UNION INTERNATIONALE DES CHEMINS DE FER
INTERNATIONALER EISENBAHNVERBAND
INTERNATIONAL UNION OF RAILWAYS

Status and future perspectives regarding congestion
ECMT SOFIA 30-31 May 2007

Contribution by the International Union of Railways (UIC)

Transport congestion largely results from the market's inability to balance supply and demand in the sector, for a simple reason: transport pricing structures for the dominant transport mode do not include external costs, and thus do not function as they should. Carriers and users are therefore compelled to base their choices on false premises. Unlike road transport, railways offer a pricing structure incorporating the cost of infrastructure use.

Only transport modes in which the users themselves decide how they will use infrastructure, based on their own individual choice and in accordance with the theory of welfare economics, can be said to be "congested" – road transport is a prime example. The reverse is true of rail (or air) transport, where traffic movements are planned, and where congestion is felt in the form of *saturation of capacity*, leading to "slots" or paths being refused to potential users in order to avoid any congestion which might jeopardise transport safety.

All in all, the instances of saturation encountered on rail networks are few: they are concentrated in and around hubs, intensively-used corridors or in areas with high traffic concentrations around multimodal infrastructure such as ports, logistics hubs etc. The geographical areas affected are densely urban and economically very active areas, in which it is complex – and therefore expensive – to invest in de-saturating infrastructure. In this regard, one could mention the areas around certain American or European ports, a number of eastern European corridors and parts of the Chinese network. Adopting certain principles in managing rail networks, whether these be the introduction of cadenced paths, dedicated corridors or new technologies, can help to significantly improve the performance of railway infrastructure. The examples presented hereafter illustrate this.

Estimating congestion levels is problematic and there is no single method of doing so. The IWW/INFRAS "External costs of transport – update study" of October 2004, carried out at the initiative of the International Union of Railways (UIC), estimated the costs of congestion for the year 2000 (EU 17) using three methods from economic theory:

- Loss of consumer surplus = € 63 billion or 0.7 % of GDP
- Additional time-related costs = € 268 billion or 3 % of GDP
- Optimum congestion tariffs = € 753 billion or 8.4 % GDP

UIC chose to use the conservative figure of 3% of GDP in its brochure entitled "The true costs of transport – time to act" published in October 2004. Though the data may have changed since then, the order of magnitude described in the document still makes it an essential reference work.
The levels of external costs vary greatly between transport modes (more than 80% of total costs are generated by road transport and less than 2% by rail).
Now, as the international community begins to take action on fighting climate change, it is vital that the transport sector be counted in for its fair share, a sector which is now the fastest-growing source

of greenhouse gases. The means of counteracting this extremely worrying trend are well known. They go by such names as alternative energy sources, comprehensive road pricing schemes, modernisation of public transport, urban planning and modal shift. The rail sector for its part is ready to take up these challenges.

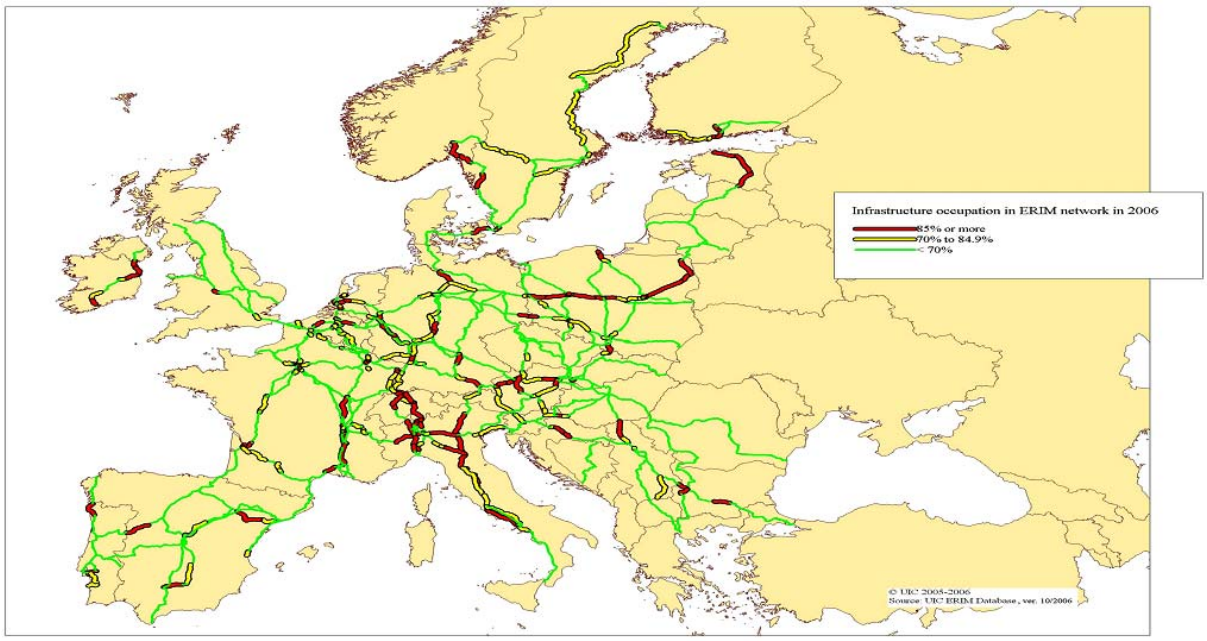
RAIL'S CONTRIBUTION TO REDUCING CONGESTION

