

**MEMORANDUM OF UNDERSTANDING
ON SUSTAINABLE PORT AND MARITIME POLICY
IN THE BALTIC SEA REGION**



SUMMARY

This paper is the Memorandum of Understanding (MoU) on Sustainable Port and Maritime Policy in the Baltic Sea Region. It is the outcome of the BSR INTERREG III B project “New Hansa of sustainable ports and cities” with the project partners:

Stadtwerke Lübeck GmbH as Lead Partner and Hanseatic City of Lübeck, City of Stockholm, City of Helsinki, City of Malmö, City of Turku, City of Pori, City of Mariehamn, Port of Kolding, Port of Rostock, Ports of Stockholm, Port of Turku, Authority of Szczecin and Swinoujscie Seaports, the Centre for Maritime Studies of the University of Turku, Union of the Baltic Cities (UBC), Baltic Energy Forum e.V. (BEF) and Finnlines Plc as partners from June 2003 until December 2005.

An evaluation made by the project New Hansa has shown the need for concerted action in order to improve environmental, health and economic aspects of maritime transport.

SIGNATORIES

This MoU is a voluntary commitment of its signatories. Signatories to this Memorandum of Understanding are: Coastal Cities, Port Authorities and Port Operating Companies, Ship Owners and Ship Operating Companies and other parties in the Baltic Sea Region. Starting point of the MoU shall be the 1st of January 2006.

WHEREAS

1. the Baltic Sea is classified by the International Maritime Organization (IMO) in Annexes I, II and V, MARPOL 73/78 as “particularly sensitive sea area (PSSA)” in which, for technical reasons relating to their oceanographical and ecological condition and to their sea traffic, the adoption of special mandatory methods for the prevention of sea pollution is required. Under this Convention, the Baltic Sea is provided with a higher level of protection than other sea areas,
2. the signatories are aware of the commitments to different protocols and conventions regarding the environment,
3. increasing maritime traffic could potentially lead to increasing environmental impact with respect to local air quality, noise, waste generation and water pollution, and thus increase pressure upon regulators to introduce mitigation measures,
4. the New Hansa Partners, pursuant to its commitment to the BSR INTERREG III B programme have studied the feasibility of stimulating the use of cleaner maritime transport in the Baltic Sea,
5. it is feasible to develop financial measures as incentives for technical development to safeguard environment, health and fair competition,
6. it is feasible to develop recommended methodologies to improve air quality, noise environment, waste and waste water management in the ports,
7. it is feasible and proved necessary, to develop criteria for application of such measures by Baltic Sea cities and ports,
8. some cities, ports and shipping companies have already introduced individual systems for maritime emission abatement, noise, waste and waste water handling,
9. cities, ports and shipping companies have expressed their interest for harmonised methodologies and measures in the Baltic Sea Area,
10. there is a need for classification of maritime vessels according to their environmental performance for the purpose of making use of financial measures.

AND CONSIDERING THAT

1. the aim of this MoU is to establish a Pan-Baltic environmental maritime policy regarding air quality, noise, waste and waste water management and to minimize environmental impact from maritime transport,
2. this MoU is a voluntary commitment of its signatories concerning the examples of good practices in annex I,
3. reference limit values for Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Oxides of Nitrogen (NO_x) and Particular Matter (PM₁₀) and thresholds are those of Council Directive 1999/30/EC of 22 April 1999 and EC directive for noise (Council Directive 2002/49 EC),
4. all parties of maritime transport have individual obligations to take care of securing equal conditions for citizens, tourism, environment and economy,
5. the cities are aware of their social obligations to safeguard health of their citizens and environment,
6. the port operating enterprises and/or port authorities are aware of their social obligations to safeguard health of citizens and environment,
7. ship owners and ship operating companies are aware of that they bear obligation to engage in voluntary measures for the protection of the Baltic Sea to safeguard health of citizens and environment.

IT IS RECOMMENDED THAT

1. the cities commit to encourage their port administrations to implement measures for reducing air emissions from shipping and to harmonize with other port cities their technical facilities and procedures for waste and waste water management and noise abatement,
2. the ports, therefore, commit to agree on internationally harmonized technical and/or organizational and/or financial measures to be implemented to reduce environmental impact regarding air pollution, noise, waste and waste water,
3. the ship owners commit to contribute to the internationally agreed and accepted principles on clean air programmes and waste and waste water management, as well as noise reduction programmes by using best available technology in common use,
4. the signatories commit to report every two years about the implementation of the measures and to report their achievements in reducing environmental impact in ports and cities; the report shall be sent to the UBC; UBC will publish the status versus the obligations of this MoU,
5. the signatories commit to make their efforts and results according to this MoU public,
6. the signatories will have the right to fly the New Hansa flag and use the New Hansa logo.

