CORPORATE PRACTICE TOWARDS SUSTAINABLE LOGISTICS

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ABSTRACT

In an economy, which is based on spatial division of labour, the logistics function gain on importance. Freight transport is a growing sector worldwide. It is seen as the connector and facilitator of the globalised world economy. Unfortunately it is also a – still rising – main-driver for climate change.
A growing number of multinational companies releases Corporate Social Responsibility (CSR) reports and invests money in the ecological and social optimisation of their production processes and their products. Still missing is an analysis, if this is also the case for the transport and logistics operation.
This paper presents empirical findings of how companies govern their business on an economic basis and why and how they handle social and ecological issues in logistics.
The analysis shows that for sustainable logistics self-mechanisms in the economy, as well as governance frameworks are necessary. It will be distinguished that an important step towards sustainable logistics is to manage transport in a multi-dimensional manner.

Sustainability, Greening Logistics, Freight Transport, CO_2 Emission, CSR

INTRODUCTION

The economic development is characterised by a disproportionate growth in international trade relations (WTO 2009, p. 174) and the rapid change of products, processes and actors. This reorganisation of interfirm division of labour started already decades ago and was done mainly by systemic rationalisation, accompanied by an integration and cooperation of companies in procurement, production and distribution activities. The results are cross-enterprise value chains, which further developed into global networks while global trade barriers were diminished.
Logistics is the connector and facilitator of the globalised world economy. In developed countries the logistics sector is a major sector in their economy (Klaus 2009). As a result of

spatial division of labour, freight transport in volume and tonne kilometres is growing worldwide (ECMT 2007, U.S. DoT 2010).
Between the years 1990 and 2002 the rise in transport demand led to an increase of transport related emissions of carbon dioxide in industrialised countries by nearly 25% (IEA 2005).

> 'In 2004, transport was responsible for 23% of world energy-related GHG emissions with about three quarters coming from road vehicles. […] Freight transport has been growing even more rapidly than passenger transport and is expected to continue to do so in the future. […] Unless there is a major shift away from current patterns of energy use, world transport energy use is projected to increase at the rate of about 2% per year, with the highest rates of growth in the emerging economies, and total transport energy use and carbon emissions is projected to be about 80% higher than current levels by 2030.' (IPCC 2007, p.325)

The announcement of the Stern Review (Stern 2006) in October 2006 and the publication of the Fourth Assessment Report (AR4) of the United Nations Intergovernmental Panel on Climate Change (IPCC 2007) in February 2007 pointed out with a new urgency that the manmade global warming will also lead to monetary costs for society and economy, which will be higher, than the burden of changing the fatal behaviour of mankind.
The financial downside of a business-as-usual demonstrated to corporate leaders that a change towards a sustainable economy is needed. The G8 Meeting in Aquila in 2009 approved a declaration (G8 2009) supporting the 'goal of developed countries reducing emissions of greenhouse gases in aggregate by 80% or more by 2050 compared to 1990 or more recent years'. Given a scenario based on global justice, according to Al Gores 'Live Earth 7 Point Pledge' a final 90 %-reduction of fossil fuel emissions in developed countries is needed (Coyle 2007) to reach the global reduction goals set by IPCC (2007) for the year 2050. Keeping in mind that transport volumes and distances will further grow, until 2050 the decarbonisation of freight transport is a huge challenge for today and the coming decades.
Besides the global warming potential of transport and logistics, it is also a main consumer of resources worldwide and a main cause of injured and dead persons through traffic accidents, noise and other emissions.
Up to now, the question of sustainability within the logistics sector was mainly a conceptual discussion. Carter & Jennings (2002) interviewed logistics professionals and defined Logistics Social Responsibility (LSR). They pointed out that up to their research only parts of LSR were examined by scientists, such as 'environmental purchasing (Carter and Carter 1998; Min and Galle 1997), ethical issues in buyer-supplier and shipper-carrier relationships (Dubinsky and Gwin 1981; Murphy and Daley 1990), safety (Corsi and Fanara 1988; Corsi, Fanara and Roberts 1984), and diversity issues (Carter, Auskalnis and Ketchum 1999; Corsi, Tuck and Gardner 1998).'
Since IPPC (2007) and the Stern Report (2006) empirical surveys regarding the question how companies deal with sustainability in freight transport gain more attention. Generally, they depend on questionnaires (see for example eyefortransport 2007, Straube & Pfohl 2008, Transport Intelligence Ltd 2008, DSLV 2010) or on interviews with the management of the logistics departments and logistical companies (PricewaterhouseCoopers 2010).

An objective survey regarding the goals set and the realised measures is not given yet. To close this gap a research based on the Sustainability Reports and Annual Reports of the biggest 50 German companies has been worked out (base year 2006).
In this paper, after a theoretical part regarding the sustainability approach, the empirical findings are presented. At the end a short outlook is given to show the roadmap for greening logistics towards sustainable logistics.

SUSTAINABLE DEVELOPMENT

Under today's framing conditions sustainable development is a universally accepted goal, even in the transport system. Sustainability was first introduced in 1987 by the Brundtland Commission report 'Our Common Future' at the international level and is defined by two essential aspects. The first aspect is intergenerational ecological justice: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' (WCED 1987, Chapter 2) Second, the need of behavioural changes: 'In essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.' (ibid.)
The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 adopted the 'Agenda 21'. Through this document the concept of sustainable development was distributed worldwide and got comparatively well accepted. The term Sustainable Development is interpreted very broad, as it is based on the five pillars of environmental, economic, social, cultural and ethical development. In the meantime, in most countries, a three-dimensional interpretation was enforced: the sustainable ecological, social and economic development named 'Triple Bottom Line' (Elkington 1994, 1997) and was also applied on companies and their CSR-strategy.

