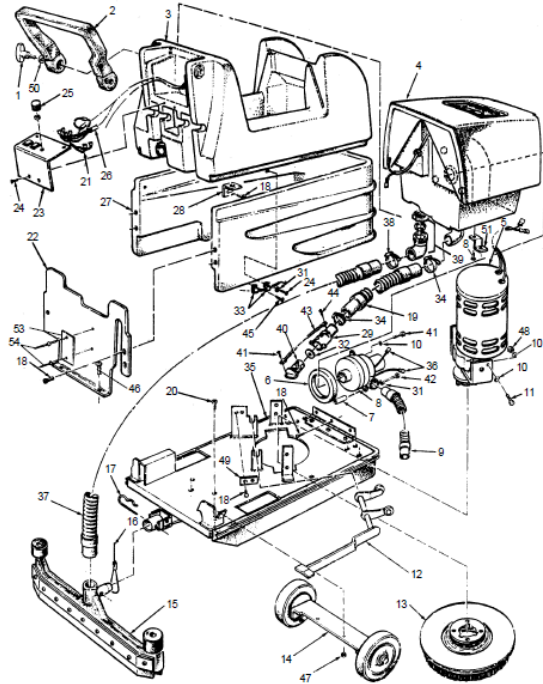
- Regulation
- Control
- Resistance



- Uncertainty
- Adaptivity
- Resilience

2 mainstreams in spatial planning, design and engineering

A mechanical view on the territory

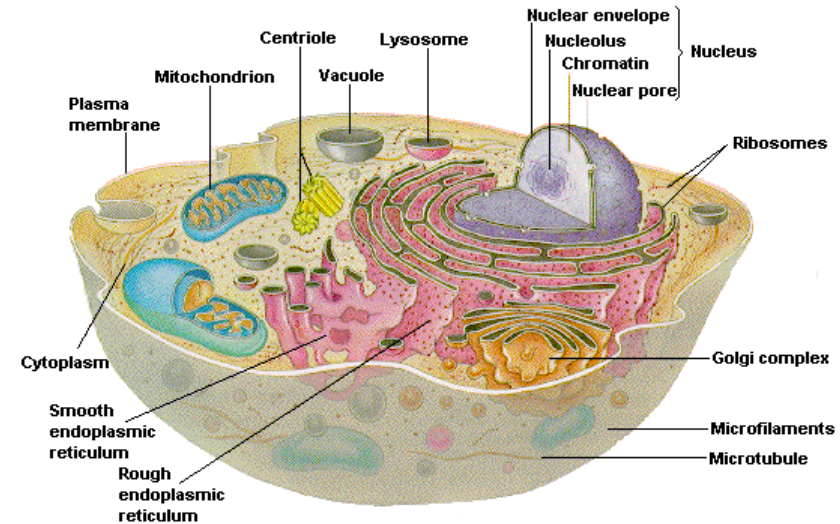


Machine

