



*Train to Copenhagen
Bringing people to Copenhagen and Copenhagen to the people*

The rail messages to the second generation climate regime

“The Train to Copenhagen project is a showcase of sustainable transport solutions that will be part and parcel of a resource-efficient, low-carbon Green Economy of the 21st century.”

“By Sealing the Deal on an ambitious climate agreement in Copenhagen, governments will get into gear to propel the world to a low-carbon future so that societies may also finally embark on a journey to more sustainable transport.”

UNEP Executive Director Achim Steiner



TRAIN

to Copenhagen

On commission from UIC, Transport Research Laboratory has conducted the “Global rail position paper on climate change”. The objective of the position paper is to identify the emissions reduction potential of rail for society. The final document will be available soon from www.traintocopenhagen.org or by contacting UIC or TRL. The “Global rail position paper” is an element of the “Train to Copenhagen” communications campaign. This leaflet gives a short introduction to the findings of the “Global rail position paper”.

Transport brings enormous benefit to society, but it also has many external costs, including its contribution to the climate changes. Transport has a key role to play within solutions to climate change as current transport structures are responsible for extreme pressures on energy resources and ecosystems through a dependence on fossil fuels. Rail represents a low carbon mode of transport, and continued energy efficiency improvements and increases in modal shift to rail from road and air are crucial to support transitions to low carbon mobility.

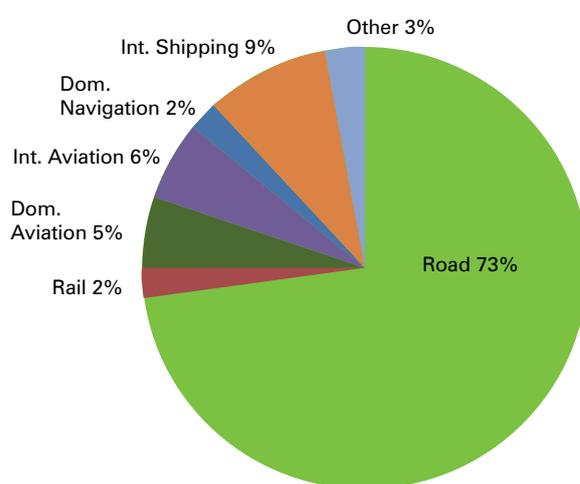


Figure 1 Global transport CO₂ emissions by modal share, 2005¹

A strong focus needs to be directed towards the development of road transport policies and mechanisms as this sector emits 73% of total global transport emissions by modal share; rail is responsible for 2% of CO₂ emissions in the transport sector (Figure 1).

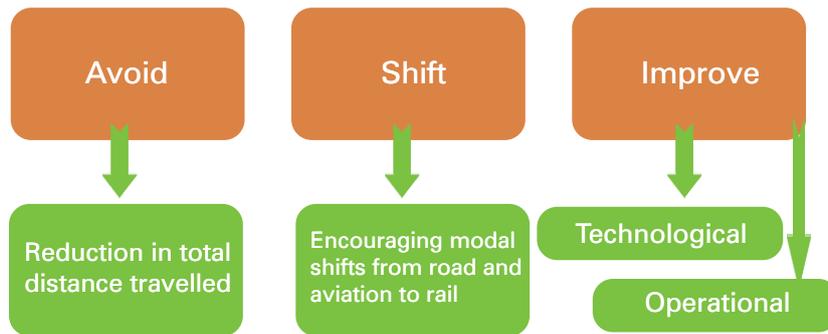
Further on, it is important to recognise the importance of rail within sustainable transport development, and the key role rail can play within the challenge of achieving ambitious emissions reduction targets.

¹ International Transport Forum Transport CO₂ Emissions, www.internationaltransportforum.org

Three primary strategies



Examining the status of the emissions caused by the transport sector in light of how to reverse them identifies three primary strategy responses to the challenge of reducing the environmental impact of transport: Avoid, Shift and Improve.