METHODOLOGY

To examine, to what extend the international supply chain is part of the social-ecological management of a company, the comparative report analysis was chosen. The reports of the top 50 German companies (excl. insurance and banking sector) were collected in July 2006. Their content was analysed with help of semi-automated keyword search in electronic documents. The results were evaluated in a self-developed comparative framework that focused on four aspects:

1. General company information;
2. Information regarding the report;
3. General information about the reporting practice;
4. Detailed information regarding the reporting practice in respect to the supply chain and particularly to transport & logistics activities.

The developed method based on the typical structure within an Environmental Management Schemes (EMAS). While EMAS uses the term environment, we extended it on the basis of the scheme towards sustainability according to the triple bottom line. As financial aspects are covered by financial reporting, this paper defines sustainability policy as the overall intentions and direction of an organisation relating to its social and environmental performance as formally expressed by top management including compliance with all applicable legal requirements relating to sustainability and also a commitment to continuous improvement of the sustainable performance. It provides a framework for action and for the setting of sustainable objectives and targets. (See also: EMAS Regulation, EC, No 1221/2009, Article 2.1)
Furthermore 'sustainable target' means a detailed performance requirement, arising from the sustainable objectives, applicable to an organisation or parts thereof, that needs to be set and met in order to achieve those objectives; based on the EMAS Regulation (EC, No 1221/2009, Article 2.12) and other sustainability approaches.
Hence, the empirical findings are presented along the following structure of questions:

1. How do the companies report?
2. What are the system boundaries in the reporting practice?
3. Are goals defined, particularly regarding to transport & logistics in the supply chain?
4. Are areas of action identified?
5. Are measures derived from the goals and areas of action?
6. Is the success measured and an indicator-system installed?

EMPIRICAL FINDINGS

Report Types

No reporting at all was available by 4%, while the single source of information by 14% of all companies was the annual report. Out of 50 researched companies 82% reported specifically on the environment. From the 82%-share, 14% did incorporate a separate environment chapter or CSR chapter in their annual report, while 60% issued a full CSR- or environmental report (see figure 1). From the remaining 8% of companies the biggest subsidiary published a CSR- or environmental report, they were taken for this survey.

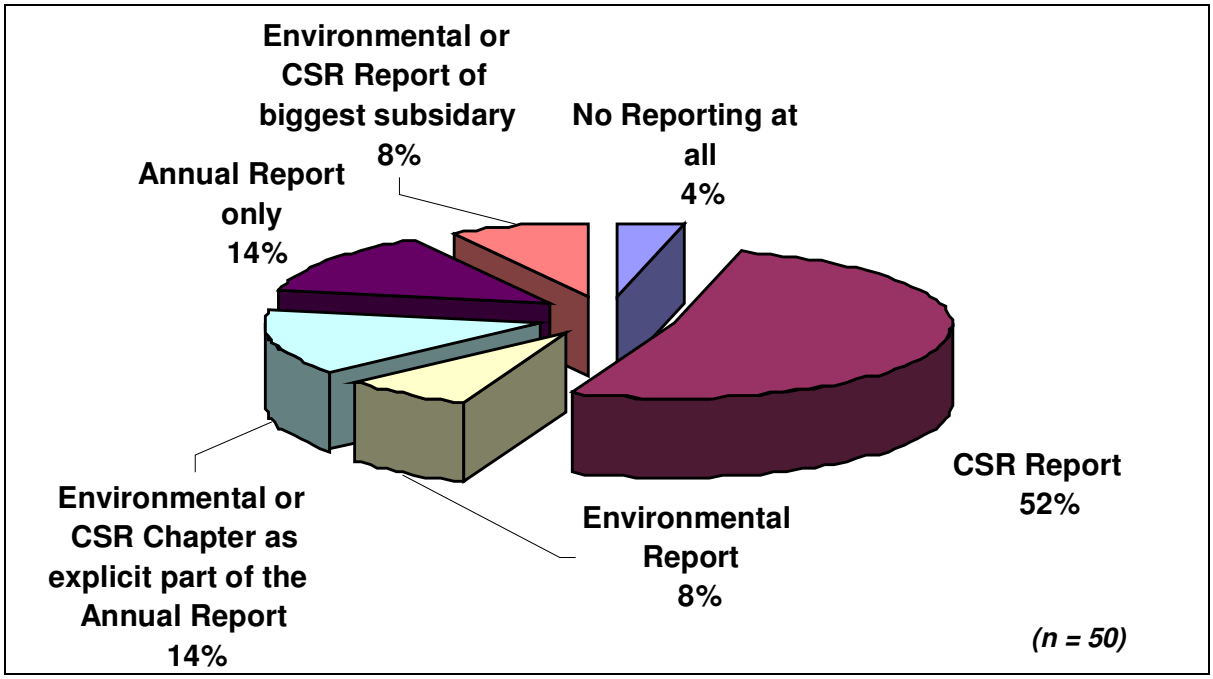

Figure 1 – Surveyed report types within the top 50 German companies

Report Standards

Two fifths (40%) of all companies used the Global Reporting Initiative (GRI) guidelines ['G2'] as a report orientation. Mostly they referred to GRI as a reporting standard ('reference only') but did not fully comply with it. The rest of the reports using GRI were consistent with the guidelines ('in accordance with') and had a GRI Content Index. Some were also checked by GRI, while others used external partners or did a self-declaration.

GRI is a network-based organization that has developed a widely acknowledged sustainability-reporting framework. The current framework G3 from 2006 sets out principles and currently 79 indicators organisations can use to measure and report their economic, environmental and social performance (GRI 2010). In the year 2006 a pilot supplement for the sector specifics in 'logistics & transportation' was developed and published (GRI 2006).

