



Green Corridor Manual (Draft)

- Different options for certification of green transports



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Table of content

Summary	5
1 Introduction	7
1.1 Background.....	7
1.2 Challenge.....	8
1.3 Purpose & Delimitations.....	8
1.4 Method and Procedures	9
2 Legislations and regulations	10
2.1 Engine emission standards.....	10
2.2 Fuel quality standards	11
2.3 Vehicles configuration standards.....	11
2.4 Traffic Safety.....	12
2.5 Transport Security	14
3 Continuous improvement programs	17
3.1 ISO 9001/EN 12798	17
3.2 ISO 14001, EMAS & ISO 14033	17
3.3 ISO 14025.....	18
3.4 ISO 14040 & ISO 14044	19
3.5 ISO 26000.....	19
3.6 ISO 27000.....	20
3.7 ISO 28000.....	20
3.8 ISO 31000.....	20
3.9 ISO 39001.....	21
3.10 OHSAS 18001	21
4 Market based incentives.....	22
4.1 Credit based trading.....	22
4.2 Consortium benchmark.....	22
4.4 Environmental subsidies	22
5 Existing initiatives.....	23
5.1 Green House Gas protocol.....	23
5.2 Maritime pollution.....	23
5.3 ERRT	24
5.4 LABEL	25
5.5 ILO-code: Safety and health in ports	25
5.6 EuroRAP.....	26
5.7 KNEG	26
5.8 ERTMS.....	27
5.9 TAPA.....	27
5.10 Port State Control & Ship Vetting	28
6 Environmental Product Declarations & Product Category Rules	29
6.1 The PCR	29
6.2 EPD.....	33
7 Interview with stakeholders.....	36
8 Conclusions and recommendations for a certifications system	39

9. Reference List	43
9.1 Articles, Electronic document, Reports	43
9.2 Websites	45
Appendix I – Abbreviations.....	48
Appendix II – Interview questions and interviewed persons.....	49

Summary

The transport sector's development is not sustainable and it requires a number of improvements to achieve the EU's goals. One way to approach the goals may be to make use of certified green transport corridors. Today there are no comprehensive standards and there is also no certification system for green transport corridors.

The purpose of this report is to investigate the need of a certification system in a green transport corridor and how such a certification system could look like from a sustainability perspective focusing on quality, environmental, traffic safety and transport security.

The report contains nine chapters and two appendixes. Chapter two contains a review of legislations and regulations on EU and international level, within road, sea and rail transport. It is important to remember that legislations and regulations are not related to a certification system.

Chapter three includes information about different ISO standards that may be included in a certification process of a green transport corridor. This chapter also includes information about EMAS and EN 12798. EMAS is based on ISO 14001 but also adds more than conventional environmental management system. EN 12798 (handling of dangerous goods by road, rail and inland navigation) is a supplement to ISO 9001.

Chapters four and five contain facts about market based incentives and existing initiatives that are related to green corridors. This chapter discusses for example LABEL and EuroRAP. The aim with the LABEL project is to contribute to security and service on truck parking areas along the European roads. EuroRAP is a non-profit traffic safety organization that aims to reduce fatal accidents and serious injuries on European roads.

Chapter six includes information about Environmental Product Declarations (EPDs) and Product Category Rules (PCRs). EPDs are an information system based on ISO 14025 to describe the environmental property of products and services from a lifecycle perspective. PCRs are used to develop EPDs and an EPD can also be used to compare different EPDs in different corridors, if they are based on the same PCR. Today there exist nine transport related PCRs and three PCRs in the preparation phase, which are available as drafts for consultation.

Chapter seven contains a summary of responses from interviews with relevant stakeholders. The respondents believe that what should be certified in a green corridor is primarily the infrastructure, the corridor facilities and the different transport hubs. The corridor should also have some form of quality, function and capacity standards. The development of a certification system for a green corridor should be initiated and governed by the EU together with key stakeholders and policy makers.

The corridor should be certified in a process that complies with ISO 9001 and ISO 14011/EMAS to develop EPDs to create environmental declaration of infrastructure, facilities, transport operations and operations in ports.

Below is a summary of the components that should be included in a certification system for a green corridor:

Quality	<ul style="list-style-type: none"> • ISO 9001 (Quality management system) • ISO 27000 (Information security)
Environment	<ul style="list-style-type: none"> • ISO 14001/EMAS (Environmental management system) • PCR/EPD (Environmental product declarations, LCA) • ISO 14025, 14040, 14044 • ISO 14033 (Quantitative environmental information)
Safety and Security	<ul style="list-style-type: none"> • ISO 9001DG (Dangerous goods) • ISO 39001 (Traffic safety risks management) • EuroRAP (Star labelling of roads) • ISO 31000 (Risk management) • ISO 28000 (Risk management in supply chain) • OHSAS 18001 (Occupational Health and Safety) • LABEL (Truck parking assessment) • Ship Vetting System (Risk assessment of ships)

The certified green corridors should also have some kind of grading system in order to prove what services the green corridor has and maybe let the companies that are certified by specified standards, using specified initiatives, are able to receive some kind of extra services when using the green corridor.

1 Introduction

1.1 Background

If we stick to the “business as usual” approach, in 2050 the CO₂ emissions from transports will increase with more than 30 % compared with the level 1990. The congestion’s costs will increase by about 50 %, the accessibility gap between central and peripheral areas will widen and the social costs of accidents and noises will continue to increase.

To prevent this, the European Union (EU) has set targets to reduce greenhouse gases by 60 % in 2050 compared to 1990 from the transport sector. In order to achieve the targets, the European Union has developed a common transport policy called “White Paper” (Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system) which contains 10 goals for a competitive and resource efficient transport system. The White Paper’s 10 goals are presented below:¹

1. Halve the use of ‘conventionally-fuelled’ cars in urban transport by 2030; phase them out in cities by 2050; achieve essentially CO₂-free city logistics in major urban centres by 2030.
2. Low-carbon sustainable fuels in aviation to reach 40 % by 2050; also by 2050 reduce EU CO₂ emissions from maritime bunker fuels by 40 % (if feasible 50 %).
3. 30 % of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50 % by 2050, facilitated by efficient and green freight corridors. To meet this goal, an appropriate infrastructure has to be developed.
4. By 2050, complete a European high-speed rail network, triple the length of the existing high-speed rail network by 2030 and maintain a dense railway network in all member states. By 2050 the majority of medium-distance passenger transport should go by rail.
5. A fully functional and EU-wide multimodal TEN-T ‘core network’ by 2030, with a high quality and capacity network by 2050 and a corresponding set of information services.
6. By 2050, connect all core network airports to the rail network, preferably high-speed; ensure that all core seaports are sufficiently connected to the rail freight and, where possible, inland waterway system.
7. Deployment of the modernized air traffic management infrastructure (SESAR) in Europe by 2020 and completion of the European Common Aviation Area. Deployment of equivalent land and waterborne transport management systems (ERTMS, ITS, SSN and LRIT, RIS). Deployment of the European Global Navigation Satellite System (Galileo).
8. By 2020, establish the framework for a European multimodal transport information, management and payment system.
9. By 2050, move close to zero fatalities in road transport. In line with this goal, the EU aims at halving road casualties by 2020. Make sure that the EU is a world leader in safety and security of transport in all modes of transport.

¹ White Paper - Roadmap to a Single European Transport Area, European Commission, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0144:FIN:EN:PDF>, 2011-08-16

10. Move towards full application of “user pays” and “polluter pays” principles and private sector engagement to eliminate distortions, including harmful subsidies, generate revenues and ensure financing for future transport investments.

The EU Heads of State and Government have also set a series of demanding climate and energy targets called “20-20-20 targets.” The targets that must be met in 2020 are presented below:²

- A reduction in EU greenhouse gas emissions of at least 20 % below 1990 levels.
- 20 % of EU energy consumption to come from renewable resources.
- A 20 % reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.

1.2 Challenge

As mentioned already, the development of the transport sector is not sustainable and it requires a number of improvements to achieve EU’s objectives. One way to approach the objectives may be to make use of certified green transport corridors. Today there are no comprehensive standards and there is also no certification system in green transport corridors.

The main incentives for many companies who choose to implement environmental certification schemes are, to increase sustainable development, improve the image of the company, and improve relationship with stakeholders and to make a higher profit. There is also increasing pressure on companies to respond to environmental demands from stakeholders, therefore increasing the use of voluntary environmental regulations such as certification to achieve sufficient social legitimacy and to protect their revenues. There are also operational incentives which are the belief that environmental certification can help to reduce costs and increase productivity and commercial motivations which can help to increase business and improve the market position.

The implementation of environmental certification programmes can lead to an improved company image and generate competitive advantage. This is usually achieved through the use of environmental declarations (Eco Labelling), which can be used on the company’s products and services, allowing the products and services to stand out as being produced in an environmentally sound way. The Eco labels associated with environmental certification inform customers that the product or service in question has been verified by a third party auditor as originating from an environmentally well managed company.

1.3 Purpose & Delimitations

The purpose of the study is to investigate the need of a certification system for a green transport corridor and how such a certification system could look like from a sustainable perspective focusing on quality, environment, traffic safety and transport security.

The part with a survey of legislation and regulations is limited to a European and

² The EU climate and energy package, European Commission, http://ec.europa.eu/clima/policies/package/index_en.htm, 2011-08-16

international level not taking into account national legislations and regulations. The survey of relevant standards, certification schemes for continuous improvement programs, market based incentives and existing initiatives are also limited to a European and international level, with a few exceptions. Standardization with regard to e.g. handling equipment, vehicles and Intermodal Transport Units (ITU's) are not attributable to a green transport corridor. This is a broader issue which is not corridor bound.

1.4 Method and Procedures

The study has been carried out partly as a desktop study based on a literature review, including various research reports, documents and other information from different Internet pages. The study also includes interviews with various stakeholders to obtain their views on a possible certified green transport corridor.

