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CHALMERS



Sustainable Freight Transport Chains Goal or Myth?

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Summary

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1 Introduction

The final conference “Sustainable Freight Transport Chains, Goal or Myth?” was part of the ETTAR (Environmental Technologies Training and Awareness Raising) project, funded by the European Commission under the 6th Framework Programme, and took place in Bruxelles on 9 September 2008. The workshop assembled about fifty participants representing mainly the transport and logistics industry and other businesses as well as NGOs and independent academics.

The workshop facilitator Mr. Frank Sprenger gave an introductory speech drawing the attention of the audience to

- the e-learning specification that was produced in the course of the project and
- the first policy brief giving recommendation to EU policies.

A second policy brief will be produced also based on the findings of the conference.

The conference was meant to wrap up the project and to present final conclusions concerning

- Fuel costs/scarcity;
- Cooperation and information sharing;
- Harmonised EU incentives and penalties;
- Sustainability performance indicators.

The conclusions should be of use for other DGs of the European Commission dealing with transport than DG Research on whose behalf the conference was organised.

The workshop contained a couple of introductory presentations and contained working groups dealing with specific issues regarding awareness raising, training and network building. The discussions encompassed all modes of freight transport: road, sea, rail and air transport. This summary will convey the results of the working groups and will not reproduce in detail the presentations given by the experts, which can be downloaded at: <http://www.ettar.eu/events/conference/presentations.html> .

2 Presentations: Climate Change and Transport : Finding a balance

The workshop started with introductory presentations about climate change and transport's impact thereto.

Prof. Anders Levermann (Potsdam Institute of Climate Research) showed the world's warming trends of the last century. He showed the rise in CO₂ in the atmosphere and other greenhouse gases. Mountain glaciers are retreating globally and do not reflect the sun light any more, the ocean rather absorbs it, which leads to the warming of the atmosphere. These climate changes are anthropogenic.

Future projections on temperature rises with different scenarios were shown and the highest such scenario would be result of continuing “business as usual” – these do not include possible mitigation due to possible measures that could be taken. Potsdam Institute is examining the best measures,

Any real climate stabilisation measures would entail a huge change in energy supply systems. This means drastic changes in society and this will include the transport sector for sure.

Prof. Alan McKinnon (Logistics Research Centre, Herriot Watt University) aimed to show the effects of climate change and carbon issues with the transport sector. The EU's dilemma is that to ensure greater prosperity, the economy requires more transport, on the other hand improving climate issues requires the reduction of transport. There are different levers to reduce environmental impact in logistics: Modal splits, handling factors, haul lengths, loads, empty running, vehicle issues, timing, fuel efficiency and others. They are known and can be instantly applied.

Freight tonne kms are, however, increasing with relation to GDP because the European countries are integrating and enlarging. But at a country level, there are wide differences. Any national surveys might be misleading because in some cases any decoupling is just due to off-shoring ("délocalisations") of the manufacturing so intensity is exported, not reduced.

"Business as usual" trends show some trends in the wrong direction but others such as fuel efficiency of trucks, reduction in empty running are in the right direction. Others are difficult to analyze including CO₂ emissions from trucking.

The main actions to optimize logistics flow that are regularly taken were mentioned:

- (1) main revision of logistics schemes,
- (2) employing less polluting modes,
- (3) targeting the supply source.

As regards the localization of sourcing, this does not necessarily reduce emissions given that the transport emissions only constitute one (possibly minor) part of emission sources: e.g. apples are imported from New Zealand, yet it would take more energy to grow them in UK. Such trade-offs have to be managed. Also sometimes centralized distribution can lead to higher emissions. Trade-offs may be needed between transporting warehousing, materials handling and inventory.

One possible trend is the carbon auditing of products and labeling of products, e.g. a packet of crisps comes down to 75g of carbon etc. If the whole supply chain is included it is possible to calculate the CO₂ produced, but it is very expensive and the question arises whether it is worthwhile – would it not be better to do something rather than just measure it? Also figures can vary e.g. source of potatoes for crisps.