You can make it and control it

Dominating during 20th century

An 'organic' view on the territory



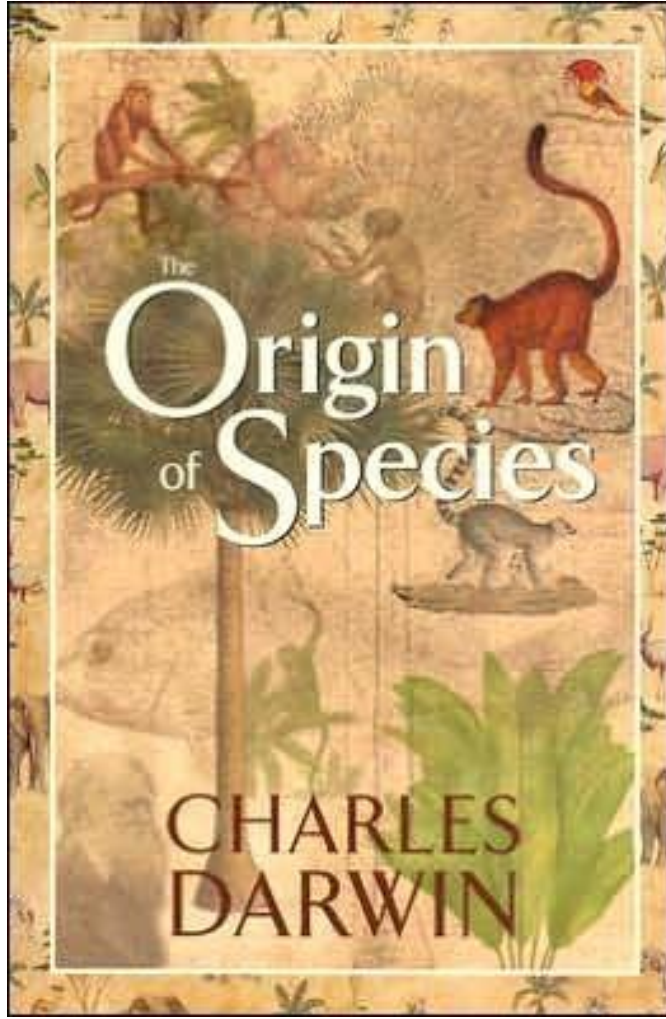
© users telenet

Organism

You can (try to) create conditions for its health

Necessary in the 21st century

