Railways and Sustainable Development

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New York, 1st March 2010
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About the UIC & the global rail sector
UIC: The International Union of Railways

200 members worldwide
UIC Mission

Promoting the development of rail transport at world level, in order to meet challenges of mobility and sustainable development
Global rail market

> The rail sector employs over 6.3 million people worldwide
  This includes:
  2 million in China.
  1.4 million in India
  1.1 million in the EU

> Rail investment in 2009
  EU railways invested a total of 44,672 million euros
  Turkey invested 606 million euros
  Korea invested 725 million euros
  Kazakhstan invested 503 million euros

> Between 2000-2005, global rail freight grew by around 25% and land passenger traffic grew by about 19%
Example of cooperation: African railways

> UIC Regional Office in Tunis

> Technical support to African Union Commission (AUC) and the African Union of Railways


> Future regional assemblies to look at corridors and training
Rail and sustainable development
Avoid, Shift, Improve

Avoid
Reduce or remove demand for transport through better land-use planning, public transport integration and remote working

Shift
Move to more environmentally friendly modes such as walking, cycling and public transport.

Improve
Improve the environmental performance of transport, by improving the fuel economy and air pollution emissions from road vehicles and railways.
Rail is a low carbon transport mode

www.ecotransit.org
(global carbon footprinting freight)

www.ecopassenger.org
(carbon footprinting passenger Europe)

Source: www.ecotransit.org 2008

Note: Plane emissions include travel to and from the airport; they are not increased to take account of the effect of emissions at high altitude.

Source: www.ecopassenger.org 2008
Case study – high speed Spain

Example AVE Madrid-Sevilla

- Although one third of passengers are induced traffic overall CO2 emissions reduced by 60% on the corridor

Source: Renfe 2009
Maintaining our environmental advantage – strategy & targets (Europe)

Target 2020
Reduction of specific CO2 emissions from train operation by 30%*

⇒ Japanese Railways have same objective

Target 2030
Reduction of specific CO2 emissions from train operation by 50%*

⇒ Russian Railways to reduce emissions by 40%

Vision 2050
European railways will strive towards carbon-free train operation by 2050

* Base year 1990: measured per passenger-km (passenger service) and gross tonne-km (freight service)
Rail is a very safe transport mode

Casualties per billion passenger-km in Germany 2008

Source: Allianz pro Schiene, Germany 2010
<table>
<thead>
<tr>
<th>1 HST</th>
<th>129 cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 bus</td>
<td>3.5 planes</td>
</tr>
</tbody>
</table>
Declaration on Sustainable Mobility & Transport

> 18 statements on rail’s contribution and commitment to sustainable development

> So far signed by 40 UIC members already
  Representing 60% of rail transport worldwide

> 2012: Rio 20+: First rail sector sustainability report
Conclusions and outlook
Conclusions: Transport and sustainable development

> Rail is…
  a low carbon mode
  a very safe transport mode
  a very resource efficient mass transport system

> Rail has an important social and economic role:
  We are a major employer
  We are key to the movement of freight
  We are a solution to traffic congestion

> Rail has an environmental advantage
BUT…
  We are not complacent
  We are working hard to maintain our position!
Outlook – creating sustainable transport systems

> A sustainable transport system combines the strengths of all transport modes in one integrated system

> Policies and funding strategies should follow a set of key sustainability indicators for transport
  - Qualified decisions for policy making
  - Qualified decisions for investment

> Rail is prepared to be the backbone of such sustainable transport systems!
Thank you for your kind attention

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www.uic.org
Backup
World Bank Transport funding

Road 70% vs. Rail 8%

World Bank Transport Portfolio of Active Projects, End of FY08

- Road and Highways; 70%
- General transportation; 16%
- Railways; 8%
- Ports, waterways and shipping; 4%
- Aviation; 2%
External cost of transport - Europe

Average external costs: passenger transport 2000 (excluding congestion)

Source: IWW/ INFRAS, 2004
Avoid: Reducing the need to travel and better spatial planning

> Strategies such as remote working are outside our control

> However, railways do provide input into planning policy so that future developments can be linked to the rail network

> For example, in China, there are plans to extend railway length to 100,000 kilometers by 2020 – an increase of 27,000 km compared with 2003.

> This will form a railway network covering most Chinese cities with a population over 200,000.
Shift: Increasing rail’s modal share

> Moving passengers and freight from road and air to rail can reduce CO2 emissions

> High-speed rail lines can compete successfully with short-haul aviation and road – e.g. Madrid-Seville high speed rail gained 84% market share, reduced private car share by 50%

> In the last 12 years Germany, the Netherlands, the UK and Sweden have increased the modal share of freight railways at a pace that is more than doubling the increase of total transport volumes.
Improve: Reducing our carbon footprint

> Energy & CO₂ database
> EcoPassenger & EcoTransIT
> Energy driving
> Energy Billing

> Railenergy

RAILENERGY MAIN ACHIEVEMENTS ALLOCATED IN A TOOLBOX

THE OVERVIEW

How to measure & analyse energy in railway systems?
- Common simulation methodology
- FIRST UIC/UINFE TerRec (102_001)

How to define, browse & collect energy data?
- RAILENERGY KPIs
- Energy & CO₂ database

How to benchmark energy performance?
- RAILENERGY PERFORMANCE BENCHMARK
- Ranking of saving potentials
- Technology Assessment Reports

How to compare & prioritise different measures?
- Cost-benefit & effectiveness
- Railenergy calculator
- Market readiness

How to save energy costs?
- LCC screening
- Index of service view

How to plan strategically?
- Practical checklists for professionals

www.ecopassenger.org

www.ecotransit.org
Global rail market
Largest rail networks in Europe, Asia, North America

Length of lines (km)

- Europe: 353,747 km, 35%
- Asia and Oceania: 52,299 km, 5%
- America: 383,079 km, 38%
- Africa: 224,151 km, 22%

Source: UIC International Railway Statistics 2009
Global rail market

Asia dominates in terms of passenger volume

Billion passenger km

Europe  Africa  America  Asia and Oceania

2,012,74%
62,4,23%
62,2%
14,1%

Source: UIC International Railway Statistics 2009
Global rail market
Total Freight transport volume equally in America, Europe, Asia

Freight km

- 3,466,39% Europe
- 2,973,33% America
- 137,1% Africa
- 2411,27% Asia and Oceania

Source: UIC International Railway Statistics 2009