

*U.S. Section 100th Anniversary Conference :
Panel 2 : Comparative Assessment of
Environmental Impacts*

**Ecological and Safety Advan-
tages of Water Transportation
in Comparison with Other
Modes of Transportation**

*By Eng. Eric Van den Eede,
President of PIANC*



U.S. Centennial, Panel 2, 17 April 2002



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- Ecological Threats
- Safety Aspects
- Safety Threats
- External Costs
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- PIANC's Role





Introduction ^①

- PIANC's mission includes :
 - being the international forum for analysis and discussion of all aspects of waterborne transport (safety and environment)
- Strategic goals :
 1. to enhance the navigational function of waterways, achieving sustainable development through balancing the environment and economic interest
 2. To contribute to the integrated management of water systems





Introduction ^②

- InCom :
 - VTS and RIS (WG24, just published)
 - Safety of Inland Waterway Vessels (in preparation)





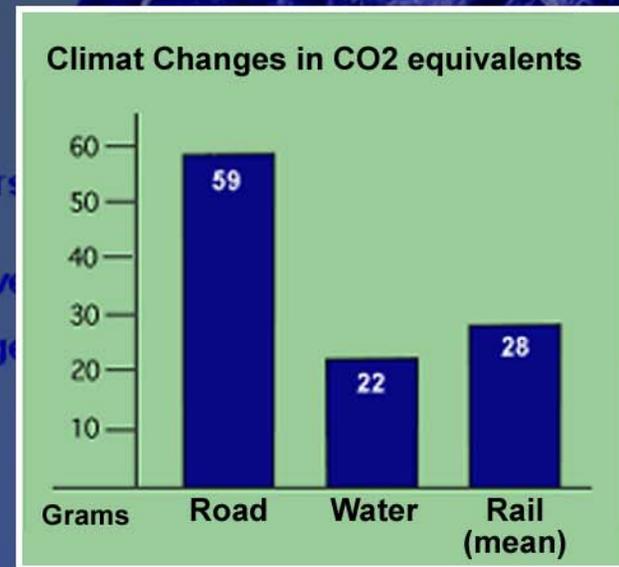
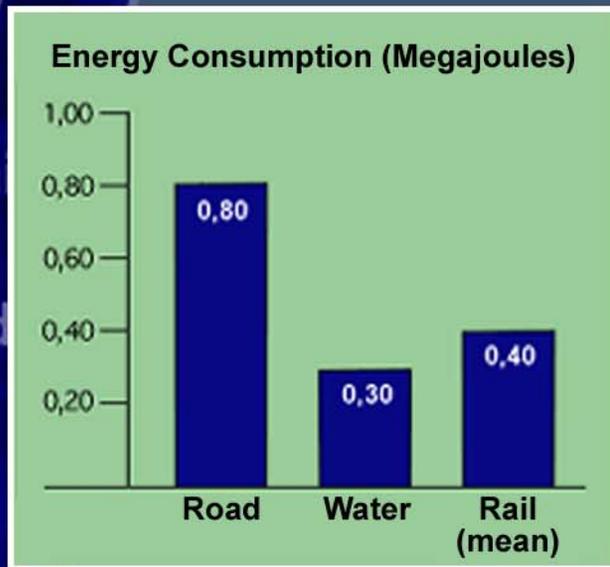
Ecological Aspects ^①

- Traditionally focused upon less (2/3 of rail and 1/5 of road) energy consumption
- Gradually other direct and indirect effects considered :
 - greenhouse gases/air pollution
 - road congestion
 - noise
 - land use
 - social impact of accidents, loss of life, loss of labour time, higher maintenance costs for road systems,...
 - ...



