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MAKING TRANSPORT SMARTER AND GREENER

Summary and highlights

Transport and mobility are a prerequisite for international trade, growth and prosperity. In order to create a more sustainable transport system ICC calls for global regulations that promote trade, mobility and competiveness.

Introduction

International transport continues to become more energy efficient. However, there is still room for improvement in terms of lowering the emissions of the sector. Transport and mobility are prerequisites for international trade, growth and prosperity. Regulations aimed at creating a more sustainable transport system should be global and promote trade, mobility and competiveness. The aim should be an optimized system of transportation overall.

The challenge: Long-term reduction of air pollution and greenhouse gas emissions

Although contributions to air pollution and greenhouse gas emissions vary across different transport modes, their long-term reduction, especially of CO2 emissions, will be a major challenge for all international transport given the relative cost benefits and high energy density of fossil fuels.

Well-designed, predictable and cost-effective global regulations

A greener, low-emission interconnected international transport sector will depend on a framework of predictable, well-designed and cost-effective global regulations and standards. A combination of many often interdependent parameters is required, such as the development of technology, infrastructure, transport logistics and long-term investments in a globalised world economy. In order to create the proper framework and conditions for private investments and innovation, it is crucial to have long-term, predictable, and global regulations.

Free movement of persons and goods must be ensured

International trade — including the free movement of goods and people — which contributes to sustainable growth, depends on an efficient, reliable and well-functioning transport system, both in the short and long term.

The free movement of goods and people has to be ensured and regulations should therefore not undermine trade or mobility. Instead, regulations should support the further development of a global, sustainable transport system as a tool for economic, environmental, and social development. To avoid market distortions, this calls for international consistency between national frameworks. ICC therefore cautions against unilateral action.

Focus on energy efficiency

Despite operational optimisation, an increase in international trade might lead to an increase in CO2 emissions in absolute terms due to an increased transport demand. However, focus on increasing energy efficiency could decouple the rise in transport demand from environmental impact. In this context, the transport sector and individual companies' measuring and reporting of CO2 emissions could be a useful tool. It is important to also look beyond technology innovation and take all other factors affecting CO2 emissions in transportation and logistics into account. These include mileage, lifetime of vehicles, and the CO2 content of various fuels. In the near term, efforts are needed to ensure consistent and comparable measuring and reporting standards while recognising the specificities of each mode, in order to make accurate and effective improvements. In the longer term, alternative fuels should pave the way for lower CO2 emissions. However, questions remain about the viability of fuels such as Liquefied Natural Gas (LNG) for longer international seaborne voyages, and challenges exist for alternative fuels for sectors such as aviation. Aviation will need a combination of long-term investments in alternative fuels development and diffusion and improvements through new technology and infrastructure improvements.

There are many different technical solutions on the way to a low-emission transport system. Very few, if any, are at present a competitive or politically acceptable alternative to fossil fuels. There are currently a number of disincentives in place that discourage the transport sector from increasing the use of alternative low emission fuels. For example: (1) taxes on LNG fuels for land transport are often equal to those on diesel, and the upfront costs — including the associated taxes — of alternative fuel vehicles are higher as well; (2) regulations on weight and length limits for transport vehicles constitute a challenge for CO2 reductions and the use of alternative fuels; and (3) the lack of an adequate global infrastructure that offers easily accessible low emission fuels. Such dynamics disincentivize companies to switch to more energy-efficient vehicles and lower emission fuels[1]. Unless these disincentives are removed, they will continue to increase transport costs and restrict international trade, which in the end will hinder job creation and economic growth.

Land transport is becoming more energy-efficient

There has been a major improvement in the energy efficiency of the land-based transport sector. New cars, vans, trucks and trains use less fuel on average and efficient logistics make it possible to transport more goods with less energy consumption and thus decreasing the CO2 emission per tonne-kilometre transported. The greater use of more energy-efficient railways has contributed to more optimised transport chains linking the different modes of transport in a more climate-friendly way. While railways transported more than 9% of the world's passengers and freight, they generated less than 1% if total energy-related CO2 emissions in 2011[2]. Research and development play an instrumental role in efficiency advances in the transport sector.

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The newest engines in heavy vehicles have also made a significant reduction of emissions of particles and NOx, which contributes to cleaner air, especially in urban areas. For example, a new EURO VI truck emits 97% less NOx than a truck did 20 years ago. Similar efficiency improvements have been made in light duty vehicles through passenger car standards. In the short term, it is possible to reduce emissions even further, but restrictions on weight and dimensions of heavy good vehicles and road congestion are counterproductive to a more energy efficient land transport. The rail transport sector has also made substantial commitments to increase energy efficiency — between 1990 and 2011 the share of railway emissions in transport decreased from 4.2% to 3.3%[3].

Seaborne transport is more energy efficient

The shipping industry is firmly on track to reduce its CO2 emissions per tonne-kilometre by more than 20% by 2020 in comparison to 2005. Shipping transports approximately 90% of world trade, while being responsible for only 2.2% of the world's total greenhouse gas emissions during 2012 (compared to 2.8% in 2007). Total shipping emissions have decreased by over 10% during the same period[4]. Shipping is the only industrial sector already covered by mandatory global regulations to reduce CO2 emissions, adopted by the International Maritime Organization (IMO) in 2011 and which entered into force in 2013. The industry expects that these combined technical and operational measures will result in a 50% reduction in CO2 per ton-km across the world fleet by 2050.

