



**Buck  
Consultants  
International**

# **Inland Waterway Transport: Current State of Play**

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# Presentation of Buck Consultants International (BCI)



## Public and private clients

- | Waterways and railways
- | Seaport and airport development
- | Intermodal transport, logistics and infrastructure
- | Strategies for attracting & retaining investors
- | Regional development, incl. logistics & industrial zones

## Corporate clients

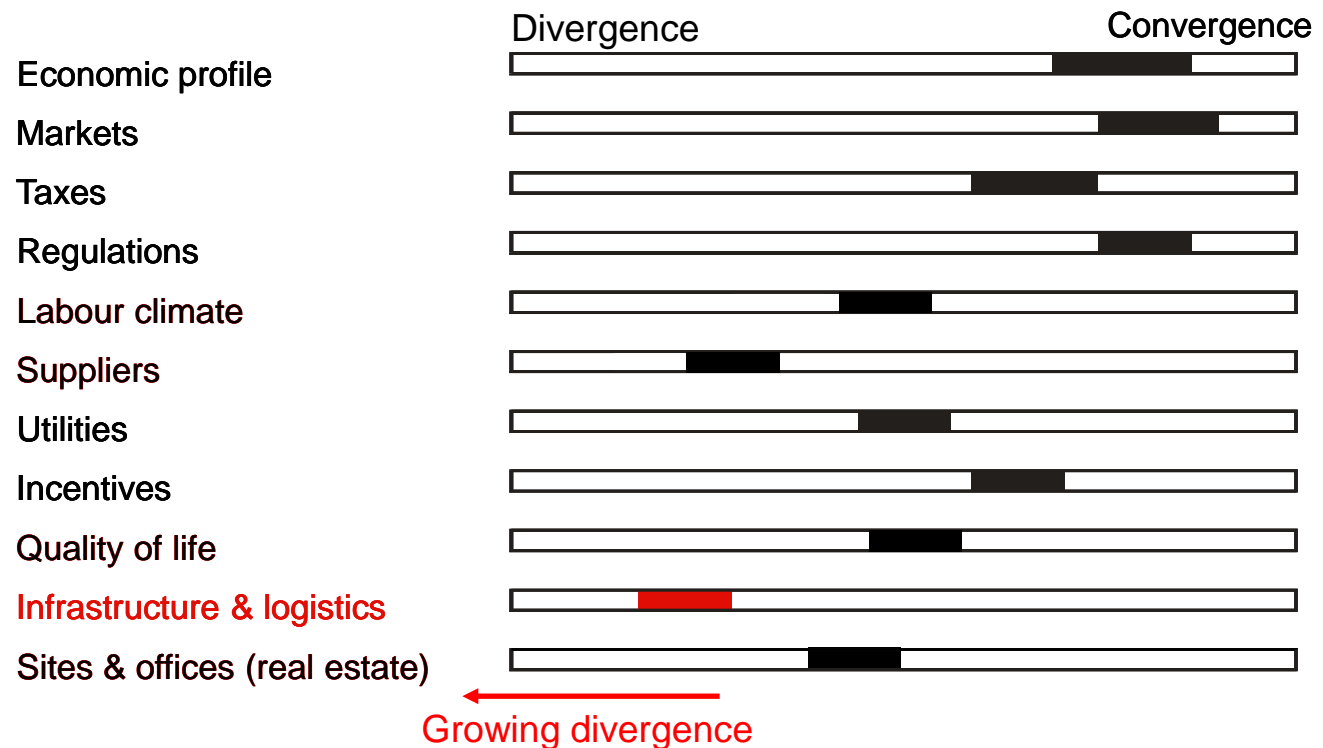
- | Location & site selection
- | Supply chain design & optimisation
- | Real estate strategy and projects
- | Business strategy development
- | Strategic outsourcing (e.g. logistics)



# 1 Waterway transport: An asset of economic development

- Companies/Investors are using location factors at a macro, meso and micro level to either select a site/location or to measure the competitive position between sites/regions/locations.