2 Legislations and regulations

This chapter contains legislations and regulations on a European and international level, including road, sea and rail transport and is not related to a certification system. Many of the legislations in this chapter are so called EU directives, developed by the European Commission (EC). EU directives lay down certain end results that must be achieved in every Member State. National authorities must adapt the legislations to meet these goals, but are free to decide how to implement them.

2.1 Engine emission standards

2.1.1 Road transport

European emission standards define the acceptable limits for exhaust emissions of new vehicles sold in the EU member states. The regulated emissions are hydrocarbon (HC), carbon monoxide (CO), nitrogen oxides (NO_x) and Particulate Matter (PM). The table below assigns existing and future European emission standards in road transports.³

Type	R49-1	Euro 0	Euro 1	Euro 2	Euro 3	Euro 4	Euro 5	Euro 6	EEV
Law from	1982	1990	1993	1996	2000	2005	2008		2000
Introduction		1978	1991	1993	1999	2005	2007	2012	2000
Unit	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh	g/kWh
NO _x	18	14.4	9	7	5	3.5	2	0.4	2
HC	3.5	2.45	1.1	1.1	0.66	0.46	0.46	0.13	0.25
PM	-	-	0.14	0.08	0.1	0.02	0.02	0.01	0.02
CO	14	11.2	4.5	4	2.1	1.5	1.5	1.5	1.5

Figure 1. Today's and coming European emission standards

2.1.2 Sea transport

Within sea transports regulated NO_x emissions in the EU shows progress as below⁴:

- Tier 1, until 2010, maximum 9.8 and g/kWh depending on engine speed.
- Tier 2, from January 1, 2011 maximum, 7.7 and 14.4 g/kWh depending on engine speed.
- Tier 3, from January 1, 2016 maximum 2 and 3.4 g/kWh depending on engine speed.

Marpol 73/78 (The International Convention for the Prevention of Pollution from Ship) has been developed by IMO (International Maritime Organization) and regulates inter alia SO_x emissions from vessels. The global sulphur cap reduced initially to 3.5 % (from the current 4.5 %) from 1 January 2012, then progressively to 0.5 % effective from 1 January 2020. In the SECA-area (Sulphur Emission Control Area), which includes the Baltic Sea, the SO_x emission will be reduced to 1.0 % effective from 1 July 2010, and from 1 January 2015 reduced to 0.1 %.

³ Promotion of verified green transports in green corridors, Conlogic AB, 2011

Marpol 73/78 contains six annexes, concerned with preventing different forms of marine pollution from ships:

- Annex I - Oil
- Annex II - Noxious Liquid Substances carried in Bulk
- Annex III - Harmful Substances carried in Packaged Form
- Annex IV - Sewage
- Annex V - Garbage
- Annex VI - Air Pollution

2.1.3 Rail transport and IWW

The 2004/26/EC directive regulates other engines in the EU in the following stages below:⁵

- Stage III A, 19 to 560 kW including constant speed engines, railcars, locomotives and inland waterway vessels. Effective from 1 January 2006 for certain types of engines.
- Stage III B 37 to 560 kW including, railcars and locomotives. Effective from 1 January 2011.
- Stage IV covers engines between 56 and 560 kW. Effective from 1 January 2014.

2.2 Fuel quality standards

The old EC fuel directive (98/70/EC) from 1988 for diesel and petrol has recently been updated. The new fuel specifications (2009/30/EC) allow a higher ratio of blending of ethanol, from 5 %- volume to 10 %-volume in petrol and FAME in diesel, 5 %-volume to 7 %-volume (not yet implemented in all member states). The new fuel specifications also reduce the sulphur content in diesel and petrol to a maximum of 10 mg/kg.

The 2009/30/EC directive also contains how to reduce greenhouse gas emissions from fuels through their life cycle. Annex IV in the directive contains rules for calculating life cycle greenhouse emissions from biofuels.⁴

2.3 Vehicles configuration standards

The 96/53/EC directive regulates weights and dimensions of heavy goods vehicles. Within the European Union road vehicles must not exceed a total length of 18.75 meters and total weight of 40 tonne. In Sweden and Finland longer and heavier trucks are used for domestic transports. These trucks have a total length of 25.25 meters and total weight of 60 tonne.

In order to find a solution that would enable foreign transporters to compete on equal terms in Sweden and Finland, a compromise was reached to allow increased vehicle length and weight all over the EU under the condition that the existing standardized EU modules were used. This is the so-called European Modular System (EMS), which is a concept that allows combining existing loading units to be turned into longer and sometime heavier vehicle combinations to be used on some parts of the road network.⁵

In Denmark, Germany, the Netherlands, Norway and Belgium, longer and heavier trucks

⁴ Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0088:0113:EN:PDF>, 2011-07-04

⁵ Promotion of verified green transports in green corridors, Conlogic AB, 2011

are tested at certain foreordained roads.⁶

2.4 Traffic Safety

2.4.1 Rail transport

Concerning railways, there is a railway safety directive (2004/49/EC). The aim of this directive is to ensure that the safety on the community railways is developed and improved, and the access to the market for rail transport services is guaranteed. This will be achieved inter alia through harmonized regulatory structure, establishing responsibilities between the actors and defining common principles for the management, regulation and supervision of railway safety.⁷

2.4.2 Sea transport

The 2002/84/EC directive regulated maritime safety and the prevention of pollution from vessels. The purpose of this directive is to improve the implementation of community legislation on maritime safety, the prevention of pollution from ships and shipboard living and working conditions.⁸

Another directive is 2002/59/EC (establishing a community vessel traffic monitoring and information system). The directive applies to ships over 300 gross tonnages, with some exceptions. The purpose of this directive is to establish a vessel traffic monitoring and information system with the ambition to enhance the safety and efficiency of maritime traffic, improving the response of authorities to incidents, accidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to a better prevention and detection of pollution by ships. Member States shall monitor and take all necessary and appropriate measures to ensure that the masters, operators or agents of ships, as well as shippers or owners of dangerous or polluting goods carried on board of such ships, comply with the requirements under this directive.⁹

SOLAS (Safety of Life at Sea) contains provisions on how ships shall be constructed to be as safe as possible, covering everything from fire protection to stability. SOLAS is the most important of all treaties dealing with maritime safety and was developed by IMO and contains twelve chapters, of which chapter five deals with sea safety. The main goal of the SOLAS is to specify minimum standards for the construction, equipment and operation of vessels, compatible with maritime safety. It is the Flag States that are responsible for ensuring that vessels under their flag comply with the requirements.¹⁰

⁶ European Modular System (EMS) Paper, NEA, <http://www.euroexpress.org/uploads/ELibrary/NEA%20PAPER.pdf>, 2011-08-17

⁷ Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:220:0016:0039:EN:PDF>, 2011-08-18

⁸ Directive 2002/84/EC of the European Parliament and of the Council of 5 November 2002, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:324:0053:0058:EN:PDF>, 2011-06-23

⁹ Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:208:0010:0010:EN:PDF>, 2011-06-23

¹⁰ International Convention for the Safety of Life at Sea, IMO, [http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-\(solas\),-1974.aspx](http://www.imo.org/about/conventions/listofconventions/pages/international-convention-for-the-safety-of-life-at-sea-(solas),-1974.aspx), 2011-06-23

The basis for the ship company's maritime safety work consists of the International Safety Management Code (ISM-code). The code has been created by the IMO and is used since the end of 1993. The aim of the ISM-code is to provide an international standard for the safe management and operation of vessels and for pollution prevention.¹¹

IMO has also developed and adopted international collision regulations and global standards for seafarers, as well as international conventions and codes relating to search and rescue, the facilitation of international maritime traffic, load lines, the carriage of dangerous goods and tonnage measurement.¹²

2.4.3 Road transport

Within road transports there are a lot of regulations and legislations, one of them is the 2004/345/EC directive (on enforcement in the field of road safety). The directive includes good practice for control of driving under the influence of alcohol, speed limits and seat belt use and comprises all forms of road transport. Experts from member states and the Commission monitor implementation.¹³

Alcohol-lock is a topic being discussed in Sweden, but alcohol-locks have not been successful in other European countries. Sweden has recently introduced a strategy for alcohol-locks and has proposed that from the year 2012, all new trucks have an alcohol-lock program installed. Sweden is the only EU country that uses alcohol-locks at the moment, but there are experiments going on in Spain, Belgium, Germany and Norway.¹⁴

Another directive is 2002/85/EC, concerning the installation and use of speed limitation devices for certain categories of motor vehicles. This directive contains an obligation to use the speed control system for vehicles over 3.5 ton. For vehicles carrying dangerous goods the speed control is set so that the speed cannot exceed 90 km/h. This directive has had a positive effect on the improvement of road safety. It has also contributed to environmental protection.¹⁵

Other directives to increase traffic safety are 2003/97/EC (the type-approval of devices for indirect vision and of vehicles equipped with these devices) and 2007/38/EC (on the retrofitting of mirrors to heavy goods vehicles), which contain regulations about driving mirrors that cover "blind spots". Devices of indirect vision, such as wide-angle and close proximity mirrors, cameras, monitors, or other type approved systems of indirect vision, improve the driver's field of vision and increase vehicle safety.^{16 17}

¹¹ International Safety Management (ISM) Code, IMO http://www.imo.org/SharePoint/mainframe.aspx?topic_id=287, 2011-06-23

¹² Maritime Safety, IMO, <http://www.imo.org/OurWork/Safety/Pages/Default.aspx>, 2011-06-24

¹³ Commission Recommendation of 6 April 2004 - on enforcement in the field of road safety, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:111:0075:0082:EN:PDF>, 2011-06-24

¹⁴ Alcolocks for drunk driving offenders, new system 2012, Swedish Transport Agency, <http://www.transportstyrelsen.se/en/road/Alcolock/Alcolocks-for-drunk-driving-offenders-new-system-2012/> 2011-07-01

¹⁵ Directive 2002/85/EC of the European Parliament and of the Council of 5 November 2002, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:327:0008:0009:EN:PDF> 2011-06-24