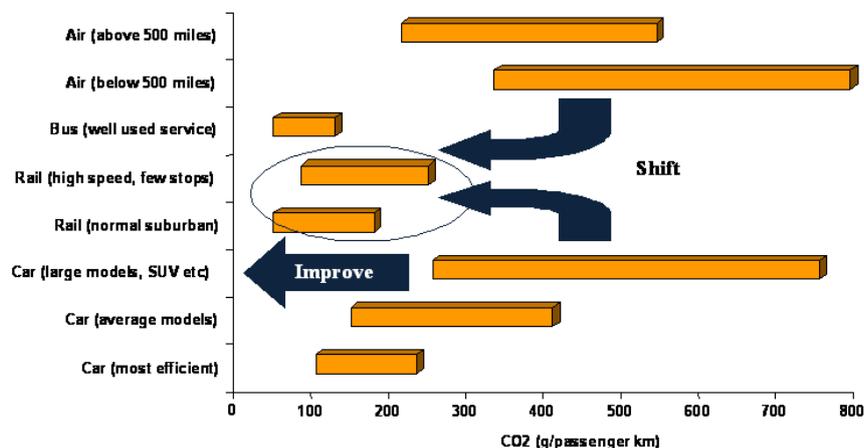


'Avoid' is where transport is reduced or avoided altogether; as integrated land-use and spatial planning and public transport integration in order to enable efficient inter-connectivity, and reductions in km travelled. In this rail has an important role to play.

'Shift' is when journeys are made by lower CO₂ per passenger emitting modes such as rail, urban public transport, walking or cycling. Modal shift from air and road to rail, and creation of smart sustainable transport systems is the way ahead.

'Improve' is the efficiency of current transport modes. Rail is working continuously to improving its energy efficiency performance via managerial developments and technical innovation.

As a transport mode, rail presents a significantly lower CO₂ emitting travel option in terms of CO₂ per passenger km, and supports efforts to shift travel demand from road and air to rail in low carbon transport strategies.



Train To Copenhagen



The Train to Copenhagen is an international communications campaign aiming to “Bringing people to Copenhagen and Copenhagen to the people”. The Train to Copenhagen further on would like to draw attention to the crucial need of addressing transport to combat climate change. The Climate Express, the train running from Brussels to Copenhagen on 5th December for the COP15 meeting in December, will set a platform to present the potential role of rail in global climate change action to UNFCCC delegates, media/press, NGOs and intergovernmental organisations.

For more information please visit: www.traintocopenhagen.org

The role of rail in climate change solutions

Behaviour change

Many policies aimed at reducing transport emissions focus on modal shift and increased use of mass transit modes such as rail. As more people choose to use rail over other modes, and trains are utilised closer to capacity, rail becomes more energy efficient.



Examples on the emissions reduction potential of rail:

Passenger transport:

Korea:

In Korea, the economic benefits of modal shift to High Speed rail have been illustrated by the President of Korail. “For example, the electricity bill for a KTX high-speed train travelling the 400km from Seoul to Busan with 935 people on board is Won 1.08 million. If these 935 people travel by car instead, with four people per car, it would cost a total of Won 21 million in petrol and tolls. That means using a car is 20 times more expensive than travelling by train. With only a 1% increase in passenger traffic, rail can reduce energy and CO₂ emission costs by Won 600 billion a year. This is why rail transport is now at the heart of so-called green growth worldwide.

Spain:

High Speed Rail has been shown to draw travel demand from other modes, such as short haul aviation and road. In Spain, the new high speed line between Madrid and Seville increased the market share of rail on the route to 84%; private car share reduced by 50%. Studies into the Madrid to Seville AVE line have revealed without the AVE an additional 48,000 tonnes of CO₂ would be produced on this route every year.