- **ERIM PROJECT AND CORRIDORS**

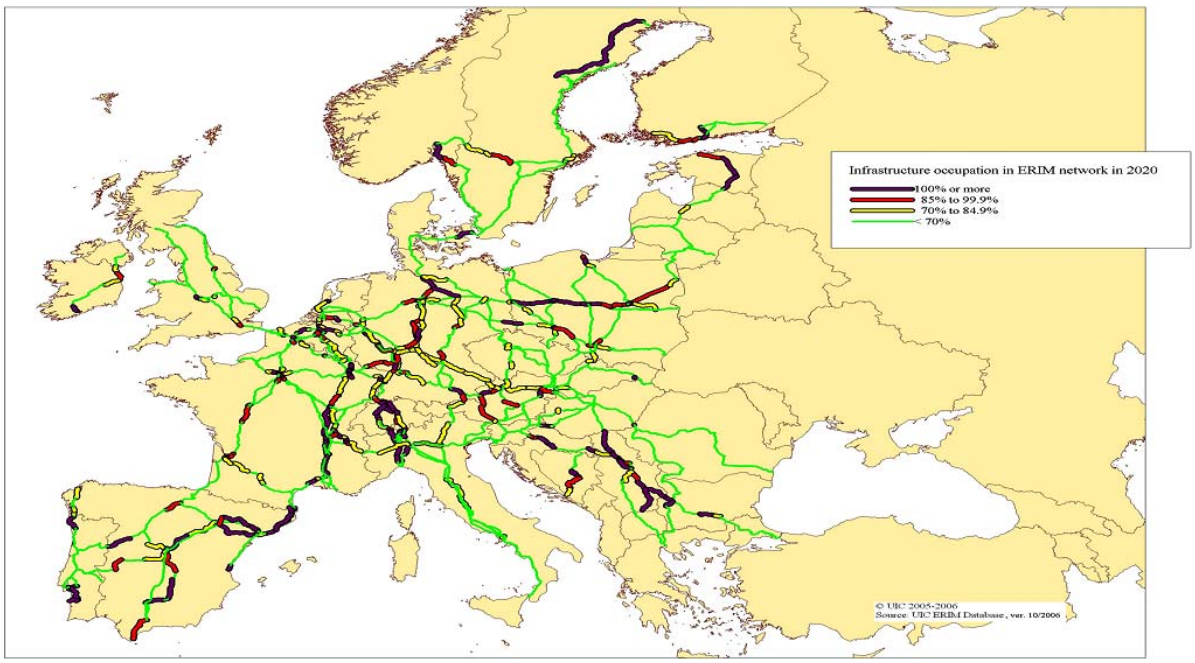
  The ERIM project has estimated current and future capacity utilisation along the main European freight corridors and concluded that one third of the network may be faced with capacity shortages by 2020.

  In 2007 the technical feasibility and approximate costs of upgrading measures (such as train length, axle load, new tracks, ERTMS etc.) will be assessed with a view to providing extra capacity in capacity-constrained sections.

2006



2020



- **EXAMPLES PROMOTING RAIL-ROAD COMBINED TRANSPORT IN EUROPE** :
  - June 2007: Bettembourg – Perpignan route, with over 30,000 HGVs per year
  - Alptransit: new rail routes across the Alps (2007 and 2014)

- **NEW CORRIDOR**

- Choosing a route where risk is considered lowest
- Introducing cooperation agreements for test runs using suppliers' security devices connected to tracing/tracking
- The container risk is highest when the container is not moving:
  - Minimising train stop-time
  - Minimising terminal dwell-time (containers)
  - Securing facilities by electronic devices (lasers etc) alongside human control procedures
  - Reducing administrative procedures by introducing improved documentation systems (paperless, through-documentation etc)
- Seeking out dedicated insurance schemes
- Some country-specific approaches (procedures, agreements etc)
- Cooperation between international organisations (WCO, UN etc) and between UIC and its members
- Specific cooperation with e.g. US DHS regarding container tracing (electronic devices inside the container), container-scanning procedures (at terminal) and various new programmes and procedures

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- **UIC INITIATIVE REDUCING PORT AND HINTERLAND CONGESTION : EURASIA LANDBRIDGE**