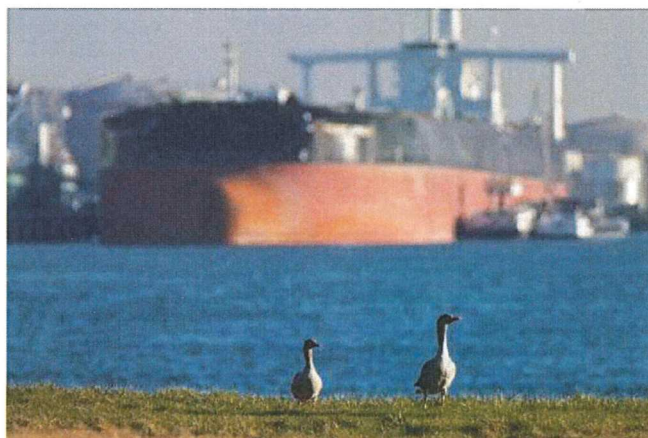




PERS reapplication for the port of Rotterdam, July 2015





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## 1. Introduction

### 1.1 Port of Rotterdam Authority & Corporate Social Responsibility

The Port of Rotterdam Authority ('PoR') regards Corporate Social Responsibility (CSR) as the key to a successful future. The port is following a course of balanced development. We are convinced that CSR is a crucial precondition for a healthy development of the port in harmony with the surrounding area. Investing in sustainability, commitment and transparency is necessary and will lead to a world class port and prosperous future for the region and its hinterland.

Since 2009, we integrated the report of the executive board and the CSR report in one integrated annual report. We chose to do so because CSR is an integral part of our business operations (where possible we integrate the corporate governance code as well).

The Port Environmental Review System (PERS) fits nicely into our ambition to be transparent regarding our environmental ambitions and results we achieve and to inspire other port to do the same.

### 1.2 Aim of PERS

The Port Environmental Review System (PERS) is primarily designed to assist ports to implement an environmental management programme in line with the recommendations of ESPO. The ESPO Environmental Code of Practice (2004) recommends that ports should:

- contribute to the development of a sustainable logistics chain;
- encourage wide consultation, dialogue and cooperation with relevant stakeholders at local level (port users, public, NGOs);
- generate new knowledge and technology and develop sustainable techniques which combine environmental effectiveness and cost efficiency;
- enhance cooperation between port administrations in the field of environment, facilitate the exchange of experiences and implementation of best practices on environmental issues;
- prepare a publicly available environmental policy to increase awareness of environmental concerns and integration of sustainable development;
- conduct appropriate environmental impact assessments for both port projects and port development plans;
- stimulate continual improvement in the port environment and its environmental management;
- promote monitoring, based on environmental performance indicators, in order to measure objectively identifiable progress in environmental port practices;
- promote environmental reporting as a means of communicating environmentally good behavior to stakeholders;
- intensify the communication about environmental improvements achieved by ports.

PERS is based on internationally recognized professional best practice, and yet remains a port-specific system developed by ports – for ports. It is formulated to be flexible and capable of evolution so that it can be adapted to future changes in legislation and priorities for action. The System defines a basic standard of good practice for the port sector. Ports wishing to progress to successively more comprehensive systems such as ISO14001 or EMAS can do so by building on the PERS experience.

## 2. Port profile

### 2.1 Introduction

The purpose of this section is to provide a summary of the major characteristics of the port in terms of its legal status, commercial activity and environmental setting.

The information provides useful background information about the port because it indicates the range and scope of activity, the geography of the location, and general facts concerning ownership and organization.

It is acknowledged that each port is unique. It is important to be aware of the local circumstances in which the port's environmental management programme is operated.






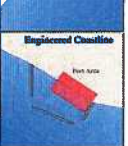
### 2.2 General port information

#### 2.2.1 Legal Status and Port Operators

- |                                    |  |  |                                       |
|------------------------------------|--|--|---------------------------------------|
| What is the Port's legal position? | <input type="radio"/> Municipality   | <input type="radio"/> State                        | <input type="radio"/> Private Company |
|                                    | <input checked="" type="radio"/> other: Government corporation/ corporatized |  |                                       |
| Who is the owner of the land?      | <input checked="" type="radio"/> Municipality                                | <input type="radio"/> State                        | <input type="radio"/> Private Company |
|                                    | <input type="radio"/> other  |  |                                       |
| Who operates the terminals?        | <input type="radio"/> Public Companies                                       | <input checked="" type="radio"/> Private Companies |                                       |
|                                    | <input type="radio"/> other  |  |                                       |
| Who does the stevedoring?          | <input type="radio"/> Public Companies                                       | <input checked="" type="radio"/> Private Companies |                                       |
|                                    | <input type="radio"/> other  |  |                                       |
| Who carries out cargo handling?    | <input type="radio"/> Public Companies                                       | <input checked="" type="radio"/> Private Companies |                                       |
|                                    | <input type="radio"/> other  |  |                                       |

**2.2.2 Port Location and Port Area (statistics 2014)**

Please tick the geographic setting of the Port

Estuary <input checked="" type="checkbox"/>		River <input type="checkbox"/>	
Marine Inlet <input type="checkbox"/>		Embayment <input type="checkbox"/>	
Protected Coast <input checked="" type="checkbox"/>		Engineered Coastline <input checked="" type="checkbox"/>	

Please describe the area of the Port

Area of Port's land (km<sup>2</sup> or specify units):  
12,603 hectares

Further detail:  
7,793 hectares land area of which 5,965 ha rentable sites

Port jurisdiction limit onshore (km or specify units): none

Area of Port's navigable water (km<sup>2</sup> or specify units): 4,810 hectares

Port jurisdiction limit offshore (nautical miles):  
60 km

Further detail:  
The harbour master of the port of Rotterdam is also the state harbour master (has national jurisdiction).

Total quayage (km): 74,3km

Length of shoreline (km): 198,7km

Draught, largest vessel (m): 24m

Tidal range (m): ± 1.5

Maximum draught (m): 26m

The port is located in an estuary and since the land reclamation project of Maasvlakte 2 has an engineered coastline.