ANNEX 1

CONCLUSIONS, RECOMMENDATIONS AND EXAMPLES OF GOOD PRACTICES ON SUSTAINABLE PORT AND MARITIME POLICY

This paper is the Annex 1 of the Memorandum of Understanding on Sustainable Port and Maritime Policy in the Baltic Sea Region. It includes conclusions, recommendations and examples of good practices on sustainable port and maritime policy, as identified within the project New Hansa of Sustainable Ports and Cities in 2003 - 2005.

The content of Annex 1 is largely based on the feasibility study Ship originated air emissions, solid waste and wastewaters (Kalli Juha, Alhosalo Minna, Erkkilä Anne, Åkerström Jari & Sundberg Pekka: Ship originated air emissions, solid waste and wastewaters - a Feasibility Study of the New Hansa Project, Centre for Maritime Studies University of Turku, 2005).

The New Hansa project has received co-financing from the European Commission BSR INTERREG III B Programme and the Finnish Ministry of Environment. The project aimed at identifying and developing good environmental and spatial planning practices and policies in order to integrate maritime transport into the efforts to make the Baltic Sea a clean sea and improve the environments at the port cities. This will be achieved by harmonizing a number of environmental management practices with regard to ships at ports and by speeding up the implementation of sustainable port policies in all the main ports in the Baltic Sea region. Specifically, the New Hansa project concentrated on harmonising and strengthening the policies and practices to reduce atmospheric emissions, noise, vibrations, wastewater discharges and solid waste generation, and to improve reception practices of ship-generated wastes in ports.

1. CONCLUSIONS AND RECOMMENDATIONS

These conclusions and recommendations, based on the feasibility study, address three main issues: atmospheric emissions, noise and vibrations; ship-generated solid and oily waste; and ship-generated wastewaters. The data of the study consist of background data of the participating ports and general information and theory of environmental issues concerning the three main topics. The conclusions and recommendations are mainly based on the data collected from the project partners and the topics discussed during the project meetings and research visits at the ports.

1.1 INTRODUCTION TO ECONOMIC INCENTIVES

Economic incentives are an effective tool for ports to affect directly the introduction of environmental friendly technologies, low-sulphur fuels and waste management practices onboard ships. However, there would be a risk of losing competitiveness of a port, if it would introduce economic incentives alone. It would require a national or international agreement to effectively apply this as a system for all ports in the Baltic Sea area and beyond.

Some of the ports of this project have applied economic incentives

- aiming at the reduction of the NO_x emissions from ships by installing abatement technology on ships;
- aiming at the use of low-sulphur fuels in order to reduce SO_x emissions from ships;
- aiming at encouraging sorting of waste on ships;
- in form of discounts in case a ship shows especially good environmental performance.

These economic incentives have proven to be very efficient in encouraging the introduction of environmental friendly technologies on ships. For example, installing of NO_x abatement technology or the use of low-sulphur fuels in ships would decrease the atmospheric emissions of ships always when engines are running, i.e. both on passage and at berth. The economic incentives can be applied to promote environmental friendly

technologies. It is recommended that economic incentives would be further investigated and implemented in the Baltic Sea region.

Because of the direct positive effects in terms of decreasing the amount of waste and emissions from ships, it is recommended that a joint economic incentive system would be developed among the Baltic ports.

1.2 INTRODUCTION TO SHORE-TO-SHIP ELECTRICITY

It is possible to reduce emissions of ships during their stay in port by a shore-to-ship electricity system (cold ironing), a process where shore power is provided to a vessel, allowing it to shut down its auxiliary engines. Thus, all the engines of a vessel could be shut down at berth. This reduces atmospheric emissions and noise from ships'. There are currently no international requirements that would mandate or facilitate a shore-to-ship connection of marine vessels. The shore-to-ship connection could provide a local solution for air quality problems in port areas on a voluntary basis.

It is recommended that the ports study the cost- and environmental efficiency of constructing a shore-to-ship electricity system. However, there are ports where, due to technical or operational reasons, it may not be efficient to implement the system because of e.g. short berth times of ships or inability to provide the needed amount of power. The efficiency of shore-to-ship electricity to reduce emissions improves when berthing time is rather long, energy usage of a ship is high and the ship has relatively frequent port calls. The standardisation of a shore-to-ship connection in the Baltic Sea region could increase the use and efficiency of the system.