System Boundaries of Reports

Two aspects of the system boundaries were researched regarding the responsibility of the company in the supply chain. On the one side, we analysed how many tiers of the supply chain were included in the reports' "mission statement" or elsewhere in the reports. Secondly, we analysed to what geographical extent the responsibility was claimed. The results show that almost all the reports lack of consistent and defined system boundaries.

A share of 62% of all companies names their supplier as an important or integral part of their supply chain. They pointed out that they influence the supplier, e.g. regarding social (e.g. child labour) and/or environmental standards. If the scope is only as big as their own property, there will be no measures reported with a wider or even global outreach.

It can be assumed that in each considered company worldwide sourced products are processed. Sourcing makes transportation necessary to move the material to the next (or

final) step in the supply chain. Therefore, it was investigated to what geographical extent the transportation process is part of the reporting.
The analysis of the geographical scope in the reports showed (see Figure 2) that regarding transport 24% of all companies have a global scope (including logistical companies) and 8% an European scope. A share of 16% of the companies does have a focus on Germany. Another share of 16% consider only their own property as a relevant scope for their report. Roughly a third (36%) of all companies do not have a scope or it could not be extracted from the reports.

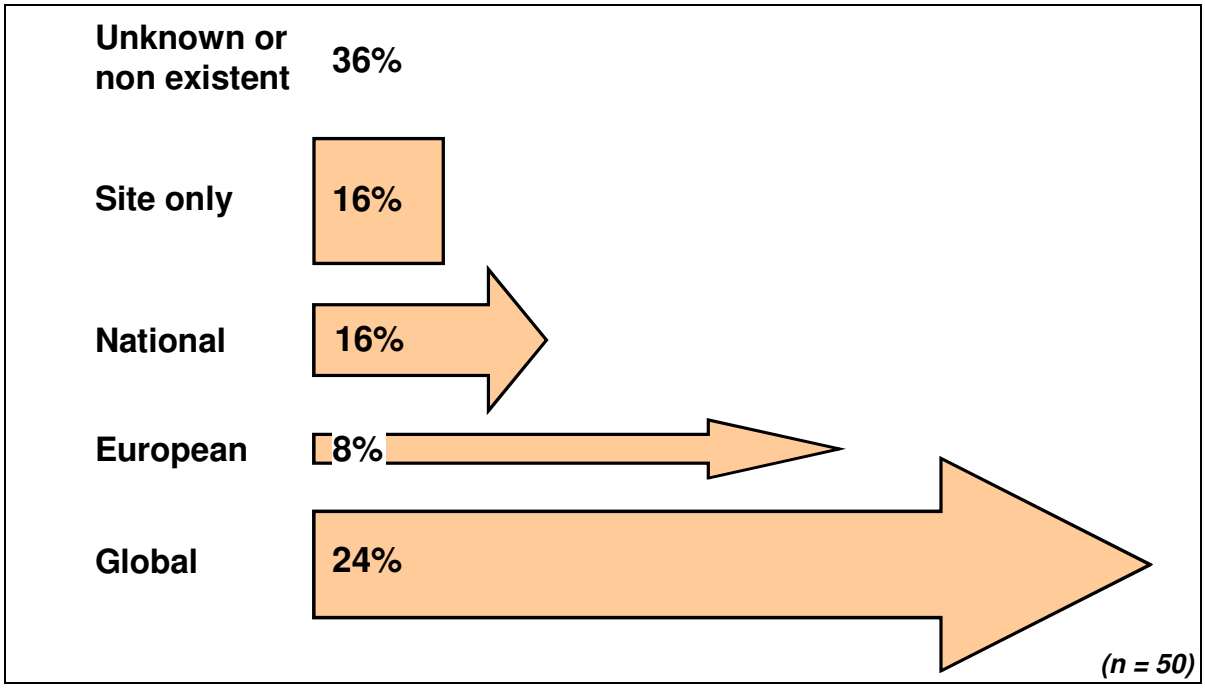

Figure 2 – To what geographical extent is supply transport part of the reports?

Defined Objectives

The analysis of the reporting regarding the objectives, which were set to manage the sustainability within the supply chain, includes two levels. Typically the main CSR objectives are documented in the corporate sustainability policy, while the sustainability targets e.g. for transport and logistics are part of the reporting in the specific chapter.
The analysis showed that reports have in general a narrative structure while clearly structured target systems are missing. Especially the supply chain related parts of the corporate sustainability policy are split into holistic approaches on the one side and environmental statements on the other. No report formulated exclusively a social policy.
In the field of holistic statements the responsibility is often abstracted to such an extent that it is undistinguishable whether only the pure economic responsibility of the company is focused on or on a real corporate sustainable responsibility. Good examples in this regard are statements like [the] 'responsibility for the entire manufacturing process "supply chain management"[1]' or the goal of 'consistent embedding of corporate responsibility in the entire

[1] The following statements from German CSR reports are all translated into English by the authors.

value chain'. In other statements it is evident that the sustainable activities should not run counter to the economic objectives, for example 'set a goal of balancing economic, environmental, social and cultural aspects that must be reconciled' and some named sustainable activities are only financial driven like '[to] support the customer binding process' or sustainable activities are a 'central precondition for the success of the company'. Regarding the results of the analysis it becomes clear that often the overall objectives are driven by competition with other companies and optimising logic. 'Leadership in sustainability at heart', 'optimise sustainability' and 'success measured in sustainable action' are three examples. This doesn't mean automatically that these targets are also connected to the worldwide need that would result for example from the necessary mitigation of global climate change.

