Medium and long term perspectives of Inland Waterway Transport in the European Union

Martin Quispel, NEA
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- Introduction

- Current position of IWT

- Outlook for key industries and corridors

- Conclusions on policy areas
Introduction – the context

- Transport is fundamental to our economy and society.
- Oil will become scarcer and more uncertain supplies.
- Congestion on the roads is a major concern.
- White Paper 2011 objectives:
  - Reduce CO$_2$ emission
  - Modal split increase for rail and waterborne against road
Introduction – big momentum for IWT

- **Solutions needed:**
  - Reduce oil consumption and CO2 emission
  - Absorb expected growth of freight transport

- **IWT can contribute through intrinsic merits:**
  - Low carbon footprint, low energy consumption
  - Very low direct movement costs
  - Spare capacity on the network, negligible congestion
  - High transport capacity and reliability
  - Safe and secure services for clients

- **IWT plays an important role**
  - Pole position in bulk shipments and container transport in areas with high quality inland waterways
Current position – Modal share of IWT and tonkms of IWT

- Modal share IWT in land transport
- Transport performance of IWT in EU27 (billion tonkm)
Current position of IWT – key figures

- Modal of IWT for EU 27 is declining:
  - 6.8% in EU27 in 1995 and 122 billion tonkms
  - 5.8% in EU 27 in 2007 and 145 billion tonkms
  - 5.5% in EU 27 in 2009 and 120 billion tonkms

- Size of IWT supply market (EU27, 2007)
  - 12,800 vessels
  - 9,325 companies
  - 43,300 workers

- Total turnover of IWT sector: 6 Billion euro

- Direct added value to GDP: 3 billion euro (2007)

- Substantial indirect added value of IWT to welfare:
  - A critical service supplier for important industries in Europe
  - Savings on external costs
**CO₂ emission (2009): Rotterdam – Ruhr area**

IWT: savings of 43 to 63% compared to road
Current position of IWT – pollutants

- IWT is lagging behind on performance on emissions of pollutants: PM$_{2.5}$ and NO$_x$

- Trend 2020: increasing gap between emission performance of engines in barges and truck engines

- Main causes:
  - Long life-time of engines in vessels
  - Less strict emission standards for IWT
Current situation – external and infrastructure costs container transport (2009)

IWT: 24 to 29 euro per 1000 tkm
Road: 41 euro per 1000 tkm

=> external cost savings on accidents, congestion, climate change and noise
Current position of IWT – competition road

- Critical: transhipment costs and pre-/end haulage

- Case studies in The Netherlands:

<table>
<thead>
<tr>
<th>Origin - Destination</th>
<th>Breakeven distance Road&lt;&gt;IWT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet – Wet location:</td>
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<tr>
<td>Wet – Dry location:</td>
<td>80 - 120 km</td>
</tr>
<tr>
<td>Dry – Dry location:</td>
<td>180 - 200 km</td>
</tr>
</tbody>
</table>

- Other factors:
  - Size of volume, consolidation often needed (more complex)
  - Transit-time
  - Waterway route: detouring, max load capacity, reliability, speed
  - Opening times, waiting times and return cargo
  - Organisation: need for one-stop-shop solutions, incl. management of floating stock.
Current position of IWT – Supply side

- W.Europe: dry cargo market dominated by small companies, individualism

- Danube: a small number of large formerly state-owned companies

- Economic crisis resulting in small financial room for investments

- Overcapacity fleet:
  - Large vessels on the Rhine corridor (dry bulk)
  - Tanker vessels (early adopters to transition to double hull)

- Human resources:
  - Shortage of staff, in particular boatmasters
  - Working and living conditions
Outlook on key industries for IWT

- Coal fired powerplants
- Steel industry
- Petroleum and chemical industry
- Containerised goods
- Agribulk
- Construction industry
- [ Sea River transport ]

Business as Usual scenarios **without** specific IWT policy intervention
Outlook key industries in EU27 for IWT

Share of total (tkm) in 2007

- Construction industry; 19%
- Coal fired powerplants; 11%
- Steel industry; 19%
- Agribulk; 18%
- Containerised goods; 11%
- Petroleum and chemical industry; 22%
Outlook key industries – Coal fired powerplants

- Size 2007 in EU27: 16,286 million tonkm, 11% in total
- Energy policies and closing of mines in Europe are important drivers
- Issue: environmental impact of coal transshipment and storage
- Positive outlook, expectation on the development:

<table>
<thead>
<tr>
<th>in bill. tkm</th>
<th>2007</th>
<th>2020 min</th>
<th>2020 max</th>
<th>2040 min</th>
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<td>117</td>
<td>138</td>
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<td>166</td>
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</table>
Outlook key industries – Steel industry

- Size 2007 in EU27: 27,446 million tonkm, 19% in total
- Strongly affected by economic crisis
- Pressure on the competitiveness of the industry in Western Europe
- Shifts to countries in Eastern Europe and other continents likely
- More imports via seaports of semi-finished steel products
- Import of raw materials from Ukraine and Russia likely to grow

Expectation on the development:

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</tbody>
</table>
Outlook key industries – Petroleum and chemical industry

- Size 2007 in EU27: 31,502 million tonkm, 22% in total
- Drivers: oil price, fuel efficiency, alternative fuels, size of chemical industry
- Outlook for the tanker transport sector is fairly stable.
- Issues:
  - Overcapacity fleet, transition towards double hull vessels before 2019
  - New types of commodities such as biofuels, LNG
  - Environmental rules and regulations

- Expectation on the development:

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<td>115</td>
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Outlook key industries – Containerised goods

- Size 2007 in EU27: 16,477 million tonkm, 11% in total

- Worldtrade and consumption (population) are main drivers
- Quick recovery after crisis in 2009, large growth potential
- Increase of cargo carried in containers in stead of break-bulk
- Important incentives from seaports
- Geographic extension of liner services: Seine-Schelde, Danube
- Container barges for continental cargo?