¹⁶ Directive 2003/97/EC of the European Parliament and of the Council of 10 November 2003, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:025:0001:0045:EN:PDF>, 2011-06-13

¹⁷ Directive 2007/38/EC of the European Parliament and of The Council of 11 July 2007 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:184:0025:0028:EN:PDF> 2011-06-13

The directive 2003/59/EC deals with initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers. The aim with this directive is to secure that a driver, on the basis of his expertise and knowledge, has the right and necessary training to drive certain vehicles.¹⁸

Driving time and rest periods are regulated in 2006/561/EC. This regulation provides a common set of EU rules for maximum daily and fortnightly driving times, as well as daily and weekly minimum rest periods for all drivers of cargo and passenger transports, with the exception of specified exemptions and national derogations. The purpose of these regulations is to avoid distortion of competition, improve road safety and ensure good working conditions for driving in the European Union.¹⁹

These rules establish that:

- Daily driving period shall not exceed 9 hours, with an exemption of twice a week when it can be extended to 10 hours.
- Total weekly driving time may not exceed 56 hours and the total fortnightly driving time may not exceed 90 hours.
- Daily rest period shall be at least 11 hours, with an exception of going down to 9 hours three times a week. Daily rest can be split into 3 hours rest followed by 9 hour rest to make a total of 12 hours daily rest
- Weekly rest is 45 continuous hours, which can be reduced every second week to 24 hours. Compensation arrangements apply for reduced weekly rest period. Weekly rest is to be taken after six days of working, except for coach drivers engaged in a single occasional service of international transport of passengers who may postpone their weekly rest period after 12 days in order to facilitate coach holidays.
- Breaks of at least 45 minutes (separable into 15 minutes followed by 30 minutes) should be taken after 4 ½ hours at the latest.

2.5 Transport Security

2.5.1 Securing/lashing of cargo

The European Commission has compiled guidelines for cargo securing. The document called “European Best Practice Guidelines on Cargo Securing for Road Transport”. The purpose of these guidelines is to provide basic practical advice and instructions to all persons involved in loading/unloading and securing cargo on vehicles. The guidelines should also be useful for enforcement bodies and courts. It could also serve as a basis for Member States when taking the necessary steps for putting into practice the training of drivers in accordance with Directive 2003/59/EC on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers. The guidelines aim to provide a guide for adequate cargo securing for all situations that may occur in normal traffic conditions. There are additional specific national legal requirements

¹⁸ Directive 2003/59/EC of the European Parliament and of the Council of 15 July 2003, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:226:0004:0017:EN:PDF>, 2011-06-14

¹⁹ Regulation (EC) No 561/2006 of the European Parliament and of the Council of 15 March 2006, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:102:0001:0013:EN:PDF>, 2011-06-15

in some member states. The guidelines should also serve as a common basis for both practical application and enforcement of cargo securing.²⁰

For securing cargo at sea the securing shall be according to the IMO's guidelines: "IMO/ILO UN ECE Guidelines for Packing of Cargo Transport Units CTUs", IMO Model Course 3.18 and IMO Quick Lashing Guides.

The most European railway inspection boards have not yet issued regulations on cargo securing. In the meantime the International Union of Railways' (UIC) Loading Guidelines are applied. This regulation is the same for most of the European railway administrations.²¹

2.5.2 Dangerous goods

RID

Dangerous good by rail (RID (Règlement concernant le transport international ferroviaire de marchandises Dangereuses)) regulated in 96/49/EC. The aim of this regulation is to establish national safety standards at the level of the international COTIF and create a single market in the transport of dangerous goods by rail. The COTIF does not cover the national carriage of dangerous goods by rail.²²

ADR

ADR (Agreement on Dangerous Goods by Road) is a European agreement of transport of dangerous goods by road and regulated in 2004/112/EC. Most of the European countries have accepted the regulations and every country also has special security regulations.²³

IMDG

IMDG (International Maritime Dangerous Goods) code is drafted by the IMO. The regulations are for transport of dangerous goods in packaged form by sea and the code is intended to protect crewmembers and to prevent marine pollution. The provisions in the IMDG code cover aspects including classification, packaging, marking, labelling, documentation, stowage and segregation of dangerous goods in packaged form for carriage by sea.²⁴

²⁰ European Best Practice Guidelines on Cargo Securing for Road Transport, European Commission, http://ec.europa.eu/transport/road_safety/vehicles/doc/cargo_securing_guidelines_en.pdf, 2011-07-26

²¹ Transport Quality Manual,

<http://www.volvologistics.com/SiteCollectionDocuments/VL/Library/Risk%20Management%20Volvo/Fle100%20issue%203.pdf>, 2011-07-26

²² Council Directive 96/49/EC of 23 July 1996, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0049:EN:HTML>, 2011-06-16

²³ Commission Directive 2004/112/EC of 13 December 2004, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:367:0023:0028:EN:PDF>, 2011-06-13

²⁴ International Maritime Dangerous Goods (IMDG) Code, IMO http://www5.imo.org/SharePoint/mainframe.asp?topic_id=158, 2011-06-13

2.5.3 ISPS-code

The International Ship and Port Facility Security Code (ISPS) were enforced in 2004 and contain a minimum of security arrangements for vessels and ports. The Code is a two-part document. Part A provides mandatory requirements and part B provides guidance for implementation. The code is one chapter in SOLAS and is developed by IMO.²⁵

For ships the framework includes requirements for:

- Ship security plans.
- Ship security officers.
- Company security officers.
- Certain on-board equipment.

For port facilities, the requirements include:

- Port facility security plans.
- Port facility security officers.
- Certain security equipment.

In addition the requirements for ships and for port facilities include:

- Monitoring and controlling access.
- Monitoring the activities of people and cargo.
- Ensuring security communications are readily available.

One EU directive for ships and ports is the 2004/725/EC (on enhancing ship and port facility security). The main objective of this directive is to enhance the security of ships used in international trade and domestic shipping and associated port facilities facing threats of intentional unlawful acts. The directive also intends to provide a basis for the harmonized interpretation and implementation and community monitoring of the special measures to enhance maritime security adopted by the Diplomatic Conference of the IMO on 12 December 2002, which amended the 1974 International Convention for the SOLAS and established the ISPS Code.²⁶

There is also an EU Directive (2005/65/EC) on how port security must be operated and organized. The main purpose of this directive is to introduce community measures to enhance port security facing threats of security incidents. This directive shall also ensure that security measures taken pursuant to Regulation (EC) No 725/2004 benefit from enhanced port security.²⁷

²⁵ What is the ISPS Code?, IMO, http://www5.imo.org/SharePoint/mainframe.asp?topic_id=897#what, 2011-06-17

²⁶ Regulation (EC) No 725/2004 of the European Parliament and of the Council of 31 March 2004, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:129:0006:0091:EN:PDF>, 2011-06-17

²⁷ Directive 2005/65/EC of the European Parliament and of the Council of 26 October 2005, http://eur-lex.europa.eu/LexUriServ/site/en/oj/2005/l_310/l_31020051125en00280039.pdf, 2011-06-17

3 Continuous improvement programs

ISO (International Organization for Standardization) is the world's largest developer and publisher of international standards. ISO is a non-governmental organization that forms a bridge between the public and private sectors. The organization is a network of the national standards institutes of 162 countries, one member per country, with a central secretariat in Geneva, which coordinates the system.²⁸

International standards are developed by the ISO technical committees (TC) and subcommittees (SC) by the following six-step process:²⁹

- 1 - Proposal stage
- 2 - Preparatory stage
- 3 - Committee stage
- 4 - Enquiry stage
- 5 - Approval stage
- 6 - Publication stage

ISO is responsible for developing, maintaining and publishing ISO standards, but is not responsible for certifying the standards. A certification body does this.³⁰ The list below presents examples of certification bodies:³¹

- Bureau of Veritas
- Lloyd's Register
- TÜV

3.1 ISO 9001/EN 12798

The ISO 9000 system is the common management model for obtaining customer satisfaction through a continuous quality programme. The latest version of ISO 9001 was published in November 2008 and is called ISO 9001:2008. The ISO 9001:2008 defines requirements for a quality management system for an organization. All requirements of the standard are generic and are intended to be applicable to all organizations, regardless of type, size and product/service provided. This standard is intended for certification.³²

There is also a supplement (EN 12798) to ISO 9001 for the management of safety in the field of transport of dangerous goods by road, rail and inland navigation.

3.2 ISO 14001, EMAS & ISO 14033

ISO 14001 is part of the ISO 14000 system that is the name of the standards dealing with environmental management. These standards in turn create an environmental management system that can be easily integrated into existing operations. The environmental

²⁸ About ISO, ISO, <http://www.iso.org/iso/about.htm> 2011-08-19

²⁹ Stages of the development of International Standards, ISO, http://www.iso.org/iso/standards_development/processes_and_procedures/stages_description.htm, 2011-08-19

³⁰ Certification, ISO, http://www.iso.org/iso/iso_catalogue/management_and_leadership_standards/certification.htm, 2011-08-19

³¹ Registrars, Certification Bodies & Accreditation, Bulltek Ltd, http://www.bulltek.com/Registrar_Assistance/registrarassistance.html, 2011-08-19

³² ISO 9001:2008, ISO, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=46486, 2011-07-04

management system is then a voluntary tool that will facilitate the work standards and provides a working model for continuous improvement.³³

The aim with the standard is to continuously reduce the overall environmental impact. Using the standard may lead to good control of environmental progress of the work in terms of both performance and cost. An active environmental programme offers many advantages for business, partly in form of reduced use of resources and lower costs for waste management. In a certification, an accredited certification agency is chosen to ensure detachment, long-sightedness and international acceptance. ISO 14001 is a breakdown of five basic elements and 52 requirements and is intended for certification.³⁴

EMAS (Eco Management and Audit Scheme) is based on ISO 14001 but also adds more to it than conventional environmental management system. European commission and member states aim with the EMAS is that the tool can be used in several different ways. By publishing an annual environmental report approved, an organization can increase its credibility. EMAS can be used in a more intelligent way of sourcing and procurement to enhance market share.³⁵

The difference between ISO 14001 and EMAS is the requirements that will be carried out annually. The EMAS also contains:³⁶

- Environmental investigation.
- State improvement commitments.
- Monitor environmental performance in a report.