Apart from companies whose core business is transport, only one statement was found, where the reader can conclude that the transport & logistics sector is part of the company's sustainability policy: 'responsibility to protect nature as a basis for life and deal with their resources sparingly. It is our mission and our achievements in environmental protection, occupational safety, health and plant safety, product stewardship and logistics to continually improve and to meet legal requirements'. Nevertheless, also an exclusion of the sector was not recognized in any other report.

Looking at the 'environmental' policy statements directly related to the environment, a higher degree of specification is evident in comparison to the 'sustainable' policy statements described above. One company states, 'We are aware of our responsibility towards our environment and address our business activities towards it.' Another company sets also a high priority to environmental protection when it declares: 'the conservation of the environment is a prime corporate objective.' And at least a balanced importance can be read in statements like 'We are a company that protects the resources and impact the environment as low as possible'. A weaker approach can be seen in the statement 'protecting the environment is one of the key prerequisites for' the 'business success' of the company. Here the environmental protection is seen solely as means to the end for the financial bottom line.

Some less goal-oriented formulations have committed themselves in line with economic growth targets to the 'continuous improvement' process. A report from a car manufacturer is stating that the company 'is working to continuously reduce the impact on the environment caused by the production, use and disposal of [...] cars' and another citation 'We design all stages of production as environmentally friendly as possible' does indicate it.

Objectives often focus on the production itself. Such goals as 'We face the requirements of the environmental protection of tomorrow, as we constantly work to improve the environmental performance of our products,' do suggest this idea. Very soft, another company set out their objectives by writing: 'We attach great importance to environmental aspects when purchasing materials and services.'

Similar to the sustainability policy, it is also unclear, if and how logistics processes are integrated in the environmental policy of companies. A very comprehensive policy formulation was found in one companies' report: We want 'to analyse the environmental impact of the manufacturing processes, realise an environment-oriented product development and manufacturing planning and want to optimise any other activities of […][the company] in regard to its environmental impact.' In other policy documents an integration of

logistics can also be assumed, when it is stated that the policy applies to 'all production stages'.
Overall, it appears in the policy formulations that the goals and principles of action of companies do vary considerably. This is not concealed by the fact that all reports do only have very vague goal statements, for example not a single quantified objective could be identified in any report.

Identified Areas of Actions

The environmental and social targets for transport and logistics were extracted from the reports and clustered to thematic categories. In addition to the formulation of targets with regard to 'methods', 'criteria' and 'to develop goals,' also the fulfilment of 'the law' and 'administrative authorizations' is stressed. In some of the reports the environmental targets go beyond the fulfilment of the laws and also the precautionary principle is mentioned in some reports. In addition product life cycles play a role, 'from development to manufacturing to recycling or disposal of our products'. Some reports mention the precautionary principle in the selection of the 'suppliers, contractors and business partners' by evaluating 'its environmental performance'. Therefore a transfer of the precautionary principle to companies in the supply chain can be assumed. If the focus is mainly on environmental but not on social activities, it could be named green logistics.
Looking closer on the three environmental areas resources, climate change and emissions, one can see that all three areas are correlated, although the reports focus on a particular area to emphasize it. For example, the starting point for environmental accounting is the balance of the energy bill and the resources used in the production process. With this information and respective emission factors, the carbon emissions could be calculated. Furthermore, with information on the used vehicle fleet and motor technology, also other air pollutant emissions could be calculated, while the only data from the companies practice is still the resource consumption.
A very broad spectrum is observed regarding the liability in the formulated single targets. On the one hand, a general reduction of emissions is set as a goal like 'reduce our greenhouse gas emissions'. A more precise definition of goals e.g. with regard to the area, the period and the target reduction takes place only in few reports and is often incomplete. One example is 'reducing energy consumption in buildings for logistical activities by 10%'. A defined, quantifiable goal with a deadline in the transport sector is reported only in exceptional cases. Well-formulated is the following objective: The 'reduction of transport-related CO_2 emissions by 45 percent compared to 1993' prior to 2005.
A further objective includes the identification of CO2 as 'our greatest impact on the environment and therefore our greatest responsibility for environmental protection'. Similarly ambiguous is a goal in another report, stating that the 'CO2 emissions being responsible for are as low as possible'. The solely climate related activities in transport could be named 'blue logistics'.
In the field of social goals in the transportation sector peculiar fewer examples could be identified in comparison to the ecological field.
The examples 'enhance transportation safety and promote road safety' and 'rate of global transportation accidents decrease' showed a concentration on transportation safety. Also

accidents at work in the field of logistics activities are targeted. Other social aspects could not be identified. If social and environmental aspects are tackled, then a company is developing towards sustainable logistics.
To summarise the present situation, most of the typical elements of a supply chain are not included in CSR reporting of buying companies and are therefore not in the focus of action. Figure 3 shows a simplified example of a supply chain and the dimensions that today covered by a so-called good practice CSR report.