1.3 HARMONIZATION OF WASTE COLLECTION IN PORTS

It was observed in the New Hansa project that the collection procedures of waste vary between ports. In addition, the sorting procedures vary between ships. Although the ports do not have any significant problems in receiving the waste, a harmonized system of waste collection in ports would make the sorting easier for ships and promote the sorting onboard, thus making the collection of waste more efficient. Therefore, it is recommended that the ports would agree about common classification and procedures in waste collection.

The feasibility study presents general guidelines for a classification system that is based on the observations made and data collected during the study. An international agreement is a prerequisite for successful harmonization of waste collection in ports.

1.4 IMPROVEMENT OF SHIP-ORIGINATED WASTE MANAGEMENT IN PORTS

Ports have the possibility to significantly affect ship-originated waste management. The project revealed some actions that ports are recommended to consider in order to improve the waste management. Ports should

- establish waste collection stations for ship-generated waste in quays wherever possible (non-hazardous waste);
- establish waste collection stations for hazardous waste in quays with supervised discharging practices;
- respect sorting at source (onboard ships) and prevent mixing of sorted waste fractions;
- promote recycling to decrease the amount of waste that is directed to landfills;
- promote the integration of the management of ship-generated waste and waste originated from a port area.

1.5 ENCOURAGEMENT TO DISCHARGE SEWAGE ASHORE

Large cruise ships can be compared to small cities concerning the production of wastewater. Thus, passenger ports have to manage more black and grey waters than cargo ports. It is possible to build a treatment system onboard to handle wastewaters of ships. When validated and maintained properly, this method can be considered as a good practice because of the effluent quality that is comparable to the quality reached in treatment plants ashore.

The problem from an environmental viewpoint is that international regulations allow discharging of black and grey water into the open sea areas without or with only minor treatment. Thus, the possibility of discharging untreated sewage into the sea is commonly used, although there have been attempts to decrease the amount of discharges, for example, by using feeding systems and advanced reception facilities in ports.

However, it is recommended that ports establish permanent reception facilities for wastewater on quays whenever possible. These facilities work very well and can be recommended to be built in quays operating with constant liner traffic. It may encourage ships to leave wastewater ashore for a proper treatment. It is also recommended that ports should claim for certificates from ships to guarantee the quality of wastewater directed to a wastewater treatment plant.

1.6 THE ACTIVE PROMOTION OF THE ENVIRONMENTALLY SUSTAINABLE BEST PRACTICES

Ports are important regional actors and authorities possessing various possibilities to promote the environmental friendly behaviour and best practices. A port's active role as an environmental manager is advantageous also when building up its own environmental image.

The promotion of the environmental image is an indirect way to affect the improvement of environmental performance of a company. As the public awareness about environment is constantly growing, the use of environmental performance as a competitive advantage will be increasingly important for both ports and their customers and stakeholders. Among the ports of this project, Stockholm has an "Environmental Buoy", an award granted annually for "work in contributing to a significant environmental improvement in the field of shipping and/or increasing awareness of the shipping sector's environmental work to promote environmentally sustainable best practices".

It is recommended that the ports together with their stakeholders should find the incentives to improve the environmental performance of shipping and port operations. The development of active and long-term international co-operation between ports and other interest groups is recommended in order to develop and apply the environmentally sustainable best practices. Through co-operation, it is also easier to support and draw public attention to the best practices developed and/or introduced in the Baltic Sea region.

1.7 GAINING KNOWLEDGE ABOUT AMBIENT ENVIRONMENT FOR HARMONIZATION

The knowledge about the state of the environment is a prerequisite for effective environmental management. The national and local authorities are mainly responsible for monitoring of the environment, but ports also need knowledge about the environment, e.g. for environmental permissions and management.

It was observed in the New Hansa project that the ports have no commonly used models or methods for monitoring, predicting or estimating the state of the surrounding environment. However, the data and factors used in individual models are often from the same source.

In order to develop harmonized environmental practices for the Baltic Sea ports, comparable with each other, information about environmental parameters and emissions should be available. Thus, it is recommended that the ports agree on using certain models and calculation methods. This would be a subject of further co-operation.

The models concerning air pollution from shipping and port operations are especially useful for the ports. Many of the participating ports within the New Hansa of Sustainable Ports and Cities project have made calculations about the total air pollution amounts originated from ships. This practice can be recommended for all ports. By combining the data with meteorological data and using the distribution models available it is possible to evaluate the impact of shipping on the port environment and surrounding areas.