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<td>142</td>
<td>175</td>
<td>262</td>
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</table>
Outlook key industries – Agribulk

- Size 2007 in EU27: 26,105 million tonkm, 18% in total

- Dependence on world market prices and weather, size of live-stock and population in Europe

- Fertilizer production is expected to decline

- Opportunities for IWT, services for new bio-fuel plants

- Issues:
  - Increasing food safety concerns
  - Shortage of smaller vessels

- Expectation on the development:

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<td>113</td>
<td>123</td>
<td>146</td>
</tr>
</tbody>
</table>
Outlook key industries – Construction sector

- Size 2007 in EU27: 28,529 million tonkm, 19% in total

- Heavily affected by economic crisis and takes long to recover
- Other drivers: demography and policies on sourcing gravel along waterways
- Increase of use of recycled materials
- Opportunities to transport semi-finished construction goods

Issues:
- Spatial planning
- Shortage of smaller vessels and human resources

Expectation on the development:

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</table>
**Outlook industries – Intermodal sea river transport**

- Current size (2010): 0.37 mln tkms
- Small niche market, focusing on transport between Germany, Scandinavia and UK
- Black Sea area is emerging market, can provide critical mass for sea-river services on the Danube

<table>
<thead>
<tr>
<th></th>
<th>in bill. tkm</th>
<th>2010</th>
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<th>2040 max</th>
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<tbody>
<tr>
<td>Rhine, tons carried</td>
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<td>0.46</td>
<td>0.48</td>
<td>0.72</td>
<td>0.63</td>
<td>0.94</td>
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<tr>
<td>Rhine tonkms *1000</td>
<td></td>
<td>373</td>
<td>386</td>
<td>575</td>
<td>505</td>
<td>752</td>
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</table>
# Outlook key industries – Comparison growth rates

<table>
<thead>
<tr>
<th>Key business industry</th>
<th>2007</th>
<th>2020 (min)</th>
<th>2040 (min)</th>
<th>2020 (max)</th>
<th>2040 (max)</th>
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</thead>
<tbody>
<tr>
<td>Containerised goods</td>
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<tr>
<td>Coal fired powerplants</td>
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<tr>
<td>Steel industry</td>
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<tr>
<td>Petroleum and chemical</td>
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<td>101</td>
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</table>
Outlook corridors

Share of total (tkm) in 2007

- Rhine: 68%
- North-South: 16%
- East-West: 2%
- Danube area: 14%
Outlook corridors – absolute values

Billion tonkm

- EU27
- Rhine
- North-South
- East-West
- Danube

Year: 2007, 2020 min, 2020 max, 2040 min, 2040 max
Main issues and gaps – industry viewpoint

General issues

- Missing links, fairway conditions, reliability
- Network quality of ports and terminals
- Shortage of human resources
- Professionalism, co-operation, door-to-door solutions
- Sustainability; Carbon Footprint
Main issues and gaps – Policy side

- Modal share of IWT not structurally increasing

- Opportunities for reducing GHG emissions and external costs from transport operations currently not exploited.

Challenges:

=> Counter the declining modal split development and turn it into an increasing modal share;

=> To make IWT cleaner, safer and more efficient.
Conclusion

- Without further policy invention IWT will not play its full part and ambitious policy objectives are not met.

- Although IWT is intrinsically strong, there are typical characteristics that hamper full exploitation:
  - Limited reliable network of waterways in Europe
  - Limited investment capacities
  - Slow innovation due to long life time of vessels and engines

- These issues can be overcome through dedicated policy measures.
Conclusions – Policy areas

1) Reducing of emissions and external costs and transport efficiency:

- Engine and hull improvement, alternative fuels
- “Smart sailing” and safety culture (human factor)
- Infrastructure improvements allowing economies of scale
- Enhanced cooperation and planning
- Favourable framework for innovation
Conclusions – Policy areas

2) Modal share improvement / efficient door-to-door solutions / supply chain management:

A) Improving infrastructure:

- Elimination of bottlenecks and construction of missing links
- Reliable fairway conditions according to international standards
- Calamity Abatement / Mobility Continuity Plans
- Inland Ports (network density, links to other modes, avoid NIMBY)
- ICT Backbone (RIS)
Conclusions – Policy areas

2) Modal share improvement / efficient door-to-door solutions / supply chain management:

B) Market organisation and professionalism:
- Enhanced cooperation within the supply side, between modes, with shippers
- Human resources
- Use of ICT
- Minimising administrative costs and harmonisation across Europe
- Market information: observation and forecasting
- Provide information and data on available IWT services and funding opportunities

C) How to support to opening of new markets for IWT, e.g.:
- Continental container cargo
- Pallet transport
- Waste transport in urban areas
- Biomass, alternative fuels and renewable raw materials
- Roll-on/Roll-off, high & heavy cargo
Thank you for your attention!

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