**2a. Use of Surrounding Land**

- X Agricultural land
- X Conservation / Protected Areas
- Forestry / Woodlands
- X Nature
- other

- X Open water (lakes, rivers, reservoirs)
- X Urban / City
- X Industry
- X Recreational
- other





**2b. Coastal and Marine Characteristics**

- Boulders
- Cliff
- Rocky foreshore
- Tidal flats (mud)
- Sea Walls / Coastal defence
- Dune Systems
- other
- Offshore Islands
- Offshore Banks
- Rivers
- Sandy Beach
- Shingle Beach
- Salt Marsh
- other

**2.2.3 Port Business**

Tonnage:(million tons / year)     < 5                       5 < 15                       25 < 50  
 50 < 100                       50 < 100                       > 100  
 Further detail: ± 444,7 million tons

TEU\* –containers:(thousands / year)     < 250                       250 < 500                       500 < 1000  
 1000 < 2000                       2000 < 3000                       3000 < 5000  
 > 5000  
 Further detail: ± 12,3 million TEU's

Passengers: (thousands / year)     < 1000                       1000 < 3000                       3000 < 7000  
 > 7000  
 Further detail: the exact number is unknown, registered by separate organizations (Cruise Port Rotterdam) for cruise and ferry's by the companies themselves.

\* TEU: container equivalent to 20 feet

### 2.2.4 Main Commercial Activities and Cargo Handling

Commercial Activities	Quantity <sup>1</sup>	Cargo Handling	Quantity
<input checked="" type="checkbox"/> Aggregates (sand, gravel..)	___	<input checked="" type="checkbox"/> Dry bulk	___
<input checked="" type="checkbox"/> Ship repair, marine engineering	___	<input checked="" type="checkbox"/> Liquid bulk (non-oil)	___
<input checked="" type="checkbox"/> Petroleum product processing	___	<input checked="" type="checkbox"/> Trade cars / Vehicles	___
<input checked="" type="checkbox"/> Ro-Ro	___	<input checked="" type="checkbox"/> Perishable goods	___
<input type="checkbox"/> Marinas / Leisure	___	<input checked="" type="checkbox"/> Petroleum / Oil products	___
<input checked="" type="checkbox"/> Chemical industry	___	<input checked="" type="checkbox"/> Ro-Ro	___
<input checked="" type="checkbox"/> General manufacturing	___	<input checked="" type="checkbox"/> General cargo	___
<input type="checkbox"/> Fish market and processing	___	<input type="checkbox"/> other	___
<input checked="" type="checkbox"/> Storage and packaging	___	<input type="checkbox"/> other	___
<input checked="" type="checkbox"/> Refrigerated cargo	___	<input type="checkbox"/> other	___
<input checked="" type="checkbox"/> other: Energy production	___		

### 2.2.5 Main Cargoes

Petroleum:	Tons/y <sup>1</sup>	Dry bulk:	Tons/y	Liquid bulk (non-oil):	Tons/y
<input checked="" type="checkbox"/> Crude oil	___	<input checked="" type="checkbox"/> Animal feed	___	<input checked="" type="checkbox"/> Liquid chemicals	___
<input checked="" type="checkbox"/> Refined products <sup>2</sup>	___	<input checked="" type="checkbox"/> Chemicals	___	<input checked="" type="checkbox"/> Liquefied gases	___
<input checked="" type="checkbox"/> LNG (liq. nat. gas)	___	<input type="checkbox"/> Cocoa	___	<input checked="" type="checkbox"/> Perishable liquids	___
<input type="checkbox"/> other	___	<input checked="" type="checkbox"/> Coke	___	<input type="checkbox"/> Water	___
		<input checked="" type="checkbox"/> Grains	___	<input type="checkbox"/> other	___
Pyrites minerals:		<input checked="" type="checkbox"/> Scrap (iron)	___	Other:	
<input checked="" type="checkbox"/> Aluminium	___	<input checked="" type="checkbox"/> Soya	___	<input checked="" type="checkbox"/> Cars / Vehicles	___
<input checked="" type="checkbox"/> Cement	___	<input checked="" type="checkbox"/> Tapioca	___	<input type="checkbox"/> Fish	___
<input checked="" type="checkbox"/> Phosphates	___	<input type="checkbox"/> Timber	___	<input checked="" type="checkbox"/> Fruit	___
<input type="checkbox"/> Potash	___	<input checked="" type="checkbox"/> Wood products	___	<input type="checkbox"/> Livestock	___
<input type="checkbox"/> Pyrites	___	<input type="checkbox"/> other	___	<input type="checkbox"/> other	___
<input type="checkbox"/> Sulphur	___	Ores:			
<input type="checkbox"/> other	___	<input type="checkbox"/> Bauxite	___		
		<input checked="" type="checkbox"/> Coal	___		

<sup>1</sup> The quantity can be found on <https://www.portofrotterdam.com/sites/default/files/upload/Port-Statistics/Port-Statistics/index.html>

<sup>2</sup> Refined oil products include fuel oils, kerosene, motor spirit, asphalt and bitumen; LNG= Liquefied Natural Gas

X Iron ore

### 2.2.6 Environmental Management

Who is the designated officer for Environmental Management (name and job title):

Head Environmental Management (Peter Mollema)

Harbour Master (René de Vries)

How is environmental management organised in the Port?

Does the Port have environmental review tools?

X Designated personnel:

Environmental management plan

If **yes**, how many employees: ± 200, of which ± 150 within the harbour master's division (excl. employees involved in the inspections in the port area itself)

ISO 14000 certification

Environmental committee

EMAS certification

Environmental working group

External consultants

Is environmental responsibility defined at board level?

X Environmental department

X Yes  No

Other remarks:

- For the Slufter (the depot for contaminated dredging sludge), there is a ISO 14001 certification.
- Environment is part of the general process of port management: we have a port environment policy on a more strategic level.