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Moreover, in line with new international regulations, the maritime sector will lower both NOx and SOx emissions significantly in the coming years. These regulations require major investments for the shipping companies to be in compliance. The extent to which these new rules will be properly implemented by governments in order to avoid market distortion is therefore a matter of great importance. For global trade and enterprises, regional emission restrictions creates economic barriers, while the environment and human health should be offered similar levels of protection everywhere. Therefore global rules in decreasing NOx, SOx, CO2 and other emissions from transport are the only way to avoid causing market distortions.

Air transport has become more energy efficient

Air transport has reduced its fuel use and CO2 emissions per passenger-kilometre by well over 70% compared to the 1960s. To further mitigate its CO2 emissions, the air transport industry has adopted the following targets: an average improvement in fuel efficiency of 1.5% per year from 2009 to 2020; a cap on net aviation CO2 emissions from 2020; and a reduction in net aviation CO2 emissions of 50% by 2050, relative to 2005 levels[5]. The aviation industry has also taken voluntary commitments such as developing certification standards for CO2 emissions.

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Aviation represents 2% of total human-induced CO2 emissions[6]. In 2008, the sector agreed to improve its fuel efficiency by an average of 1.5% per year from 2009 to 2020[7] and thus far this target has been exceeded since 2.9% was reached annually[8]. The aviation sector also agreed to stabilise emissions from 2020 with carbon-neutral growth and to reduce net emissions from aviation by 50% by 2050 compared to 2005 levels[9]. The strategy to achieve these targets is based on four pillars: new technology (including the development of sustainable alternative fuels); improving operations; better infrastructure; and a global Market Based Measure[10]. For example, each new airplane model is 12-25% more efficient than the one it replaces[11].

Energy efficiency already integrated in the transport industry

Notwithstanding the volatility and politics of fuel prices, fuel expenses are a significant part of the total cost for most transport and logistics companies. Energy efficiency is therefore an integrated part of the daily business of companies. This can include optimising routes and logistics as well as driving behaviour, which has an impact on the actual fuel consumption, and thereby CO2 emissions. At sea, on the (rail) road and in the air, this implies constant optimisation of routes and speed, adjustment to weather conditions, and arrival and departure management (e.g. port arrivals).

Make room for individual choice	It is important that regulations do not have a negative impact on the ongoing work conducted by transport companies in relation to energy efficiency. Policies should support the efforts already made and leave room for the individual choice of method etc. for the particular company.
Better urban transport can reduce emissions	Urbanisation and the rise in e-commerce pose new challenges for the transport sector. Increasing congestion makes passenger and freight road transport less efficient and increases energy consumption in the urban freight transport. Better urban transport — including road, railway and inland waterways — for people and goods can reduce CO2 emissions and reduce road congestion. However, freight is often not included in the larger urban design plans and investments. The use of trucking and rail freight corridors as well as centralised and coordinated distribution lanes or times for resupplying urban commercial centres can vastly reduce congestion and cost while improving safety and reliability. Moreover, public transportation expands mobility for all groups of society and helps to improve the urban quality of life. For example, metros facilitate compact and sustainable cities.
The role of the public sector	It is clear that the public sector plays an important role in the greening of transport. Investment in infrastructure that supports both land-based, seaborne and air transport can reduce congestion and improve the energy efficiency of the transport sector, enhance trade, mobility and thereby provide greater opportunities for the business sector. Such investment in transport infrastructure should also consider investment in intelligent transport systems for a networked mobility.

[1] The upfront costs of alternative fuel vehicles are high and the taxes on such high prices may be a disincentive to use such options. See also ICC environmental taxation principles (2012). (Available at http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-environmental-taxation-principles-(2012)).

[2] Railway Handbook (2014) – International Union of Railways. (Available at http://www.uic.org/IMG/pdf/iea-uic_railway_handbook_2014_web.pdf).

[3] Railway Handbook 2014 – International Union of Railways. (Available at http://www.uic.org/IMG/pdf/iea-uic_railway_handbook_2014_web.pdf).

[4] Third International Maritime Organization (IMO) Greenhouse Gas Study (2014).

[5] For these and other statistics, please see the Air Transport Action Group (ATAG) website's "Facts and Figures". (Available at http://www.atag.org/facts-and-figures.html).

[6] For these and other statistics, please see the Air Transport Action Group (ATAG) website's "Facts and Figures". (Available at http://www.atag.org/facts-and-figures.html).

[7] Ibem.

[8] Aviation: Benefits Beyond Borders – How passengers today produce half the CO2 they would have in 1990 (Available at http://aviationbenefits.org/blog/2015/04/how-passengers-today-produce-half-the-co2-they-would-have-in-1990/).

[9] Air Transport Action Group – The right flightpath to reduce aviation emissions. (Available at http://www.atag.org/component/downloads/downloads/72.html).

[10] International Air Transport Association (IATA) – Climate Change. (Available at https://www.iata.org/policy/environment/pages/climate-change.aspx).

[11] Air Transport Action Group (ATAG) – Climate Action Takes Flight Presentation (Available at http://www.atag.org/component/downloads/downloads/274.html).