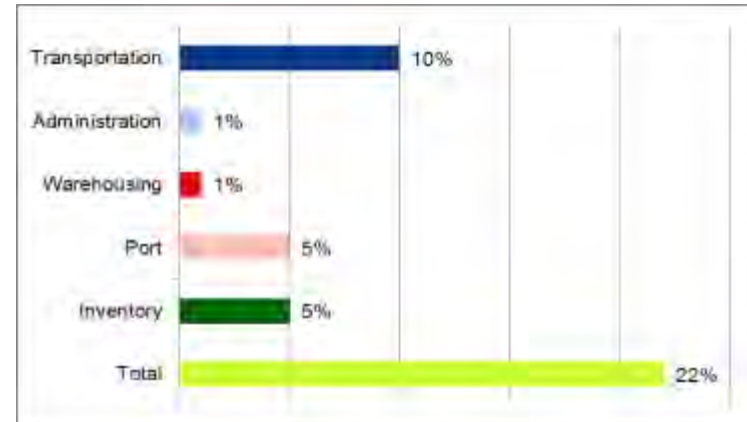
Many countries/markets show a factor convergence on different levels. This means that their attractiveness for investors does not differ significantly. Countries that aim at attracting investments in particular need to develop the divergent location factors.



- | Companies are looking for connectivity to their suppliers and markets and place considerable importance on transport.
  - | The availability of intermodal transport alternatives is important to reduce transport costs
  - | Intermodal transport contributes to the robustness of supply chains

## Case study: Brazil

Average total logistics costs of value added by exportation



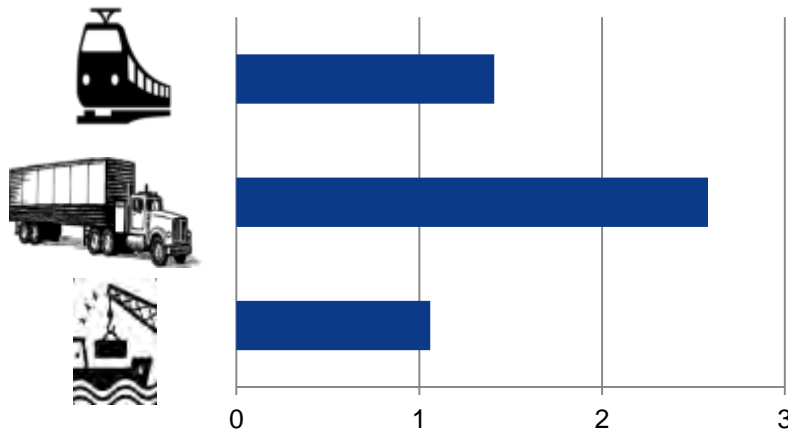
Source: World Bank

- | Costs of transportation typically make up 40-60% of total logistics costs throughout many supply chains.
- | Reducing transport costs enhances the competitiveness of both a company and a nation.

## Case study India

Cost comparison between modes.