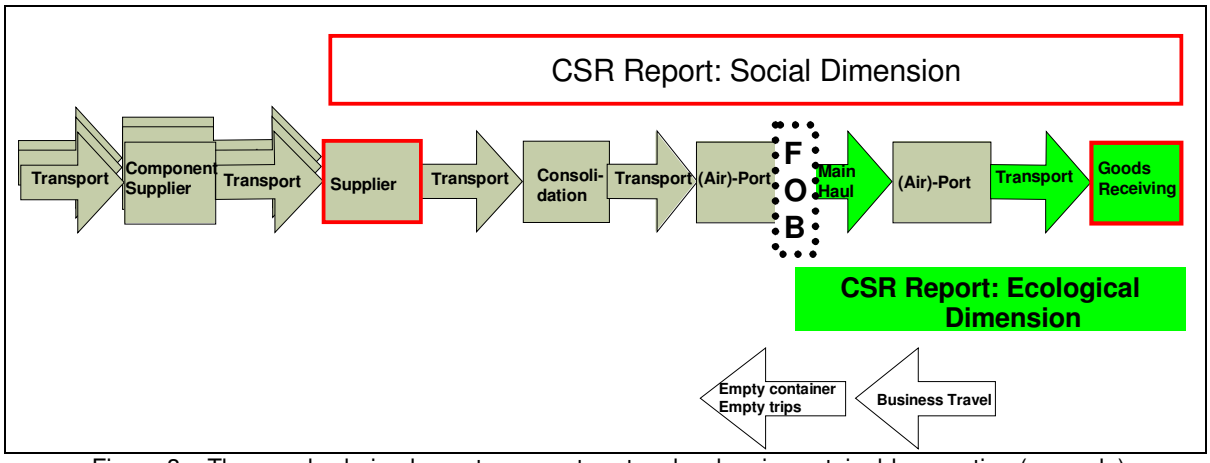

Figure 3 – The supply chain elements: current system borders in sustainable reporting (example)

A typical identified good practice CSR report in this survey covered the social conditions (red boxes) in the suppliers' factories, but left alone the environmental aspects in these factories. While for transport processes the environmental dimension of the main haul (often by sea ship or airplane) and the post-carriage ashore is covered, the social dimension is not included. Finally the environmental and social conditions of the goods receiving department are included, as the department is part of the company.

Defined and Implemented Measures

To achieve the set objectives, companies plan and implement practical measures. The results showed that 46% of companies implemented measures to improve sustainability in their transport chain (see Figure 4). Measures that do not relate directly to logistics, but can be implemented in any company (e.g. water and paper saving) won't be considered here any further. Safety and accident prevention issues play a large role in many businesses and are also necessary to prevent environmental risks. However, these aspects are not further taken into account, since they are mainly implemented to comply with legal standards in normal operation. Exceptions are made if the measures are implemented to lower the impact for residents, for other traffic infrastructure users or if they go beyond the necessary legal standards.

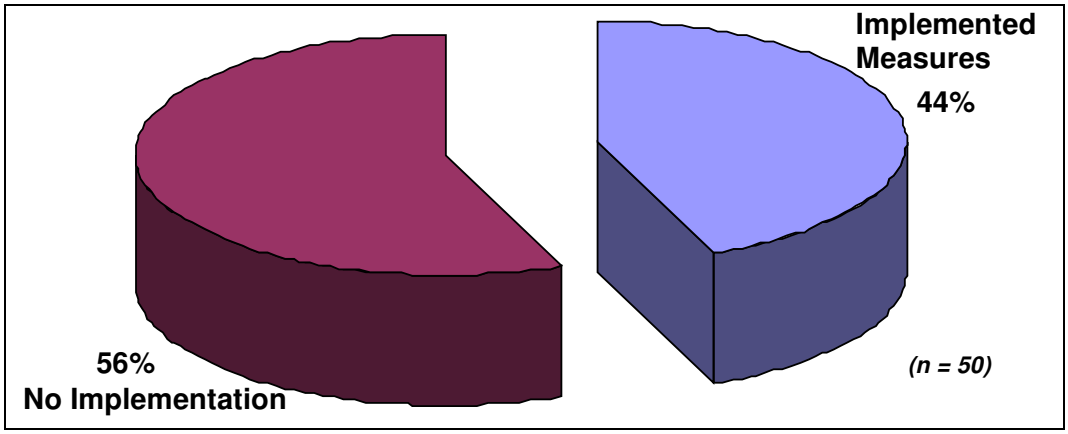

Figure 4 – Implemented transport and logistics measures within the supply chain

The described measures in the transport area were classified according to the broadness of implementation (see Figure 5). A majority of 51% of the companies reported measures that were implemented in major parts or in the whole of the company. Another 23% of the considered companies implemented measures in some parts of their company or their supply chain, whereas in 26% of the companies the measures were implemented in a single case, for example one product or one site (pilot studies included).

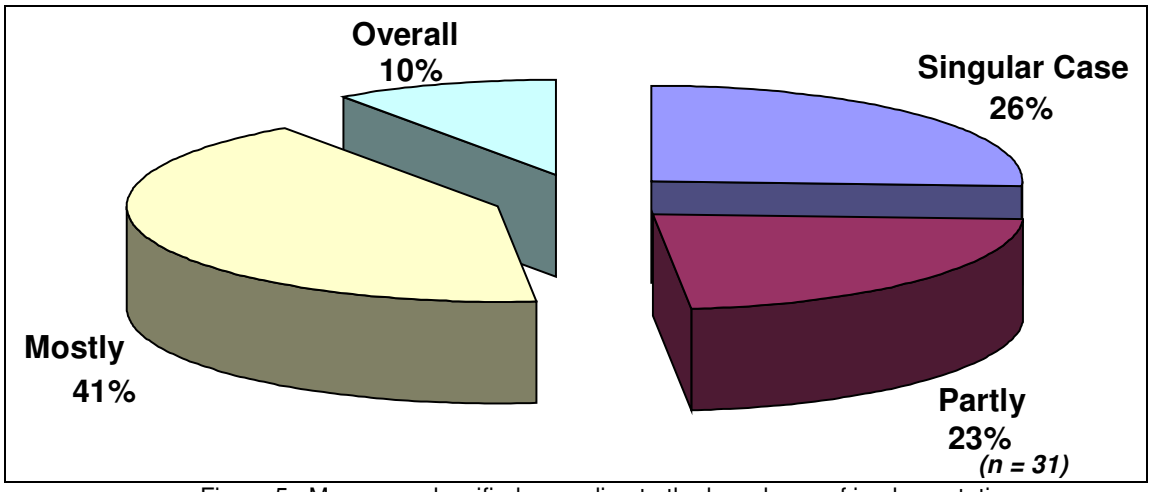

Figure 5 –Measures classified according to the broadness of implementation

Looking at the measures implemented more closely, one can distinguish three areas of action:

1. Improvements of the logistics on the ground,
2. Technical improvements of vehicles,
3. Measures to optimise the organisation.

