Port Environmental Review System (PERS)

Port of Moerdijk

July 2012

The Port Environmental Review System (PERS) was developed on behalf of ESPO and the ECOPORTS Foundation

havenschap MOERDIJK

CONTENTS

1. PREAMBLE

1.1 Introduction

PERS is an initiative of Ecoports and ESPO, and stands for Port Environmental Review System. PERS has been developed as a tool for ports during the implementation of an environmental management programme. PERS is based on internationally recognised 'best practices'. PERS has been designed in such a way that it can develop along with the developments within the port and that it can serve as a basis for the implementation of the more broadly based ISO 14001.

In 2005 and 2006, the Moerdijk Port Authority had its environmental management system certified in accordance with PERS. No certification has taken place in the years since then. In 2012, the Moerdijk Port Authority again decided to apply for certification. The present PERS document has been updated for this purpose.

1.2 The Port of Moerdijk

1. The Moerdijk port and industrial estate has an open connection to the North Sea via the waterways Hollandsch Diep, Dordtse Kil, Oude Maas and Nieuwe Waterweg. In addition, it lies at the crossroads of the major European inland waterways of the Rhine, Meuse and Schelde (Rijn, Maas en Schelde). The five Moerdijk harbour basins are all accessible to seagoing vessels with a draught of maximum 8.40 meters +/- NAP. The following are the harbour basins: De noordelijke insteekhaven (The Northern Dock);
2. De Insteekhaven Roode Vaart (The Roode Vaart Dock);
3. De Centrale Insteekhaven (The Central Dock);
4. Den Oostelijke Insteekhaven (The Eastern Dock);
5. De Westelijke Insteekhaven (The Western Dock).

A direct connection to the A17 motorway and the European rail network ensures that the access by land is good. The National pipeline network for the underground transport of raw materials and bulk, which links together several European industrial areas, runs directly alongside the Port of Moerdijk.

The Moerdijk supra-regional port and industrial estate is specifically intended for companies and industries with specific establishment conditions, such as industries with environmentally hazardous activities, water-related activities and companies with extensive space requirements. The site covers a gross area of 2,350 hectares and accommodates about 400 companies.

The port and industrial estate is divided into a number of thematic parks, so that related companies can take advantage of each other's products and knowledge:

- *Industrial park* for industrial and chemical companies;
- *Ecopark* for companies involved with energy or environmental technologies;
- *Distriboulevard* for European distribution and manufacturing companies related to road transport;
- *Tradepark* for trading and logistics companies that provide value-added services;
- *Servicepoint* where several service providers are located in their own office or in shared premises. The Moerdijk Port Authority office is also established here*;*
- *Seaport* for companies with water-related activities, such as storage and transhipment;
- *Compartimentenstrook* for various types of businesses.

Figure 1: Aerial photo of Moerdijk port and industrial estate

The 'port profile' for the Moerdijk port and industrial estate is substantiated on the EcoPorts website. The 'port profile' can also be found in appendix 1 to this handbook.

1.3 PERS for the Moerdijk port and industrial estate

The environment and sustainability has long been an important topic at the Moerdijk port and industrial estate. Many initiatives have been undertaken to improve the environmental performance of the port and industrial estate. PERS helps to improve insight into the environmental performance and to create the relationship between the various initiatives.

By means of this report, an indication is given of how the Moerdijk Port Authority meets the requirements from the PERS. Reference is made to the existing initiatives as much as possible. The following table includes the requirements from the PERS, with an indication of where each requirement is included in the report. The environmental and safety manager ensures that the report is updated once a year.

Requirements from PERS		Location in handbook
1.1	Policy Statement	Chapter 2
1.2	Environmental Aspects and Legal Requirements and Performance Indicators	Chapter 3
1.3	Responsibilities and Resources	Chapter 4
1.4	Conformity Review	Chapter 5
1.5	Environmental Report	Chapter 6
1.6	Best Practices	Chapter 7

Table 1: Requirements from PERS

2. POLICY AND OBJECTIVES

2.1 Moerdijk Port Authority environmental policy statement

The Moerdijk Port Authority organises the process of development, design, construction, issue, operation, management and expansion of the Moerdijk port and industrial estate.

The Moerdijk Port Authority strives for an optimum balance between the economic development of the area and the compatibility of the area with its surroundings. We do this by optimally utilising the opportunities for environment and sustainability. To this end, we have provided insight into the environmental aspects of activities at the port and industrial estate and made an inventory of the parties that can contribute to improving the environmental performance and sustainability of the area. Together with these parties (government bodies and companies), we have established the environmental and sustainability ambitions for the port and industrial estate and elaborated this into programmes. For the environmental aspects that are not addressed within this partnership, the Moerdijk Port Authority seeks other forms of cooperation (such as in the field of safety) or the Moerdijk Port Authority independently formulates an improvement plan.

The continuous improvement in the field of environment and sustainability is secured by:

1. implementing an environmental management system;
2. keeping informed about legislation and regulations and taking the necessary measures in order to comply with such legislation and regulations;
3. providing annual insight into the environmental performance of Moerdijk port and industrial estate;
4. communicating the environmental performance with local residents and other interested parties;
5. setting requirements for the environmental performance of companies wishing to locate within the Moerdijk port and industrial estate;
6. informing the companies already established how they can improve their environmental performance;
7. deploying the necessary knowledge and resources that are required to properly perform the environmental activities.

Moerdijk, June 2012

Ferdinand van den Oever
Managing Director of the Moerdijk Port Authority

2.2 Duurzame *Verbingingen Moerdijk (*Moerdijk Sustainable Connections)

The Moerdijk Port Authority is the initiator of "Duurzame Verbindingen Moerdijk (also referred to as DVM). The following parties work together in DVM on the sustainability of the Moerdijk port and industrial estate:

- Moerdijk Port Authority;
- Municipality of Moerdijk;
- Moerdijk Industrial Estate Business group (BIM);
- Province of North Brabant;
- Brabantse Delta District Water Board;
- Directorate-General for Public Works and Water Management South Holland.

The parties have jointly drafted a long-range programme for the period 2011-2015. The spearheads of the long-range programme are:

- *sustainable connections*: the closure of material cycles and the symbiosis for the beneficial use of energy/heat, water and residual currents, with the prospect being the realisation of a utility centre and multicore loop system for all connections, so that (in combination with sustainable operations) economic growth and environmental pressure are significantly decoupled.
- *sustainable operations*: the use of renewable energy and realisation of innovative production processes within the individual company, with the prospect of this also being a leading attraction for new high-quality activities;
- *sustainable design and accessibility*: the stimulation of multimodal transport, collective passenger transport and communal facilities, with the prospect of reducing the impact of road transport and of the optimum use of the available space/facilities.

To give substance to the objectives, the following study groups and committees are active:

- monitoring study group;
- energy web;
- natura 2000 study group;
- noise study group;
- establishment committee;
- BIM knowledge platforms project;
- Moerdijk sustainability frontrunners project;
- mobility study group;
- environmental complaints study group;
- water study group.

For these study groups and committees, a project plan has been included in the long-range plan. A brief summary of these projects is included in appendix 3 to this report. The complete long-range plan and information about the progress of the projects can be found on www.duurzameverbindingenmoerdijk.nl. .

2.3 Other environmental and safety-related plans

Safety is an important topic within the Moerdijk port and industrial estate. The Moerdijk port and industrial estate safety steering committee is active within the Moerdijk port and industrial estate. Besides the Port Authority, the Central and West-Brabant Safety Region, the municipality of Moerdijk and Province of North Brabant all have a seat on this committee.

These parties have jointly drafted the 'Moerdijk port and industrial estate Safety Action programme'. This includes the following actions in the field of safety:

- *Drafting Physical Safety Memorandum*: together with the municipality of Moerdijk, Central and West-Brabant Safety Region, Province of North Brabant, Brabantse Delta District Water Board, Police, Municipal Health Service (GGD), National Police Services Agency, Customs, Military Police, Directorate-General for Public Works and Water Management, Moerdijk Industrial Estate Business group and the Regional Environmental Services. It will be examined how the safety level within the Moerdijk port and industrial estate can be improved;
- *Moerdijk Industrial Estate fire station*: together with the municipality of Moerdijk, Province of North Brabant, the companies and Moerdijk Industrial Estate Business group, the joint organisation of a company fire brigade will be examined;
- *Self-reliance pilot project*: together with the municipality of Moerdijk, Regional Environmental Services, Moerdijk Port Authority, Mark & Dintel fire brigade cluster, Province of North Brabant and Moerdijk Industrial Estate Business group, it will be examined how self-reliance in the field of employees and citizens in and around the Moerdijk port and industrial estate can be strengthened.
- *Health centre*: together with the municipality of Moerdijk, Moerdijk Port Authority, Moerdijk Industrial Estate Business group, Municipal Health Service (GGD), Accident and Disaster Medical Assistance in the region (GHOR), GPs and medical bodies, it will be examined how medical care within the Moerdijk port and industrial estate can be improved.

The Port Authority will also perform a number of actions related to environmental safety in the port. For example, the port safety plan will be revised in 2012. The aim of the port safety plan is to describe the responsibilities, procedures and measures with respect to the prevention/reduction of the safety incidents that have a negative effect on the ports and on commercial maritime transport.
In addition, the Moerdijk Port Authority also encourages clean shipping by giving a discount on port dues to vessels with a 'Green Award' certificate.

3. REGISTER OF ENVIRONMENTAL ASPECTS AND LEGAL REQUIREMENTS/PERFORMANCE INDICATORS

3.1 Procedure: register of environmental aspects and legal requirements

Objective

The aim of compiling a register of environmental aspects and legal requirements is two-fold, i.e.:

- Identifying environmental aspects and determining the importance and priority in order to control these aspects;
- Gaining insight into the applicable and future legislation and regulations and ensuring that these regulations are complied with.

Area of application

The register includes the following components:

- port-related activities;
- area-related activities;
- organisational/environment-related activities;
- established companies;
- calamities and incidents.

The Moerdijk Port Authority has relatively little influence on the environmental aspects of the established companies. These issues are discussed in general terms.

Tasks and responsibilities

The environmental and safety manager is responsible for the preparation, maintenance and control of the register environmental aspects and legal requirements.

Procedure

a. Making an inventory of environmental aspects

The various activities that take place in and around the Moerdijk port and industrial estate and that have consequences for the environmental performance are included in the register. For each activity, an indication is given of which environmental aspects are influenced, i.e.: waste materials, waste water, soil, use of raw materials, use of natural resources, air, noise and vibration, energy, external safety.

b. Establishing the applicable environmental legislation and regulations.