Rupees per tonne/km

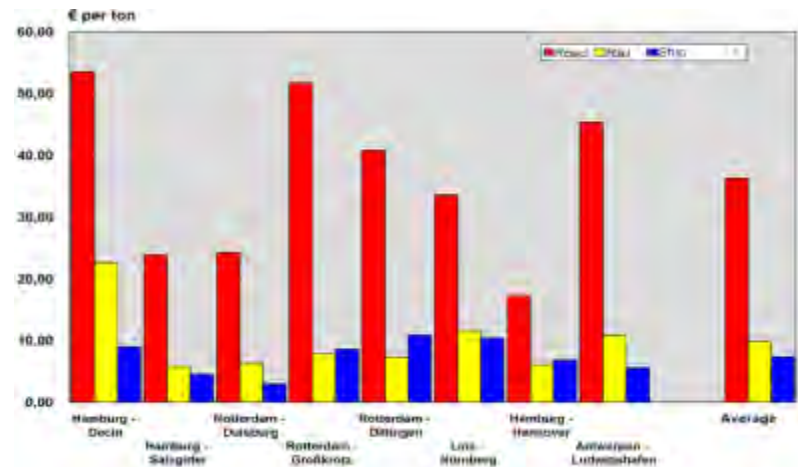


Source: IWAI

## Case study Germany

Different geographic relationships

Euros per tonne of bulk cargo



Source: Planco

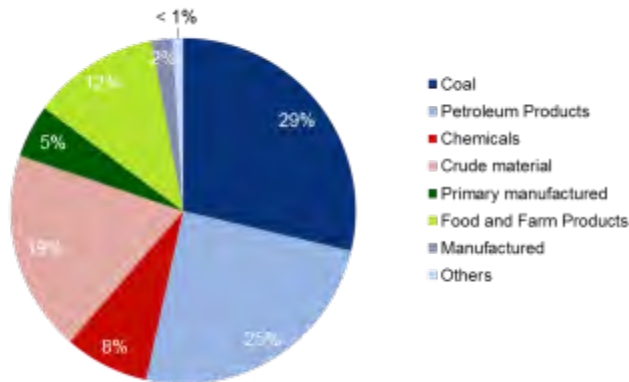
- | Waterway transport is considered on a global basis to be the most cost-efficient transport mode that appeals to shippers with bulky flows
- | The use of inland waterway transport increases the attractiveness of regions/countries for investors

# 2 Characteristics of Inland Waterway Transport

- | Estimated global market of approximately +/- 5-6 billion metric tonnes per annum (Source: BCI estimate, based on various sources)
- | Top Three IWT markets
  - PR China
  - USA
  - EU
- | Products carried throughout all IWT markets are mainly dry and liquid bulk with variation regarding the share of the product groups

## Case: USA

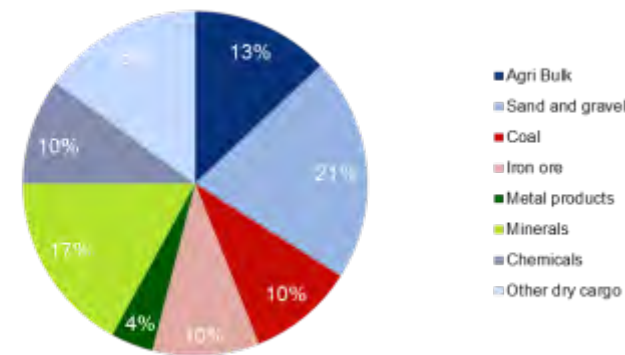
USA inland waterway commodities share of product groups



Source, USACE

## Case: EU

EU inland waterway commodities share of product groups



Source, INE



- | Difference between (motorised) vessels and (non-motorised) barges
- | A multitude of vessels with dimensions adapted to the service area. In all instances either the dimensions of the locks or the smallest passageway determine the vessel size
- | Life cycle of a vessel is between 30-40 years
- | Many markets have small owners/operators (which own one or two vessels) combined with larger owners/operators



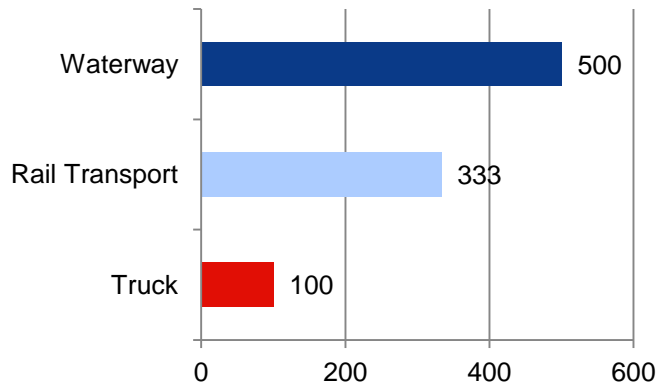


- I Institutional context is a key factor behind successfully developing Inland Waterway Transport
- In general, waterway infrastructure is a public good
  - Vessel ownership is mainly private
  - Terminal/port operations are in many cases private although other models do exist
  - IWT proves to be particularly successful if national, regional and local governments work together in order to maintain and develop their waterways
  - Private-public consultative bodies are in place in many countries as well as promotion agencies
  - IWT support schemes exist in many countries. Examples include scrapping grants for older ships, tax relief, modal shift support, etc.