Within the first area of improvements of the logistics, measures were clustered that have a direct impact on the location of the sink or the source. This can be both: the proximity of suppliers to the company, as in the context of just-in-time approaches with the help of suppliers' park, but also the choice of sourcing with special emphasise on the ‘neighbourhood’ of each plant.

The choice of industrial location close to the raw material source can also be a transportation saving decision. In addition, there are regional logistics measures such as the introduction of a local concession of freight forwarders that collects and bundles various commodity flows and the reversal of supplies by collecting raw material, instead to deliver them. Especially after mergers, acquisitions and restructuring National or European warehouse concepts are reorganized. This leads to economic and usually also transportation savings. Noteworthy is also the presentation of an oil company related to the planning of an oil pipeline, which was conducted in consideration of social as well as archaeological points of view.

Other logistical optimisations were either site-specific or related to trips and vehicles as well as the shift to less-emitting vehicles. Site-specific measures are defined as transport saving and immobile measures adapted to a specific location. This can be for example the implementation of construction site logistic concepts, the production of gases is carried out locally (instead of transporting them to the site) or the filling level of gas tanks is remote monitored and oil-handling terminals are particularly environmentally friendly designed. Other measures include the regulation of traffic to and at the plant site in a resident-friendly and calm way or a vehicle road safety check is done at the entrance.

More trip- and vehicle-specific measures are considered to optimise the routes of the vehicles utilize vessels better and avoid empty runs. Nevertheless, detailed information on the actual design of the measures is lacking in the reports.

Modal shifts are reported, particularly when a reduction of environmental impact is possible. The most common example is shifting freight from trucks to rail or inland waterway, but also the (partial) shift from airplane to sea ship or truck ('trucking' of air freight) was reported.

The second area covered technical improvements of vehicles. It can be distinguished in the areas of greenhouse gas reductions and pollution reduction, noise reduction, engine optimisation and other technical improvements. The focus is on the reduction of greenhouse gases, as energy saving means also fuel cost reductions. In particular, the engine technology is improved in the reporting companies. One company uses additional generators to make use of the residual energy levied by ship exhaust gases. Greenhouse gases, others then carbon dioxide are avoided in pipeline transportation. Here the reduction of leakages comes to the fore. Another measure is the use of new and less climate harming refrigeration technology in vehicles, containers and warehouses.

Other measures include new trucks with higher emissions standards, while the use of environment friendly marine coatings and the reduction of leakages in the transhipment of oil products is a topic in specific fields of logistics. Reduction of noise emissions through the use of appropriate vehicles is particularly important for operators of large vehicle fleets. The use of alternative methods of propulsion e.g. natural gas and bio diesel is rarely mentioned. Further technical improvements noted in the reports are fresh water-saving measures in the context of aircraft maintenance.

The third area is the field of organisational optimisation. It can be differentiated in standards and contracts, product development and skills promotion. Applying standards in transport processes are reported particularly in the chemical industry. Examples of possibilities that offer contracts for the sustainable optimisation of logistics are: Shipping instructions with high environmental standards for suppliers, the consideration of environmental activities in the selection of contractors and the use of the internet to tender logistical services.

Another part includes measures that integrate logistical aspects in the development of the product. For example do several companies use life-cycle accounting methods to design their products in a sustainable manner. However, it is not clearly specified in the reports, whether and how the transport and logistics play a role in this accounting process. The integration of logistics in the product development was explicitly taken into account in one company. Other companies carry out measures to digitise and dematerialise products, or they change the production design and reduce the amount of used parts. Measures that are frequently reported in this area were the improvement of product packaging. Here, too, standardisation, optimisation and the use of recyclable and reusable (transport) packaging were the main focus.
Looking at the measures in the field of promoting competence, it appears that particularly the training of truck drivers and other transport operators to drive in a roadworthy and environmentally friendly manner is reported. One company organises safety trainings for school children in cooperation with their truck driver. Furthermore research collaborations with universities, participation in relevant sustainability forums for example the Global e-Sustainability Initiative / Supply Chain Working Group and environmental logistics consulting for clients are measures, which are reported too.

Used Indicators

The analysis showed that 40% of all companies published at least one indicator that is related to logistics or only transport (see Figure 6). Only 12% of the companies had at least two or more indicators, which are conducted over several years and thus allows meaningful comparison. In all of these companies logistics play an important role. On the one hand there is the mail order company Otto, on the other hand are exclusively companies from the logistics sector: Lufthansa, TUI (incl. Hapag Lloyd), Deutsche Bahn and Deutsche Post DHL.