Freight

Modal shift in Volvic beverage flows

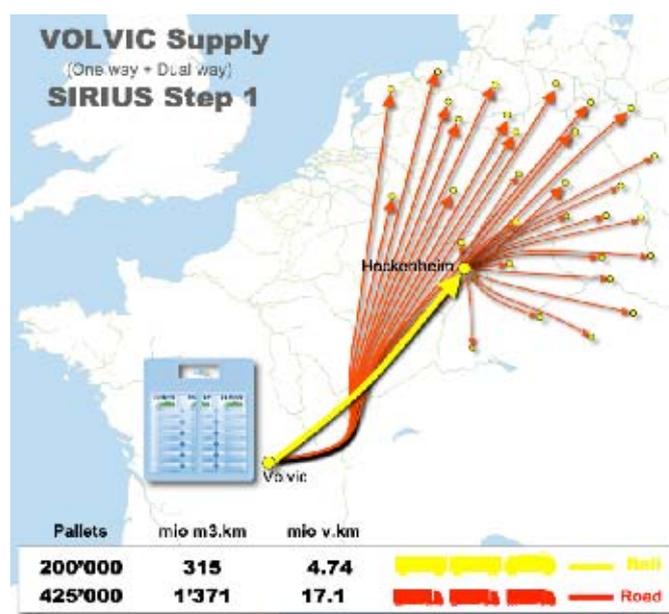
The Sirius 1 Project is aiming to study the modal shift from road to rail for the export flows of Volvic water from France to Germany. On a yearly basis, 625,000 pallets holding 454 millions of litres of water were sent 100% by truck, and additionally 445,000 pallets of empty bottles were returning for recycling.

The project studied the removal of 10,000 trucks by replacing the road transport of 200,000 pallets for supply and 100,000 pallets for return, with rail between Volvic and Hockenheim.

Using the Estia-VIA®1 method, the study estimated the modal shift saved;

- 11,818 tonnes of CO₂ eq. per year
(equivalent to the carbon quantity absorbed by 807 ha forest during one year)
- 55,636,000 kWh of non renewable energy per year
(equivalent to the amount of energy needed for domestic lighting needs of 320,000 inhabitants during one year)

The addition of rail also introduces an efficient method of transport within an industry that demands fast consumer goods exportation.