### 3. Environmental policy statement

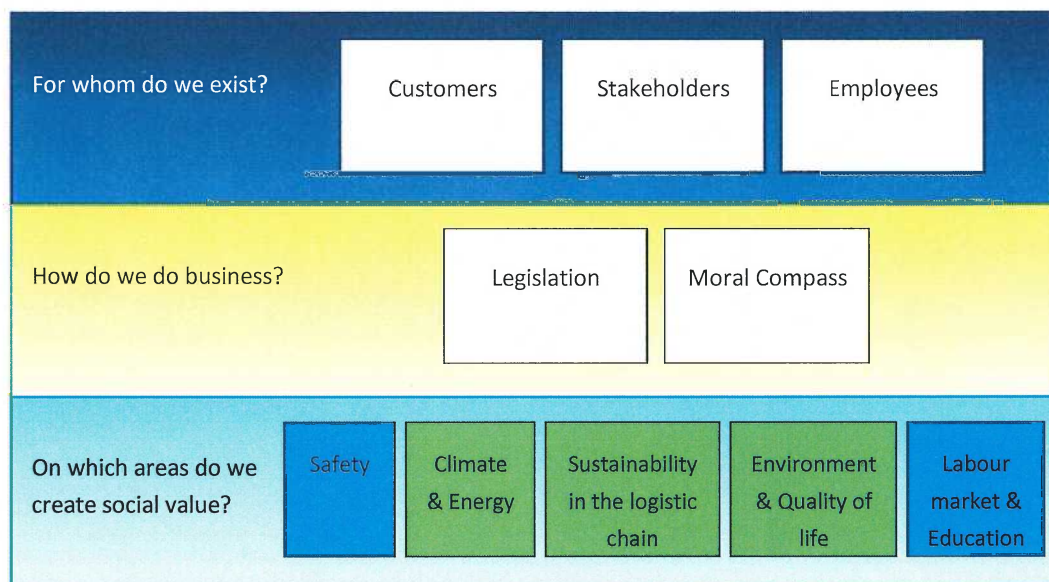
#### Introduction

The aim of the Port of Rotterdam Authority is to enhance the port of Rotterdam's competitive position as a logistics hub and world-class industrial complex. The Port of Rotterdam Authority manages, operates and develops the port and industrial area of Rotterdam. Not only in terms of size, but quality as well. The Port Authority is responsible for maintaining the safe and smooth handling of all shipping. We invest in the development of the existing port area, new port sites, public infrastructure and in handling shipping.

#### Mission and business principles

The Port of Rotterdam Authority creates economic and social value by realizing, together with customers and stakeholders, sustainable growth in the world-class European port. Corporate social responsibility (CSR) is the key to a successful future. CSR is a precondition for the healthy development of the port in harmony with its surroundings. We want to make greater effort to improve both our own performance and that of the port and industrial complex in this field.

In our daily efforts we follow 10 business principles to guide us in our choices and daily activities of which 3 are specifically focused on the environment (highlighted in green):



We are convinced that sustainability results in economic value. Together with our partners, we improve the energy efficiency of companies in the port area and work towards the development of a bio based economy, circular economy, CO<sub>2</sub> neutral solutions and the increased use of renewable energy. This means that we provide space for the present and future business.



Looking at the logistic chains connected to the port of Rotterdam, we strive towards the reduction of the CO<sub>2</sub> footprint and want to contribute towards the sustainability of other chains, such as the supply chain.

We commit ourselves to comply with all relevant environmental legislation and regulation. We respect and protect the environment and feel responsible for the quality of life in the surrounding areas of the port.

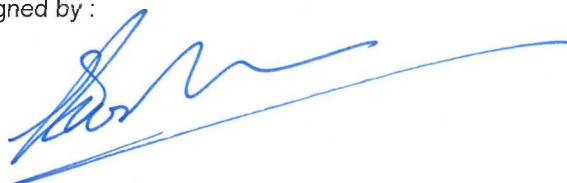
#### **Environmental focus for the future**

The framework for the port's environmental policy is established in the Port Compass, the port's vision to 2030, which is broadly coordinated with - and progress monitored by relevant stakeholders. Our ambition is that in 2030, Rotterdam will be the most sustainable port and industrial area in the world. The quality of life in the surrounding areas will have improved demonstrably. This is thanks to an improvement in the local air quality as a consequence of a reduction in the background levels and in emissions in the port area itself, notably of fine particles and nitrogen oxide. In addition, the nuisance suffered by local residents has been reduced and external safety improved.

#### **Annual report**

The Port of Rotterdam Authority is transparent and open about her efforts by publishing an integrated annual report in which our social and environmental performance is highlighted following the Global Reporting Initiative guidelines and worldwide business standards for a sustainable development.

Signed by :



Allard Castelein  
Chief Executive Officer  
Havenbedrijf Rotterdam N.V. (Port of Rotterdam Authority)  
date:

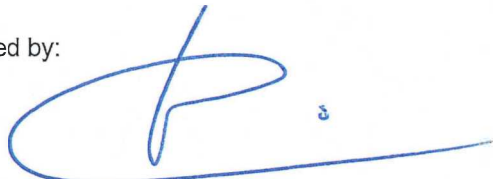
## 4. Environmental Aspects and legal requirements

### 4.1 Introduction

Effective management of environmental performance requires awareness and knowledge of the environmental aspects<sup>2</sup> in relation to the activities, products and services of the port. The intention is to identify the significant aspects, to manage them in line with policy and legal requirements, and to be able to report on the performance.

We state that the register of legal and other environmental requirements in this chapter of the PERS application dated December 2014 is suitable and relevant for the main environmental aspects of the Port of Rotterdam.

Signed by:



Frans van Zoelen  
Manager of the Legal Department  
Havenbedrijf Rotterdam N.V. (Port of Rotterdam Authority)  
date: 14 January 2015

### 4.2 Activities related to shipping

In the figure on the next page the main ship related activities in the port area with a possible impact on the environment are projected. These activities have an impact on noise, air quality, water quality and external safety. The responsible organization within the Port of Rotterdam Authority is the Harbour Master's Division (see § 5.2). The different aspects, impacts, legal requirements, etc. are listed in the table below as well.

The international rules of IMO, such as the SOLAS and its amendments (e.g. the IMDG code and IBC) and national regulations, including the recommendations of the European Community, are in force in the port of Rotterdam. Furthermore, the Port Bye-laws are the "house rules" of the port. In the Rotterdam Port Bye-Laws, there are specific regulations for ships carrying dangerous cargoes in the port (see also for further information the 'Port Information Guide'<sup>3</sup>, March 2014). The indicators used to monitor performance are:

- number of nautical/ship incidents;
- number of ship movements with the use of pilots;

---

<sup>2</sup> Environmental aspect: elements of the activities, products, or services, which interact with the environment. A significant aspect is an aspect with a significant impact on the environment. An environmental impact is defined as: any change to the environment, whether adverse or beneficial, wholly or partially resulting from the activities, products or services.