ISO 14033 is a new standard that provides guidance on how to acquire and provide transparent and high quality quantitative information for environmental reporting and calculation as well as comparison of environmental performance. The applications consist primarily of the standards within the ISO 14000-system, but also include any other form of voluntary or authoritative reporting of environmental quantities or performance data.

3.3 ISO 14025

ISO 14025, published 2006, establishes the principles and specifies the procedures for developing Type III environmental declaration programmes and Type III environmental declarations. Environmental declarations Type III as described in this international standard is primarily intended for business communications (business-to-business) between companies, but can also be used for consumer information (business-to-consumer). This international standard avoids or does not change legally binding environmental information, statements, labels or other applicable legal requirements. ISO 14025 does not include industry-specific rules that can be dealt with in other ISO documents. The idea is that industry specific regulations in

³³ ISO 14001:2004, ISO,

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=31807, 2011-07-05

³⁴ Kap 4 Krav på miljöledningssystem, Naturskyddsverket,

http://www.naturvardsverket.se/upload/06_produkter_och_avfall/produktion_konsumtion/miljoledning/dokumentation/miljorevision/ISO14001-staten.doc, 2011-08-05

³⁵ Om EMAS, EMAS, <http://www.emas.se/Om-EMAS/>, 2011-07-05

³⁶ Promotion of verified green transports in green corridors, Conlogic AB, 2011

other ISO documents that are related to environmental declarations Type III are based on and use the principles and procedures of this international standard.³⁷

In basic terms this standard covers the way a product or service will be reported by the company. It is aiming to create a standard of reporting environmental criteria in a consistent manner of products, companies and countries of origin. This will make it easier for designers and clients when they are comparing the environmental performance between two or more similar products or service.³⁸

3.4 ISO 14040 & ISO 14044

ISO 14040 and ISO 14044 identify opportunities to improve the environmental performance of products at various points in the life cycle. In 2006, ISO published a second edition of the LCA standards:

- ISO 14040, Environmental Management - Life-cycle Assessment - Principles and Framework.
- ISO 14044, Environmental Management - Life-cycle Assessment - Requirements and Guidelines, cancels and replaces the previous LCA standards.

ISO 14040 describes the principles and frames of LCA. It provides an overview of the praxis and its applications and limitations. It does not describe the LCA technique in detail or methods for the individual components of the LCA (goal and scope of definition, inventory, consequence assessment and interpretation). Because the standard must be applicable to many industrial and consumer sectors, it is rather general. Nonetheless, it includes a comprehensive set of terms and definitions, the methodological framework for each of the four components, reporting considerations, approaches for critical review, and an appendix describing the application of LCA.³⁹

ISO 14044 specifies requirements and provides guidelines for LCA. It is designed for the preparation, conduct and critical review of a life cycle inventory analysis and provides guidelines on the impact assessment and interpretation phases of LCA and on the nature and quality of the data collected.⁴⁰

3.5 ISO 26000

ISO 26000 is a standard for social responsibility. It is based on seven basic principles that together define the concept of social responsibility. The standard describes what companies and organizations can do to contribute to a sustainable future and is designed to help all types of businesses and organizations, regardless of size or geographical location. It is designed to promote businesses to do more than is legally required, while it determines that compliance with the law is a fundamental duty and an important step in taking social

³⁷ ISO 14025:2006, ISO,

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38131, 2011-07-07

³⁸ Ska Rating EPD ISO 14025, Gringoriou, <http://gringoriou.co.uk/sustainability-interiors/ska-rating/ska-rating-epd-iso-14025/>, 2011-07-07

³⁹ ISO 14040:2006, ISO,

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=37456, 2011-07-07

⁴⁰ ISO 14044:2006, ISO,

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38498, 2011-07-07

responsibility. This international standard is not intended for certification.⁴¹

3.6 ISO 27000

The ISO 27000 system provides a structured and effective approach for organizations seeking improved internal controls over information security. The standards is developed and validated by leading experts around the world. ISO 27000 system is a cost-effective insurance of an organization and its information. ISO 27001 is applicable to all organizations, regardless of industry, size and activities and is designed so that it can be integrated with related systems such as ISO 9001 and ISO 14001.⁴²

To become ISO 27000 certified requires the following:⁴³

- The organization has to have a quality management system that will meet the requirements of the standard to be applied.
- The system is a natural part of the organization's daily operations.
- The system is described and maintained continuously.
- The operation is checked against the requirements of ISO 27000 by an accredited certification.

3.7 ISO 28000

ISO 28000 specifies the requirements for a security management system, and is mainly aimed at logistics companies, to help prevent and minimize different risks. The standard is applicable all throughout the logistics- and supply chain, and addressed to small and large businesses in the service sector, manufacturing and store-keeping.

The standard is intended for certification and set requirements on planned, systematic and regular reviews of the company's security, with focus on technical and economic aspects. These reviews will identify risks and be a basis for introducing measures to control the risks.⁴⁴

An ISO 28000-conformant security management system will meet the security requirements of C-TPAT, World Customs Organization (WCO) SAFE Framework, SOLAS and other international regulations while providing greater visibility and optimizing the organization's security spend.⁴⁵

3.8 ISO 31000

The aim of ISO 31000 is to provide principles and generic guidelines on risk management. Public and private organizations, groups or individuals can use the standard. ISO 31000 seeks to provide a universally recognized paradigm for practitioners and companies employing risk management processes to replace the myriad of existing standards, methodologies and paradigms that differ between industries, subject matters and regions.

⁴¹ ISO 26000 project overview, ISO, http://www.iso.org/iso/iso_26000_project_overview.pdf 2011-07-05

⁴² ISO/IEC 27000:2009, ISO, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=41933, 2011-07-05

⁴³ ISO-certifiering, SIS, http://www.sis.se/sv/tema/ISO27000/iso_27000_certifiering/, 2011-07-05

⁴⁴ ISO 28000:2007, ISO,

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=44641, 2011-07-05

⁴⁵ Supply Chain Security and ISO 28000, JBW Group, 2009

This international standard is not intended for certification.⁴⁶

3.9 ISO 39001

ISO 39001 is a management system standard for road safety and at this moment under development. ISO 39001 is based on experience from ISO 9000 and 14000, and developed by the ISO-Project Committee ISO/PC 241. The publication of the ISO/DIS (Draft ISO Standard) 39001 is planned for middle of 2011 and the final version is planned in the middle of 2012.⁴⁷

The aim of this ISO standard is to improve the traffic safety and to reduce the number of persons killed or severely injured in road traffic. ISO 39001 is intended for certification and the requirements would be generic and intended for application by all organizations regardless of type, size or products and services provided. The categories of companies and organizations that have been identified as most relevant are those influencing:⁴⁸

- The design, building and maintenance of roads and streets.
- Design and production of cars, lorries and other road vehicles including parts and equipment.
- Companies working with the transport of goods and people.
- Companies generating significant flows of goods and people.
- All organizations with personnel working in the road transport system.

3.10 OHSAS 18001

OHSAS 18001 is an international standard for occupational health and safety management system. The standard has been created via a concerted effort from a number of the worlds leading national standard bodies, certification bodies and specialist consultancies. The aim with the standard is to improve an existing occupational health and safety management system, gain assurance, demonstrate diligence and minimise risk for employees, etc.⁴⁹

OHSAS 18001 is intended for certification and can be implemented in all organizations within all type of businesses. The standard has been designed to be congruent with ISO 9001 and ISO 14001.

⁴⁶ ISO 31000:2009, ISO, http://www.iso.org/iso/catalogue_detail?csnumber=43170, 2011-07-07

⁴⁷ ISO 39001: Wikipedia, http://en.wikipedia.org/wiki/ISO_39001, 2011-07-07

⁴⁸ Main Focus, ISO, http://www.iso.org/iso/main-focus_oct2009.pdf, 2011-08-23

⁴⁹ OHSAS 18001, <http://www.ohsas-18001-occupational-health-and-safety.com>, 2012-02-09

4 Market based incentives

Market based incentives are various initiatives that companies or organisations can set up themselves. The initiatives may have been set up by an authority or by a commercial company and can both be voluntary and mandatory.

4.1 Credit based trading

Credit based trading is a trading system that offer certificates of emission for organizations that on a voluntary basis will carry out activities leading to emissions below a level of "business as usual". Example of credit based emission allowances is the Kyoto-protocol flexible mechanisms JI (Joint Implementation) and CDM (Clean Development Mechanism). JI is defined in article 6 of the Kyoto protocol and CDM is defined in article 12 of the protocol.⁵⁰

4.2 Consortium benchmark

Consortium benchmark denotes that a group of actors together establish an emission level that must be followed by all consortium members within a specific time limit. The agreed limit must not exceed a maximum level without reducing activities i.e. "business as usual" level. This market mechanism may be voluntary or mandatory.

4.4 Environmental subsidies

Environmental Subsidy is a financial support to invest in new techniques with better environmental performance. Example of environmental subsidies are Humid Air Motor (HAM) and Selective Catalytic Reduction (SCR). HAM technology reduces emissions of NO_x from diesel engine and SCR is a means of converting NO_x with the aid of a catalyst.