Informed transport decision making... ...and getting the data right

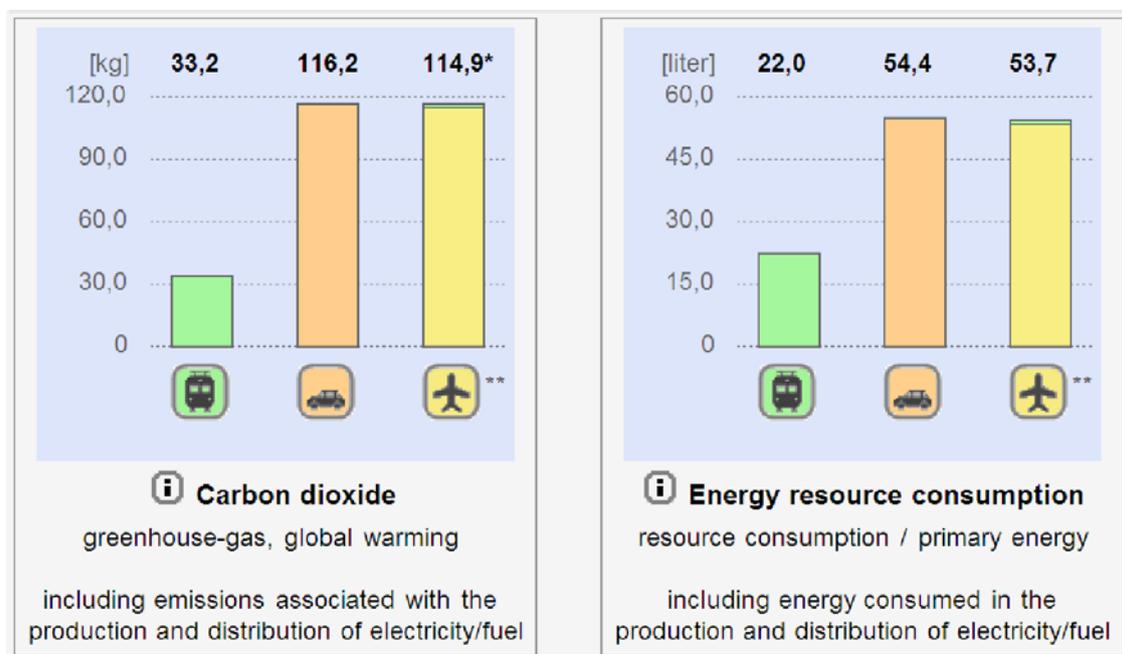


UIC and its members have developed a methodology to measure energy consumption and the emissions performance of different transport modes in the two internet tools EcoPassenger (www.ecopassenger.org) and EcoTransIT (www.ecotransit.org). This offers a solution to the challenge of developing measurable, reportable and verifiable methodologies for mechanisms supporting emissions reductions from transport.

Informing the potential rail user

EcoPassenger and EcoTransIT are two user-friendly internet tools for the comparison of a number of indicators including energy consumption and CO₂ emissions for planes, cars and trains in Europe. The methodology behind the calculations are focused on a life cycle approach and approved by the European Environment Agency. The calculations include the emissions from the cumulative energy consumption, including the energy used to produce the electricity or the fuel, in a “well to wheel” perspective.

A calculation by EcoPassenger based on travel from Brussels to Copenhagen, the last leg of the ‘Train to Copenhagen’, shows clearly how rail is by some margin the most efficient travel option in terms of CO₂ emissions and energy resource consumption per passenger.



Websites: EcoPassenger (<http://www.ecopassenger.org/>),
EcoTransIT (<http://www.ecotransit.org/>)

Technological innovation

The rail sector is demonstrating its commitment to global carbon reduction targets with improvements in technology and operations, and through voluntary agreements such as the European commitment to reduce CO₂ emissions from rail traction by 30% from 1990 to 2020. There are other similar initiatives by railways in other regions of the world.

To support this, UIC has established the UIC energy consumption and CO₂ database and produced CO₂-emissions reduction guidelines. UIC has worked systematically to break the rail system down into measurable components and indicators under the motto – if you can't measure – you can't manage it. The emissions performance of railways strongly depends of the electricity source offered by the framework conditions. When renewable energy is available rail will even offer a "clean" and sustainable transport overnight. The rail sector emissions reductions commitment will need to be matched with financial support from National governments, Official Development Assistance (ODA) and carbon finance markets to strengthen and incentivise public and private capital investments.

More than addressing CO₂-emissions

However, achieving sustainable development in the transport sector is about so much more than reducing CO₂ emissions. All external effects of transport have to be addressed.

Rail is not only a low carbon transport mode, it is also the safest transport mode with the lowest external costs. Rail offers solutions to challenges such as time loss and congestion, urban versus regional development, by providing area-efficient transport and access to mobility for all – you do not need to own a car to move. Further, investment in rail offers increased GDP as it reduces the amount of external costs. Rail provides green jobs and is a "natural" part of the green economy. All these other positive aspects arising from investment in rail because of its low emissions performance are the so-called co-benefits.

However, in order to influence a change in modal choice toward less CO₂ intensive transport modes, not only strong policy and economic measures are needed, but also strong actions and commitment from railways beyond its sustainability advantages. The rail sector's focus is therefore also on maintaining the highest level of safety, and continuously improve its reliability, cleanliness and many other factors to improve railways' level of customer satisfaction.

The continued success in energy efficiency, technological and operational developments across national rail networks, in combination with strong policy measures, can influence modal shifts of transport demand from road and air to rail and will support transitions to low carbon mobility.

The framework

At the international level, the UNFCCC climate negotiations will be crucial in setting an agreement that works for land transport. The discussions on requirements for finance, technology transfer and capacity building are particularly important for creating a support framework for energy efficiency developments and infrastructure investments in both developed and developing countries.