For each activity it will be determined which environmental legislation and regulations are applicable. The applicable legislation and regulations are included in the summary of legislation and regulations. Here, an explanation is given of the relevant legislation and regulations.

c. Updating the register

The register will be updated at least once a year or when there are major changes in the environmental aspects and/or legislation and regulations.

d. Reviewing legislation and regulations

After the updating of the register, an external expert will check whether all legislation and regulations are complied with (see also chapter 4 of this handbook). This check serves as input for the conformity review. If necessary, improvement actions will be put in motion.

Documents

The register is an Excel file, which can be inspected at the Moerdijk Port Authority.

3.2 Performance indicators

A monitoring report for the Moerdijk port and industrial estate has already been drafted since 1999. The monitoring report covers the environmental aspects of the Moerdijk port and industrial estate. The monitoring report also includes environmental aspects referred to in the register of environmental aspects and legal requirements. The following table includes the performance indicators that are reported on.

Indicator	Unit
Established companies	Number
Applications handled by the establishment committee	Number
Spatial use	Hectares
Employment	FTEs
Energy consumption	GJ
Air emissions (various parameters)	Kg/year
Water consumption (various streams)	m^3/year
Emissions via the water	various units
Waste (streams per processing method)	Tonnes/year
Logistical movements by water	Number of vessels Number of tonnes
Logistical movements by rail	Number of containers Number of tonnes
Logistical movements by road	Number
Nuisance (complaints)	Number
Environmental audits by competent authority	Number
Fire brigade deployment	Number
Ambulance deployment	Number

Table 2: performance indicators

Chapter 3 of the 2010 monitoring report, which reports on the environmental performance within the Moerdijk port and industrial estate, is included in appendix 4 to this report. The entire monitoring report can be found at:
http://www.duurzameverbindingenmoerdijk.nl/nieuws/monitoringrapport_2010_verschenen/

4. , ROLES RESPONSIBILITIES, AUTHORITIES AND RESOURCES IN THE FIELD OF ENVIRONMENTAL ASPECTS

4.1 Moerdijk Port Authority

The Moerdijk Port Authority is a public corporation organised in a so-called 'joint scheme'. In this joint scheme, the Province of North Brabant and municipality of Moerdijk are each represented 50%. The Moerdijk Port Authority performs advisory, service and operational activities for development, construction, issue, management and operation of the Moerdijk port and industrial estate. The Port Authority has 23 employees for this. The Moerdijk Port Authority can be characterised as a so-called 'governmental organisation'. Among other things, this means that the entire operational management is performed by third parties. Both the wet and dry management is outsourced to a third party. The figure below shows the organisation chart of Moerdijk port and industrial estate.

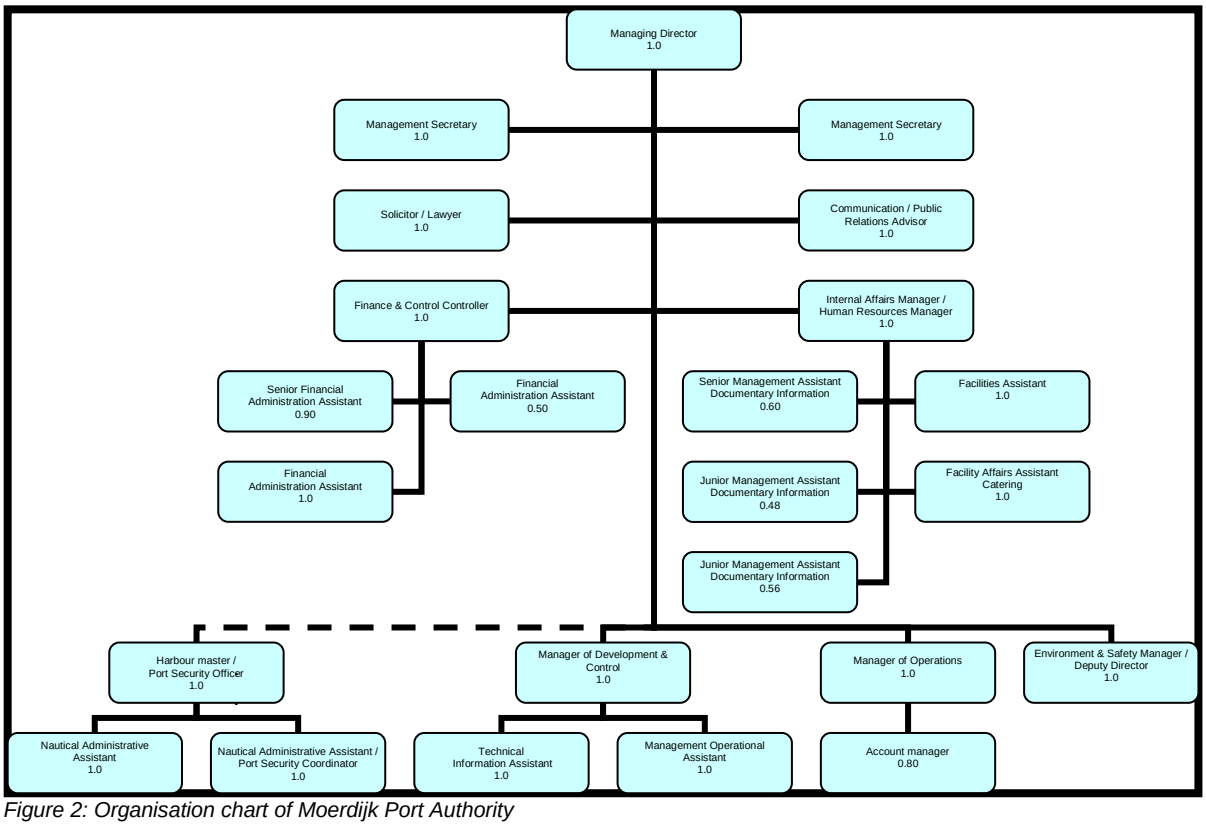

Figure 2: Organisation chart of Moerdijk Port Authority

4.2 Internal environmental roles and responsibilities

The following table indicates who is responsible for particular environmental tasks within the Moerdijk Port Authority.

Task	Position
Port operations (dredging)	Manager of development & control
Port operations (navigation)	Harbour Master/Port Security Officer
Port operations (shipping)	Harbour Master/Port Security Officer
Port operations (terminals)	Harbour Master/Port Security Officer
Jetty/Wharf management	Harbour Master/Port Security Officer
Site management	Manager of development and control/Harbour Master/Port Security Officer
Strategic planning	Manager of environment and safety Managing director
Supplies acquisition	Manager of internal affairs
Operator Licensing/Permit	Manager of environment and safety
Quality management	Managing director
On site contractor management	n/a
Emergency planning	Manager of environment and safety
Waste management	Harbour Master/Port Security Officer
Marina/slipway management	n/a
Environmental document management	Manager of environment and safety
Environmental data management	Manager of environment and safety
Soil pollution assessment	Harbour Master/Port Security Officer
Air quality monitoring	Manager of environment and safety
Energy and Carbon Footprint monitoring	Manager of environment and safety
Water quality monitoring	Manager of environment and safety
Noise management	Manager of environment and safety
Vehicular management of terminal traffic	Harbour Master/Port Security Officer
Communication with external stakeholders about environmental subjects	Manager of environment and safety
Management Representative	Manager of environment and safety
Coordinating environmental management throughout the port	Manager of environment and safety
Reviewing of environmental issues and legislation	Manager of environment and safety
Coordination DVM	Manager of environment and safety
Session in steering committee DVM	Managing director
Civil engineering	Manager of development & control
Public relations and marketing	Communication / Public Relations Advisor
Checking new establishments	Manager of Operations
Port authority workboats	Harbour Master/Port Security Officer

Table 3: Persons responsible within the port

4.3 External environmental roles and responsibilities

In addition to the internal tasks, a number of roles and responsibilities in the environmental field also lie with external parties (see table below).

External party	Responsibility
Directorate-General for Public Works and Water Management South Holland	Quality of public surface water (Hollandsch diep)
Province of North Brabant	Formulating spatial and environmental policies. Licensing and enforcement of companies with major environmental impact. Gathering complaints. Collecting other environmental data.
Brabantse Delta District Water Board	Quality of wastewater discharged into sewer system and surface water (ditches).
Municipality of Moerdijk (Regional Environmental Services)	Formulating spatial and environmental policies. Licensing and enforcement of companies in the area. Gathering complaints. Collecting other environmental data. The municipality outsources several of these activities to Regional Environmental Services.
Companies (established within the Moerdijk port and industrial estate)	The company is responsible for complying with the relevant applicable legislation and regulations (such as the requirements from the environmental permits and licences under the Water Act).
Park management	Performing industrial estate maintenance in accordance with agreements.

Table 4: External responsible parties

4.4 Resources

The Port Authority employs an environmental and safety manager. He is the contact person for environmental and safety issues at the port and industrial estate. Financial resources are made available for the various projects (see table below).

Costs	Funds
Staff costs	€ 150,000
Development plans	€ 15,000
Environmental monitoring	€ 20,000
DVM	€ 25,000
Environmental consultancy costs	€ 75,000
Dredging; allocation to dredging fund	€ 250,000

Table 5: Finances

5. CONFORMITY REVIEW

5.1 Procedure

Objective

Reviewing the operation of the environmental management system. The result is used to produce measures to improve the environmental performance.

Area of application

The following topics are dealt with during the conformity review:

- the environmental policy and objectives;
- expected changes (new establishments, design of area, legislation and regulations);
- the register of environmental aspects and requirements;
- monitoring report;
- best practices.

Roles and responsibilities

The environmental and safety manager is responsible for the preparation of the conformity review. The environmental and safety manager performs the conformity review together with the managing director.

Procedure

a. Scheduling of conformity review

The managing director and environmental and safety manager make an appointment at least once a year to review the conformity review.

b. Preparing management review

The environmental and safety manager ensures that the data needed for the conformity review are collected.

c. Discussing data

The environmental and safety manager and the managing director together discuss the data and determine areas for improvement.

d. Adjusting reportage

The results and the areas for improvement are reported by the environmental and safety manager. If necessary, other documents, such as policies, objectives, etc., are also adjusted.

Documents

The conformity review is detailed in section 5.2 of the report.

5.2 Results and areas for improvement of 2012 conformity review

The conformity review took place on 11 June. The following were present at this conformity review:

- Mr F. van den Oever (Managing Director of the Moerdijk Port Authority);
- Mr J. Rentrop (Environmental and safety manager of Moerdijk Port Authority);
- Ms C.Tesselaar (BMD Advies advisor);
- Ms N. Damen (BMD Advies advisor);

The results of the conformity review are used to formulate Chapter 2 'Policy and Objectives'.

