

EUROPEAN INTERMODAL TRANSPORT:

From vision to reality

Intermodal freight transport can be defined as the efficient door-to-door movement of goods, using two or more modes of transport (rail, inland waterways, maritime transport, shipping, road) in an integrated transport chain.

Intermodality is concerned with the optimal integration of different transport modes through new, more efficient use of the transport system, reducing transport costs and achieving added value. Bearing in mind the problems of pollution, lack of safety¹ and congestion on the roads that are harming the European Union's competitiveness, intermodal transport is seen as one of the best options for meeting the environmental and economic requirements for sustainable transport. These **facts and figures** show the extent to which the current transport system is not sustainable:

- European freight transport has increased by about 122% since 1970. Annual growth of around 2% is expected over the next two decades. Road transport is likely to increase its market share from almost 50% in 1970 to 72% in 1995 while rail's share has fallen from 32% in 1970 to less than 15% in 1995².
- After the fall of the Berlin wall in 1989, rail in Central and Eastern Europe and in the former CIS Countries³ underwent a dramatic decline of the order of 60% in traffic volume (while road traffic continued to grow inexorably). Moreover, waterway traffic, especially on the Danube, has been severely affected by the wars in former Yugoslavia⁴.
- Excluding congestion, the external costs of freight traffic (air pollution -cost to health and damaged crops-, climate change, infrastructure, noise, accidents -medical costs-) are estimated to be over 530 billion, of which road is responsible for 91.5%, air 6.1%, rail 1.9%, waterways 0.5%. Adding congestion causes this figure to rise to €700 billion⁵.
- In 1998 energy consumption in the transport sector was responsible for 28% of CO₂ emissions; road transport alone accounts for 84% of CO₂ emissions attributable to transport⁶.
- If nothing is done to reverse the traffic growth trend, CO₂ emissions from transport can be expected to increase by around 50% to reach 1,113 billion tonnes in 2010⁷.

The economic benefits of intermodal transport can be summarised as follows:

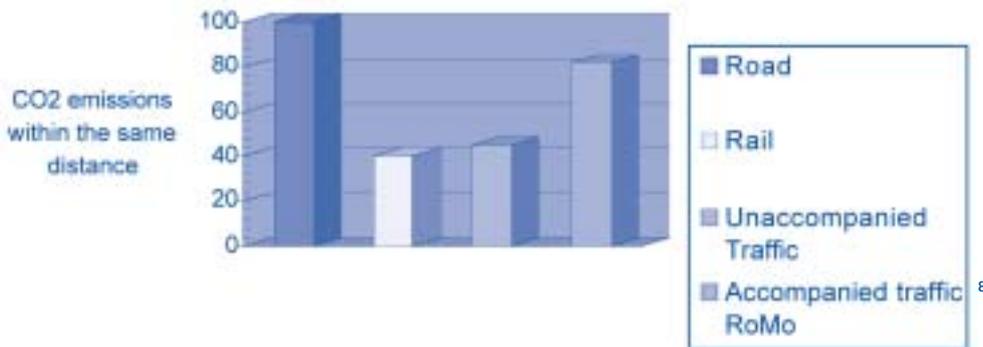
Reduction of infrastructure costs

- Reduction of road traffic
(Less congestion on the road network)
- Better use of existing capacity