⁵⁰ Promotion of verified green transports in green corridors, Conlogic AB, 2011

5 Existing initiatives

5.1 Green House Gas protocol

The GHG Protocol (Greenhouse Gas Protocol) is the most common international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. The aim of the protocol is to build credible and effective programs for tackling climate change. The Protocol is based on a ten years long partnership between WBCSD (World Business Council for Sustainable Development) and WRI (World Resources Institute). In 2006 the ISO supported the corporate standard as the basis for its ISO 14064-I: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals.⁵¹

5.2 Maritime pollution

5.2.1 Clean Shipping Index

The purpose with the Clean Ship Project is to increase the focus of emissions from vessels. Clean Ships Index is a west Swedish project with 20 of Sweden's largest cargo owners as members. One of the results of the project is the Clean Shipping Index, an index evaluating the environmental performance of shipping. The index rank vessels or ship's companies according to the most relevant issues and is a transparent tool for ship's companies, cargo owners and forwarders.⁵²

5.2.2 The Green Port initiative

The aim with the Green Port initiative is to promote sustainable ports and water borne traffic. Green Port provides business information on the environment in and around marine ports and terminals, including shipping, transport and logistics. It provides analysis of the latest trends and opinions, offering case studies, interviews and project based features.⁵³

5.2.3 Clean Cargo initiative

Clean Cargo Working Group (CCWG) is a business-to-business initiative that creates tools to measure and reduce the environmental impact of global freight. CCWG creates dialogues and collaboration between shippers (retailers and manufacturers), shipping companies and logistic companies in order to develop tools and standards to reduce environmental impact. Participants include more than 25 multinational firms, which together move 60 % of the global container freight. Some of the members are CMA CGM, IKEA, Maersk, Nike and Coca-Cola.⁵⁴

⁵¹ Promotion of verified green transports in green corridors, Conlogic AB, 2011

⁵² Our history, Clean Shipping Project, http://www.cleanshippingproject.se/about_us.html, 2011-07-07

⁵³ Promotion of verified green transports in green corridors, Conlogic AB, 2011

⁵⁴ Clean Cargo Working Group, BSR, http://www.bsr.org/consulting/working-groups/CCWG_Overview_2010.pdf, 2011-07-07

5.2.4 GloBallast Programme

GloBallast Programme is a Joint initiative of IMO, UNDP (United Nations Development Programme) and GEF (Global Environment Facility), to address the issue of invasive species in ships' ballast water. After the success of the original Global Ballast Water Management project, IMO has executed a five-year project to sustain the global momentum in tackling the ballast water problem and to catalyse innovative global partnerships to develop solutions.⁵⁵

The full title of this project is “Building Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ship’s Ballast Water”, but it is also called GloBallast Partnerships (GBP).

GBP’s main purpose is to assist developing countries to reduce the risk of aquatic bio-invasions mediated by ships’ ballast water and sediments with the help of tools developed and lessons learned from the pilot project.

GBP is working to:

- Expand government and port management capacities.
- Obtain legal, policy and institutional reforms at national level.
- Develop mechanisms for sustainability.
- Drive regional coordination and co-operation.

The project also aims to develop technology solutions, and enhance global knowledge management and information exchange to support marine biosecurity initiatives.

5.2.5 London Convention

The London Convention also called “The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter”, is one of the first global conventions to protect the marine environment from human activities and has been in force since 1975. Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter. At the moment the convention has members from 87 States (example Denmark, Sweden, Finland, Germany and Russia).⁵⁶

5.3 ERRT

The purpose of the ERRT (European Retail Round Table) is to reduce the environmental impact of their road transport requirements. ERRT is a network of business leaders established to express the views of large retailers on a range of issues of common interest. Their businesses operate worldwide and represent a cross-section of the retail sector. Companies included in the network are inter alia IKEA, H & M, Metro Group and Tesco.⁵⁷

⁵⁵ GloBallast Programme, IMO, <http://www.imo.org/OurWork/Environment/SpecialProgrammesAndInitiatives/Pages/GloBallast.aspx> 2011-07-08

⁵⁶ London Convention and Protocol, IMO, <http://www.imo.org/OurWork/Environment/SpecialProgrammesAndInitiatives/Pages/London-Convention-and-Protocol.aspx>, 2011-07-26

⁵⁷ About ERRT, ERRT, <http://www.errt.org/about-errt>, 2011-07-25

ERRT Way Ahead Programme is a tool that road freight carriers and shippers can use to evaluate the environmental impact of their activities.

ERRT's goal is to promote active retail engagement in a range of important EU issues, such as energy efficiency, sustainable consumption, healthy diets, effective consumer information, recycling, and waste management.

5.4 LABEL

The main purpose of the LABEL project is to contribute to security and service on Truck Parking Areas (TPAs) along the European roads by providing primary users with reliable information on location and various security and service levels. Those who use LABEL will have a number of benefits, depending on the nature and key business of the user. For example, an assessment of TPAs will make the drivers feel confident that the chosen TPA will meet their individual requirements. The transport companies will then be able to save time and administrative costs of planning where the trucks must park and they will also have confidence that there is sufficient security for the cargo and truck driver.⁵⁸

The evaluation of TPAs within the framework of LABEL focuses on security and service. This framework must contain the characteristics that are considered relevant for security or safety, as well as a practical ranking system, so that users can quickly understand a TPA's qualities.

For security there are five different security levels, with requirements that must be the following:

- *Security Level 1* - Providing the Basics.
- *Security Level 2* - Technical Measures to Improve Security.
- *Security Level 3* - Security Measures are Combined, Access of Persons Restricted.
- *Security Level 4* - Real Time Monitoring of Vehicles and Persons by Professional Staff.
- *Security Level 5* - Verification of Vehicles and Persons by Professional Staff, Site Manned Around the Clock.

There are also five different levels for service:

- *Service Level 1* - Providing the Basics.
- *Service Level 2* - Also Providing Washing Facilities and a More Convenient Layout of the Parking Area.
- *Service Level 3* - Providing Service for Personal Hygiene and Shop/ Fuel Station.
- *Service Level 4* - Providing Full Service for Driver and Vehicle.
- *Service Level 5* - Providing the High End of Comfort Levels.

5.5 ILO-code: Safety and health in ports

The ILO (International Labour Organization) - code: Safety and health in ports, was created because the ports need to develop methods to improve security and working conditions for their workers. The code contains detailed technical illustrations and examples of good

⁵⁸ Handbook for Labeling, LABEL, <http://truckparkinglabel.eu/assets/docs/Handbook%20for%20Labelling.pdf>, 2011-07-25

practice. The provisions of this code cover all aspects of port work where goods or passengers are loaded or unloaded to or from ships, including work incidental to such loading and unloading activities in the port area. It is not limited to international trade but applies equally to domestic operations, including those on inland waterways.

New topics, which were not included in the previous publications are: traffic and vehicular movements of all types, activities on shore and on ship, amended levels of lighting provision, personal protective equipment, ergonomics, provisions for disabled persons, and the specific handling of certain cargoes, for example logs, scrap metal, and dangerous goods.⁵⁹

5.6 EuroRAP

The European Road Assessment Programme (EuroRAP) is a non-profit traffic safety organization that aims to reduce deaths accidents and serious injuries on Europe's roads. The program is run by the European Road Assessment Association, which is an international non-profit association registered in Belgium, with its head office located in London. The partnership includes national motoring organizations and local authorities. EuroRAP assess roads in Europe to show how well the road could be designed to protect life in the event of an accident. For example safety fences are used to separate fast moving traffic from people and to cushion crashes when they happen.⁶⁰

EuroRAP uses three different protocols to show the safety levels on the roads. The protocols are the following:

- Risk mapping: shows the risk a driver faces on a certain road derived from the accident history of the road.
- Performance tracking: the changes in numbers of accidents on a certain section and the changes made to that road are observed over time.
- Star Rating: shows the extent to which a road protects the driver in case of an accident.

5.7 KNEG

KNEG (Climate Neutral Freight Transportation on road), is a successful joint project with a vision of freight transport becoming climate neutral on Swedish roads. The project started in the end of 2006 and has now 14 members; examples of members are Volvo Trucks, Volvo Logistics, Stora Enso and Preem.

The aim with the project is to show how the climate impact from the road freight transport in Sweden can be reduced through various measures and how the participating stakeholders can contribute.⁶¹

The project focuses on:

- Efficient transport.
- Efficient fuel production.

⁵⁹ Safety and health in ports, International Labour Office, <http://www.ilo.org/public/english/dialogue/sector/techmeet/messhp03/messhp-cp-b.pdf>, 2011-07-19

⁶⁰ EuroRAP – European road assessment programme, Lynam, Sutch, Broughton & Lawson, http://www.eurorap.org/library/pdfs/pilot_technical_report.pdf 2011-07-26

⁶¹ Klimatneutrala godstransporter på väg, KNEG, http://kneg.org/wp-content/uploads/2010/03/kneg_presentation-Rev110217.pdf, 2011-07-26

- Efficient vehicles.
- Expanded use of renewable fuels.

5.8 ERTMS

ERTMS (European Rail Traffic Management System) is a technical harmonization of train traffic with the aim of eliminating bottlenecks and setup times between countries.

ERTMS is also a major industrial project developed by eight UNIFE members - Alstom Transport, Ansaldo STS, AZD Praha, Bombardier Transportation, Invensys Rail, Mermec, Siemens Mobility and Thales. The members have a close cooperation with the European Union, railway stakeholders and the GSM-R (Global System for Mobile Communications for Railways) industry.

The project purpose is to enable cross-border rail traffic. The deployment of ERTMS will enable the creation of a seamless European railway system and increase European railway's competitiveness.⁶²

ERTMS consists of three subsystems:

- ETCS (European Train Control System): A system that announces where each train is located, determine if there are objects on the tracks and notifies the train and the driver what speed to apply.
- GSM-R: A system of communication between the train crew, train dispatchers, maintenance personnel, train data and security systems.
- ETML (European Traffic Management Layer): A system that focuses the capacity and the planning of paths for an entire rail corridor. Applies mainly for freight trains.

5.9 TAPA

TAPA (Transported Asset Protection Association) is a unique forum that connects global manufactures, logistics providers, freight carriers, law enforcements agencies and other stakeholders with the common purpose of reducing losses for international supply chains. The Association's has more than 700 members and covers many of the world's leading consumer product brands as well as their logistics and transport providers with combined annual sales of over 900 billion US dollars.⁶³

The Association's mission is to help to protect the members' assets by:

- Exchanging information on a global and regional basis.
- Co-operating on preventive security.
- Increasing support from the logistics and freight industry and from law enforcement agencies and governments.
- Promoting and enhancing TAPA's globally recognised and applied Security Requirements.