The rail sector would benefit from up-scaled mechanisms that have the potential to provide support for investments in infrastructure and technology development. The success of future international agreements depends on these up-scaled mechanisms with appropriate financing and capacity building with recognition of the key sectors, such as transport, that can contribute to actions on climate change. In the case of rail, up-scaled support could provide incentive for developments in infrastructure in addition to improvements in rolling stock. The recognition of co-benefits from transport projects, such as safety, area efficiency and access, would also facilitate the monitoring of socio-economic indicators in addition to greenhouse gas emissions.

The way ahead: Cooperation and dialogue

With the Train to Copenhagen UIC is facilitating a platform for cooperation between different stakeholders, with United Nations' Seal the Deal and WWF among the main partners. In addition, UIC is engaged with the UNFCCC negotiations through partnership and cooperation with the 'Bridging the Gap' initiative which is communicating the role that transport should play in a post-Kyoto Protocol regime.



From Kyoto to Copenhagen: with rail as the low carbon symbolic link



Reducing transport emissions is a crucial step in combating climate change.
The rail sector is ready to be part of the solution.



Transport brings enormous benefits and development to society; however it has also adverse effects, including its contribution to climate change.

The transport sector accounts for 23% of total CO₂-emissions and it is the sector with the fastest growing trends. Today the sector depends 95% on fossil fuel and is responsible for 60% of the global oil consumption. Transport energy use is predicted to be about 80% higher in 2030 than current levels.

The transport sector has a special responsibility to reduce its emissions world-wide. UIC encourages stakeholders dialogue and actions in order to create sustainable transport systems!



Rail offers a safe and resource efficient low carbon mass public transportation system and takes its responsibility as part of the solution.

On average rail is emitting three times less CO₂ emissions than a car and five times less than an airplane per transport unit. Thus behaviour change and modal shift from air and road to rail, and the creation of smart sustainable transport systems is the way ahead. In order to influence a change in modal choice, and a move to less CO₂ intensive transport modes, strong policy and economic measures are needed. External costs need to be included to move towards a fair level playing field for transport.

Modal shift to rail is the main approach to reduce CO₂ emissions of the transport sector!



The rail sector is continuously improving its performance.

Rail commits itself to continuously improve the sustainability performance and customer satisfaction through technical innovation, management approaches and service concepts. Many railways all over the world have voluntarily agreed to emission reduction targets. The European railways for example have committed to a reduction target of 30% specific emissions between 1990 and 2020. With greater availability of renewable energy rail will further reduce its CO₂ emissions and UIC members are defining strategies how to achieve the vision of the carbon free railway. UIC is supporting its members in this approach by facilitating international cooperation and best practice exchange. UIC has developed the necessary tools that enable the rail sector to monitor and manage its emissions efficiently under the motto "if you can't measure, you can't manage".

Railways are working towards zero emission transport solutions!



A paradigm shift towards low carbon transport is required with solutions scaled to the size of the challenge.

A steep downward trajectory in total global Green House Gas emissions by 2050 will be needed to avoid adverse climate change impacts. Unprecedented efforts from all sectors will be required to attain these levels. Transport needs focus in the new climate change regime as the Kyoto protocol excluded international aviation and shipping in the CO₂ reductions targets. Explicitly including transport within the shared vision of long-term cooperative action of the UNFCCC Parties negotiations at the COP 15 in Copenhagen is vital for the development of sustainable transport systems, with rail playing a fundamental role. Financial schemes for infrastructure as well as for technology transfer and capacity building should be enabled through a new agreement.

The next generation climate regime needs to support the development of smart sustainable transport systems, with rail playing a fundamental role!

The UIC is strongly committed to convey the important role of rail in tackling climate change. The global rail community sends this message to COP15, to encourage to 'Keep Kyoto on Track' and 'Seal the Deal' in Copenhagen!