Reduction of social costs

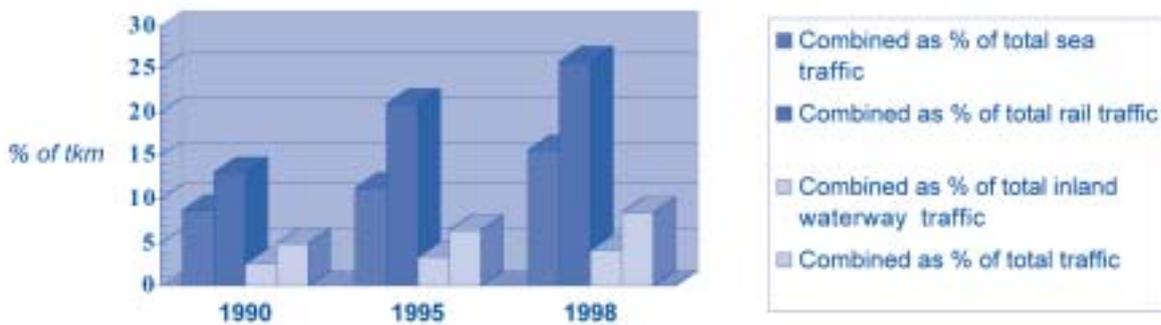
- Improved road safety
- Less air pollution (CO₂ emissions)
- Less noise
- Environmental development of urban space
- Reduction of energy consumption and raw material

CO2 emissions by transport mode



European intermodal transport reduces CO₂ emissions by 1.8 million tonnes a year with environmental savings of €180 million⁹.

Combined transport by mode



Despite all its advantages intermodal transport's market share represents a very low percentage of total freight traffic in Europe (8,6% of total freight traffic in 1998). Several **obstacles** to its development can be outlined, with a lack of interconnectivity existing at three levels:

- Infrastructure and transport means (a coherent network of modes and interconnections is lacking). Within TENs guidelines, there is a majority of railway projects – but railways are not *per se* a justification for investments. Hundreds of kilometres of railways are being closed in CEE because of bad management and a lack of money for repairs. At the same time, inefficient use of existing infrastructure leads to bottlenecks in the network and decreases the overall attractiveness of this transport mode.
- Operations: First the lack of a smart technology of horizontal transshipment from trucks to railwagons, second, the diversity of loading units and standards for transport means, increase the costs and time needed for intermodal transport.
- A variety of regulations and procedures together with the absence of a systematic network for data.

Nevertheless it is important to underline that many companies and organisations all over Europe are working towards solutions to these technical problems, while some governments have set ambitious targets for rail traffic to absorb road traffic growth¹⁰:

1. French policy foresees a doubling of rail freight traffic over the period 1998 to 2010 while Germany forecasts the same objective between 1997 and 2015.

2. The UK ten-year transport plan¹¹ foresees an increase in the modal share of rail in freight transport from 7% to 10% between 2000 and 2010, representing an 80% increase in rail freight traffic.
3. Between 2000 and around 2009 Switzerland plans to halve the number of lorry trips through the Swiss Alps instead of allowing road traffic to grow by 50%, as forecast in the absence of measures to promote modal shift.

The PACT¹² programme has led to some successful initiatives, for example:

- A new combined sea/rail link between Sweden and Italy, via Germany and Austria. This service takes some 500,000 tonnes a year off busy roads and improves journey time significantly (by up to 48 hours).
- An information system for freight tracking, accessible via PC and the Internet, translating messages written in different languages into a single common language.



Currently there are a significant number of projects geared towards intermodality, including:

- **MODALOHR:** a low-floor railway wagon, specially designed for carrying non-specific road equipment. This new system accepts most standards of trailers and trucks without modification, and trailers to a maximum height of 4 meters. It can also carry either a complete truck (tractor + semi-trailer) on a triple wagon, or semi-trailers alone.

However, there are some non-technical obstacles to the development of intermodal transport:

- A failure to set up and charge for true costs, which distorts competition in favour of road transport at the expense of intermodal transport.
- The general lack of competitiveness of intermodal transport, in terms both of quality and costs/prices.



How should these problems be resolved?