⁶² European Rail Traffic Management System, Wikipedia, http://sv.wikipedia.org/wiki/European_Rail_Traffic_Management_System, 2011-07-25

⁶³ TAPA, http://www.tapaemea.com/download/TAPA_Brochure.pdf, 2012-01-05

5.10 Port State Control & Ship Vetting

The Port State Control (PSC) is the inspection of foreign vessels in national ports to verify that the condition of the vessel and its equipment comply with the requirements of international regulations. PSC also controls that the vessel is manned and operated in compliance with international laws. The primary responsibility for vessels' standards rests with the Flag State, but PSC provides a "safe net" to catch substandard of the vessels.⁶⁴

Ship vetting is a careful assessment of a vessel's quality and suitability for a task. Vetting is a good way to match available vessels to the operational requirements of the voyage and the need to properly manage risk. The vetting inspections do not include a survey of the vessel's structural elements. Responsibility for this kind of questions rests on the classification body and the ship-owner as part of the vessel's regular maintenance and of the process of ensuring that it complies with applicable rules and regulations.⁶⁵

⁶⁴ Port State Control, IMO, <http://www.imo.org/OurWork/Safety/Implementation/Pages/PortStateControl.aspx>, 2011-08-18

⁶⁵ What is vetting?, Rightship, http://site.rightship.com/why_what_is.aspx, 2012-01-05

6 Environmental Product Declarations & Product Category Rules

EPD (Environmental Product Declaration) is a Type III environmental declaration system, which describes the environmental property of products and services from a life cycle perspective. The international EPD system is administered by the Swedish Environmental Management Council and follows the principles of the international standards:⁶⁶

- ISO 9001: Quality management systems.
- ISO 14001: Environmental management systems.
- ISO 14025: Type III environmental declarations.
- ISO 14040: LCA - Principles and procedures.
- ISO 14044: LCA - Requirements and guidelines.

The purpose of the EPD system is to ensure an objective, comparable and credible communication of the environmental performance within clearly defined and classified product categories and service types. The system approach covers separate products and services as well as wholly or partially assortments of products and services covering a whole branch.⁶⁷

It is essential that there will be uniformity in the means of expressing EPDs including a consistent way of arriving at the declaration that is based on basic life-cycle inventory data and additional information not based on life cycle assessment. Requirements for EPD programmes are found in ISO 14025, which provides the framework and basic requirements for PCRs (Product Category Rules). The PCR documents contain instructions explaining in detail; the life cycle based methods to be used for data collection, special requirements for data sources and their quality, the conversion of collected data to the required environmental impact categories and associated indicators, and principles for how the information should be presented.

6.1 The PCR

The PCRs are a vital tool for environmental and climate declarations. The PCRs enable transparency for the EPD development and also comparability between various EPDs based on the same PCR. At the moment NTM (Network for transport and environment) develop PCRs for all freight transport modes, aligned with the TC320. The NTM will finalize these documents and develop additional PCRs for passenger transport to be published on the international EDP-homepage. TC320 is the technical committee no. 320 in the European Committee for Standardization (CEN) with the task to calculate transports expenditure of energy and climate change.⁶⁸

The PCR work is probably the most vital element to develop and coordinate in a proper way the EPD programme. The international EPD system has therefore introduced a PCR classification scheme building on a hierarchic approach to develop "PCR modules" in order

⁶⁶ PCR Basic Module, EPD, 2009

⁶⁷ Introduction, intended uses and key programme elements, EPD, http://environdec.com/Documents/GPI/EPD_introduction_080229.pdf, 2011-07-12

⁶⁸ Promotion of verified green transports in green corridors, Conlogic AB, 2011

to reduce the workload and associated costs for developing, carrying out consultations and approving PCRs. The main rationale of the approach taken is to simplify and harmonize PCRs work and to avoid market confusion and to avoid trade implications.⁶⁹

The PCR documents are structured in modules primarily according to an UN-based product classification scheme (CPC, Central Product Classification). Comparing CPC with other international product classification schemes seems to demonstrate a good compliance with a life cycle concept being the basis in all EPD programmes. The CPC scheme is helpful for outlining general and common LCA-based calculation rules for cradle-to-gate and gate-to-gate concept.

The use of the CPC system gives a structure for PCR documents in two dimensions:⁷⁰

- A “horizontal” dimension describing the product’s value chain divided into business sectors, i.e. building on CPC-coded information modules.
- A “vertical” dimension defining each information module with a further delineation of each such section into subclasses.

6.1.2 Developing a PCR

A PCR shall be prepared in an open participatory process either by companies and organizations in co-operation with other partners, such as branch- and interest organizations, institutions involving LCA or by single companies or organizations.

To develop a PCR is a procedure that includes a stage approach with following elements:⁷¹

1. Initiation phase
2. Preparation phase
3. Consultation phase
4. Approval and publication phase
5. Updating phase

Initiation phase

To ensure a successful outcome of the development process of a PCR, it is recommended to appoint a PCR-coordinator. It is important that this person is familiar with the EPD approach and has basic knowledge of the LCA-think.

Developing PCR documents should always follow the recommendations in the international EPD standard, ISO 14025 and be done as a co-operative effort including as many interested partners as possible. When a decision is taken to start the work creating a PCR document, this shall be announced to the programme operator of the EPD system.

⁶⁹ Introduction, intended uses and key programme elements, EPD,

http://environdec.com/Documents/GPI/EPD_introduction_080229.pdf, 2011-07-14

⁷⁰ PCR Basic Modules, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Basic-Modules/>, 2011-08-12

⁷¹ PCR Development, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Development/>, 2011-08-10

The initiation phase includes the following elements:⁷²

1. Appoint a PCR coordinator.
2. Consider available PCRs.
3. Seek cooperation with other parties.
4. Set up a Product Category Stakeholder Consultation Group.
5. Publication on Internet.

Preparation phase

The EPD system describes a minimum set of pre-set categories of parameters applicable to all product categories. This is described in the General Programme Instructions. These categories can also be complemented by other pre-set categories of parameters if found relevant to the product group under consideration. The complete set of pre-set categories of parameters may not therefore be identical for all product categories. Pre-set categories of parameters may also include other environmental data than LCI (Life Cycle Inventory)/LCA (Life Cycle Assessment).

The preparation phase includes the following elements:⁷³

1. Identify the pre-set categories of parameters to be included in the EPD.
2. Specify the content of the PCR-document.
3. Select preferred additional environmental information.

Consultation Phase

All suggested PCR documents must be subject to an open consultation procedure before officially being approved. The consultation phase includes the following elements:⁷⁴

1. Identify the consultation parties.
2. Prepare the open consultation procedure.
3. Invite/alert people to take part in the open consultation.
4. Modify the draft PCR document according to comments received.

Approval and Publication Phase

The approval and publication phase includes the following elements:⁷⁵

1. Finalization of PCR proposal.
2. The PCR review procedure.
3. Disclosing open information about the approval of the PCR document.
4. 4. Setting the validity of PCR documents.

It is the PCR coordinator who is responsible to finish the PCR proposal and make allowances of the comments, which the coordinator has received from the open consultation procedure (phase 3). The PCR coordinator shall inform the finalisation of the PCR proposal

⁷² Initiation Phase, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Development/Initiation-Phase/>, 2011-08-10

⁷³ Preparation Phase, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Development/Preparation-Phase/>, 2011-08-11

⁷⁴ Consultation Phase, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Development/Consultation-Phase/>, 2011-08-11

⁷⁵ Approval and Publication Phase, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Development/Approval-and-Publication-Phase/>, 2011-08-11

via the Global PCR Forum and send the proposal and the related PCR report for review to the PCR review panel. The panel, also called Technical Committee (TC), consists of persons who have knowledge in the field of LCA/PCR/EPD.

When the TC has reviewed the proposal, it can either lead to:

- The full acceptance of the PCR proposal.
- The acceptance of the PCR proposal with comments to be fulfilled.
- The need for further clarification and amendments required by the TC.

When the PCR document is approved, it is published on the EPD website. The validity of the PCR document is generally specified for a pre-determined period of time from the date the document was approved.

Updating phases

The last phase in the PCR developing is the updating phase and includes following elements:⁷⁶

1. Possibilities to give comments on PCR documents.
2. Updating following comments received.
3. Updating following no comments received after validity periods have been expired.

Because the PCR document has a pre-determined validity time it is possible to prepare an eventual update of the document at regular intervals. Comments in the PCR documents can be provided either directly via the PCR forum or from the PCR Data Sheet. It is the PCR-moderator who is responsible to update the document, if there are no comments pre-determined validity time increases.

6.1.3 Transport related PCRs

At the moment there are 9 transport related PCRs presented on the international EPD homepage:⁷⁷

- 65 Dairy transports
- 6421 Rail infrastructure and rail transports
- 38 Furniture, other transportable goods i.e.
- 49 Transport equipment
- 64 Passenger transport services
- 66 Rental services of transport vehicles with operators
- 46 Electrical machinery and apparatus
- 62 Retail trade services
- 63 Accommodation, food and beverage services

The numbers are the UN's activity codes. The code can be up to four digits, there 65 is goods, 64 is passenger. 652 is sea transports, which then can be expanded with one more digit to specify the type of sea transport.

⁷⁶ Updating Phase, EPD, <http://environdec.com/en/Product-Category-Rules/PCR-Development/Updating-Phase/> 2011-08-11

⁷⁷ Promotion of verified green transports in green corridors, Conlogic AB, 2011

There are also 3 PCRs in the preparation phase and these are available as drafts for consultation:

- 6511 Road transport services of freight.
- 6512 Rail transport services of freight.
- 652 Water transport services of freight. This PCR is general for waterborne transports including inland waterways (IWW) and does not relate to a particular type of sea transport.