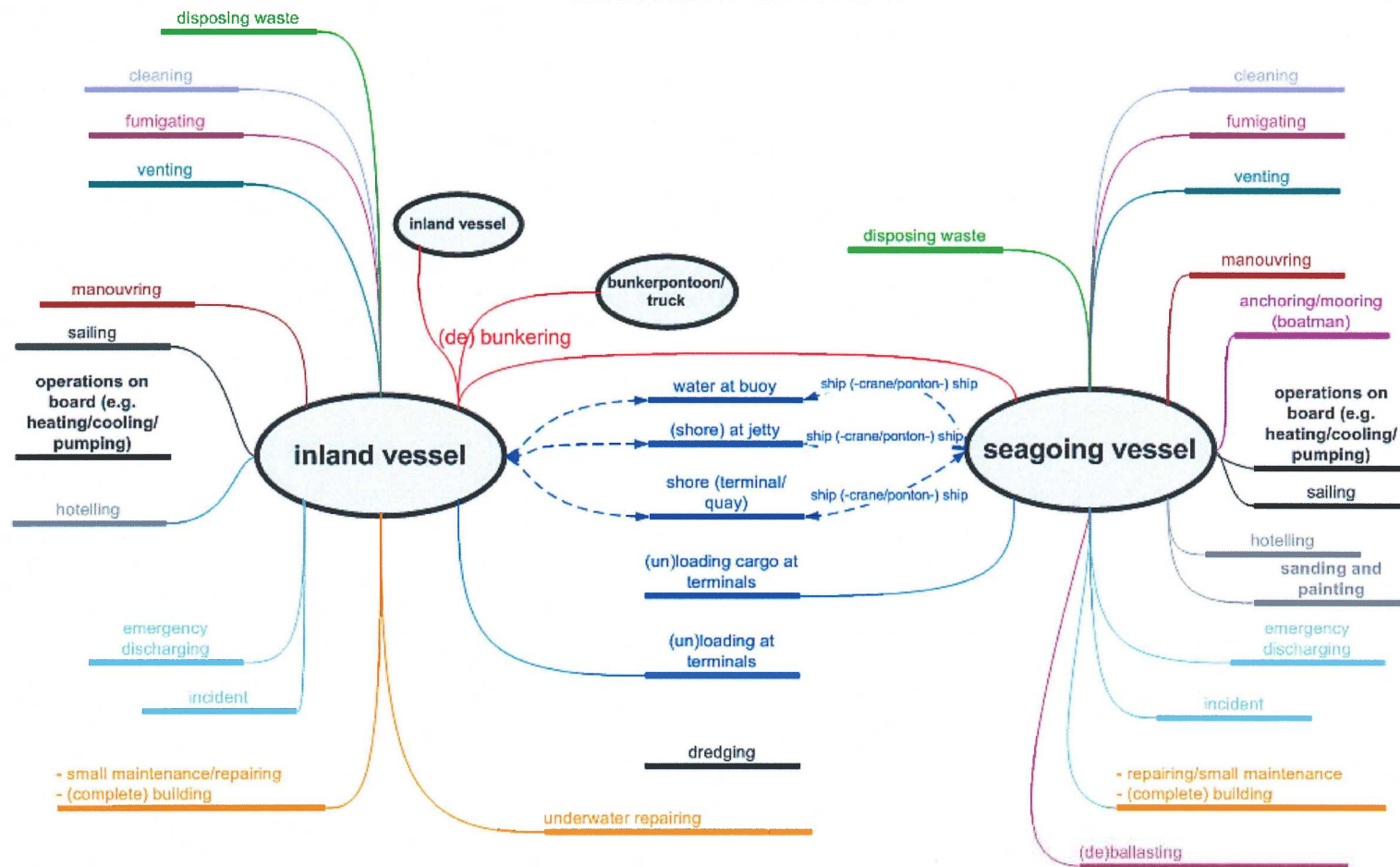
<sup>3</sup> [http://www.portofrotterdam.com/en/Shipping/sea-shipping/port-information/Documents/port\\_information\\_guide.pdf](http://www.portofrotterdam.com/en/Shipping/sea-shipping/port-information/Documents/port_information_guide.pdf)

- number of (environmental) inspections;
- number of inconsistencies in reports of hazardous and noxious goods;
- number of official warnings;
- number of controlled/handed in of waste.



## Ship activities with possible impact on environment in port

PERS: Port of Rotterdam 2014



Source	Aspects impacts	Responsible person/organization	Legal and other requirements	Remarks	Performance indicators for Division Harbour Master Rotterdam
<b>Inland vessels</b>					
cleaning holds / tanks (stripping and sweeping)	NV, D, AE, ON, WE, W	ILT inland shipping, DHMR/Inspection, RWS	HbvR § 10, Wvvs, Bvvs, Ww, ADN, EU Petrol directive, Wvgs		
	- number of charges for different regulations - number of spills				
venting cargo (liquid bulk)	NV, AE, ON, WE				
fumigating cargo	NV, AE, ON, W	ILT/Inland shipping, ZHP, DHMR, ILT, RWS	Ww, BW, Wm ROSR/CCR, ADN, (BPR), ROSR, (Dutch Law) Decree Sulphurcontent Fuels, HbVR § 2 & 3, Ww, Zoning regulations		
manoeuvring	NV, AE, WE, U, W				
	number of spills				
sailing					
hotelling (berthing without cargo handling)					
incident	NV, D, AE, ON, WE, B, U, W	DHMR (low level incidents) or Duty officer fire brigade (for other levels)	Incident regulation, will become crisis control regulation	oil spills will be cleared by special oil spill response vessel or collected via oil booms	number of cleanings

Source	Aspects impacts	Responsible person/organization	Legal and other requirements	Remarks	Performance indicators for Division Harbour Master Rotterdam
repairing on water/small maintenance	NV, D, AE, ON, WE, U, W	RWS, DHMR	Ww, HbV § 4, Wm		
(building, on shipyard)	NV, D, AE, ON, WE, U, W	n.a.	n.a.	see shore activities	
disposing waste	WE, W	DHMR / Inspection, DCMR (processing industry), ILT (collectors), SAB	Decree on ships waste (CDNI), Wm, Ww		number of inspections for waste disposal and administration
(de)bunkering	AE, WE	DHMR/Inspection, RWS	HbV § 9, Ww	bunker checklist	- number of bunker notifications - number of bunker inspections - number of spills
anchoring	AE, ON, WE	DHMR, RWS	Berth plan, Ww		
Emergency discharging	NV,D, AE, ON, WE, U, W	DHMR(Inspection), RWS	Ww		
<b>Seagoing vessels</b>					
cleaning tanks (strippen)	NV, D, AE, ON, WE, W	ILT PSC, DHMR/Inspection, RWS,	IMO/MARPOL/ANNEX I, II, V, HbvR § 10, Ww		"- number of inspection prewashing and stripping for category X, Y or Z
venting cargo (dry bulk)	NV, AE, ON, WE				- number of notifications for prewash/strip, venting, fumigation
fumigating cargo	NV, AE, ON, W		IMO/IMSBC, Ww		
manoeuvring	NV, AE, WE, U, W	ILT PSC, ZHP, DHMR, RWS	IMO/MARPOL/ANNEX I, II, III, IV, V, VI,, Ww, EU sulphur directive,		
sailing					- number of Dangerous