T&E proposes:

► POLICY MEASURES

- **Levelling the playing field** between transport modes:
 - Fair competition conditions (in particular through the internalisation of external costs and ensuring transparency).
 - Fiscal incentives for the investment in equipment, facilities and terminals.
- **Managing scarce resources.** So far, the most common way to react to scarce transport infrastructure has been to construct new infrastructure in order to increase capacity. This approach is becoming increasingly problematic, and its effectiveness must be doubted due to financial and environmental restrictions, as well as the transport system's inherent tendency towards saturation. In view of this scarcity, existing transport infrastructure must be better used, and the available capacity more efficiently allocated. There are basically two types of instruments that should be applied:
 1. **Instruments to increase the capacity of existing transport infrastructure** (traffic management systems such as limited access to city centres for road transport or improvements in information and operation to gain capacities for rail transport; new measures should be applied to road transport, for instance, scarce roadspace could be organised according to timetables and slots in the same way as for the remaining transport modes).
 2. **Instruments to improve the allocation of scarce transport infrastructure** (financial instruments such as congestion charges, the trade of rights to use the infrastructure).
- The revision of the **Trans-European Transport Networks**, which is planned for 2004, represents a unique opportunity to give intermodal transport more weight in EU transport policy. However, the high-level working group on TENs chaired by the former commissioner Karel van Miert, far from encouraging intermodality, has proposed ways of funding a massive programme of infrastructure assimilating the presumption that roads are needed to stimulate economic growth. This is quite the opposite of the objective to decouple transport growth from economic growth¹³.
- The **future Member States** have at this moment a better modal share with a higher proportion of rail freight than in the EU (rail still

retains over 40% of the freight market). An important part of the TENs revision deals with enlarging the networks to the future Member States. Therefore, the question of how TENs guidelines will be developed is very important with regard to the expansion of intermodal transport. In fact, it must be stressed that the TINA process (Transport Infrastructure Needs Assessment) has failed to maximise the potential of existing infrastructure in the Accession Countries.

- **Technology Development and Innovation:** For innovative solutions in the area of terminal organisation and technology to be successfully implemented several factors need to be considered:
 - Intermodal transport units used (containers, semi-trailers, swap bodies, etc)
 - Transport equipment (wagons, trucks, container vessels)
 - Integration of potential new terminals into existing infrastructure networks.
 - Enforcement of regulations – harmonisation of laws and regulations on a pan-European level.
 - Need for a freight integrator responsible for the whole transport chain.
 - Professional training.
 - Land use planning implications.
- Governments must co-ordinate **land use planning** to ensure the best connection of freight markets to railways and terminals. Therefore, an EC proposal for Sustainable European Land Use would be desirable.
- Expand the initiatives in the field of **research** by, among others, establishing a research network and launching an additional call for proposals for demonstration projects.
- Create an **intermodal liability concept** within the appropriate legal framework for responsibility/liability from one end of the chain to the other. It is self-evident that the intermodal operators should be able to offer their customers a transparent set of conditions and procedures for any cargo that is damaged or lost during its journey.
- **Human factors** such as personnel, commercial partners, local firms and political decision-makers are the cornerstones of a good intermodal transport system. Therefore, the development of intermodal expertise, in both the public and private sectors, is vital to make this new approach succeed.

► INFRASTRUCTURE, ORGANISATIONAL ASPECTS AND NETWORK INTEGRATION

- **More competitive and market oriented railways:** Governments and rail companies have to create the conditions for improvements in rail freight performance in terms of cost, quality and reliability of service.
- Today, the focus is mainly on rail when discussing intermodality. Governments should promote a **better combination of inland transport with maritime transport** (harmonisation of legal frameworks, avoidance of the development of intermodal transport units with dimensions that are incompatible with infrastructure for inland transport). Besides, there is a need to better integrate inland waterways into intermodal transport and door-to-door transport chains by considering ports as transfer points and not as separate entities.
- It must be noted that European infrastructure policy thus far lacks a coherent framework for terminal sites. The most important road and inland waterway routes have been determined at a European level, but decisions on the location of junction points and the criteria to finance them have so far been left to industry and the national and regional governments. That explains the imperative need to integrate **Terminals** into the TENs (today ports are included but intermodal terminals are not). They need to be defined together with other new concepts such as sea motorways and network connections to Candidate Countries.
- **Guarantee and Quality:** customers need to be sure that high quality services will be provided (intermodal transport is often seen as lacking reliability), so a business oriented marketing approach is required. Intermodal Transport can be presented as a more efficient as well as environmentally friendly mode of transport.