During the review, the environmental aspects register is examined. It is determined whether objectives or improvement plans have been formulated for the applicable environmental aspects. It is concluded that the Moerdijk Port Authority itself has little direct influence on the environmental aspects, because it mainly has an office function. Most environmental effects relate to the established businesses and the activities in and around the port. The most important task of the Moerdijk Port Authority is to stimulate responsible parties to make improvements together with it. Moerdijk Sustainable Connections is a partnership that has already accepted a major part of the environmental aspects. The figure below identifies the environmental aspects of the Moerdijk port and industrial estate that are relevant and which are included in the DVM project.

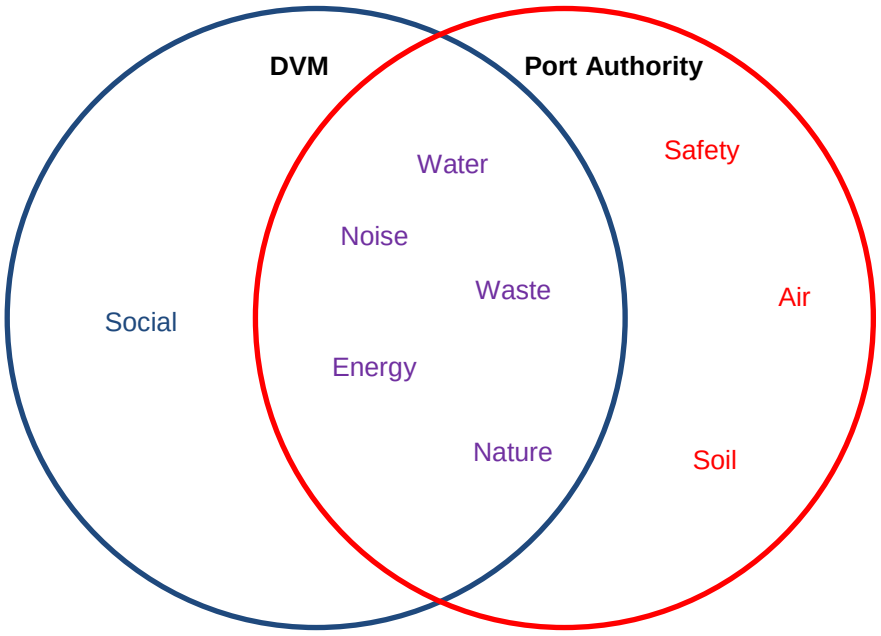

Figure 3: Environmental aspects for the Moerdijk port and industrial estate

During the consultation, the top 5 most important environmental aspects were identified:

1. noise;
2. safety;
3. air quality;
4. water;
5. energy.

The actions for improvement of these aspects are briefly described below. The Moerdijk Port Authority will naturally also continue to focus its attention on other environmental aspects, and especially those listed in DVM.

Noise
The Noise study group is active under the partnership Moerdijk Sustainable Connections (see appendix 3 for a brief description). Together with the study group, the Moerdijk Port Authority is committed to deploying the noise budget within the Moerdijk port and industrial estate as efficiently as possible. This is important to facilitate the growth of activities within the Moerdijk port and industrial estate. In the context of the 'Seaport Innovation Project' (ZIP) tender, the Port Authority has submitted a project plan with respect to the feasibility of tradable noise emission rights in zoned port and industrial estates. The Ministry of Infrastructure and Environment awarded a grant on 7 February 2011. A trial with the trading of noise emission rights between companies will start in June 2013.

Safety
Safety has always been an important topic for the Moerdijk port and industrial estate. Following a fire at a chemical company based in the port and industrial estate, attention to safety has been further intensified. A Moerdijk port and industrial estate Safety steering committee has been established. More information can be found in section 2.3.

Air quality
The Province of North Brabant and the municipality of Moerdijk are responsible for the air quality in and around the industrial estate. They regularly conduct research and the results of this are presented to the Moerdijk port and industrial estate neighbourhood council and in the monitoring report. Several actions originating from DVM have a positive impact on the air quality, such as the exchange of energy streams. The Port Authority contributes to the reduction of air emissions from vessels that have a 'Green Award' certificate by offering a discount on port dues. These are vessels that comply with high safety and environmental standards.

Water
The water project group works under "Duurzame Verbindingen Moerdijk"(Moerdijk Sustainable Connections) on the optimisation of the water chain in the port and industrial estate. In recent years, studies have been performed into the optimisation of the water system. As apparent from these studies, there are technical possibilities for the optimisation, although these are not yet financially viable. The Moerdijk Port Authority will encourage the water study group to look for alternatives that are economically feasible.

Energy
Energy is one of the most important pillars of Moerdijk Sustainable Connections. Research shows that a lot of energy can be saved by exchanging heat at the port and industrial estate. The exchange of heat has now been realised on a small scale (Appelweg project, see best practices). The heating objective for the future is the Grand Design: a loop system for the entire estate linked to a utility centre with regional connections to, for example, the planned Spiepolder greenhouse complex (CO_2 and residual heat) and the future Moerdijk Logistics Park (residual heat).

Compliance with legislation and regulations
In the register of environmental aspects and legal requirements, a distinction is made between legislation and regulations applicable to the Moerdijk Port Authority and those applicable to other interested parties. The legislation that applies directly to the Moerdijk Port Authority is reviewed. The Port Authority does not expect any new, applicable environmental legislation in the coming year.

6. SOLUTION FORMS

6.1 Moerdijk port and industrial estate frontrunners

Project description

The companies represented in the Moerdijk Industrial Estate Business group (BIM) wanted to make their own contribution to Moerdijk Sustainable Connections. Therefore, the frontrunners project was introduced in 2010. The aim of the project is for companies with sustainable operations (frontrunner companies) to set an example and inspire other companies to also integrate sustainability in their operations and participate and collaborate in sustainability projects in Moerdijk and/or initiate sustainability projects themselves. Any company that can make their sustainability efforts visible, and wants to make such measurable efforts, can be a frontrunner.

In order to become a frontrunner, companies perform a self-assessment. In this self-assessment, they indicate how they perform in the fields of:

- good governance;
- working conditions;
- environment;
- social commitment & development;
- fair conduct of business.

They are subsequently audited by a specially appointed accreditation committee, consisting of three independent experts from research institutes in the field of sustainability. Seven companies within the Moerdijk port and industrial estate have now received the frontrunner certificate.
Companies can continue to sign up to become a frontrunner.

The development of the methodology was performed by a consulting firm by arrangement with the accreditation committee. The consultancy fees were funded by BIM. The Port Authority facilitates the organisation of the BIM by providing the services of its secretary. The companies themselves have to make a contribution for the performance of the audit. This contribution is to cover the project coordination and reporting by the consultancy firm. The external research institutions participate free of charge.

Influence on environmental aspects

The project has an impact on all of the environmental aspects confronting companies, i.e.:

- energy;
- soil;
- air;
- water;
- noise;
- waste;
- safety;
- nature.

Stakeholders involved

- companies within the Moerdijk port and industrial estate;
- Moerdijk Industrial Estate Business group (BIM);
- Moerdijk Port Authority;
- Province of North Brabant;
- Eindhoven University of Technology;
- Avans Hogeschool;
- Telos, the Brabant Centre for Sustainable Development;
- BMD Advies Zuid-Nederland.

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6.2 Appelweg heat network

Project description

A loop system that enables companies to mutually exchange heat, steam and CO_2, such that the energy that would otherwise be lost is recovered.
The opportunities for this exchange are being examined within the Moerdijk port and industrial estate. This has led to a first pilot project on the Appelweg. With the Moerdijk Appelweg heat network, which was officially brought into use on 23 November 2009, the first part of a larger Energy Web was realised. Other companies within the Moerdijk port and industrial estate that want to form part of the Energy Web, but certainly other industrial estates in the Netherlands too, can make use of the experience gained.

The origins of the Moerdijk Appelweg heat network lies with the BEWA Group. This company, situated on the Appelweg, converts food remains from the hotel and catering industry, restaurants and potato chip factories into heat and electricity. BEWA uses part of the generated green power and heat in their raw material storage facilities and production process. BEWA, however, still had some surplus heat.

The neighbouring companies Drecht Coating Services (DCS) and Bolsius can make good use of the residual heat for the drying of durable coated constructions and the heating of the paraffin bulk storage tanks, respectively. With this heat network, BEWA and the connected neighbouring companies can operate climate neutral.

The province of North Brabant and the Moerdijk Port Authority saw the Appelweg project as the ideal pilot project for the realisation of their aspirations for an Energy Web throughout the Moerdijk port and industrial estate. Account was taken of this in the design.

Thanks to the efforts and investments of all parties involved, the heating network was brought into use on schedule in November 2009. The Province of North Brabant has provided a grant for the realisation of the design and construction of the loop system.

The operation obviously also had to be organised. A clear and, in particular, a workable system was sought. The Moerdijk Port Authority is now the owner of the loop system and leases it to BEWA. The rental also includes the maintenance expenses. BEWA accounts for the rental of the loop system in the energy price.

Influence on environmental aspects

This project has an impact on all environmental aspects confronting companies, i.e.:
- energy;
- water;
- air.

Stakeholders involved
- Moerdijk Port Authority
- Province of North Brabant
- BEWA;
- Drecht Coating Services (DCS);

- Bolsius;
- BMD Advies Zuid-Nederland

Contact for information

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APPENDIX 1: MOERDIJK PORT AND INDUSTRIAL ESTATE PROFILE

See http://www.ecoports.com/user/port_profile

APPENDIX 2: SDM CHECKLIST
(will be added as a separate attachment)

APPENDIX 3: DVM LONG-RANGE PROGRAMME PROJECTS 2011-2015

1. Monitoring

Description
Within the Moerdijk port and industrial estate, (environmental)information has already been collected annually since 1999 by companies and (government) agencies and presented in a report. The monitoring study is, on the one hand, used as information to parties involved in the port and industrial estate (such as companies, people living in the neighbourhood, government bodies, etc.). On the other hand, the information is used to initiate the various sustainability activities within the Moerdijk port and industrial estate.

Objective
The objective of the annual monitoring is threefold:
1 The monitoring data serves as input for various sustainability projects that are performed within the Moerdijk port and industrial estate;
2 The provision of information to third parties and stakeholders about the (environmental) impact on the Moerdijk port and industrial estate;
3 Disclosure of the results of the sustainability projects performed as part of the DVM 2011 – 2015 long-range programme.

2. Energy web

Description
Research shows that there are many residual currents within the Moerdijk port and industrial estate and thus many opportunities for the realisation of connections. It will be investigated whether it is possible to construct a multicore loop system in the area for the exchange of residual currents.