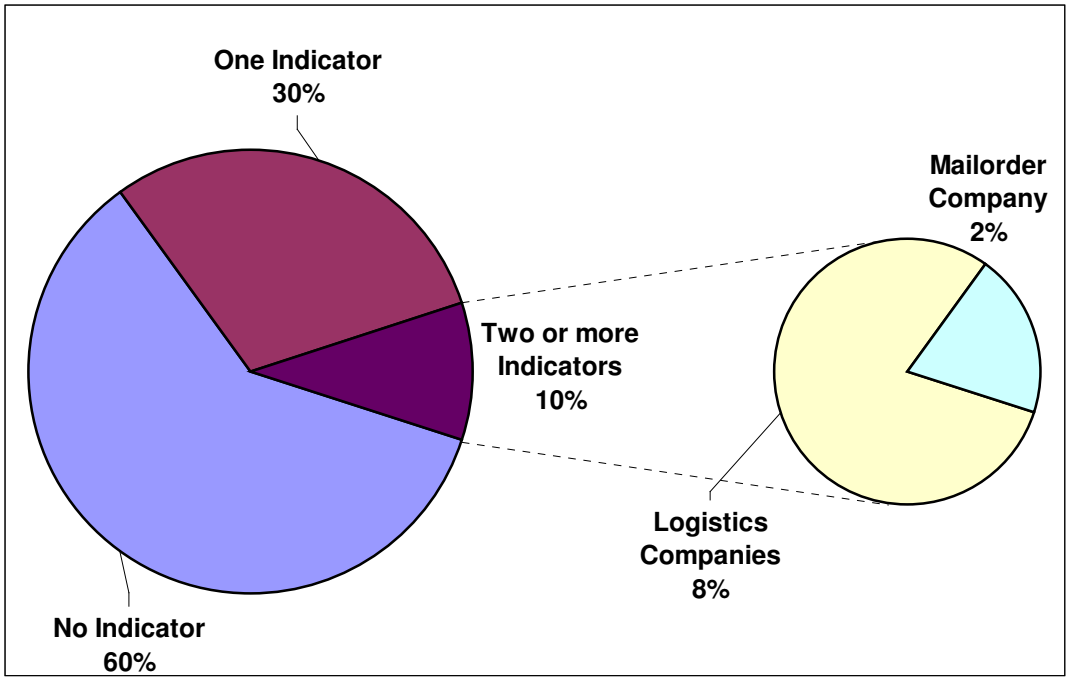

Figure 6 – Numbers of reports with indicators on transport and logistics

The range of used indicators to describe the environmental and social performance of freight transport varies widely. The different reported indicators were arranged in Figure 7 and displayed with the help of the Sjöstedt model (see Flämig et al. 2002). The Sjöstedt model was used to show how indicators reflect the specific range for decisions in the company. The model divides the freight transport system into four elements (Goods, Mobiles, Nonmobiles, Infrastructure) and four processes (Transport, Traffic, Accession, Land Use).

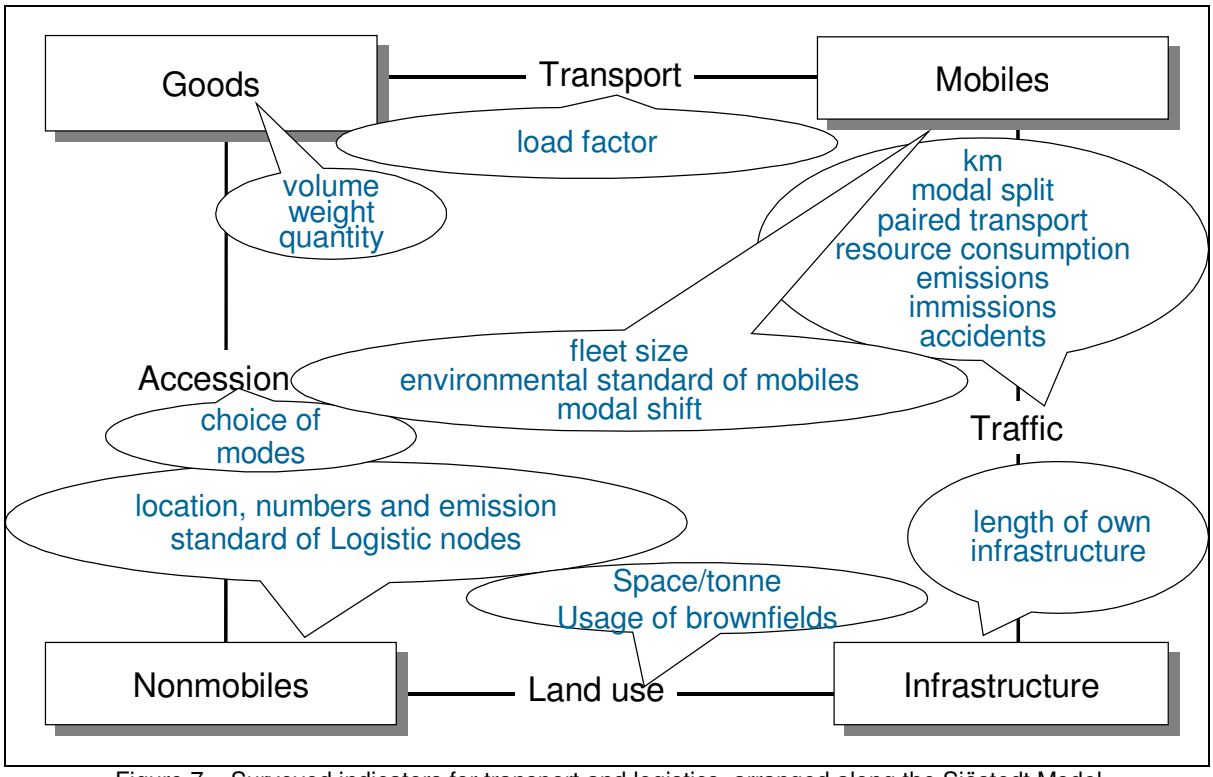

Figure 7 – Surveyed indicators for transport and logistics, arranged along the Sjöstedt Model

It turns out that the most common indicators give information on the freight 'Traffic' process and its impact. Also emissions and in particular carbon dioxide emissions are mentioned and the resources used. Sometimes also immission is used to indicate developments. Other companies reported indicators concerning the goods are: distance travelled, the modal split and accidents.