6.2 EPD

One of the main aims with an EPD is to provide the basis for a fair comparison between products, operations and services, which have the same principal function based on their inherent environmental performance. EPDs have also the advantage of being able to communicate and add up relevant environmental information along a product's supply chain as well as to reflect the continuous environmental improvement of products and services over time. An EPD can be used by any organization that wants more knowledge about the environmental aspects of their products, services and operations, to reduce the environmental impact of products and operations under their life cycle, and to communicate with all interested parties and potential users about their overall environmental performance.⁷⁸

The EPDs shall give a quantitative and verified description of the environmental performance of products and operations, viewed from a comprehensive life cycle assessment perspective. Specific elements of importance shall be objective, neutral and flexible. The quality of the EDP's shall be checked and verified as well as compared and able to be transferred to another EDP. The EPDs can also be used as source information in conjunction with the requirements for factual-based and comparable environmental information in public and private purchasing and procurement, and as assistance for such purchasers in making informed assessments of the environmental performance of the products provided by suppliers, distributors and contractors.

6.2.1 Key programme elements

It is important to develop an EPD programme in close cooperation with potential users of EPDs on the market in order to meet the multi-faceted demands on product related environmental information provided in an EPD. The international EPD system introduces a number of key programme elements not described in, but within full range within the overall objectives in ISO 14025, to motivate and facilitate a broad use of EPDs in the private and public sector and in all types of organizations regardless of size or type of operation. The 10 most prominent of these key programme elements are listed below:⁷⁹

⁷⁸ Introduction, intended uses and key programme elements, EPD,
http://environdec.com/Documents/GPI/EPD_introduction_080229.pdf, 2011-07-11

⁷⁹ Introduction, intended uses and key programme elements, EPD,
http://environdec.com/Documents/GPI/EPD_introduction_080229.pdf, 2011-07-11

Purpose	Element identification and principal approach
Complying with principles set in ISO 14025 on modularity and comparability	1. Book-keeping LCA approach 2. A Polluter-Pays (PP) allocation method
Simplifying work to develop Product Category Rules (PCR)	3. PCR Module Initiative (PMI) for structuring PCR into modules according to international classification 4. PCR coordinator for leadership and support of the work 5. Pre-certification of EPDs
Secure international participation in PCR work	6. Global PCR forum for open and transparent EPD stakeholder consultation
Facilitating identification and collection of LCA-based information	7. Selective data quality approach for specific and generic data
Broaden market applications of EPDs	8. Introducing Sector EPDs 9. Introducing Single-issue EPDs
Expand possibilities for organizations to issue EPDs in a cost-effective way	10. Introducing EPD process certification

6.2.2 EPD process

The EPD process shall follow a certain process pattern and be outlined according to the PDCA (Plan, Do, Check and Act) principle.⁸⁰

- *Planning*: Setting up resources needed for this activity, assessment plans and defining criteria's for approval.
- *Doing*: Execute assessments according to plan, with trained internal staff at defined intervals and according to the approval criteria's.
- *Checking*: Independent party shall verify that the EPD process certification activity is outlined well and works effectively and according to the norms.
- *Acting*: Finally the management shall certify by a written statement that the above process works properly and effective and according to the norms. The statement shall be updated annually.

To develop an EPD involves the following work:⁸¹

- Collect data that shall be included in the declaration.
- On the basis of this data, calculate the environmental impact and other information that shall be included in the declaration.
- Allowing a third party to review and approve the documents and declaration.
- Registration and publishing of the declaration.

⁸⁰ Process Certification Clarification for the International EPD@system, EPD. 2010

⁸¹ Ta fram en EPD, MSR, <http://www.msr.se/sv/epd/Hur-funkar-EPD/>, 2011-07-13

Based on the collected data, environmental impact is calculated that gradually builds up the information to be included in the declaration together with other information. Allowing a third party review and approving the documents and declarations are an integral part of EPD system. The audit should also ensure that the company/organization has a reliable continuous monitoring of the data on the basis for the declaration.

6.2.3 EPDs for the Bothnia Line

The Bothnia Line is a 190 km long new railway line running along the coast of northern Sweden. The line was opened for traffic in the fall 2010.

The company Botniabanan AB in cooperation with the Swedish Transport Administration has developed eight EPDs for the Bothnia Line. The aim with these EPDs are to provide experts and scientists (in the construction and infrastructure sectors) with objective and reliable information on the environmental impact of construction, operating and maintaining railway infrastructure. The eight EPDs are listed below and have been certified by Bureau Veritas Certification:⁸²

- EPD for freight transport on the Bothnia Line.
- EPD for railway infrastructure on the Bothnia Line.
- EPD for railway tunnels on the Bothnia Line.
- EPD for railway track foundations on the Bothnia Line.
- EPD for railway bridges on the Bothnia Line.
- EPD for railway track on the Bothnia Line.
- EPD for power, signalling and telecom systems on the Bothnia Line.
- EPD for passenger transport on the Bothnia Line.

⁸² Environmental Product Declaration for railway track foundation on the Bothnia Line, EPD, <http://gryphon.environdec.com/data/files/6/7221/epd198.pdf> 2011-08-18

7 Interview with stakeholders

This part is a summary of the responses from interviews with stakeholders. The interviewed persons and the interview questions are given in Appendix II. Companies who have been contacted for an interview are:

- DFDS Seaways
- FoodTankers
- Green Cargo
- IKEA
- Intercontainer
- Karlshamn Express
- Lithuanian railways
- LogPoint
- Port of Karlshamn
- Port of Sassnitz
- Schenker
- Stora Enso
- Transportgruppen
- Volvo Group

Most of the companies and organizations that have been interviewed think that the key benefit of a certification is mainly the internal benefits. It is important that companies see the certification as a benefit and not as a barrier. The result of a certification is usually better efficiency, which in turn leads to bigger success on the market. It is easier to communicate with customers if a company is certified, but in the end, it is usually the price that is decisive and not the certification. Usually it is the customers that set the requirements. But if the company has higher requirements than the customers require they usually don't get more paid.

One explanation to the fact that all companies are not certified today is probably that many companies are small and certification is expensive. Therefore the smaller and medium sized companies choose to develop policies that are integrated in the management system for the operation instead of a certification. Larger companies normally have the necessary organization in place for carrying out the certification process. Another reason could be that larger companies look into the future and small companies focus more on "surviving" from day to day.

Certification can be a driving force for certain investments that are not priority, but which are good for business. The revenue is not immediately visible. Certification, implemented correctly with a good monitoring system, creates a competitive advantage, which is crucial for the survival of a business.

More and more customers set requirements for certification and more requirements would certainly contribute to an increasing number of certified companies. Large transport buyers also require certification of contractors and subcontractors.

What kind of requirements that come in the future is difficult to say. Most of the respondents believe that the requirements in the future will come from customers and that the certification will be broader and not only focus on quality and the environment. The requirements will more focus on traffic safety and transport security, and on work with environmental issues.

Regarding traffic safety following should be included in a certification:

- The road speed profile and topography will provide a steady speed.
- Avoid traffic through urban areas.
- Classification of roads, 2+2 roads with mid-separation.
- Level of maintenance of roads.
- Alcohol and drug locks in vehicles.
- Training in driving behaviour and eco-driving.
- EuroRAP.

Regarding transport security following should be included in a certification:

- Safe truck parking areas.
- A common and harmonized cargo securing system for road, rail and sea transport.
- Handling of dangerous goods, EN 12798.
- Security requirements C-TPAT (Customs-Trade Partnership Against Terrorism) and AEO (Authorized Economic Operator).

Certification is needed, requiring a corporate legal perspective with strong monitoring requirements, which leads to a reorganization of the transport industry. How a company is managed permeates most often the entire operation and future certifications will probably be about summary assessments of the business (salaries, contracts, taxes, remarks in police checks etc.).

Important to certify in a green corridor is primarily the infrastructure, different corridor facilities, and operations in hubs. The corridor should also have some form of quality, function and capacity standards. The corridor must have a target agreeable performance, to make sure that a corridor really is green. The railways system must expand and the system between countries must be the same.

Regarding facilities in the corridor, there must be a minimum distance between filling stations, with the possibility to refuel all types of fuels. The filling stations should be connected to safe parking areas and there should be electric power connections for trucks in the parking areas and hubs.

For companies to see any attraction in a green corridor, it must be able to convey the goods at a competitive price and with high accessibility and punctuality. Ultimately, the goods will be transported where the costs are lowest, as long as no one sets up requirements. The corridor could also be attractive if the companies which transport goods in a green corridor get some sort of advantage, for example, reduced taxes, guaranteed slots on vessels, etc.

The introduction of a certification system for green corridors should start in a small scale and be governed by the EU together with key stakeholders (state authorities, transport associations representing all transport modes, regions and ports).

8 Conclusions and recommendations for a certifications system

This chapter describes how a potential certification system could look like and which components that would be included in a green corridor. The results from the interviews and the study show, that what should be certified in a green corridor are the infrastructure, facilities and operations in ports. With facilities means for instance filling stations, safe truck parking areas, warehouses, distribution centres and handling equipment in hubs.

That should be certified in a green corridor is a process, congruent with the ISO 9001 and ISO 14001/EMAS systems, for developing Type III EPDs to create certified environmental declarations of infrastructure and facilities in the corridor as well as operations in hubs.

The Type III EPD is a standardized (ISO 14025) and LCA based tool to communicate the environmental performance of a product, service or operation, and is applicable worldwide for all interested companies and organizations. Certified EPDs are available for a large number of products and services (c.f. the Bothnia Line example in paragraph 6.2.3). There is no evaluation of the environmental information since no predetermined environmental performance targets are set. Instead it builds on well-structured and quantitative data certified by an independent third-party auditor. Therefore, this type of environmental declarations should be included in a certification system.