The Energy Web Moerdijk project currently includes four subprojects:

- Appelweg heat network cluster: realisation of a heat network between the BEWA companies (supplier of residual heat), Bolsius and DCS (both users of residual heat) on the Appelweg in Moerdijk;
- Middenweg cluster: exchange of steam, CO2 and residual heat between various companies on the Middenweg;
- Vlasweg cluster: supply of steam and residual heat to and from companies situated on the Vlasweg;
- Westelijke Randweg cluster: supply of steam to existing and new companies on the Westelijke Randweg.

Objective
The reduction of energy consumption and CO2 emissions within the Moerdijk port and industrial estate.

3. Natura 2000

Description
There is a lot of discussion about the implementation of the Directives (Birds and Habitats) in the Natuurbeschermingswet (Nature Conservation Act) in relation to the designated area of the Hollands Diep and the draft designation for the Biesbosch area. These so-called “Natura 2000” areas have considerable influence on the further intensification and expansion of companies within the Moerdijk port and industrial estate. A number of companies have already encountered problems as a result of this.

At the end of 2009 it was decided, at the request of the existing business community, to establish the Natura 2000 study group.

Objective
The aim of this study group is to improve communication between the business community and the competent authorities and find solutions for the problems with respect to Natura 2000 for the various companies. This particularly concerns an area-based approach for the Natura 2000 issues. The objective of the Natura 2000 study group includes the following elements:

- For the short term, a blueprint for an appropriate evaluation will be sought;
- For the medium to long term, a connection with the Programmatic Approach to Nitrogen (PAS) will be sought;
- In addition, the Natura 2000 study group is following the developments and implications of the Hollands Diep and the Biesbosch management plans. Roland-Jan Buijs and Carla Westerbroek participate in the sounding board groups of both management plans on behalf of the Port Authority and companies.

4. Noise

Description
A noise zone has been established around the Moerdijk port and industrial estate. This noise zone is managed by the Province of North Brabant. Because of the dynamics of the Moerdijk port and industrial estate, this noise zone receives constant attention in the case of developments, such as the expansion of companies and new businesses. Therefore, the noise study group was created in order to follow or anticipate developments in the field of noise.

Objective
The objective of the noise study group is:
4 Following and, if possible, anticipating (policy) developments in the field of noise (zoning).
5 Searching for a noise budget primarily for new activities, new businesses and especially intensification of deep water-related transhipment.

Within this objective, the Moerdijk Port Authority participates in the research project for tradeable noise emission rights by companies, for which the Seaport Innovation Project for Sustainability (ZIP) has awarded a grant. This project will run from April 2011 until June 2013.

5. Establishment committee

Description
The Establishment Committee assesses a new company or a major expansion of an existing company on a number of specific issues such as:

- spatial planning;
- waterway tied;
- noise production;
- air emissions;
- waste water;
- external safety;
- nature conservation;
- legal aspects.

In addition, sustainability is included in the assessment by evaluating the following aspects:

- clustering;
- residual power exchange.

With reference to its research, the committee issues a consultative report to the Managing Director of the Moerdijk Port Authority. Based on this advice, a decision is

taken about the sale and/or lease of land or allocation of leasehold land. The advice is not legally binding. The decision concerning the approval is a legal act governed by private law, against which there is no leave to appeal, other than where this is included in the relevant general terms and conditions. Following a positive recommendation, the new company can apply for the necessary permits. The companies adhere to the regular permit procedure. The responsibility for issuing the permit lies with the appropriate authority. In the case of a negative recommendation, the companies are referred to the regional development authority Rewin, so that another place of business in West Brabant can be sought.

Objective
The Moerdijk port and industrial estate Establishment Committee has the following objectives:

- providing clarity about the possibilities for establishing a business before land transactions/lease contracts are concluded;
- preventing undesired developments relating to business location/change;
- coordination between the various bodies involved. 'One-stop-shop' for the applicant;
- realisation of synergy between companies;
- improved coordination with the applicant.

6. BIM Knowledge Platform

Description
In 2009, a start was made with meetings of the Moerdijk KAM coordinators platform. These meetings are intended for all KAM coordinators (staff officers that address quality, working conditions, and the environment) of the companies established within the Moerdijk port and industrial estate. The most important objective is to exchange knowledge and experiences in a practical manner with one another, acquire new ideas and hear about new developments in the fields of quality, working conditions, environment and safety.
Due to the success of and enthusiasm for these meetings, the Moerdijk Industrial Estate Business group (BIM) extended and expanded this successful platform in 2011 and organised more meetings.
Each year, four to six BIM knowledge platform meetings will be organised to discuss topical issues in the following fields of activity:

- quality, working conditions, environment and safety;
- emergency response;
- personnel management;
- if necessary, other topics.

These meetings can, if necessary, be attended by various officials from the companies established within the Moerdijk port and industrial estate.

Objective

The most important objective of the BIM knowledge platform is to exchange knowledge and experiences in a practical manner with one another, acquire new ideas and hear about new developments in the field of:

- quality, working conditions, environment and safety;
- emergency response;
- personnel management;
- if necessary, other topics.

7. Moerdijk sustainability frontrunners

Description

The Moerdijk sustainability frontrunners project was set up to implement the following aim of the BIM as part of the joint DVM declaration of intent.

"The BIM will endeavour to create and present a forerunner group in Moerdijk which, by means of firm, individual agreements, will devote itself to the elaboration and realisation of sustainability objectives. This ”forerunner” group of companies will be a source of inspiration and knowledge for other companies in their pursuit of sustainable development."

In 2010, the following steps were taken to this end:

- established criteria for Moerdijk sustainability frontrunners;
- established ”self-assessment” method;
- appointed accreditation committee;
- established reporting format for audit visit;
- two pilot companies (SNB and DCS) were accredited in accordance with this procedure;
- two companies (Kolb and ATM) were accredited in accordance with this procedure;
- the presentation of this accreditation takes place during BIM meetings.

Objective

Each year, at least two Moerdijk sustainability frontrunners will be accredited. Together with these frontrunners, a procedure will be developed to enable these frontrunners to fulfil a permanent exemplary role.

8. Mobility

Description

The Mobility project within DVM attempts to achieve two goals by organising commuting differently:
- improved traffic conditions (less congestion, more environmental benefits);
- improved social position (increasing the opportunities on the Moerdijk labour market for potential employees without a car).

In preparation for this, there was frequent consultation with companies in Moerdijk. A number of problems play a role in this:
- moerdijk is poorly served by means of transport other than the car; there is no public transport and distances are often too great for bicycles;
- as a result, potential employees are already eliminated because they do not own a car;
- this weakens the position of the Moerdijk companies on the labour market;
- in principle, accessibility is not really a problem, the area is usually easily accessible.

Objective

The task of the mobility management organisation Stichting BRAMM is to devise an appropriate solution for the problems that exist. These are small-scale solutions that can be implemented in the short term for a) new employees and b) existing employees who can and want to change their mobility behaviour.

9. Environmental complaints

Description

The Water study group commenced its activities in 2008 on the basis of the Sustainable Moerdijk port and industry estate master plan for 2007-2010. In this master plan, strategic and operational objectives with respect to sustainability are elaborated in detail on the basis of the missions and visions formulated by the individual parties.

Objective

Improving the processing of environmental complaints and improving the communication about this, with the aim of reducing the number of complaints and thereby improving the living environment.

10. Water study group

Description

Many initiatives in this field were already picked up and completed in the previous plan periods (2007-2010). Examples of these are:

- Research by "Witteveen+Bos" into the possibilities of making the water situation at the Moerdijk industrial estate more sustainable. In the first phase, a number of different possibilities were examined, with two variants subsequently being elaborated in more detail in the second phase. These variants include an industrial wastewater treatment plant for the entire Moerdijk industrial estate in conjunction with the conversion of effluent into high-quality industrial water and a comparable variant that is confined to the Middenweg cluster.
- Inventory of possible improvements to be made for the eastern part (cluster 4).

However, there is a lot to be achieved in that area; the Water study group will focus on this in the coming periods.

Objective

1. The optimisation of the water chain (including wastewater system) at lowest possible cost to society:
    a. Contaminated water will be re-used (if necessary following purification) or discharged via the pressurised sewage line to the Bath sewage treatment plant. In the case of (large) volume flows of (undiluted) low toxicity waste water with a low level of contamination without any possibility of re-use, a broader reassessment will have to take place in relation to quantity, pressurised sewage line hydraulic load, Bath sewage treatment efficiency and the impact on the Hollands Diep water quality;
    b. Clean rainwater (infiltrated) will be discharged into the surface water of the Hollands Diep or, if this is not available, into a smaller surface water area;
    c. Waste emissions from sewer overflows will be minimised by: disconnecting paved surfaces from mixed systems and keeping water flows clean and separated and, depending upon the available sewerage system, separated discharge (improved separation systems, separated systems);
    d. Thermally polluted waste water (cooling water) will be discharged into the Hollands Diep. The discharges will be minimised by means of thermal efficiency and reuse;
2. NEWater facility: The sewage treatment plants operate in accordance with the 'NEWaterfabriek' principle 'waste does not exist' (STOWA: Towards the sewage treatment plant of 2030). Every sewage treatment plant is thus a facility that delivers products in the form of Nutrients, Energy and/or Water.

3. Water-neutral construction, layout suited to the properties of the water system:
    a. no undesirable (ground) water level increase or decrease;

b. efficient drainage and dewatering;
c. holding-storing-discharging;

4. Preventing contamination:
    a. cleaning-separating-purifying;
    b. point sources with in-process measures, for example;
    c. diffuse sources by, for example, using non-leachable building materials; reduction of pesticide use.

3. MONITORING RESULTS 2010

In this chapter, the collected data is presented for each (environmental) aspect.
A brief explanation of each (environmental) aspect is first given. The data are then presented in tables and/or graphs. Depending upon the type of data, these are presented:

- for the number of years that they are available with a maximum of 10 years;
- from the year that the data is supplied in the electronic environmental annual reports (since 2007).

3.1 Established companies

Table 3.1 includes the number of established companies from the year 2001 to the year 2010. When new companies wish to locate within the Moerdijk port and industrial estate or existing companies wish to implement a major change, they must submit an application to the Establishment Committee. This committee includes representatives from the Port of Moerdijk, the municipality of Moerdijk, West-Brabant Regional Environmental Services (RMD), the Province of North Brabant, the Central and West Brabant fire brigade, Brabantse Delta District Water Board, and the Directorate-General for Public Works and Water Management South Holland.
Table 3.2 includes the number of applications for the years 2009 and 2010.