Source	Aspects impacts	Responsible person/organization	Legal and other requirements	Remarks	Performance indicators for Division Harbour Master Rotterdam
			Zoning regulation		Goods notifications
hotelling (berthing without cargo handling)					- number of MARPOL / Annex I and II inspections (tankers), - number of request for mooring outside Petroleumharbour for tankers
incident	NV, D, AE, ON, WE, B, U, W	DHMR (low level incidents) or Duty officer Fire brigade (for other levels)	IMO/MARPOL/annex I, incident regulation / crisis control regulations	oil spills will be cleared with Oil Response Ship or oil booms	number of cleanings
repairing on water	NV, D, AE, ON, WE, U, W				number of requests for repair
building	NV, D, AE, ON, WE, U, W	DCMR	Wm		
disposing waste	WE, W	ILT PSC, RWS, DHMR/Inspection	IMO/MARPOL/ANNEX I, II, IV, V, VI; EU Directive on PRF; Ww; Wvvs; Bvvs; HbvR,; Bhov; Rhov; HAP.		- number of notifications (inclusive total amounts of several waste streams on board and to dispose in Rotterdam) - inspection disposal of dangerous substances
(de)bunkering	AE, WE	ILT PSC, DHMR/Inspection, RWS	IMO/MARPOL/ANNEX VI, HbvR § 9	bunker checklist	- number of bunker requests - number of spills
anchoring	AE, WE, ON	DHMR, RWS	Ww		
(de)ballasting	B	RWS	IMO/Ballast Convention (Not in force yet)		

Source	Aspects impacts	Responsible person/organization	Legal and other requirements	Remarks	Performance indicators for Division Harbour Master Rotterdam
dredging	NV, AE, WE, U, W	RWS	Ww		
<b>Cargo handling</b>					
from seagoing ship (via crane/pontoon) at buoy to inland vessel or vice versa	NV, D, AE, ON, WE, B, W	DHMR, ILT	SOLAS VII (dangerous goods); IMO/MARPOL/Annex I, II, III, IV, V, VI; Ww; RVGZ (International Maritime Solid Bulk Code, International Bulk Code, Gas Carrier Code); (Wm); HbvR,		<ul style="list-style-type: none"> <li>- number for request for board-board transfer,</li> <li>- number for request for odour nuisance substances</li> <li>- number of tanker safety &amp; environmental inspections</li> <li>- number of stench complaints</li> <li>- number of spills</li> </ul>
from seagoing ship (via crane/pontoon) at jetty to inland vessel or vice versa		DHMR, ILT			
from seagoing ship (via crane/pontoon) at terminal/quay to inland vessel or vice versa		DHMR, ILT			
from seagoing ship to terminal/quay or vice versa		DHMR, DCMR			
from inland vessel to terminal/quay or vice versa		DHMR, DCMR			
Emergency discharging		DHMR/(Inspection), RWS	Ww		number for request for emergency discharge
intern transfer by pumping		RWS	Ww		
<b>Other small vessels, such as pleasure crafts, water taxi, fast ferry</b>					
houseboats		DHMR, ZHP	HbvR		

Abbreviation	Aspect	Impact	Abbreviation	Aspect	Impact	Abbreviation	Aspect
NV	noise/vibration	AIR	WE	water emission	WATER	n/a: always via shore regulation, e.g. environmental permits	external safety
D	Dust		B	ballast water emission			
AE	air emission		U	underwater sound			
ON	odour nuisance		W	waste			

Abbreviation	Name organization
DCMR	The DCMR is the joint environmental protection agency of the province of South Holland and 16 municipalities
DHMR	Division Harbour Master Rotterdam
ILT	The Human Environment and Transport Inspectorate
Inspection	Department Inspection/DHMR
RWS	Rijkswaterstaat, the executive agency of the Dutch Ministry of Infrastructure and the Environment
SAB	SAB Maritime Waste Services
PSC	Port State Control
ZHP	Seaport Police

Abbreviation	Legal and other requirements	Abbreviation	Legal and other requirements
MARPOL	International Convention for the Prevention of Pollution from Ships	BPR	Inland Waterways Police Regulations
Wvvs	Law preventing pollution from shipping	ROSR	Inspection Regulations Ships on the Rhine
Bvvs	Decision maritime pollution prevention	IMO	International Maritime Organization
Bhov	Decision port reception facilities	SOLAS	Safety of Life At Sea
Rhov	Scheme Port Reception facilities	CCR	Central Commission for the Navigation of the Rhine
HbvR	Port Management Bye-Laws	Wm	Environmental Management Act
AND	Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways	Ww	Water Act
Rvgz	IMDG code; Regulation regarding the shipping of dangerous goods	Wvgs	Legislation regarding the transport of dangerous goods
HAP	Port waste management plan	BW	Law on pesticides

### 4.3 Activities regarding Infrastructure Maintenance

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
Dredging	Sediment disposal impact on land	Asset Management/PoR	Soil protection act	Permit(s) with soil protecting measures	Level of contamination by periodic sampling
	Sediment disposal release into water of contaminants	Asset Management	Pollution act seawater	Monitoring, facility, permit(s)	Level of contamination in sediment
	Sediment storage release of contaminants	Asset Management	Environmental management Act, Pollution of Surface Waters Act	Monitoring, facility, permit(s)	Level of leaching
	Waste water spillage (De Slufter)	Asset Management	Pollution of Surface Waters Act	Permits and monitoring	Periodic monitoring of quality of surface water
Maintenance activities regarding constructions (e.g. quay walls, piers, embankments)	Re-use of waste, disposal of waste noise and (air) emissions	Asset Management	Waste management Act and environmental requirements for the port tenders	Environmental requirements are given by the port tender. These requirements are incorporated in the contracts	<ul style="list-style-type: none"> <li>• Use of latest available low emission vehicles</li> <li>• Re-use of waste and reducing waste</li> </ul>
Maintenance activities regarding infrastructure (e.g. road, rail, pipelines)	Re-use of waste, disposal of waste noise, (air) emissions	Asset Management	Waste management Act and environmental requirements for the port tenders	Environmental requirements are given by the port tender. These requirements are incorporated in the contracts	<ul style="list-style-type: none"> <li>• Use of latest available low emission vehicles</li> <li>• Re-use of waste and reducing waste</li> </ul>