# Society benefits from waterway transport

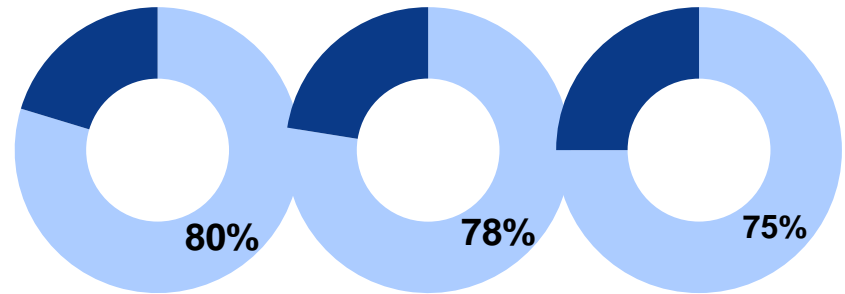
Distance moved in km of one tonne with 5 litres of diesel



Source: Promotion of IWT and Federal waterways and shipping administration

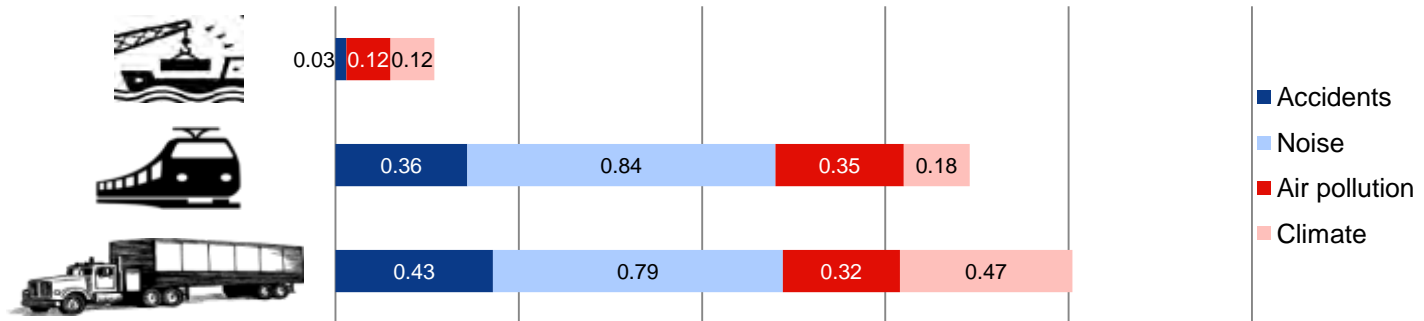
IWT emissions compared to those of Road transport

NOx-Emissions      CO2-Emissions      PM-Emissions



Source: Planco

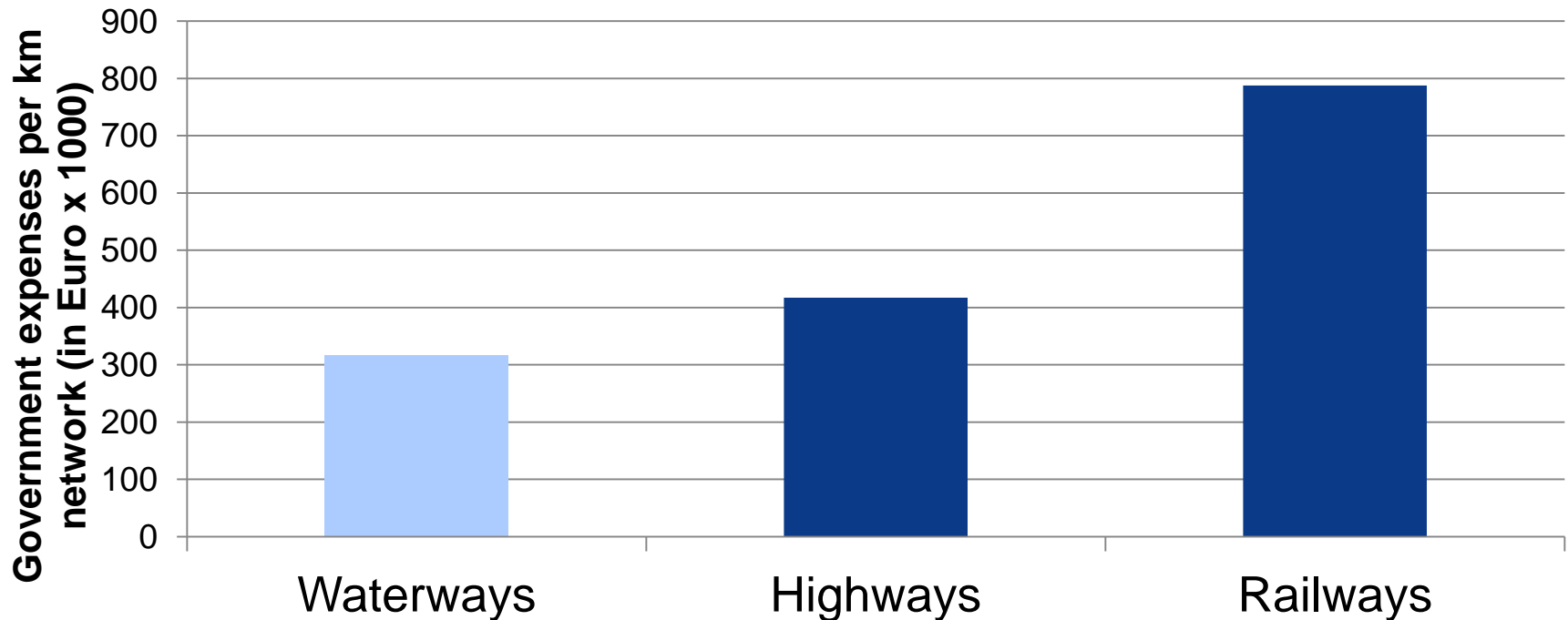
External costs in Eurocents per tonne/km.