Establishments	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Industry	49	46	51	48	60	60	64	65	60	62
Construction	13	12	11	9	27	27	27	27	25	27
Repair of consumer goods and commerce	64	70	75	77	37	38	41	41	40	44
Transport, storage and communication	44	48	45	53	98	99	100	100	100	100
Real estate: lease and business activities, renting of moveable property and business services	31	37	34	32	169	173	174	175	170	171
Other	14	14	13	15	2	2	2	2	5	5
Total	**215**	**227**	**229**	**234**	**393**	**399**	**408**	**410**	**400**	**409**

Table 3.1: number of established companies by business sector within the Moerdijk port and industrial estate from 2001 to 2010

	2009	2010
Requests for recommendations	12	13
Positively assessed	10	10
Negatively assessed	1	0
Withdrawn	1	0
Pending	0	3

Table 3.2: Establishment committee applications 2009 and 2010

Following a slight decline in 2009, the number of companies within the Moerdijk port and industrial estate is at a comparable level to 2008. The breakdown by type of activity has remained about the same. In 2010, 13 applications were submitted to the Establishment Committee. Most applications concerned new business locations in the context of logistic services, storage/tank cleaning and recycling. Applications are reviewed by the committee on the basis of criteria relating to:

- Moerdijk Industrial Estate development plan;
- Shell design plan for the South reserve area dated 14 August 2007;
- integration frameworks with respect to the “Besluit externe veiligheid inrichtingen” (Bevi);
- sustainability;
- (deep) waterway tieds;
- noise producing activities;

- clustering (for example, in relation to industrial symbiosis);
- other legislation and regulations ((Wabo, Waterwet).

The procedure and assessment framework of the Establishment Committee was evaluated in 2010. This led to a proposal to further expand the sustainability criteria of the assessment framework.

3.2 Spatial use

The table below shows the amount of land issued for the years 2001 to 2010. This not only concerns newly issued land, but also land that the Port Authority has repurchased and reissued in leasehold.

	2001	2002	**2003**	2004	2005	2006	2007	2008	2009	2010
Total land issued in hectares	28.9	19.6	73.6	71.9	16.3	3.9	8.4	21.6	19.1	6.0

Table 3.3: amount of land issued within the Moerdijk port and industrial estate from 2001 to 2010

In 2010, 6 hectares of land were issued, of which 4.21 hectares in leasehold. To implement two existing agreements, 0.14 hectares of land were sold. In addition, land with an area of 0.09 hectares was exchanged and a plot that had previously been leased was sold. This plot has an area of 1.54 hectares

In 2010, the following projects, involving the acquisition and the preparation for development of new plots, were organised:

- negotiations took place with a company concerning the repurchase of land situated on the water. Following repurchase, this site will be redeveloped and leased out. This represents a major contribution to the infill development of the port and industrial estate;
- in the Tradepark West area, a start has been made with the site preparation of the final 2.4 hectares. A leaseholder has now been found for part of this;
- the last remaining points of the 'former Tetra Pak site project' have been implemented. A quay has now been realised here

Development plan status

The municipality of Moerdijk and the Port Authority are working on a full revision of the Moerdijk industrial estate development plan. Due to the complex subject matter concerning air quality and legislation and regulations in the field of external safety, a delay has occurred. Partly as a result of the fire at Chemie Pack, all projects that involve the port and industrial estate have been re-examined. Following examination, it appears that a (comprehensive) MER-procedure (environmental impact statement) is inevitable as well as implementation of the lessons learnt in response to the fire at Chemie Pack. A final decision about this has to be taken by the competent authority. As a result, a final new timetable for bringing proceedings in the development plan is not available at the moment.

3.3 Employment

The Moerdijk port and industrial estate offers employment:

- directly to the employees of the established companies;
- indirectly to people who work, for example, for suppliers of the established companies.

The table below includes employment data. The data for the years 2007, 2009 and 2010 has been determined by the Heliview research agency. No study took place in 2008.

	2007	2009	2010
FTEs directly employed	13,598	10,583	10,096
FTEs indirectly employed	13,000	10,583	10,096

Table 3.4: Moerdijk port and industrial estate employment

Data from Heliview shows that 10,096 persons were directly employed within the Moerdijk port and industrial estate in 2010. Heliview found that an equal number of people worked

indirectly (for example, as supplier) for the port and industrial estate. Of the 10,096 employees, 8,883 were in permanent employment, while 1,213 had a temporary job. Compared to 2009, the number of employees decreased by 5%.

3.4 Energy

Various types of energy sources are used within the Moerdijk port and industrial estate, i.e.:

- electricity;
- natural gas;
- oil;
- heat (the heat released during the burning of waste materials, for example, that is used again to generate energy or re-used in processes that require heat).

The tables below include the data for the different energy sources as reported in the electronic environmental annual reports.

Electricity		2007	2008	2009	2010
Purchased electricity	MWh	748,318	757,146	635,136	906,407
Self-generated renewable electricity (excluding biofuels)	MWh	2,795	10,103	10,580	103,741
Personal use of renewable electricityfrom participation	MWh	44,886	48,946	46,729	49,366
Resale of electricity to third parties	MWh	70,159	58,303	n/a	761
Electricity feed-in to power grid	MWh	-1,843,327	-2,143,460	-1,876,593	-2,368,949
Net electricity consumption	**MWh**	**-977,169**	**-1,269,679**	**-1,185,104**	**-1,309,814**

Table 3.5: net electricity consumption by companies

Gas		2007	2008	2009	2010
Oil	m^3	298,128	286,789	835,356	728,013
Natural gas	m^3	657,005,025	743,519,788	740,069,538	755,140,177

Table 3.6: oil and gas consumption of companies

Gas		2007	2008	2009	2010
Heat purchased	TJ	10,088	10,700	9,800	10,171
Heat generated in the area	TJ	6,681	6,685	6,686	8,725

Table 3.7: purchased and generated heat of companies

Besides energy being consumed, energy is also generated within the Moerdijk port and industrial estate. The generated heat and electricity cannot be added together just like that, because part of the heat generated is converted to electricity that is supplied to the grid. Even more heat is released by the companies in the area which is then re-used by companies internally. Not all companies report such data, so the extent of this heat flow is not clear to us.

The purchase of electricity, natural gas and heat has increased. This is due to an increase by a major portion of the examined companies. In addition, more energy is also being generated in the area.

3.5 Air

Air emissions are an important topic within the Moerdijk port and industrial estate. The large companies report their emissions to the competent authority. In addition, the Province of North Brabant conducts research into the air quality in and around the port and industrial estate.

Company data

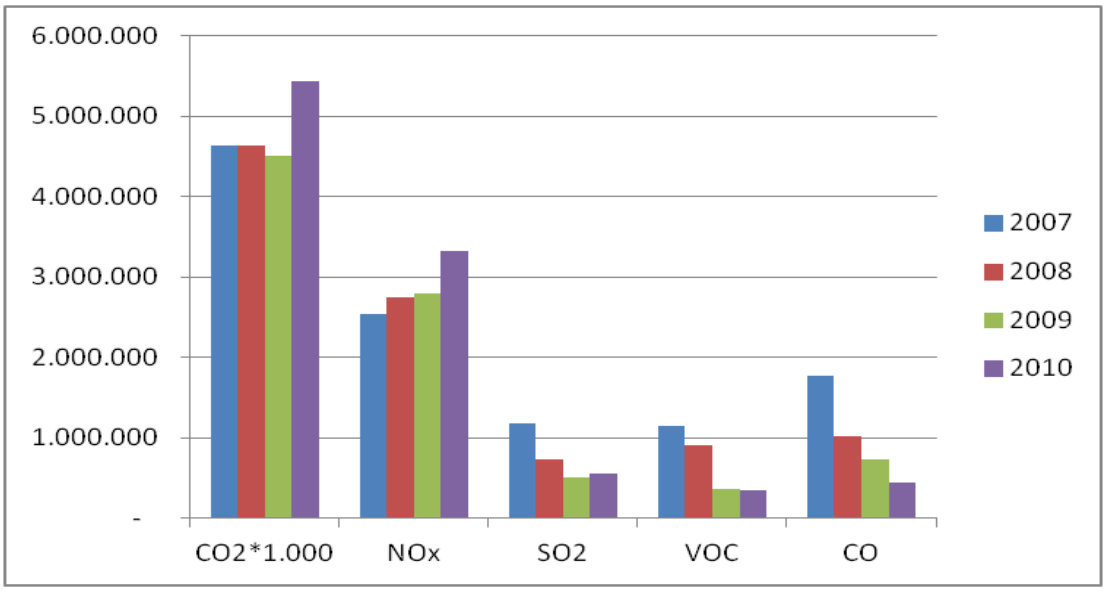


Figure 3.1: air emissions in kilograms, 2007 to 2010

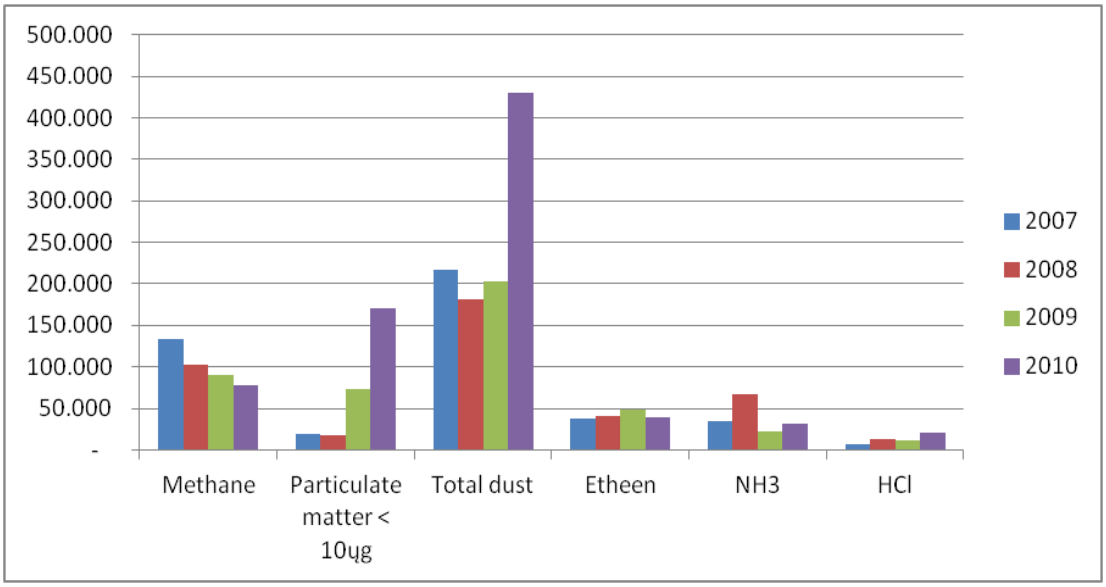


Figure 3.2: air emissions in kilograms, 2007 to 2010

The emissions of CO_2 and NO_x have increased in 2010; this is due to an increase by the four largest emitters. In addition, where CO_2 is concerned, companies have been using other fuels. Furthermore, one of the companies has indicated that there has been a change in the CO_2 calculation in the electronic environmental annual reports programme.