The ports should consider the needs for supplementary environmental surveys or monitoring. For example, ships' diesel engines or dusting in the port area are one of the potential sources of fine particles, which are particularly harmful for human health. In this case, it is recommended to include PM_{10} and even $PM_{2.5}$ to the studied components of air pollutants.

2. EXAMPLES OF GOOD PRACTICES

This chapter presents the good practices that have been identified in the New Hansa project. These practices are examples of available technical and non-technical solutions and they represent the best solutions introduced currently in the New Hansa partner ports. However, as techniques for environmental management are rapidly developing, new solutions will emerge in the near future. All these practices may not be practical solutions for every port due to the different characteristics of ports and visiting vessels. Thus, the ports and cities should make the decision about implementing different solutions after considering and defining the suitability and profitability of the practices from their point of view.

2.1 MANAGEMENT OF AIR QUALITY

Major air pollutants related to port activities are particulate matter (PM), nitrogen oxides (NO_x), sulphur oxides (SO_x), carbon oxides (CO_x), ozone, heavy metals and hydrocarbons including volatile organic compounds (HC and VOCs). Most of these pollutants are originated from burning of diesel fuels in engine operations.

There are special technical solutions to diminish the amount of pollution from a combustion process. Beside technical apparatus, there are also other methods to diminish the emissions of shipping. Some methods strive to make shipping more efficient and adjust the operations on an environmentally favourable level. This is where the regulations, recommendations, limit values and economic incentives are efficient methods.

Different technical and non-technical methods are developed to reduce the atmospheric load of shipping: e.g. techniques and technologies to reduce CO₂, optimizing the speed, low sulphur fuels, biodiesel, seawater scrubbing, diesel engine and engine design, common rail, fuel water emulsion, humid air motor, direct water injection, exhaust gas recirculation, CASS, auxiliary gas injection, selective catalytic reduction, NO_x traps, selective non-catalytic reduction, non-thermal plasma, dual fuel engine, gas turbines and fuel cells.

Ports, cities, communities and other authorities can encourage shipping companies to adopt an abatement technology. One example is the Swedish Maritime Administration giving economic incentives for ships purchasing and installing SCR systems in a form of quittance from fairway dues.

The ports and cities participating in the New Hansa project have found the shore-to-ship energy connection and environmentally differentiated harbour and fairway dues to be especially useful in improving the environmental management of shipping.

2.1.1 SHORE-TO-SHIP POWER SUPPLY TO REDUCE THE EMISSIONS AT BERTH

By using external power supply, ships are able to shut down their main and auxiliary engines at berth. Thus, the air emissions are produced only by the shore bases producer of electricity. If the power is generated for example by wind energy, the environmental benefits are even greater. Shutting down the engines will also diminish noise and vibrations generated by the ship at port. For ports and cities where continuous in-port operations of ships provide a major contribution to the total emissions, shore-to-ship power supply offers an appropriate solution to reduce the level of air pollution. Shore-to-ship electricity can solve many local SO_x, NO_x and PM problems.

There has been a shore-to-ship connection in the Port of Stockholm since 1987. This system is still operative and used by passenger ferries in liner traffic. Within the New Hansa project, a new concept has been developed for on-shore power supply in Lübeck. The developed system would be capable of offering electricity in specific frequencies and qualities confirmed by initial data exchange between ship and shore. The efficiency of the system would rise if the electricity grids in ships were standardised. Standardisation of electricity grids onboard would be beneficial in order to be able to connect more than one ship having the same grid into the same system. The Stockholm system and the system developed in New Hansa project are both designed for providing electricity source sufficient for large ferries. Other ports have operative shore-to-ship power supplies in the form of dedicated one vessel systems e.g. in the Port of Kolding and in the Port of Helsinki for high speed catamarans.

2.1.2 ENVIRONMENTALLY DIFFERENTIATED FAIRWAY AND HARBOUR DUES TO ENCOURAGE THE IMPROVEMENT OF ENVIRONMENTAL MANAGEMENT OF SHIPPING COMPANIES

Economic incentives are in use in Swedish ports to decrease ship-generated air pollution. The environmental differentiated harbour dues to reduce nitrogen oxides and sulphur from ships are also in use in the Port of Mariehamn in Finland. Some ports beside the Swedish ones within the New Hansa project also give discounts to harbour due for ships using low sulphur fuels.