One of the advantages of the EPD system is that green freight transport corridors can be compared with the help of EPDs (as long as they are grouped within the same PCR). From this comparison it would be possible to develop a classification system based on commonly accepted performance targets, jointly developed by the transport community to demonstrate the different environmental impacts, and thereby stimulating the potential for market-driven continuous environmental improvement. Some critical success factors of EPD classification are:

- Common label parameters and methodology to be developed by transport community with significant stakeholder involvement to enable comparability between products, services or operations.
- Setting common Life Cycle analysis and system boundaries.
- Verification by trusted third party to ensure validity of approach and data.

However, there are both benefits and drawbacks with Type III EPD labelling systems. Some benefits are:

- Based on life cycle impacts giving detailed and gradated information enables differentiation between products, processes or services within same groups (PCR).
- Gives potential for increased data availability and sharing of data between actors.

and some drawbacks are:

- Confidentially implications and cost of data collection and analysis.
- Setting boundaries in life cycle assessment can be complex and influence validity and comparability.

- Common understanding of LCA methodologies between member states needs improving to ensure comparability and harmonisation.

The main cost implication of Type III EPD labels relates to the need to undergo some form of lifecycle analysis, often with need for and availability of specialist expertise. However, as life cycle analyses and standardised data availability becomes more common the costs of using this labelling system will decrease. In addition, structured EPD schemes organised by business associations which set agreed parameters and units of measurement would reduce the costs further.

Product related environmental issues become increasingly important for business and public administration. One sign of this is that the environmental management system ISO 14001 and EMAS increasingly focus on product issues. Even the European Union focuses on the so-called Integrated Product Policy (IPP). IPP focuses on life cycle based, scientifically based as well as verified information on one product's or services environmental performance. Some benefits are that IPP expands the current scope of product environmental information and improve its efficiency.

Benefits with ISO 14001/EMAS are:

- Increased process efficiency.
- Reduced use of resources and materials supplied by utility.
- Reduced waste production per delivered benefits and thus reduced costs for waste management.
- Increased share of renewable resources and systems.
- Increased goodwill and increased credibility for the organization's environmental efforts.

Regarding traffic safety, the ISO 39001 standard should be included in the certification system. There are plans to make ISO 39001 certifiable but however there is no official standard at the moment. It is suggested that the EuroRAP and the requirements for eco driving should be included as a supplement to ISO 39001.

Within transport security, the EN 12798 should be a supplement to ISO 9001 regarding the handling of dangerous goods and also securing of cargo. It is also suggested to include the ISO 31000 (general risk management) in the certification system and include the LABEL methodology as a supplement to this standard.

Some benefits with ISO 31000 are:

- More timely identification of risks.
- Improved risk insight.
- Justification of controls.
- Better business performance.

Within transport security, also ISO 27000 (Information security) and ISO 28000 (Risk management in supply chain) should be included the certification system.

The benefits of ISO 28000 are:

- Enhanced security risk assessment, asset protection and inventory visibility and management.
- Assured continuity of supply for sustainable business development and reduction of delivery times.
- Improved customer satisfaction and business cooperation along the supply chain.
- Reduction of losses resulted from transport related theft.
- Shorter customs clearance time (Green Lane Approvals) and reduced secondary inspections.
- Compliance with other trade and supply chain security schemes, such as AEO and C-TPAT.

Some benefits with ISO 27000 are:

- Improve information security and reduce risks (i.e. reducing the probability of, and/or impact caused by, information security incidents).
- Increasing security awareness.

To obtain high quality and reduce number of accidents on vessels, ship vetting is a good system to include in a certification. High quality on vessels makes better chance to cope with different inspections avoiding undue delays and the standard for the corridor increase.

Another certification system which can be used in green corridors is OHSAS 18001 to promote a safe and healthy working environment, by consistently identifying and controlling health and safety risks, reduce risks of accidents and help to ensure compliance with legislation.

Below is a summary of the components that should be included in a certification system for green corridors:

Quality	<ul style="list-style-type: none"> • ISO 9001 (Quality management system) • ISO 27000 (Information security)
Environment	<ul style="list-style-type: none"> • ISO 14001/EMAS (Environmental management system) • PCR/EPD (Environmental product declarations, LCA) • ISO 14025, 14040, 14044 • ISO 14033 (Quantitative environmental information)
Safety and Security	<ul style="list-style-type: none"> • ISO 9001DG (Dangerous goods) • ISO 39001 (Traffic safety risks management) • EuroRAP (Star labelling of roads) • ISO 31000 (Risk management) • ISO 28000 (Risk management in supply chain) • OHSAS 18001 (Occupational Health and Safety) • LABEL (Truck parking assessment) • Ship Vetting System (Risk assessment of ships)

The development of a certification system for green corridors should be initiated and governed by the European Union together with key stakeholders. There are a number of relevant stakeholders affected by and influencing the transport corridor that should be directly or indirectly involved in a certification process. In the interviews the following stakeholders were identified:

- State and regional authorities.
- Cargo owners and buyers of transportation and logistics services.
- Infrastructure managers.
- Port and terminal operators.
- Warehouse operators.
- Carriers: railway undertakers, haulers, and shipping companies.
- Intermodal transport companies.
- Controlling institutions.

The certified green corridors should also have some kind of grading system in order to define the services that a green corridor has. This could for example be the use of a grading system from 1 to 5, in which the corridor must have a certain level of service to get a certain grade.

Below are a number of suggestions for services that may be included in a grading system:

- LNG fuel for vessels.
- Cold ironing providing shore-side electrical power to ship at berth.
- Electrical power connection for trucks at ports and in truck parking areas.
- Secure truck-parking areas.
- Minimum distances between filling stations.
- Ability to refuel all types of fuel at filling stations.

As previously discussed in this chapter, it is the corridor that should be certified, not the companies. However, it is recommended that companies should be certified by some of the standards described in the report. One benefit regarding certified companies mentioned in the interviews is that certification is mainly an internal benefit for the companies. The certified companies have usually better efficiency and have easier to communicate with customers.

To encourage companies to get certified, a labelling system can be used to identify the companies who are environmentally responsible. A classification system according to specific criteria and for example uses a "corridor label" gold, silver and bronze. There is also an idea to let the companies that are certified by specified standards receive some kind of benefits when using a green corridor. For example, green priorities and differentiated fees, better price when they use secure parking areas, a guaranteed slot on board vessels, etc.

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Appendix I – Abbreviations

ADR	Agreement on Dangerous Goods by Road
CCWG	Clean Cargo Working Group
CEN	European Committee for Standardization
DIS	Draft ISO Standard
EC	European Commission
EMAS	Eco Management and Audit Scheme
EMS	European Modular System
EPD	Environmental Product Declaration
ERRT	European Retail Round Table
ERTMS	European Rail Traffic Management System
EU	European Union
EuroRAP	European Road Assessment Programme
GBP	GloBallast Partnerships
GHG	Greenhouse Gas
ILO	International Labour Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISM	International Safety Management
ISO	International Organization for Standardization
ISPS	International Ship and Port Facility Security
KNEG	Climate Neutral Freight Transportation on way
KPI	Key Performance Indicator
LCA	Life-cycle Assessment
Marpol	The International Convention for the Prevention of Pollution from Ship
PCR	Product Category Rule
PSC	Port State Control
RID	Règlement Concernant le Transport International Ferroviaire de Marchandises Dangereuses
RUC	Road User Charging
SECA	Sulphur Emission Control
SOLAS	Safety of Life at Sea
TPA	Truck Parking Area
WCO	World Customs Organization

Appendix II – Interview questions and interviewed persons

East West Transport Corridor II (EWTC II) is an EU project who started in September 2009 and will run until September 2012. The project aims are to reduce environmental and climate impacts while increasing safety, security and efficiency in transport corridor. Region Blekinge (Sweden) is the lead partner in the project, and partners from Sweden, Lithuania, Germany and Denmark are members in the project. The corridor stretches from Esbjerg to Klaipeda, via the Öresund Region and Southern Sweden. The project focuses on developing efficient and sustainable transport solutions in so-called green transport corridors.

The EWTC II project is going to investigate the potential / need for a certification of a green corridor and how such a system could look like. The report will focus on environmental impact, traffic safety and transport security (e.g. protection from theft). One section of the report will include interviews with various stakeholders. We would therefore like to have your comments about a possible certification process. Below we have compiled eleven questions that I hope you can answer via e-mail. Do not forget that you are able to influence the content of the final report before it is submitted to EU.

1. Have your company today a policy or certified within:
 - a. Environment?
 - b. Traffic Safety?
 - c. Transport Security?
 - d. Quality?
2. What should a certification in:
 - a. Traffic safety includes?
 - b. Transport security includes?
3. What are the biggest benefits for your company regarding certification?
4. Which new requirements for certification do you see in the future (~ 5 years)?
Within which areas do you think the requirements are likely to come? Who will set the requirements (the company, the customers, the EU or by legislations)?
5. Has your company any certification requirements of your suppliers and their subcontractors?
6. Do you think that there are some completion advantages with a certification, if so, what are the advantages?
7. What do you think is the reason that companies do not been certified within these areas (environment, quality, traffic safety and transport security)?

8. What do you think is important to certify in a "green" transport corridor and why in terms of environmental, quality, traffic safety and transport security?
 - a. Transport company
 - b. Logistic company
 - c. Infrastructure
 - d. The operations in ports and terminals

9. Which actors should be involved in a certification process of a transport corridor? Please motivate

10. What attraction do you think that a green corridor will create?

11. What impact should a certified green corridor providing your company? Please motivate

Interviewed persons:

- Claes Sorman (Intercontainer)
- Evaldas Gudukas (Lithuanian railways)
- Johan Sandström & Håkan Sjöström (Green Cargo)
- Mats Olsson & Tomas Carlsson (Karlshamns Hamn)
- Monica Jadsén Holm (Schenker)
- Per-Christian Persson (Karlshamn Express)
- Rune Pettersson (LogPoint)
- Stefan Back (Transportgruppen)
- Tomas Pettersson (FoodTankers)