Particulate matter and total particles also rose in comparison with previous years. This too is associated with changes in the use of fuels.
In addition, the reporting/recording of particulate matter and dust improved in comparison with previous years. As a result, the comparison with previous years is not entirely reliable.

The emissions of SO_2, VOC, CO and methane have decreased in comparison with previous years.

Province of North Brabant air quality study
Besides the companies, the Province of North Brabant also conducts research into the air quality in and around the port and industrial estate. The state of air quality in North Brabant is now available online at www.brabant.nl/luchtkwaliteit. Using a map of North Brabant, (historical) data from monitoring stations can be consulted. This data mainly relates to particulate matter, nitrogen dioxide and volatile organic compounds.

The data originates from the provincial measuring stations and the monitoring network of the RIVM (National Institute for Public Health and Environmental Hygiene). There is also a link to data from the Belgian air monitoring network.

A trend analysis covering at least five years (2008-2012) is created from the Moerdijk industrial estate measurements and reports. These results are subsequently used to calculate the contribution of Moerdijk industrial estate and the surrounding area with the aid of a compass card analysis. The reports for 2008 and 2009 are available. The report for 2010 is expected in the 4th quarter of 2011.
These reports are published on www.RIVM.nl and www.brabant.nl/luchtkwaliteit..

3.6 Water

The following tables show the water consumption and discharges for Moerdijk port and industrial estate. The companies within the Moerdijk port and industrial estate mainly use the following types of water:

- drinking water;
- industrial water: besides drinking water, industrial water is also available at the Moerdijk port and industrial estate by means of a pipe network. This is water for industrial processes which do not require the highest possible water quality.
- surface water: this is mainly used for cooling purposes;
- groundwater: groundwater is extracted for the remediation of soil contamination.

	Drinking water[1];	Industrial water[1]	Surface water[2]	Groundwater (used for soil remediation)[2]
Unit	**m³**	**m³**	**m³**	**m³**
2007	1,803,000	7,708,000	986,372,683	1,017,069
2008	1,838,000	5,604,000	893,170,199	1,094,384
2009	1,160,000	5,250,000	1,012,810,893	997,724
2010	1,314,000	5,560,000	984,132,883	1,075,278

Table 3.8: water intake
[1]data from Brabant Water
[2] data from the companies examined

	Direct discharge into the sewer system			Indirect discharge of cooling water into surface water	
	PUs* discharged	price per PU	volume discharged	Volume discharged	Heat load discharged
	Number of PUs	euros	m³	m³	MW
2007	80,291	€ 46.50	6,556,000	1,018,439,000	800
2008	73,812	€ 49.50	6,072,291	889,987,000	889
2009	69,428	€ 46.50	6,032,000	1,009,663,000	880
2010	79,699	€ 47.00	6,094,824	983,350,000	1043

Table 3.9: discharge data (data supplied by Brabantse Delta District Water Board)
* PU = pollution unit

Both the intake of drinking and industrial water has increased slightly compared to 2009, but is still lower than the intake in 2008. The increase is associated with the increase of activity in

2010 compared to 2009. Logically, the amount of water discharged in 2010 has therefore increased in comparison with 2009.

The use of surface water has decreased slightly. This is due to a decrease in the use of surface water by a large customer. This customer has achieved a greater cooling capacity with a smaller quantity of water.
As a result, the amount of heat load discharged is higher in 2010 than previous years.

3.7 Waste

The table below shows the amounts of waste materials discharged for the companies surveyed for the years 2008 to 2010.

	2008	2009	2010
	Quantity (tonnes)	**Quantity (tonnes)**	**Quantity (tonnes)**
Non-hazardous waste	782,200	741,000	1,488,00
Hazardous waste	456,600	420,900	343,500
Total	**1,238,800**	**1,161,900**	**1,831,500**

Table 3.10: waste discharged

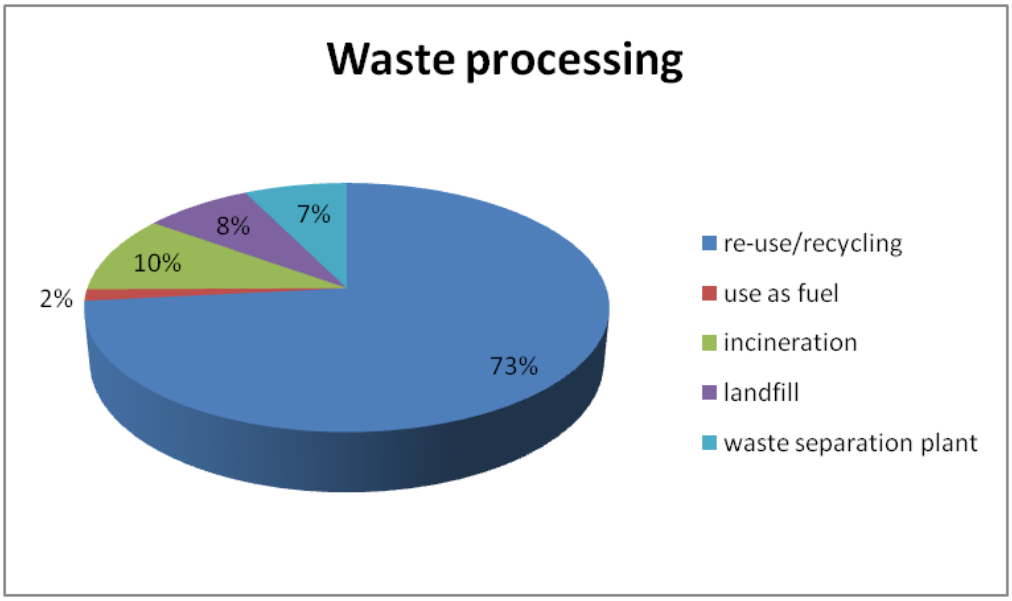


Figure 3.4: waste processing

Compared to 2009, the amount of waste discharged in 2010 increased by approximately 40%. This is due to a large increase in the quantity of non-hazardous waste and concerns cleaned soil that is removed for re-use. The amount of discharged hazardous waste has decreased slightly.

A large part of the waste, i.e. 73%, is re-used or recovered.
In addition, 2% is used as fuel and 7% is processed in a waste separation plant and then (partially) re-used. 10% of the waste ends up in a waste incineration plant, which it is used to generate energy. Only 8% of the waste goes to landfills.

3.8 Noise

The Moerdijk port and industrial estate is a zoned industrial area in conformity with the Noise Pollution Act. A zone surrounds an industrial area where, according to the development plan, so-called 'large noise-makers' can be established. The size of the zone depends upon the required or desired noise budget of the zoned industrial area. The companies that are established in the area may, together, not exceed the noise level set for the zone. The noise zone level was not exceeded in 2010.

In the context of the 'Seaport Innovation Project' (ZIP) tender, the Port Authority has submitted a project plan with respect to the feasibility of tradeable noise emission rights in zoned port and industrial estates.

The aim of this project is to help companies deal with the noise budget in an innovative manner in order to maintain sufficient leeway for future activities.

3.9 Soil

The monitoring report for the year 2009 states that the municipality of Moerdijk is working on an update of the soil function map and soil management plan. The original intention was to specify the new soil management plan in 2010. During the course of 2010, it was announced that the ambition was to prepare a regional soil policy. The choice of this alternative approach has led to the postponement of the release of the soil management plan. The aim is to establish a regional soil policy towards the end of 2011.

3.10 Logistics

In this section the transport data for the following modes is presented:

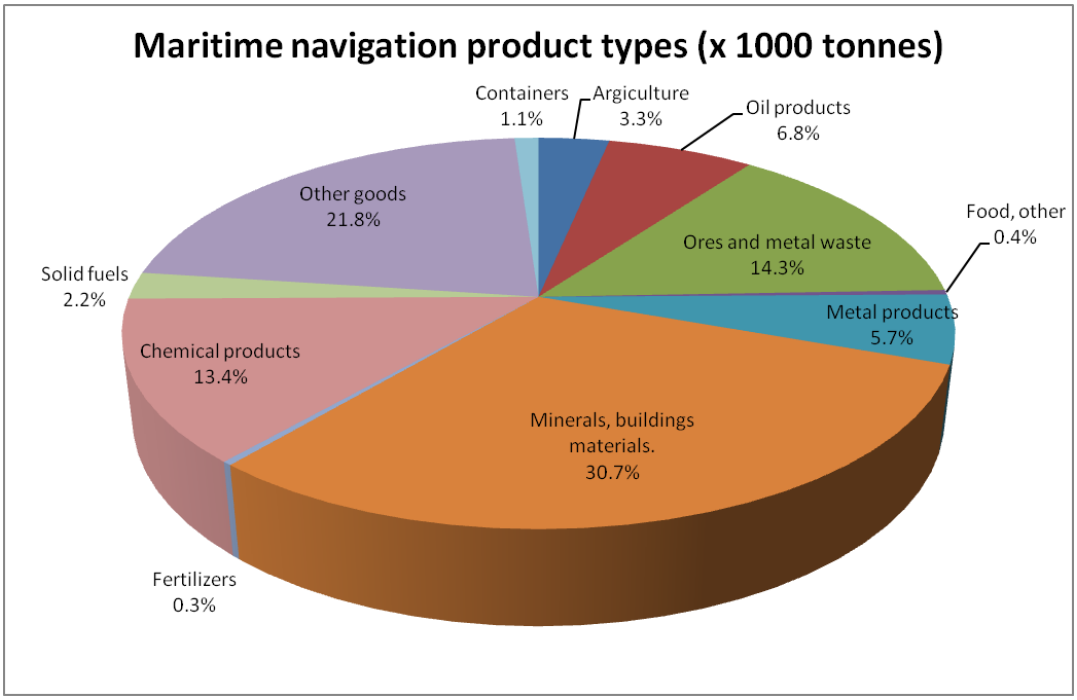
- water;
- rail;
- pipe;
- road.

Water

The table below shows the transport by ship.