In the **discussion** following the presentations, a basic problem was seen in the **EU's infrastructure financing**. There are more road investments in new Member States than in rail. Also EU is funding more road projects than rail. Thus, there is a road bias with the result that rail still hovers at 9% of freight.

With regard to the logistics, it was said that changes in transport costs will not affect localization. 30% of trucks on European roads still run empty – how to change this? Trends towards reducing empty running in some counties (UK 34% to 36%) – it will probably not go below 20% and it will never be eliminated.

Another question was how to change the trucks and their level of emissions? Emission controls have reduced efficiencies – main fuel savings will be done by better driving and also by hybrid vehicles.

3 Result of discussions in the Working Groups

Different working groups dealt with specific transport-related problems having an impact on sustainable transport.

3.1 Fuel Costs and Scarcity

Given the oil scarcity and the rising fuel costs, the consumption of oil has to be reduced. For the freight sector this can be done primarily by

- increasing transport efficiency and,
- inducing changes in relations with the costumers.

As for the latter point, there may still be just-in-time delivery but delivery has to be planned in a better way. In the US, costumers have shifted from air to ground due to the rise in fuel costs, thus express deliveries seem to be not as important as before.

The attainment of modal shift has been regarded as very difficult even in the middle term. The infrastructure and the spirit do not suffice (railways are not competitive enough).

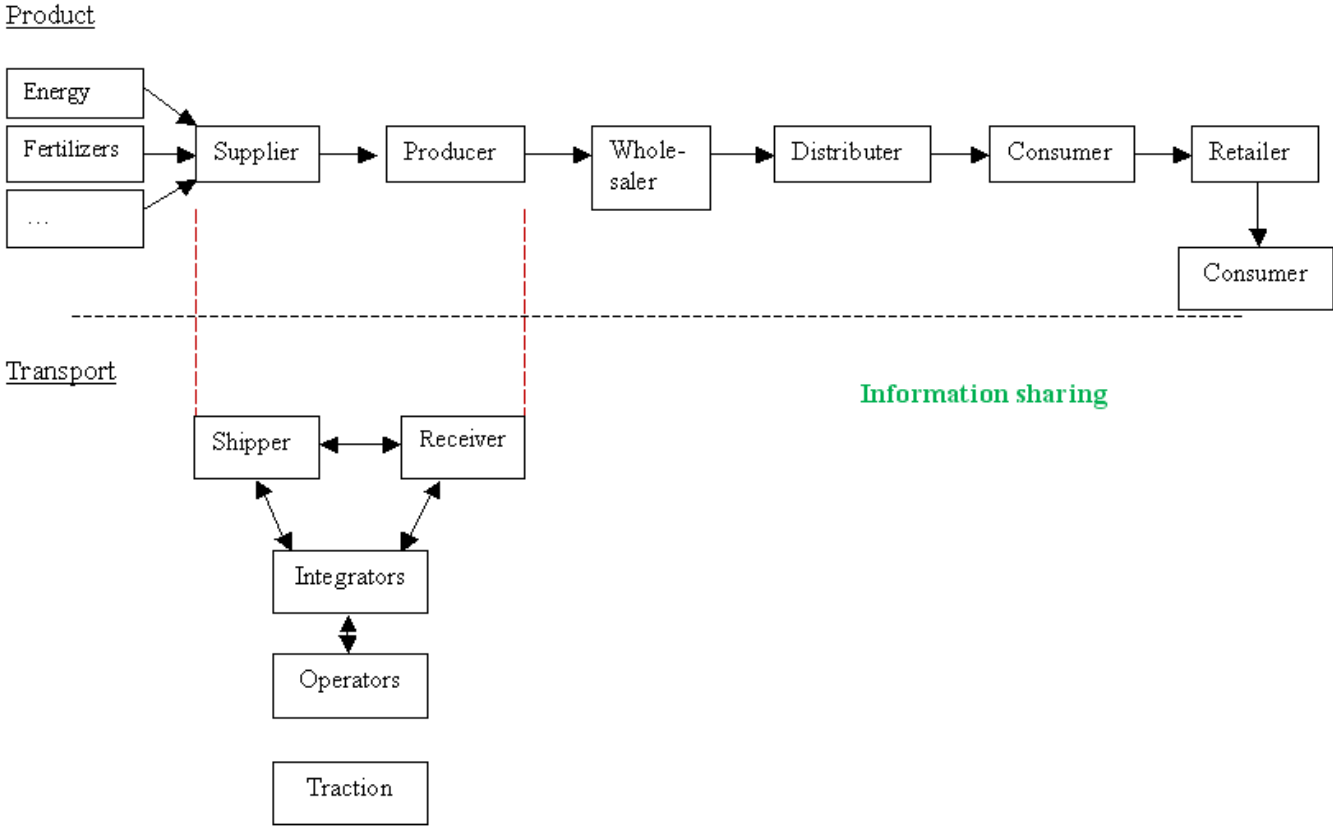
The customer might have to pay the price in the end for the employment of new technological concepts in order to promote sustainability. There is a limit as to how much the customer will be able to pay. So competition will be stronger among transport companies. Cost-benefit analyses must be made and transport companies have to look at the internal processes of the costumer.