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
Port buildings and port-installations (shore power)	Energy consumption	Facilities/PoR	PoR-Business Plan 2010-2015: Air quality and Greenhouse gas protocol	<ul style="list-style-type: none"> <li>Monitoring fuel consumption</li> <li>Technical measures taken on some vessels to reduce air emissions</li> <li>Use of low emission vehicles/cars</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring energy consumption</li> <li>Annual CO<sub>2</sub>-footprint</li> </ul>
Fleet operations (vessels and cars)	Fuel consumption	Facilities	PoR-business Plan 2010-2015: improving Air quality and Greenhouse gas protocol	<ul style="list-style-type: none"> <li>Monitoring fuel consumption</li> <li>Technical measures taken on some vessels to reduce air emissions</li> <li>Use of low emission vehicles/cars</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring fuel consumption</li> <li>Annual CO<sub>2</sub>-footprint</li> </ul>
Storage and handling of dangerous goods and waste	(External) safety	Facilities/ PoR (own buildings and locations in the port area)	Environmental management Act	Environmental permit(s). Facilities is responsible for permit-compliance	Storage facilities in compliance with the environmental permit
	Spillage / soil contamination	Municipality of Rotterdam/Port of Rotterdam Authority (buildings and locations in port area)	Environmental management Act	Environmental permit	Soil protecting measures taken in accordance with the permit
	Spillage / water contamination	Port of Rotterdam Authority (own	Environmental management Act	Environmental permit	Soil protecting measures taken in accordance with



Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
		locations in port area)			permit.
Pumping and analysis of sludge (de Slufter)	radiation	Asset management Sludge depot 'Slufter'	Nuclear Energy Law	Permit	<ul style="list-style-type: none"> <li>In compliance with legislation</li> <li>Monitoring of the quality of the sludge</li> </ul>

#### 4.4 Activities regarding Infrastructure and Spatial Development

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
Port development	Spatial planning/ spatial impact	Port Development /PoR	Spatial plans and or land use plans which have been approved in 2013/2014 by the municipality of Rotterdam	Environmental Impact Assessment study has been carried out for the period 2013-2023	<ul style="list-style-type: none"> <li>Port Vision (Port Compass) 2030</li> <li>By the municipality approved spatial plans</li> </ul>
	Spatial planning/ spatial impact	Port Development /PoR	Spatial plans and or land use plans which have been approved in 2013/2014 by the municipality of Rotterdam	Environmental Impact Assessment study has been carried out for the period 2013-2023	<ul style="list-style-type: none"> <li>Port Vision (Port Compass) 2030</li> <li>By the municipality approved spatial plans</li> </ul>
	Industrial noise	Port Development /PoR	Noise abatement Act, Port noise plan has	The port does have a so called noise zoning plan in	Predefined maximum noise levels (which may not be

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
			been established and comes into action in 2014	action	exceeded) at residential areas
	Emissions caused by industrial sites. Focus on air quality but also soil and water are relevant	Port Development /PoR	Air quality directive, NEC Directive, Industrial Emissions Directive as well as other source based emission directives. The mentioned requirements are implemented in Environmental management Act and Air quality Act	Monitoring of air quality by the environmental agency (DCMR) Soil surveys at industrial sites are carried out and all information regarding soil quality is available	<ul style="list-style-type: none"> <li>• Environmental permits</li> <li>• Monitoring and calculating air quality levels (esp. PM10/2,5 and NO<sub>2</sub>).</li> <li>• Compliance with European air quality directives, annual reporting (non) compliance.</li> </ul>
	External safety industry and transport routes	Port Development and Environmental Management/ PoR	External safety (establishments) decree, Dutch legislation regarding the transport of dangerous goods via road, railroad or inland waterway, Decree on the	Zoning plan for external safety is in action	<ul style="list-style-type: none"> <li>• Maximum risk levels are defined and may not be exceeded</li> <li>• Level of group risk is also assessed</li> </ul>

*Port Environmental Review System (PERS) for the port of Rotterdam*

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
			External Safety of Pipelines and the Environmental management Act		
	Emissions caused by transport	Port Development and Environmental Management /PoR	Source based European emission directives	Monitoring by the Environmental Agency DCMR	<ul style="list-style-type: none"> <li>Air quality levels (NO<sub>2</sub>, PM) are constantly monitored by the DCMR.</li> </ul>
Installing windturbines within the port area	Spatial impact, noise, safety on pipelines	Port Development and Environmental Management /PoR	Spatial plans, Environmental Activities Decree, Environmental management Act and Decree on the External Safety of Pipelines.	Locations for wind energy are listed in the 'Port Wind energy covenant'. Safety issues for pipelines are especially considered	The number of windturbines installed including the number of MWs

#### 4.5 Tenants and Organizations/ activities in the port area

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
Processing industry <sup>4</sup>	Air emissions and air quality	Province of South-Holland and Environmental agency DCMR	European air quality and emission directives which are implemented in Dutch legislation such as the Air quality Act and the Dutch Emissions Guideline (NeR)	Compliance with the air quality directives is being monitored (especially PM and NO <sub>2</sub> ) Industrial sites comply with the relevant emission directives such as the Industrial Emissions Directive	<ul style="list-style-type: none"> <li>Noncompliance with the Air Quality directive is being monitored (locations which exceed the limit values are reported)</li> <li>Industrial sites which are not in compliance with legislation (their permit)</li> </ul>
	Soil contamination	Province of South-Holland and Environmental agency DCMR	Soil protection act and related decisions and guidelines. Area focused approach to prevent and resolve ground water pollution.	Monitoring soil and groundwater quality. On industrial sites measures are in place to prevent soil- and groundwater contamination	<ul style="list-style-type: none"> <li>Number of incidents regarding soil and groundwater contamination</li> <li>Number of companies which comply with 'NRB'</li> </ul>
	External safety	Province of South-Holland and Environmental agency DCMR	Major accidents (risks) decree 1999, External safety (establishments)	Monitoring the companies which comply with BRZO and PGS-guidelines <sup>5</sup>	<ul style="list-style-type: none"> <li>The number of companies which comply with BRZO en PGS guidelines</li> </ul>

<sup>4</sup> Processing industry: chemical companies, refineries, liquid bulk, dry bulk and energy- and utility companies.

<sup>5</sup> Publicatiereeks Gevaarlijke stoffen, in de richtlijn zijn de regels opgenomen voor de opslag van verpakte gevaarlijke stoffen

Port Environmental Review System (PERS) for the port of Rotterdam

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
			decree and the PGS-guidelines. A port safety zone has been established		<ul style="list-style-type: none"> <li>Compliance with port safety zone plan</li> </ul>
	Waste	Province of South-Holland and Environmental agency DCMR/ municipality of Rotterdam	Waste management Act, national waste management plan. Decision regarding the management of packaging.	Monitoring waste streams including prevention and re-use of waste.	<ul style="list-style-type: none"> <li>Number of companies where a scan to prevent waste has been executed</li> </ul>
	Energy consumption	Province of South-Holland and Environmental agency DCMR	European directives, Industrial Emission Directive, European Climate- and Energy Policy, Rotterdam Climate Initiative (RCI)	<ul style="list-style-type: none"> <li>Use of best available techniques (BAT) incorporated in permits</li> <li>Participating in Rotterdam Climate initiative (RCI)</li> </ul>	<ul style="list-style-type: none"> <li>Reporting CO<sub>2</sub>-emissions by the major companies</li> <li>CO<sub>2</sub>-reduction reported on an annual basis by RCI</li> </ul>
	Noise	Province of South-Holland and Environmental agency DCMR	Noise abatement Act, European Directive regarding noise, Port zoning plan	<ul style="list-style-type: none"> <li>Monitoring maximum noise levels and number of complains</li> <li>Complying to the noise zoning plan</li> </ul>	<ul style="list-style-type: none"> <li>Number of complaints</li> </ul>