Year	Number of vessels		Freight transfer		Shipping total (x 1,000 tonnes)
	Sea	Inland navigation	Sea (x 1,000 tonnes)	Inland navigation (x 1,000 tonnes)	
2002	1,506	8,181	4,436	5,036	9,472
2003	1,432	8,148	4,244	5,324	9,568
2004	1,514	8,116	4,495	6,173	10,668
2005	1,630	9,260	5,127	7,275	12,402
2006	1,662	9,926	5,144	7,931	13,075
2007	1,675	10,639	5,259	8,933	14,192
2008	1,806	10,838	5,605	9,729	15,334
2009	1,737	9,621	5,035	8,599	13,634
2010	2,007	11,705	6,118	12,614	18,732

Table 3.11: shipping logistics data



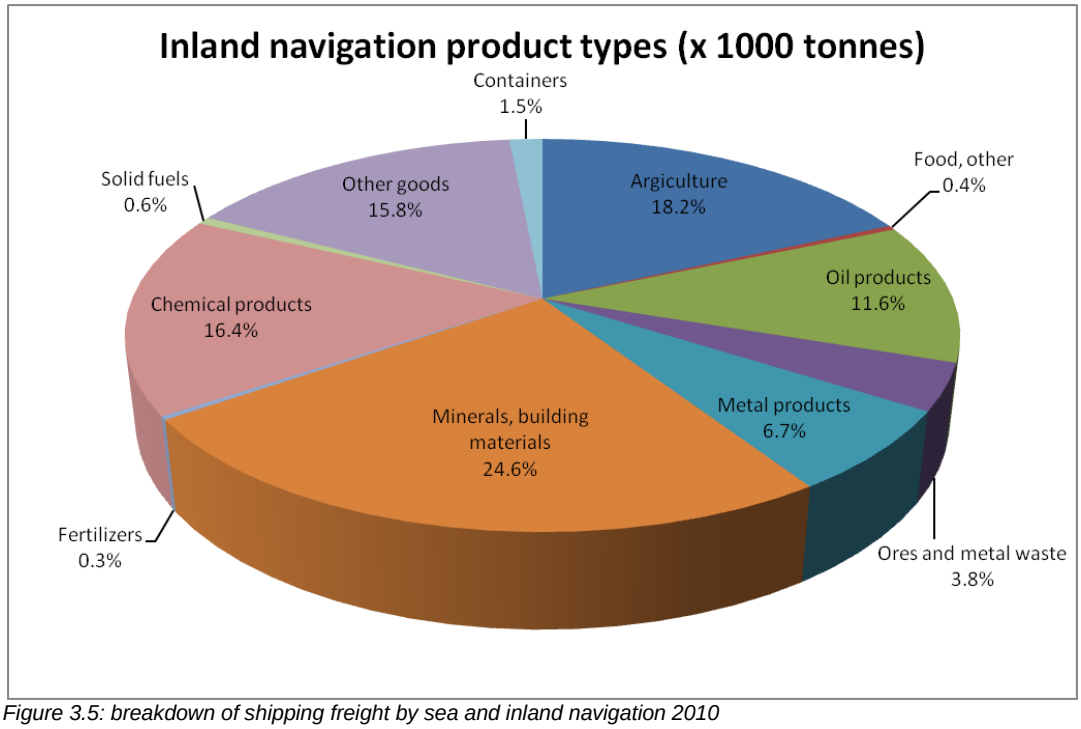


Figure 3.5: breakdown of shipping freight by sea and inland navigation 2010

Transport by ship rose sharply in 2010 and has never been higher in the history of the port and industrial estate. Compared to 2009, the total tonnage of goods transported increased by 37.4%. The increase in transport by ship is mainly attributable to new activities by one the companies established at the port. It is expected that these activities will also continue to take place in the coming years.

Rail
The following table includes data relating to rail logistics.

Year	Number of wagons	Product transported (x 1,000 tonnes)	Product transported by wagon
2002	16,024	666	41.56
2003	11,684	527	45.10
2004	13,561	616	45.42
2005	22,534	616	27.34
2006	28,906	781	27.02
2007	29,266	709	23.93
2008	31,232	699	22.38
2009	28,781	749	26.02
2010	27,882	742	26.61

Table 3.12: rail logistics data

The number of wagons that transported goods by rail fell for the second year running. Compared to 2009, there was a 3.1% decrease.
There has only been a 0.9% decrease in the transported product.
Rail transport has become more efficient and an average of 26,610 tonnes per wagon is transported.

Pipeline
Gases and liquids within the Moerdijk port and industrial estate are transported by pipeline. This transport is coordinated by Buisleidingenstraat Nederland. The National pipeline network connects together industrial areas in Rotterdam, Moerdijk, Vlissingen and Antwerp.

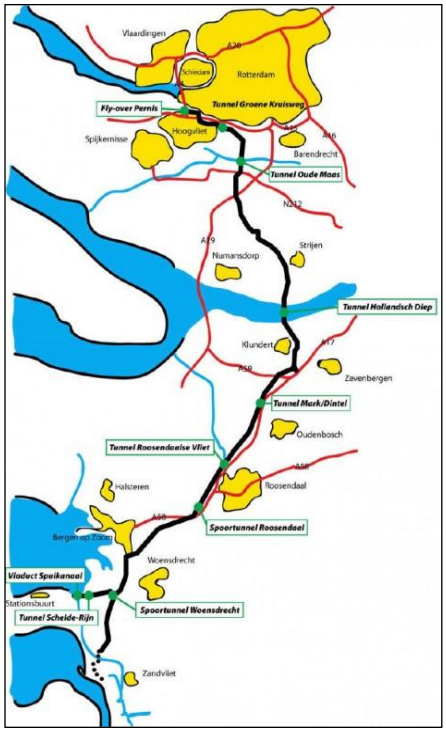


Figure 3.6: location of National pipeline network

The following table includes general information about the National pipeline network. It is not possible to access volume data for only the Moerdijk port and industrial estate.

Length of route:	approximately 73 kilometres
Surface area:	approximately 800 hectares
Components:	10 tunnels 18 viaducts (ground level) 33 kilometres of inspection roads
Capacity:	230 million tonnes per year*

Table 3.13: National pipeline network data

* This applies for the entire National pipeline network and not only for Moerdijk port and industrial estate.

Road transport

The completion of the expansion of the existing camera system, with licence plate registration and counting and weighing options for road traffic, has been postponed. During the completion phase, version differences appeared to cause instability in the equipment. The supplier must take far-reaching measures in order to guarantee stable operation after the final delivery. To date, no new figures about road transport are known.

3.11 Nature

European legislation and regulations within the framework of Natura 2000 imposes restrictions within the scope of the licensing of companies. The Port Authority, together with the provinces of North Brabant and South Holland, is looking for solutions to comply with the stricter nature legislation. The Port Authority is taking the lead in the industry for this in order to make agreements for the realisation of a 'programmatic approach' in cooperation with the Province of North Brabant.

The contribution of Roland-Jan Buijs from Buijs Ecoconsult is included in the box below. He shows that the Moerdijk port and industrial estate also offers opportunities for the development of nature.

Temporarily stimulate nature without restrictions

Many companies shrink back when it comes to giving space to flora and fauna. Protected plant and animal species may ultimately hamper economic development. However, there are countless ways to provide plants and animals with a temporary shelter.

Scattered across the Moerdijk port and industrial estate are scores of hectares of land that are pending a final designation. These areas may lie desolate and deserted for years. Due to the "Flora en Fauna wet" (Flora and Fauna Act), landowners often actively ensure that the areas remain barren and unsuitable for plants and animals. In this way they prevent protected plant and animal species from living there and thus ensure that they are not confronted with extra procedures, costs and delays when development eventually takes place. However, by means of a sound policy, it is possible to enable plants and animals to temporarily take advantage of this wasteland. When a company reports the creation of 'temporary nature', the company is granted an exemption without requiring any specific permits. Wasteland can thus become a potential source for a spectacular wealth of plants and animals, without standing in the way of economic development.

Roland-Jan Buijs is an Ecological consultant. He supports the Moerdijk Port Authority and looks for suitable solutions together with companies: "One of the companies within the Moerdijk port and industrial estate has a vacant plot beside the area where a mixed gull colony has settled. However, in June and July, the gulls caused a nuisance because their young sought shady spots under cars or containers, for example. On the one hand, it is wonderful to have nature so close by, but because the birds felt threatened, they even attacked people. A simple fence has now been erected around the site so that the young gulls cannot walk away from the wasteland."

Another bird that feels at home in the area is the Sand Martin. These birds are not very choosy and build their nests on steep slopes of sandy or loamy soil. These are created during the digging of pipe and cable ducts or after soil has been deposited or excavated. In the spring of 2011, many excavations were planned on the Shell site. Buijs: "Shell therefore decided to create a Sand Martin wall on the site. With enormous success: the Sand Martin wall was ultimately colonised by 280 nests within ten days! Thanks to this ideal Sand Martin wall, the birds were not interested in the ground work elsewhere on the Shell site. In 2010 and 2011, the Port Authority temporarily maintained a steep wall to protect the Sand Martins. In 2010, no fewer than 336 pairs came to breed and in 2011, there were 154 pairs."

It is not just animals that find a spot within the port and industrial estate, there are also several protected plant species such as wild orchids. Companies have a duty of care for these plants. However, there is no need to be scared: "It is sufficient to mow or hoe around the wild orchids or wait to mow until September when the orchids have dropped their seed. When building has to take place on the relevant piece of land, the plants can easily be moved. As a result, the orchids can establish themselves," says Buys.

The ecological consultant has produced a booklet about nature legislation and the protected plants and animals that are found in Moerdijk. This has been sent to all companies and is available upon request from the Port Authority. There is now a proposal for the Port Authority and companies to produce a guide on the “Flora en Fauna wet” (Flora and Fauna Act), which will mainly focus on the opportunities that exist to stimulate temporary nature, without companies subsequently being faced with problems. In addition, the guide will provide information about maintenance and management as well as minor spatial interventions and protected flora and fauna on the industrial estate.

Figure 3.1: result of Sand Martin wall

3.12 Nuisance

Complaints

The municipality of Moerdijk complaints procedure enables a complaint to be submitted at any time of the day or night (i.e. 24 hours a day, 7 days a week). West-Brabant Regional Environmental Services, hereinafter referred to as RMD, records the complaints received and ensures that they are forwarded to the duty officer. He/she takes immediate action. This task is outsourced to the RMD by the competent authority.

The complaints registration makes a distinction between a suspected perpetrator and an actual perpetrator. In the case of a named perpetrator, the name given by the person submitting the complaint is recorded as being the probable perpetrator. The complaint is only assigned to the perpetrator in the registration (actual perpetrator) if an actual perpetrator can be identified after investigation.

The RMD has produced an analysis of the environmental complaints and reports caused by companies on the Moerdijk industrial estate for 2010.

The water-related complaints are recorded by Brabantse Delta District Water Board.