The Swedish Maritime Administration, the Swedish Shipowners' Association and the Swedish Ports' and Stevedores' Association made an agreement in order to decrease ship-generated air pollution, particularly in the form of emissions of nitrogen and sulphur oxides. The parties agreed to apply economic incentives in the form of environmentally differentiated fairway and port dues. The reduced dues promote all ships visiting in Sweden, regardless of the ships' flag state, to use low sulphur bunker fuels, and encourage the implementation of abatement technologies, such as catalytic converters to reduce nitrogen oxide emissions.

The level of the fairway dues is levied in such a way that it would result in the same total cost of shipping to and from Swedish ports as before implementing the system. The principle in differentiating and applying the polluter pays principle is that ships that have taken environmentally protective measures are charged reduced dues, while ships with higher emission levels pay higher dues. The same principle is used in levying harbour dues.

The use of low sulphur fuels substantially reduces sulphur dioxide pollution. Shipping is one of the major sources of sulphur emissions due to the high sulphur content allowed in marine fuels. Currently, the only technical solution to reduce sulphur emissions from diesel engines of ships is the installation of treatment equipment to purify the exhaust gas. However, this technology is still under development.

The advantages of environmentally differentiated dues come from encouragement of installation of abatement technology in ships. It does not restrict the type of abatement technology installed in a ship. Furthermore, when the technique is in use, it is operational all the time a particular engine is running, thus reducing the emissions regardless of the location of a ship.

2.2 SOLID WASTE MANAGEMENT

2.2.1 WASTE STATIONS IN PORTS

It has been recommended in the feasibility study to have permanent waste disposal stations in quays to ease the procedure for waste disposal from ships. This practice allows some flexibility regarding, for example, working hours in ports. However, permanent waste stations may be problematic in quays where space is needed for port operations. Thus, the location of permanent waste stations should be chosen carefully. Movable facilities of waste collection are still often needed. Waste stations should include containers for all the waste fractions delivered from ships.

Due to local provisions and instructions on waste collection, the ports have different colours and methods to label the waste containers. In addition, the containers are different type and size depending on the manufacturer. Containers should be designed for each waste fraction collected, and they should be marked properly to prevent unnecessary mix-up. Containers for food and other similar waste need to be well sealed to prevent birds and other animals from spreading garbage around. Special waste, e.g., food, that possesses risk due to its foreign origin, should be collected separately in containers that are well marked. Food waste containers must be emptied more frequently in hot and warm weather. It is also recommended to use markings for dry garbage only when containers are not suitable for wet substances.

2.2.2 GENERAL GUIDELINES FOR HARMONIZING WASTE COLLECTION IN PORTS

Harmonizing the collection of waste fractions would simplify and ease the use of reception facilities in ports. To increase the amount of recycling, in particular household waste from ships needs standards for sorting. Port communities' waste treatment methods are different concerning the sorted waste, for example,

incinerators for garbage are not always available in reasonable distances. This is why many interest groups should be heard when agreeing on the fractions to be sorted.

Colourings used in waste containers vary, and similarities could not be found between ports. This is why it is not possible to recommend the most used colours to be used in all ports. Standardisation of colouring of waste containers in stationary collection points at quays would ease the use of waste stations.

Recommended fractions for ship-generated waste that could be received in permanent waste stations (EWC codes in brackets):

- paper and cardboard (20 01 01)
- glass (coloured and uncoloured) (20 01 02)
- metals (20 01 40)
- plastics (20 01 39)
- biodegradable kitchen and canteen waste (20 01 08)
- combustible waste, when waste is treated in incineration plant
- non-combustible waste, when waste is landfilled or the characteristics of waste do not allow incineration
- special waste, dangerous due to its foreign origin (outside EU) (18 01 03).

Fractions depending on specific needs in a particular port

- 20 01 37 wood containing dangerous substances
- 20 01 38 wood other than that mentioned in 20 01 37.

Several hazardous wastes that are generally produced in ships can also be collected in permanent waste stations. The amount of hazardous waste collected in ports is comparatively small. Thus the costs as well as needs for permanent collection points vary between ports. The collection point(s) can be, for example, locked containers including smaller boxes, bins, barrels and containers suitable for the collected fraction. The most important is that hazardous waste is collected under supervision of educated personnel, and that the content of received waste is well packed and marked properly using EWC coding when possible.