- **Harmonisation of technical standards** is a tool to promote more efficient transport. The existing differences between power supplies, tunnel profiles and width of gauges for railways or bridge clearances and width locks for inland waterways require immediate action from European and national authorities. Regarding unit standardisation we have seen the emergence in Europe of different loading units such as swap bodies with a variety of dimensions and loading techniques that have not led to cost reductions and efficiency improvements. There is, obviously, a logical need to reduce the number of these units and harmonise standards¹⁴.
- **Information and communications systems:**
 - **Coordination of intermodal timetables, intermodal real-time electronic information and transaction systems:** Centralised information/data or a single desk portal is needed because parties cannot manage information flows through bilateral relationships. A one-stop shop is required. Through initiatives such as the Intermodal Portal (IP) project, ALSO Danube¹⁵, CESAR¹⁶ it is possible to develop a general system of door-to-door management of goods transport.
 - It is essential to **integrate logistical concepts** more closely with one another (logistics chain management tools).
 - A **reference centre for freight terminals** would provide:
 - Central availability of knowledge.
 - Harmonisation and standardisation of business processes.
 - Awareness and knowledge of intermodal transport.

The success in achieving an intermodal transport system in Europe depends mainly on how well the public and private sectors can combine their interests and expertise. The cooperation between transport operators and users, the relevant supply industries, the European Union and its Member States, along with the regional and local authorities will therefore have a crucial role to play.

FOOTNOTES

¹ The accidents caused by trucks in the Mont Blanc (1999) and Gotthard (2001) tunnels increased concerns about safety and led to an EC Proposal for a Directive on tunnel safety.

² COM (97) 243 Final 29/05/97: Communication from the Commission to the European Parliament and the Council on **Intermodality and Intermodal Freight Transport in the European Union**.

³ **Commonwealth of Independent States:** former USSR (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan)

⁴ *Challenges for Transport Policy in Europe: supporting Intermodality* - The Intermodal Summit, Rotterdam, 10 December 2002, European Conference Of Ministers of Transport (ECMT).

⁵ EIA, **European Intermodal Association:** Round Table 'Maritime Regions, Transport and the Environment' European Parliament; Presentation by Mr. Hanja Majj-Weggen, President of the EIA.

⁶ *European Transport Policy for 2010: Time to Decide*, COM (2001) 370.

⁷ *European Transport Policy for 2010: Time to Decide*, COM (2001) 370.

⁸ **Unaccompanied Combined Transport?** transport of a road vehicle, container, swap body or trailer; not accompanied by the driver: **Accompanied transport** (RoMo: rolling motorways) ? transport of a

complete road vehicle on train, accompanied by the driver.

⁹ CO: Reduction through Combined Transport, Summary Report, July 2003.

¹⁰ *Developing a sustainable balance between substitutable modes of freight transport* – CEMT/CS (2002)2

¹¹ Transport 2010, The Ten Year Plan, Department of Environment, Transport and the Regions, UK July 2000, http://www.dft.gov.uk/stellent/groups/dft_transstrat/documents/page/dft_transstrat_503944.hcsp

¹² Pilot Action for Combined Transport, introduced in 1992 and finished in 2001 (the Marco Polo programme is its successor)

¹³ This principle was set out in the Community's Sixth Environmental Action Programme, in the conclusions of the Gothenburg EU Council and in the European Commission's White Paper "Time to decide".

¹⁴ The European Commission has proposed a framework Directive for Intermodal Loading Units in Europe (07/04/03)

¹⁵ Advanced Logistic Solutions for Danube Waterway. <http://www.alsodanube.at/>

¹⁶ Co-operative European system for advanced information redistribution.

T&E is Europe's primary NGO campaigning on a Europe wide level for an environmentally responsible approach to transport.

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