Going anti-clockwise through the model, in the field of vehicles ('Mobile') the fleet size, whose environmental standards (mostly the different Euro standards) and changes in the modal split (modal shift) are reported. The 'Transport' process itself is described only with the indicator load factor. 'Goods' are considered by indicators such as volume, weight or quantity of goods in the reports.

Looking at 'Accession' within the Sjöstedt model, the modal choice of transport modes is the main indicator. Regarding 'Nonmobiles' particularly the number, location and emission standards of logistics nodes are used as indicators. 'Land-use' is indicated in the reports by the indicators 'area per ton', and the percentage of used industrial wastelands. Finally, the fourth element, 'Infrastructure' is measured in the length of company owned train tracks.

CONCLUSION

This research dealt with a complex issue, as every company has a different business model and supply chain transport has different levels of relevance in companies. According to IÖW & future e.V. (2007, p. 101) a good CSR report is correlated with a good sustainability within the corresponding company. Therefore we assume that a good reporting practice in transport and logistics is also correlated with good sustainable work in this area.

While a typical supply chain starts already with or even before the transport of raw materials for the components suppliers, a typical good practice CSR report in our survey starts with the social conditions in the suppliers' factories, but leaving alone the environmental aspects in these factories. While the environmental dimension of the main haul (often by sea ship or airplane) and the post-carriage ashore is sometimes covered, the social dimension is not included.

The results of the analysis show that the system boundaries, the range of objectives and scopes, the key aspects of activities and measurements as well as the used indicators show a broad band of variations between the fifty researched companies. Up to now goals, measures, indicators, and challenges in the report do not give a full picture of the global impact of the company.

Even companies with a global scope do not report about all parts of the chain geographically and/or dimension-wise. Furthermore the involved transport chain of the company's activities itself is longer, than the ordinary responsibility within the borders of INCO-terms (International Commercial Terms). These contract terms regarding freight cost and responsibility sharing for goods within the transport-chain. When transport is reported, the contracted INCO-terms normally describe the maximum system border of reporting. The same can be stated on the geographical distribution of CSR activities and the resulting outcomes. These results are verified by the results of the supply chain leadership collaboration (SCLC) study of the carbon disclosure project (CDP 2008).

A true assessment of a company in terms of its policy formulation does not seem possible, especially since they are not reported in target systems, but must be extracted from the report text. For that reason the targets are mainly not derived from the environmental objectives in the reports. It remains unclear to what extent they must be fulfilled to reach the general objectives mentioned in the company policy.

The majority of the goals can be assigned to the environmental impact of the specific company. The main areas here are resources, climate change and emissions. The most common aspects in single targets are energy resources and carbon dioxide emissions. Nevertheless, other resources (soil, surface water) and emissions (odour, noise, sewage, pollutants and non-carbon dioxide greenhouse gas) are also in some reports areas with formulated targets. Only the detailed analysis of each single environmental objective can provide evidence about the involvement of logistics in the report.

Measures and indicators were often not specified in the reports and a performance indicator does not seem to be a precondition for companies to invent measures in the supply transport. Furthermore, historic and grown successes are no longer used for reporting, which makes comparisons and the identification of 'champions' in the field difficult. The reporting practice is often lead by short-term topics and not by a consistent sustainable long-term strategy.

Challenges for Companies

To allow fair competition on the one side and to meet international commitments and national sustainability goals on the other side, the national and international sustainable objectives have to be set in a clear and stringent way.
As a consequence of the requirements of sustainable development and the limited resources, regulations with constraints for the transport and logistics sector have already been implemented on European level while others are under discussion.
Direct action by companies in the sector is needed, e.g. regarding Air Quality, especially since 01.01.2005, when the EU Directive 1999/30/EC forced cities to introduce Low Emission Zones. This resulted in significant access barriers for freight transport in local communities. Since 01.01.2010, even more stringent maximum limit for particulate matter (PM10 and PM2.5), nitrogen dioxide, benzene and the derived product ozone got into force.
Moreover, it can be assumed that in the future also transport intensive industries will be included in the European Emissions Trading Scheme (ETS), as it will be implemented for airlines on European level. Also plans exist to introduce the scheme in ocean shipping.
Similar rules as for air quality are also effective for environmental noise (see EU Directive 2002/49/EC).
Companies are therefore obliged to review their business models according to whether they comply with ecological requirements or not. Since environmental management is now considered as a key performance indicator (Adams & Frost 2008), any measures are not only checked regarding their economic but also on their environmental effects.
Nevertheless, for companies and stakeholders, transport and logistics within the supply chain become also for other reasons more and more important: Initiatives to cover the full carbon footprint of a product in combination with demanding retailers and consumers as well as the steady need to reduce the energy costs and the resource consumption.
But still, the economic optimisation is the focus, and too often one has to observe not greening, but ‘greenwashing’ activities. This is in particular true, if these measures do not imply behavioural or process changes, but rather are a compensation for the use of resources.
To develop a long-term strategy, it is necessary, to be aware of the own responsibility for transport and logistics. Only the shipper or receiver has the possibility to ‘avoid, shift and manage’ their transport needs in a sustainable manner, while the companies of the transport and logistics sector can ‘only’ fulfil customer needs or wishes in a sustainable way.
If a strategy does not yet exist, we propose to start with climate relevant measures (‘blue logistics’). These are often low-hanging fruits, as energy saving means also cost savings.
Second step would be to widen the scope on other environmental areas (‘green logistics’) and finally use the gained expertise to merge existing social activities with the environmental activities to a holistic concept (‘sustainable logistics’).

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