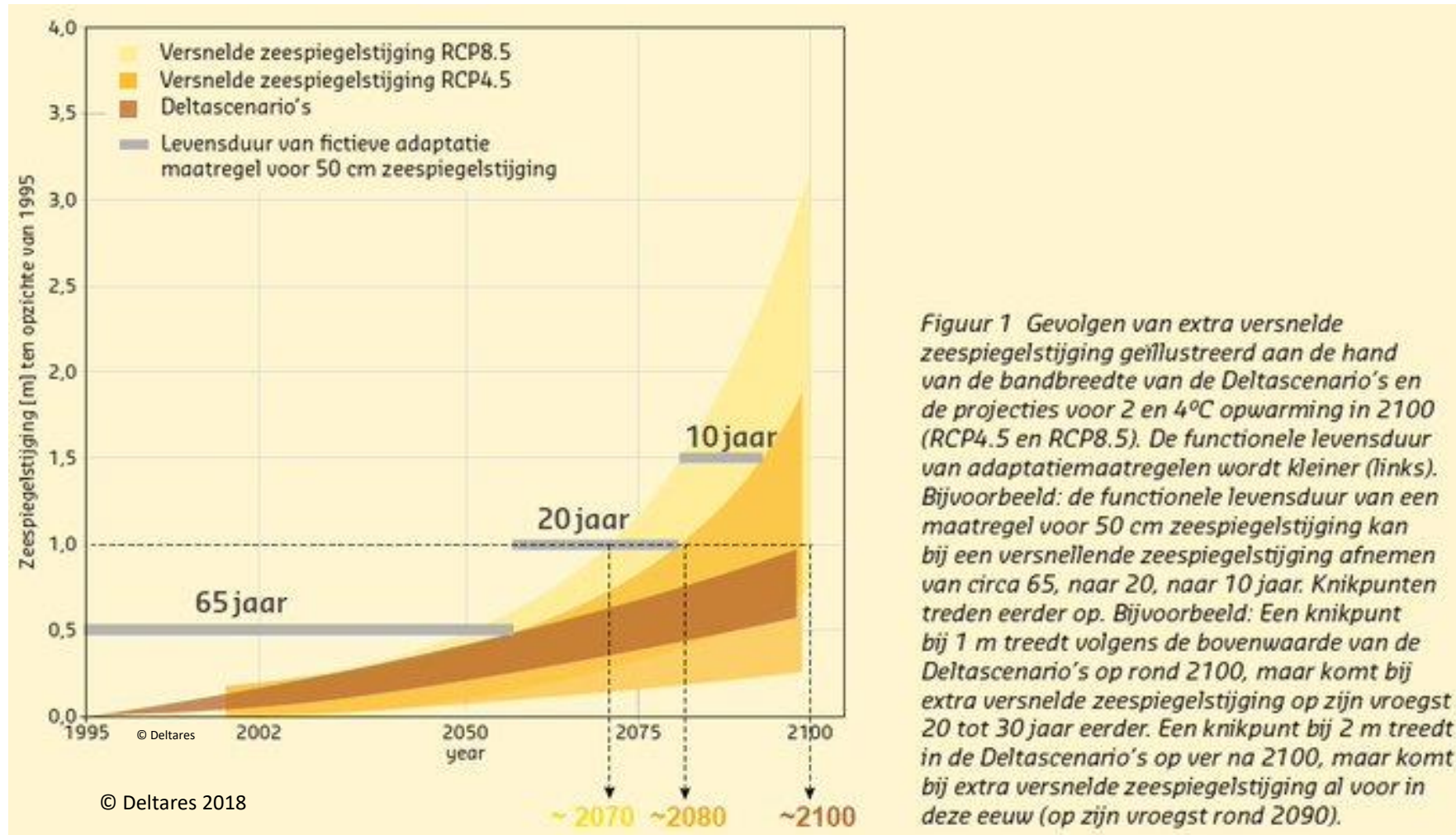
An organic view on the territory



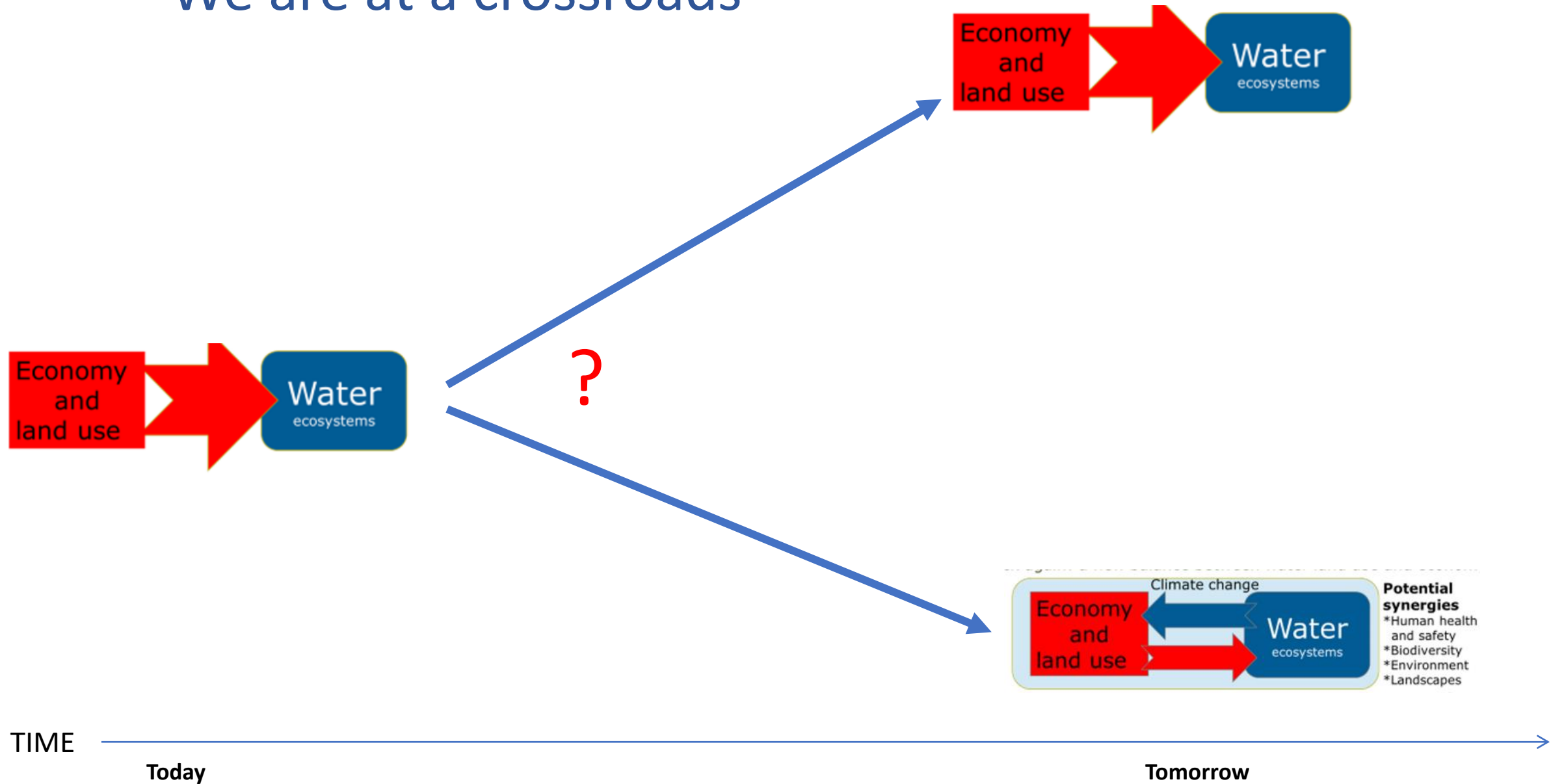
*'Survival of the fittest':
It is not the strongest of the species that
survive, nor the most intelligent, but the
one most responsive to change'*
Charles Darwin