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
Processing of waste <sup>6</sup>	Soil contamination	Province of South-Holland and Environmental agency DCMR	Soil protection act and related decisions and guidelines.	All landfills have soil protecting provisions	<ul style="list-style-type: none"> <li>• Up to date permits</li> <li>• Monitoring soil and water quality</li> <li>• All landfills have soil protecting provisions</li> </ul>
	Waste	Province of South-Holland and Environmental agency DCMR	Waste management Act, national waste management plan. Decision regarding the management of packaging.	Facilities operate according to their environmental permit and use best available techniques <sup>7</sup>	<ul style="list-style-type: none"> <li>• Monitoring waste streams</li> </ul>
	Emissions and air quality	Province of South-Holland	European air quality and emission directives which are implemented in Dutch legislation such as the Air quality Act and the Dutch Emissions Guideline (NeR)	Using best available techniques (BAT) as listed in the environmental permit	<ul style="list-style-type: none"> <li>• continuous monitoring of air-emissions</li> <li>• reporting air emissions in accordance with the permit</li> </ul>
	Nuisance regarding odour	Province of South-Holland and Environmental agency	Odour regulation from the Province of South Holland	The legislation distinguishes at least three levels (1 to 3) of possible odour nuisance.	<ul style="list-style-type: none"> <li>• Number of odour complaints</li> <li>• The level of odour</li> </ul>

<sup>6</sup> Processing of waste: stortplaatsen, afvalverbranding, verwerking overig afval, baggerdepot (Slufter) en C2-deponie

<sup>7</sup> Conform vergunning en Wm (ALARA)

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
		DCMR		Starting point is level 1: to have no odour outside the site. Odour surveys are carried out as part of the process of obtaining the environmental permit.	nuisance number of sites which comply to the provincial odour legislation
	Energy consumption	Province of South-Holland and Environmental agency DCMR	European industrial emissions and energy and climate directives and Rotterdam Climate Initiative (RCI)	Annual monitoring	<ul style="list-style-type: none"> <li>Number of AVI's with energy saving measures</li> </ul>
	External safety	Province of South-Holland and Environmental agency DCMR	Major accidents (risks) decree 1999, External safety (establishments) decree. Port safety zone plan is present	Focus is on updating permits if necessary and especially on enforcement by the DCMR	<ul style="list-style-type: none"> <li>Number of companies that have an up to date permit</li> <li>Adequate enforcement by the DCMR</li> <li>Reporting incidents</li> </ul>
Container/ cargo handling	Noise	Province of South-Holland and Environmental agency DCMR	Noise abatement Act, Port noise zoning plan	Monitoring including compliance to the port noise zoning plan	<ul style="list-style-type: none"> <li>Number of complaints including the number of noise annoyed</li> </ul>
	Emissions and air quality	Province of South-Holland and Environmental agency	Air quality Act, Environmental permit	<ul style="list-style-type: none"> <li>Use of low emission terminal equipment,</li> <li>Optimization of logistics</li> </ul>	<ul style="list-style-type: none"> <li>Reduction of NO<sub>x</sub> and PM emissions</li> <li>Compliance with</li> </ul>

Port Environmental Review System (PERS) for the port of Rotterdam

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
		DCMR		<ul style="list-style-type: none"> <li>Check on compliance with AQ-directives before permit is issued</li> </ul>	environmental permit
	External safety	Province of South-Holland and Environmental agency DCMR	Major accidents (risks) decree 1999, External safety (establishments) decree. Port safety zone plan is present	<ul style="list-style-type: none"> <li>Monitoring, compliance with port safety zone</li> <li>Risk assessments are carried out before permits are issued</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with environmental permit.</li> </ul>
Transport by road	Soil contamination	Ministry of Infrastructure & Environment and Environmental agency DCMR	Soil Protection Act	Soil protection measures are in place. Checks by Port-authority (Asset Management)	<ul style="list-style-type: none"> <li>Check on soil protection facilities</li> <li>Reporting incidents including actions taken</li> </ul>
	Emissions and air quality	Ministry of Infrastructure & Environment	Air quality Act, European source based emissions legislation. Comply with EU-requirements (EURO-standards)	Promoting the use of clean vehicles (e.g. environmental zone on Maasvlakte 2)	<ul style="list-style-type: none"> <li>Reduction of NO<sub>x</sub>, PM and SO<sub>2</sub></li> <li>Check with compliance AQ directives</li> </ul>
	Noise	Ministry of Infrastructure & Environment	Noise abatement Act	Monitoring (complaints)	<ul style="list-style-type: none"> <li>Number of complaints</li> </ul>
	Energy consumption	Ministry of Infrastructure &	EU-requirements	Monitoring	<ul style="list-style-type: none"> <li>Efficiency of road transport</li> </ul>



Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
		Environment			<ul style="list-style-type: none"> <li>Optimize logistics</li> </ul>
	External safety	Ministry of Infrastructure & Environment	Dutch legislation regarding the transport of dangerous goods via road, railroad or inland waterway and the Environmental management Act <sup>8</sup>	Monitoring	<ul style="list-style-type: none"> <li>Number of incidents</li> <li>Monitoring presence of routes for transport of dangerous goods including tunnels</li> </ul>
Transport by water <sup>9</sup>	Waste	Ministry of Infrastructure & Environment	EU legislation: ship source pollution prevention EU legislation: port waste reception facilities	Monitoring	<ul style="list-style-type: none"> <li>Number of incidents</li> <li>Amount of collected waste (gathered from ships)</li> </ul>
	Emissions (noise, climate change, water and air quality)	Ministry of Infrastructure & Environment	IMO Marpol Annex VI Port Management Bye-Laws	Promoting low emission transport modes and influence modal split	<ul style="list-style-type: none"> <li>Reduction of NO<sub>x</sub>, PM and SO<sub>2</sub></li> </ul>
Transport by rail	External safety	Ministry of Infrastructure & Environment, Rail-	Dutch legislation regarding the transport of	Monitoring	<ul style="list-style-type: none"> <li>Number of incidents</li> <li>Monitoring basisnet</li> </ul>

<sup>8</sup> Program financing is responsible for the development and new initiatives related to External Safety.

