Navigation on the Rhine and Climate change

“Main ports and inland navigation: the environmental potential”

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CONTENT

–The importance of inland navigation
–Total emissions in the port of Antwerp
–Modal split
–Improvement of infrastructure
–Consolidation of small volumes
–Barge traffic project
–Reduction of emissions of VOC’s
–Conclusions
Barge transport

– Connected to the European waterway network by Scheldt-Rhine canal and Albert canal
– Main inland terminals within easy reach: Liège, Duisburg, Ludwigshafen, Basel, etc.
Inland navigation 1998 – 2008
Total traffic

90,5 million ton in 2008

Source: statistical department Port of Antwerp
TOTAL EMISSIONS IN THE ANTWERP PORT AREA

- NO\textsubscript{x} emissions: 24% industry, 66% road traffic
- SO\textsubscript{2} emissions: 16.1% industry, 83.7% road traffic
- PM10 emissions: 38.9% road traffic, 7.5% port activities, 0.4% others
INLAND NAVIGATION: THE ENVIRONMENTAL TRANSPORT MODE.

– 3% of the NOx emissions in the port area
– 0.1% of the SOx emissions
– 0.4% of PM10 (fine dust)

– How can we further improve the situation as a port authority?
PROMOTE THE USE OF INLAND NAVIGATION: MASTER PLAN

- Master plan inland navigation 2009-2018:
  - Improve modal split
  - Consolidation of small volumes
  - Barge Traffic System
  - Improvement of infrastructure
MODAL SPLIT PORT OF ANTWERP 2008

Seagoing vessel

Transhipment 19%

Barge 36%

Road 30%

Pipeline 3%

Train 12%

Port of Antwerp
Container Traffic by Barge

Source: port of Antwerp: 1 TEU = 8.5 ton
Container barge  470 TEU
Transportation of containers per sailing area

- Rotterdam: 36%
- Netherlands: 17%
- River Scheldt, Canal to Brussels: 5%
- France, non Rhine: 1%
- Albert canal: 8%
- Rhine traffic: 33%
Modal split containers in the Port of Antwerp 1995 - 2018

- 1995:
  - Road: 72%
  - Inland Navigation: 23%
  - Rail: 5%

- 2007:
  - Road: 60%
  - Inland Navigation: 31%
  - Rail: 9%

- 2018:
  - Road: 40%
  - Inland Navigation: 40%
  - Rail: 20%
IMPROVEMENT OF INFRASTRUCTURE FOR INLAND NAVIGATION

1. Albert canal (port- Wijnegem - 2010)
2. Renovation Royers lock (2013)
3. Additional mooring places Noordland bridge (2010-2011)
5. Mooring places in the River Scheldt (Lillo)
ORCHESTRATION OF THE SUPPLY CHAIN

Point-to-Point: simple
Low effectiveness
Low efficiency
Low sustainability

Decoupling: challenging
High effectiveness
High efficiency through volume
High sustainability
BARGE TRAFFIC SERVICES: DELAYS

Wachtijd tussen melding en sluis in/uit: aantal volgens wachtijd

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(Bar chart showing the distribution of waiting times and corresponding counts)
REDUCTION OF EMISSIONS OF VOC’S
CONCLUSIONS

–The port authority can promote the use of inland navigation, and by such contribute to a better environment by:

–Improving the modal split in favour of barge transport
–Improving the infrastructure for barges
–Bundling small volumes to fill up barges or trains
–Improving the coordination between infrastructure, terminal and barge in order to avoid waiting times
–Improving environmental infrastructure on land in order to reduce volatile organic compounds via vapour recovery systems or (vapour) treatment facilities (absorption…)
–Providing shore side electricity
–THANK YOU