Source: INE

# Whilst government expenses for facilities, maintenance and renovation of the waterways network are limited the potential yields are high

Investments per km network in 2014  
(in Euro x 1000)



Source: Dutch Dept. For Infrastructure and the Environment

# 3 Overview of global markets

## USA

- | The Mississippi river system accounts for almost 60% of IWT volumes in the USA or +/- 700 million metric tonnes
- | The Mississippi is the second most important waterway worldwide
- | Most important commodities: coal and petroleum
- | Important for the competitive position of US grain exports
- | Modal share 8% (tonne/km). Total IWT market size is +/- 1.10 billion metric tonnes

## Brazil

- | The Amazon and its tributaries are the most important waterway artery. However, there are 11 river basins in total
- | Agro and forest products are the main commodities
- | Modal share: +/-13%

## EU

- | The Rhine generates more than two-thirds of total EU IWT volumes which are estimated at more than 500 million metric tonnes per year
- | Ores, cokes, coal, chemicals and agri-products are the main products
- | Huge difference exists in modal shares between the different EU countries

## PR China

- | IWT market size is estimated at 3.2 metric tonnes per year
- | The Yangtze River is the most important waterway artery worldwide.
- | +/-1.6 billion metric tonnes per year
- | Pearl River 2nd important artery with +/- one-third of Yangtze volumes
- | Main products: construction materials, metal and ores, coal and coke
- | Modal share of IWT in PR China is 8.9%

## India

- | Ganga-Brahmaputra are the main waterways
- | Total volumes have dropped since 2012
- | Strong ambition of government to develop more waterway transport
- | Modal share: 1%



# 4 Some trends and developments

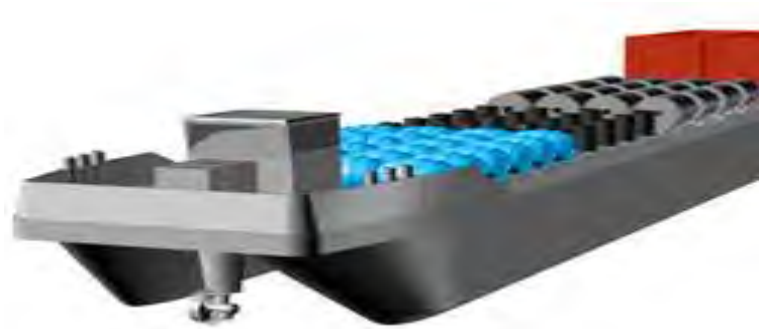


- | Exchange of barge capacity between basins allows the optimisation of fleet deployment
- | Emerging international cooperation to safeguard the available navigational depth, recognition of certification and common manning rules
- | Growing awareness that terminals/ports are more effective in a network than on a stand-alone basis and that inland waterways form part of an intermodal system





- | Innovative vessel design and use of alternative fuels (LNG, Hybrid, Hydrogen, etc.)
- | The role of IT applications is growing with River Information Systems, Automatic Vessel Identification Systems, e-Charts, etc.
- | Searching for new types of cargo away from traditional bulk flows: containers, pallets, express parcels, etc.



# Thank You