Climate change: challenge for Rotterdam and the container inland shipping network

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Role and mission of the Port of Rotterdam
Modal split policy of the Port of Rotterdam
Climatic effects
Measures to counter these trends in order to ensure PoR goals are being met
Mission Port of Rotterdam

- Enhance the position as world class logistic hub and industrial complex
- Develop the port complex and ensure speedy and safe shipping
- Ensure the CAPACITY as well as
- Facilitate the QUALITY of the logistics
Three pillars:

- **Sustainability**
  - Actively promoting sustainable developments such as
  - Greening the transport
  - Carbon Capture storage
- **Accessibility for the Hinterland**
  - Ensuring gateways for the partners in the logistics chain
- **Space availability**
  - Anticipating future demand for port and port related industries
Modal split policy

- For the licence to operate the port has defined modal split goals for the Hinterland transport modes
- Modal Split service levels have been agreed with the tenants of the container terminals
- Jointly with the partners in the logistical chain PoR will initiate and facilitate initiatives to encourage the shift towards intermodal transport even stronger
- Support capacity & as well as quality initiatives in the Hinterland to improve efficiency in the intermodal chain
Modal shift Maasvlakte

2008

ROAD
47%
2.2

BARGE
37%
1.7

RAIL
16%
0.7

2035

ROAD
35%
6.4

BARGE
45%
8.2

RAIL
20%
3.6

* mio TEU
Rotterdam modal split forecast
Maasvlakte in containers & %

![Chart showing the modal split forecast for Maasvlakte in containers & % from 2001 to 2030. The chart includes data for road, inland shipping, rail, and % barge, % road, and % rail. The x-axis represents the years from 2001 to 2030, and the y-axis represents the number of moves per annum (x1000) and the percentage modal split. The chart indicates projected changes in transportation modes over the specified period.]
Samples capacity measures

- Delta Barge Feeder Terminal 2008
- Euromax 2008
- MV II construction started, effects from 2013 when APMT and RWT getting on stream
- Ensure sufficient barge handling capacity on MVII terminals
Maasvlakte II, 2013 + 20 mio Teu

Aerial view from the (south) west direction
Euromax I, since 2008 operated by ECT and the CKYH-consortium

Annual capacity approx 3.2 mio moves
Delta Barge Feeder Terminal, 2008

Annual capacity approx 0,8 mio moves
Quality measures

- PoR supports initiatives such as:
  - Implementation of intelligent planning coordination systems for the entire inland shipping sector based on virtual planning coordination using multi agent technology
  - Dedicated berthing of barges
  - Facilitation of a set “Rules of the Game” (service level agreements) for the interface in Rotterdam
  - Search for alternative, more effective modes of organizing barge transportation to speed up the handling in the ports
Climatic effects

- Strong fluctuation of water levels
  - More frequent & longer periods of low water (-40% during summer period according to W+ scenario / source KNMI’06)
  - As well as hindrances by high water (+20% more water during winter times (W+))
- Negatively affecting the image of inland shipping, the partner of the German Industry over centuries
- Forcing the transport service providers to develop alternative modes of transport as well as to look for other import/export routings
During the prolonged period of record low water in 2003 one could nearly cross the Rhine by foot. The traffic was physically restricted, but with lots of efforts the industry continued to be served.

Source: J. Th. Helmer
Historical Waterlevels at Kaub 1856 - 2003

Although difficult to recognise more dramatic seasonal changes noticeable
29 9 2003 is the record low so far
Barge sizes need to be reconsidered carefully
Kaub water levels 1990 – 2009

- Prolonged high water experienced in 1994, 1995
- Record low water experienced 2003
- Serious effects in respect of reliability and market price trends
Lessons learned since the 2003 adverse water condition

- Studies confirm the Rhine becomes increasingly a “rain river”
- The major shippers cannot rely on one mode of transport only
- Terminals/intermodal service providers were forced to offer all modes (incl. rail) and to look for alternative deep sea ports (tri-modal offers)
- Reliability and transport security is the number one requirement!

➡️ reliability needs to be improved to meet the goals of the sustainable operation of the PoR
What needs to be done in order to ensure the goals of the PoR can be met?

- Ensure sufficient terminal capacity both in the seaports as well as in the Hinterland
- To develop a network of Hinterland terminals with intermodal connections for the Port of Rotterdam (existing and new) in order to secure capacity and influence efficiency
- To undertake joint studies with the Rhine bordering states into the measures that can be taken to counteract the climatic effects:
  - How to regulate and minimize the occurrences of low water and its effects
  - What can be done in order to minimize the effects of high water without hindering the inland shipping excessively
Thank you very much for your attention.

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