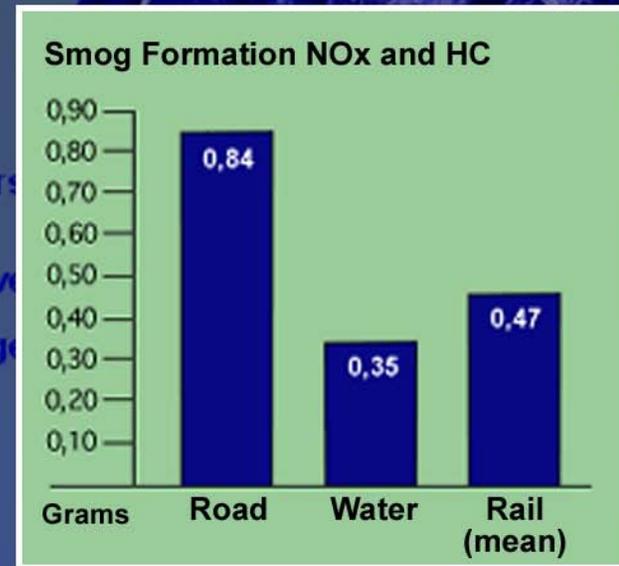
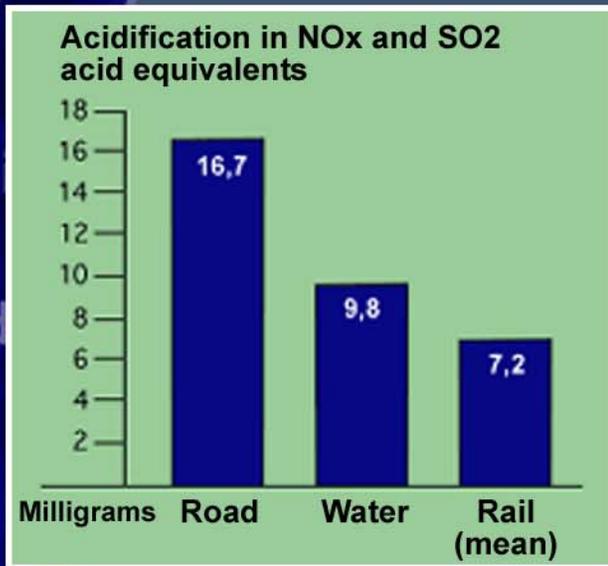


Ecological Aspects ②





Ecological Aspects ^③





Ecological Aspects ^④

- Land use for same transport capacity :

road	:	100
rail	:	29
inland navigation	:	10

- Social costs of road transport vs inland navigation :

France	:	x 13.7
Germany	:	x 14.2





Ecological Threats

New (and existing) projects/infrastructure for inland navigation opposed by environmentalists :

- destruction/loss of habitats
- splitting up of landscapes
- loss of landscapes, vistas
- disturbance of ecological systems
- risk of pollution caused by accidents





Safety Aspects

- Navigation generally considered as a safe mode of transport
- Less accidents per ton km than other modes
- Risk = Frequency x Impact
Impact potentially higher
- Introduction of electronic data interchange in inland navigation (RIS, VTS, ...) has positive effect on risk
- New risks : vandalism, terrorism





Safety Threats

- Spectacular increase in ship movements increases risk
- 'just in time' puts stress on personnel
- Scarceness of personnel and hiring of less qualified hands
- Considerable increase in (less skilled) recreational navigators





External Costs ^①

Cost elements that are not covered by user nor owner of infrastructure :

Infrastructural costs :

- building costs
- maintenance and operational costs
- **consequences of building : land-use, splitting up of landscapes**





External Costs ②

Cost elements that are not covered by user nor owner of infrastructure :

● Transportation costs :

- means, fuel, management
- consequences of transport
 - **environmental costs** (air, soil and water pollution, noise, vibrations)
 - **accidents**
 - **congestion**





External Costs ^③

- Internalisation difficult by lack of market prices

4 approaches :

- cost for avoiding or prevention
- cost of damage
- decrease of value of comparable assets
- willingness to pay

Depending on :

- mode
- nation
- time





Recommendations & Suggestions

- Marketing of ecological and safety advantages of water transportation towards :
 - ① Industry :
 - economic benefit (user fees!)
 - reliability
 - ② Decision makers :
 - often unused capacity vs congestion
 - sustainable solution
 - economic benefits
 - ③ General Public :
 - multifunctionality of waterways
 - maximising benefits vs minimising negative impacts





PIANC 's Role

- to produce useful information
- (participating in) transfer of information to decision makers
- organising seminars (e.g. Water Framework Directive)
- Actions by EnviCom and InCom



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