A permanent reception point for hazardous waste could include, for example, following containers (EWC codes in brackets):

- waste oil such as lubricating oils (13 02 08, 13 02 04, 13 02 05)
- oil contaminated materials such as cleaning clothes and wastes (15 02 02, 15 02 03)
- oil filters (16 01 07)
- paint and solvents (14 06 02, 20 01 13, 08 01 13)
- aerosols (16 05 04)
- batteries (20 01 33)
- electrical waste (20 01 36)
- fluorescent strip lightning (20 01 21)
- other light bulbs (20 01 21)
- medical waste (20 01 32).

2.3 WASTEWATER MANAGEMENT

Sewage installations in ports should be built regarding national and local regulations. A municipal sewage system is often used when discharging black and grey waters produced in ships ashore. From the municipal sewage system, the wastewater is further directed to the local wastewater treatment plant.

Ships with large crews or passengers numbers sailing mostly in coastal waters have more need than other types of vessels to discharge sewage in the ports' reception facilities because of the larger amounts of

wastewater produced and restrictions of discharging into the sea. Permanent sewage reception points for such ships are generally used in many ports, because these ships are mostly liners. Also tank trucks are used with suction pumps, if ship's own pumps are not able to discharge sewage within reasonable time.

Ships calling any of the ports studied in this survey can discharge their wastewater ashore. In the ports studied, the common practice is to pipe the received waste black and grey waters directly to a municipal sewage system and further on to municipal treatment plant. Tanks for storing of wastewaters are generally not needed in ports.

In the Ports of Mariehamn, Szczecin and Swinoujscie the wastewater is piped or barged directly to treatment plants. The quality of wastewater treatment plants and the municipal wastewater management has considerably improved in the recent decades, making a generally used system a good practice for handling of ship-generated wastewater.

A modern sewage treatment plant has been constructed in the Port of Szczecin to provide proper treatment of wastewaters from ships because inability of treatment through a municipal sewage system. The mechanical-biological plant with a treatment capacity of 3200 m³/day can handle sewage from ships calling the Port of Szczecin and sewage from the area of the Szczecin Port. The wastewater plant also includes facilities to treat oily wastewater and wastewater from washing of holds of ships. Wastewaters from ships are barged to the treatment plant. All processes are highly automated.

DEFINITIONS

Memorandum of Understanding	Voluntary agreement in international relations between public and/or private partners.
IMO	International Maritime Organization, a sub organization of the United Nations, with objectives to encourage and facilitate the general adaptation of the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of maritime pollution from ships.
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).
BSR INTERREG III B	Baltic Sea Region INTERREG III B. Community (EU) Initiative concerning Transnational Co-operation on Spatial Planning and Regional Development. Part of the EU strategic subsidy system.
Sustainability (Brundtland paper)	Sustainable development looks forward to a world with a healthy and clean environment that has kept its natural diversity, with more democracy and greater wellbeing, and with a common cultural heritage cared for by all. It is an important principle of sustainable development not to live at the expense of future generations or of people in other parts of the world.
Shipping company	A company engaged in the transport of goods.
Ship owner	A company that owns ships.
Ship operator	A company that operates ships (charterer or the like).
Pan-Baltic Policy	Policy for the whole of the Baltic Sea Region.
SO ₂	Sulphur dioxide is a toxic gas which develops with the combustion of sulphur contained to varying extent in every petroleum or crude oil. Derivates of petroleum like diesel oil also contain sulphur. This is in particular the case with HFO or heavy oil which is the residue from the raffination process.
NO _x	Nitrogen Oxides are gases which develop from the oxidization of the gas nitrogen, one of the principal atmospheric gases, by combustion processes. The higher the combustion temperature the more nitrogen oxides develop
PM ₁₀	Particulate Matter: because of its origin from underground petroleum reservoirs all crude oils and diesel oils contain particles which by the combustion process in ships' engines are released into the air. NO _x and SO _x emissions also contribute to particulate matter levels through the secondary formation of nitrates and sulfates. They cause asthma, coughing or painful breathing, chronic bronchitis, decreased lung function.
Shore-to-ship power supply	A ship is "plugged" to shoreside electricity during stay in port.
Financial measures	Incentives in the form of reductions of harbour and fairway dues bound to the environmental performance of ships.
Council Directive	EU legislation; a directive is directly valid in all member states of the European Union in contrary to a Council directive which must be converted in national law.
UBC	Union of the Baltic Cities: an Association of Cities around the Baltic Sea with more than 100 members.
New Hansa	New Hansa of Sustainable Ports and Cities, a EU funded project under the BSR INTERREG III B programme, for the establishment of a joint environmental pan-Baltic environmental strategy.
Mitigation measures	A measure which makes e.g. environmental loads less severe.