Adaptivity: capacity to adapt to a changing context

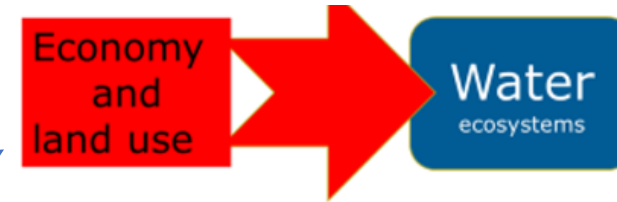
How to deal with uncertainty



We are at a crossroads



We are at a crossroads



Haakse Zeedijk



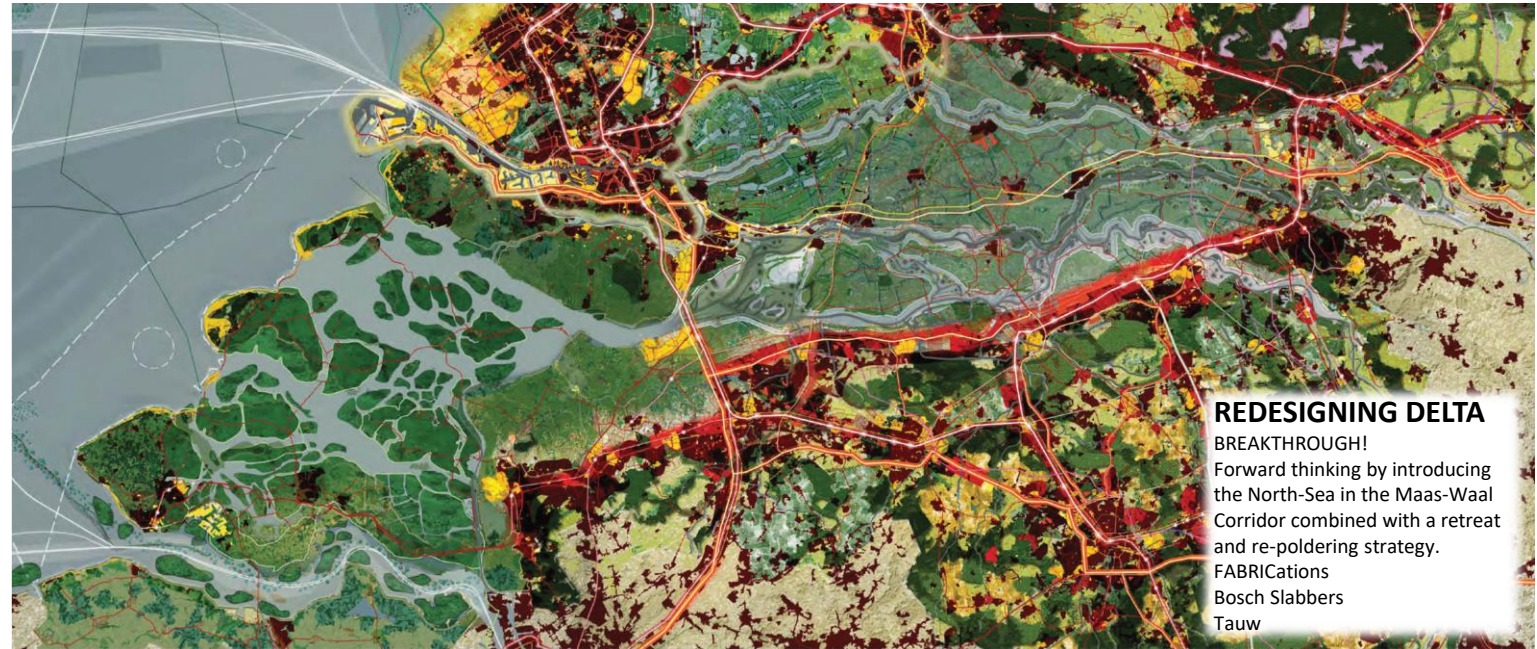
'Plan Spaargaren'



NEED (Northern European Closure Dam)



We are at a crossroads



Can the New Waterway be a ‘game changer’ again ?

- Superlative of a ‘mechanic’ approach; **OR** towards a more ‘organic’ approach
- The territory as an evolutionary system: Looking far ahead = Looking far back
- Multi-disciplinary - hydraulic engineering & ecosystems & port economics & urban design & landscape &
- Dealing with uncertainty -- > the new situation should be adaptive
- From ‘plan’ to exploring by design
- What is the ‘game changing’ intervention ?

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An aerial photograph of Rotterdam, showing the city's dense urban landscape and its extensive port area. The city is built on reclaimed land, with a complex network of canals and roads. The port area is filled with industrial facilities, including large storage tanks, cranes, and shipping docks. The North Sea is visible in the background, with several offshore wind turbines. The text is overlaid on the image in a large, white, sans-serif font.

Can the New Waterway be a 'game changer' again
in the transition process towards a
new type of port city region ?