Definitive perpetrator of complaint	2007	2008	2009	2010
Perpetrator: company with province as competent authority	300	80	41	73
Perpetrator: company with municipality as competent authority	12	0	4	23
Perpetrator: unknown	3	199	262	148
Complaints received by the district water board				1
Total	**315**	**279**	**307**	**244**

Table 3.14: summary of complaints 2007-2010

**In 2008, no data concerning the number of complaints were supplied.*

Type of complaint	2007	2008	2009	2010
Air/smell	295	253	297	209
Noise	14	25	5	18
Water	0	0	2	1
Other/general	6	1	3	9
Soil				1
Flaring				6
Total	**315**	**279**	**307**	**244**

Table 3.15: summary of types of complaints 2007-2010

Most complaints on the Moerdijk industrial estate were air related; therefore, these complaints are detailed in sub-categories in table 3.15.

complaint category	**General**		**Soil**		**Noise**		**Air**		**Water**		**Flaring**	
Sub-category	other	9	other	1	industry/company	6	hotel and catering	0	sewer	1	Soot	2
					other	12	fire/smoke	8	other	0	Other	4
							chemical	120				
							slurry/manure	1				
							carcass	1				
							oil	5				
							rotten eggs	6				
							dust/sand	5				
							paint	1				
							burnt rubber	3				
							sweet	2				
							other	57				

Table 3.16: complaints, actual perpetrator divided into sub-categories

The majority of the complaints submitted (85.7%) concern the air. This is particularly true for chemical stench. In addition, 7.4% are noise complaints. The remaining 6.9% are complaints that concern the fields of soil, water and general.

The Province of North Brabant is currently working on a new complaints procedure. This will be completed on 1 November 2011 and put forward to the environmental complaints study group. This complaints procedure includes a new assessment framework. This makes it possible to determine in an unambiguous manner how to respond to a complaint. This is partly dependent upon the potential impact on the surroundings.

Unusual events
Unusual events are understood to include incidents, planned activities not covered by normal operating conditions and emission increases reported by various official bodies. In 2010, 8 reports were made by municipal bodies and 176 reports by provincial bodies. There is no proven relationship between reports and the complaints that could have been caused by them.

3.13 (Environmental) permits

The Wet omgevingrecht (Wabo) makes it possible with effect from 1 October 2010 to apply for one environmental permit instead of 25 licences and permits that were previously required in the field of nature, environment, building and spatial planning. This is also referred to as the ”omgevingsvergunning”.

The “omgevingsvergunning”All-in-one Permit for Physical Aspects is an integrated permit, which should lead to:

- better services to companies and citizens;
- reduced administrative burden for companies and citizens;
- shorter procedures;
- coordinated regulations.

There is one application form that can be submitted digitally. By means of cooperation within and between government bodies, one decision is made without conflicting regulations. There is one appeals procedure and one control body responsible for coordinating supervision and enforcement. The municipality of Moerdijk has been working for several years with a single environment service point.

Table 3.17 includes the issued permits, modifications and withdrawals in 2010, recorded for both the Province of North Brabant, the municipality of Moerdijk and the Brabantse Delta District Water Board. The figures for the numbers of permits refer to permits applied for in accordance with the old system, before 1 October 2010.

Type	Municipality				Province				District water board			
	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Oprichtingsvergunning (Wet milieubeheer and Waterwet)	4	0	1	0	0	0	1	2	1	37	4	-
Revisievergunning	2	5	4	1	2	6	5	4	1	3	1	1
Veranderingsvergunning	6	5	2	2	6	5	6	5	5	5	5	-
Change in regulations at the request of permit holder					3	3	1	5			7	-
Ambtshalve wijziging van de voorschriten					3	1	0	5			-	2
Melding 8.19 Wet milieubeheer	0	5	14	9	14	13	12	12	6	-	1	-
Melding activiteitenbesluit	39	30	32	16	-	-	-	-	-	-	-	-
(partial) withdrawal of a permit	1	4	0		1	1	0	0	0	0	0	-
Wet milieubeheer/ Wet omgevingsrecht (Wabo)												13
Waterwet melding												2

Table 3.17: permits issued for the Moerdijk port and industrial estate in 2010

**On 1 October 2010, the Wm-vergunning, together with a number of other permits, became the –"omgevingsvergunning" (Wet omgevingsrechtWabo).*

Since the "Waterwet" came into force (on 22 September 2009), many activities that were previously covered by a Wet verontreiniging oppervlaktewater (Wvo) permit are now covered by an WM-vergunning. The relevant activities are indirect discharges (discharges into the sewer) for which the district water board has an advisory role. In 2010, the district water board issued 13 recommendations for the Moerdijk port and industrial estate. For direct discharges (discharges into surface water/into the soil), a permit by virtue of the Waterwet must be issued with effect from 15 December 2009. In 2010, two reports for the Waterwet were submitted for the Moerdijk port and industrial estate.

Supervision

The companies that are established within the Moerdijk port and industrial estate are among other things monitored by the municipality or province for compliance with the applicable environmental regulations. The following table shows the number of inspections performed for the year 2010.

	Municipality	Province
Activiteitenbesluit inspection	222	
Wm-vergunning inspection	107	134

Table 3.18: number of inspections for compliance with regulations in 2010

Monitoring of companies that must comply with the "activiteitenbesluit" does not apply to the province since the municipality is always the competent authority for companies covered by the "activiteitenbesluit. It appears from the data that in 2010 the province and municipality performed 481 inspections to monitor the environmental regulations. These inspections took place at 165 different companies.

3.14 Safety

"BRZO" companies

Companies that could cause a major accident due to the quantity and nature of the hazardous substances present are covered by the "Besluit Risico Zware Ongevallen (BRZO). The following table shows the number of companies covered by the BRZO decree. A distinction is made between companies under the authority of the municipality and province.

Type of company	"BRZO" companies
Municipal companies	9
Provincial companies	7
Total	***16***

Table 3.19: Companies subject to the Major Accidents (Risks) Decree within the Moerdijk port and industrial estate

In the Province of North Brabant risk map (see figure 3.7) the orange squares indicate where the BRZO companies are located. The risk map is available electronically via the website of the province (www.brabant.nl).

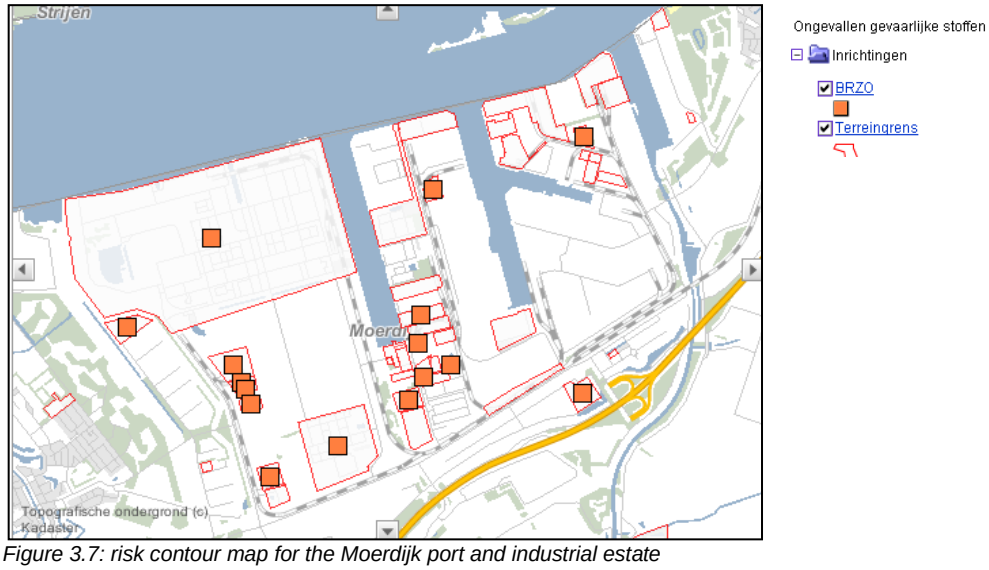


Figure 3.7: risk contour map for the Moerdijk port and industrial estate

Emergency services

The fire brigade and the regional ambulance facility (RAV) have supplied information regarding the turning out of the emergency services at Moerdijk port and industrial estate. The RAV has been an independent organisation since 2005. The RAV Central-West-North Brabant is divided into two regions, i.e. RAV West and Central Brabant and RAV North Brabant. Across the region there are 19 operational bases with a total of 59 ambulances.

The following table shows the number of emergency service deployments in 2010. This relates to the total number of deployments in the whole area for industrial accidents, incidents and traffic accidents, for example.

	2007			2008			2009			2010		
	Urgency A1*	**Urgency A2***	**Total**	**Urgency A1***	**Urgency A2***	**Total**	**Urgency A1***	**Urgency A2***	**Total**	**Urgency A1***	**Urgency A2***	**Total**
Number of deployments for first aid, no transport	11	6	17	20	7	27	13	5	8	20	9	29
Number of deployments for transport to hospital	44	15	59	27	19	46	24	12	36	40	19	59
Total deployments in the area	**55**	**21**	**76**	**47**	**26**	**73**	**37**	**17**	**44**	**60**	**28**	**88**

Table 3.20: deployment of emergency services at the Moerdijk port and industrial estate in 2010

* urgency A1 means life-threatening (present on location within 15 minutes),
* urgency A2 means non-life-threatening (present on location within 30 minutes).

Number of deployments for first aid, no transport	A1	A2	total
Becoming unwell	4	3	7
Traffic accident	4	3	7
Industrial accident	11	1	12
Other	1	2	3
TOTAL	**20**	**9**	**29**
Number of deployments for transport to hospital	**A1**	**A2**	**total**
Becoming unwell	16	4	20
Traffic accident	4	4	8
Industrial accident	20	9	29
Other	0	2	2
TOTAL	**40**	**19**	**59**

Table 3.21: explanation of the deployments in 2010

	Unit	2006	2007	2008	2009	2010
Total number of alarms	**Number**	**133**	**114**	**115**	**144**	**122**
False 'OMS' alarms (reports by public fire alarm systems)	Number	108	82	77	120	95
False alarms	Number					2
Actual action for indoor and outdoor fires	Number	12	16	26	17	18
Actual action by emergency services	Number	13	16	12	7	7
Ratio of actual actions to number of alarms	%	19%	28%	33%	17%	21%

Table 3.22: deployment of fire brigade at the Moerdijk port and industrial estate in 2010

Data from the RAV indicates that it turned out on 41 occasions in 2010 to assist with an industrial accident. In the other cases, other incidents were involved, such as people becoming unwell or traffic accidents.

With respect to the fire brigade alarms, a distinction is made this year between false 'OMS' alarms and false alarms.
The difference between an 'OMS' alarm and a false alarm is that the former is an automatic notification by the fire alarm system. A 'false alarm' is one that an employee himself reports to the fire brigade. 21% of the alarms in 2010 resulted in actual action.

The 4 actual actions can be divided into:
- 3 indoor fires;
- 1 truck fire;
- 1 ship fire;
- 2 industrial outdoor fires.

The 7 actual emergency actions can be divided into:
- 2 water accidents;
- 3 trapped accidents;
- 1 train accident;
- 1 industrial accident.