The fuel price increase will be positive for those who are prepared. Passenger transport will significantly decrease, which will open new opportunities for freight traffic. Some companies, even competitors are getting together to reduce transport costs.

The government should take measures to make the fuel price variation smoother, and make adaptation for companies easier, make their planning more reliable. However, price signals may not be overestimated for freight transport as all the industry is concerned by higher prices, which does not induce behaviour changes.

3.2 Cooperation and information sharing (Working Group B)

Food SC/LCA



Information sharing should be among all the members of the supply chain. Every member is important and cannot be left out. For example, if the shipper gives the wrong information about the quantity of the consignment to the operator and then wants to send more than before, the operator might need to send an additional truck filled just partially. It would be good luck if the operator has enough goods to be sent in the same direction. If not, then there will be a lot of redundant transport, since the goods cannot wait until the consolidation is done, because those have to be at the right place in the right time and quantity.

Although just the transport Supply Chain (SC) was mentioned in the previous example, one also needs to look at the whole SC and especially the consumer. If the consumer changes demand for the product significantly, then he influences the demand in the whole SC. As a result a bullwhip effect might occur and there will be a lot of redundant transportation within the SC.

The transportation industry should learn from the successful practices of other industries, because a lot can be gained. Good examples of information sharing could be found in the banking sector, and passenger air transport.

3.3 Harmonised EU incentives and penalties

Overall there appears to be a conflict in the EU between policies designed to maximise GDP with those designed to reduce environmental impact.

What is needed (some of these are already happening or under development) is a mixture of regulation, economic measures and information-sharing, including:

- Incentives to move freight to rail and for different modes to work together (Marco Polo Modal Shift programme) ;
- Legislation that obliges organisations to internalise their external costs (a proposal has been made that needs the agreement of the Member States)
- Emissions targets for Member States linked to penalties (targets are not yet being enforced)
- Research e.g. into new technology; into food miles
- Better infrastructure to promote environmental transport
- Elimination of arbitrary national procedures that delay trains at borders.
- Less road building; more roads = more transport = more emissions
- Review of tax structure (currently only national schemes e.g. MAUT in Germany)
- Energy efficiency targets at EU level which take account of transport issues (e.g. more expensive electricity makes rail less competitive).

The excuse for not doing a lot of these things is that it will damage the EU's competitiveness globally, but Switzerland has been able to internalise external costs and regulate fuel emissions and still remain successful.

3.4 Sustainability performance indicators (Working Group D)

The use of sustainability performance indicators regarding transport was discussed. While there are a multitude of potential indicators to assess, the group has preferred to concentrate on a few really decisive ones. The sustainability performance indicators concern producers and transporters and take into account the whole supply chain.

- The central indicator is CO₂ emissions of producers (CO₂/tonne or CO₂/unit) and transporters (CO₂/km¹) describing the central and most politically relevant environmental aspect; logistics providers may combine these as CO₂/tonne.km
- Costs is the most relevant socio-economic indicator which reflects the impact of any sustainable action that might be too much for a company and might be negative for the employment situation.
- Noise, employment, health impacts, accidents and time loss are social indicators, with measures of congestion a possible integrating indicator

Sustainable performance indicators are likely to focus on CO₂, will also consider the economic implications, but should also address the social aspects. Addressing all of these together is analogous to applying multi-criteria analysis, with carbon burden as a unifying indicator. (Noel, is this right, Mr. Klimek would like to have this rephrased to be clearer)

In order to assess e.g. the CO₂ emissions that are caused by the product portfolio, it is hard for a firm to calculate the emissions for all the products, thus companies should start with a handful of products. Selecting a sub-set of the range of activities the companies engage in will facilitate learning and development of a methodology and practices that can be commonly applied. It will identify the “hot-spots” that merit immediate improvement, are dominant aspects or require detailed investigation.

¹ When is this used?

Motivation to use sustainability performance indicators and carry out the necessary monitoring actions can come from reactive causes (such as costs saving, either capital or operational) or for proactive reason like image and market share concerns. Company senior management and board members are key to the adoption and implementation of these indicators.

4 Concluding discussion

In a panel discussion, a discussion of the different policy option was given.

A fair share of the panelists agreed that the assessment of the carbon footprint of one's company and on this basis start off-setting measures would be a good measure to green supply chains. Some transport companies already measure their carbon footprint.

One participant, however, described as a basic problem that there was no common methodology for businesses to calculate the environmental footprint. The "quality" of any reduction rates depends, moreover, on the base year.

In general the thesis was approved that cooperation was needed to strike up generally agreed principles to calculate a transport company's carbon footprint. The knowledge of one's carbon footprint is also telling with regard to one's efficient use of energy. Thus, the information gained can be used for many purposes. The development of solutions to reduce CO₂ emissions requires the co-operation of customers. Training should also be given to subcontractors.

The panelists then discussed whether the inclusion of traffic in the European Emission Trade System would be helpful to foster environmental technology. This was doubted by some participants given that the price per liter fuel would only be 5cents, thus virtually negligible. Rather there should be strong and clear incentives across different policy fields, transport policy's goal should be to reduce CO₂.

Different policy measures were then discussed to tackle climate change stemming from transport:

- Obligation for each company to calculate its own carbon footprint – and to develop measures to reduce their footprint;
- Introduction of a tax mechanism which increases the fuel price;
- Especially raise the tax levels for diesel (which however is hard to get approved due to political resistance);
- Adaptation of infrastructure financing (10-12 billion): re-allocation of road funding to environmental modes (non roads); strengthening the Marco Polo Project and modal shifts;
- Converting the Marco Polo Programme into a CO₂ reduction programme;
- Obtaining targets form Member States on how to reduce CO₂ emissions from transport and checking other policies against this goal;
- Efficiency targets for lorries

In a short wrap-up Mr. R. Andreas Kraemer (Ecologic) said that with regard to environmental technologies and transport a lot of knowledge exists, now targets, incentives and management systems are needed.

At long last, the proverb "What gets measured gets managed and finally improved" does not necessarily hold true in the context of transport and environment: any manager (producers or

transporters) needs to be convinced that improvements in the environmental department benefits the company.

Furthermore, any monitoring of processes with environmental impact would need to concentrate on the quantitatively important sources.

Policy itself might develop a series of goals concerning transport, however the pursuit of these goals is not always taken seriously. Thus, in gauging the progress of greening transport, policy is changing very slowly (boundary change, incentive change) given also that path dependency is a reality.

Thus, as one result of the discussion, greening transport requires quite a series of policies and will be a steady but hard process.