<sup>9</sup> Transport is the sailing, manoeuvring and hotelling of the ship. The cargo related activities are described at the beginning of this table.

Port Environmental Review System (PERS) for the port of Rotterdam

Source	Aspects and impact on	Responsible person/ organization	Legal and other requirements	Remarks	Performance indicators
		operator	dangerous goods via road, railroad or inland waterway ('basisnet') and the Environmental management Act		
	Noise	Ministry of Infrastructure & Environment	Noise abatement Act	Monitoring	<ul style="list-style-type: none"> <li>• Number of complaints</li> <li>• Measures taken to reduce noise</li> </ul>
Transport by pipeline	External safety	Ministry of Infrastructure & Environment	Major accidents (risks) decree 1999, Decree on the External Safety of Pipelines (Bevb).	Monitoring measures take to comply with BevB	<ul style="list-style-type: none"> <li>• Number of incidents</li> <li>• Compliance with Bevb</li> </ul>
	Soil contamination	Ministry of Infrastructure & Environment	Soil protection Act	Monitoring	<ul style="list-style-type: none"> <li>• Number of incidents</li> </ul>

## 5. Responsibilities and resources

### 5.1 Introduction

The purpose of this section is that the Port Authority can demonstrate that it has adequate and appropriate management organization and personnel in place to deliver the objectives specified in the policy statement.

### 5.2 Environmental responsibility within the Port Authority

Environment is part of the general process of port management and 'incorporated' in the different departments of the Port of Rotterdam Authority. The overall organization structure is displayed in figure 1.

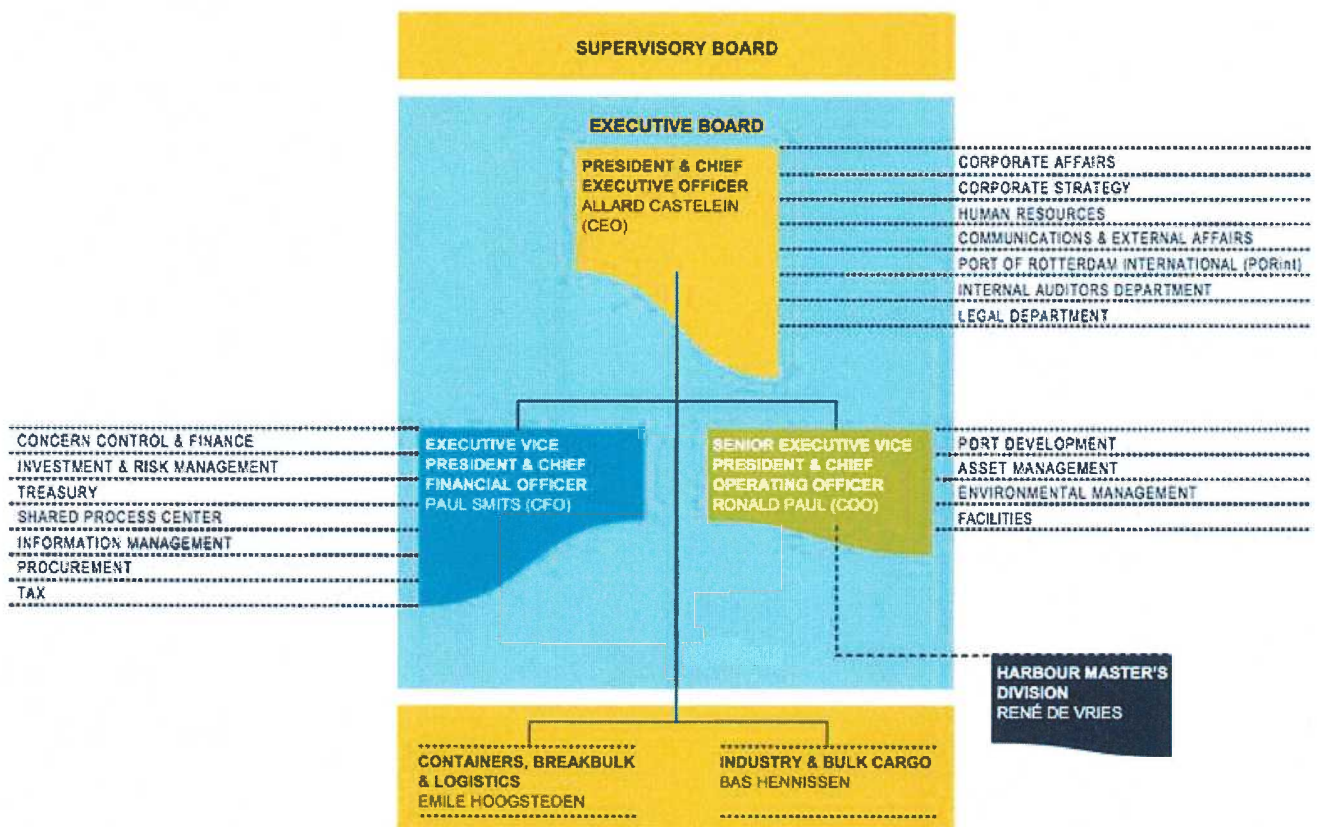


Figure 1 Organization structure of the Port of Rotterdam Authority

The Environmental Management Department (see figure 1) is responsible for the development and implementation of policies in the field of environment, spatial planning and sustainable development. Within these fields, all the activities are focused on the ability to achieve future growth of the port industrial complex, including related transport, coupled with an improvement in the quality of the environment. Its main tasks are:

- To ensure an efficient and systematic management of the environmental space of the Rotterdam port area;
- To develop the Global Hub and Europe's Industrial Cluster as a leader in the field of sustainability;
- To provide environmental consultancy for optimal allocation of customers and activities in the port area including the necessary licensing and planning procedures.

The Harbour Master's Division (figure 2) is responsible for the safe and efficient management of shipping within its control area. In order to do so, as public authority, the Harbour Master's Division has been the delegated authorization to enforce on behalf of the State, municipalities of Rotterdam, Schiedam, Vlaardingen, Dordrecht, Zwijndrecht and Papendrecht. The Harbour Master is also the nautical authority on environmental, safety and security issues. Besides taking care of emergency management on water, its tasks involves the use of patrol vessels, a Harbour Coordination Centre, Traffic Control centres and carrying out inspections on board of ships.



Figure 2 Organization structure of the Harbour Master's Division

### 5.3 Environmental responsibility within and/or related to the port area

The Port of Rotterdam Authority is not responsible for all the environmental issues and aspects connected to the use of the port and industrial area. In figure 3 an overview is presented of the other relevant organizations and their main responsibilities regarding the environment.

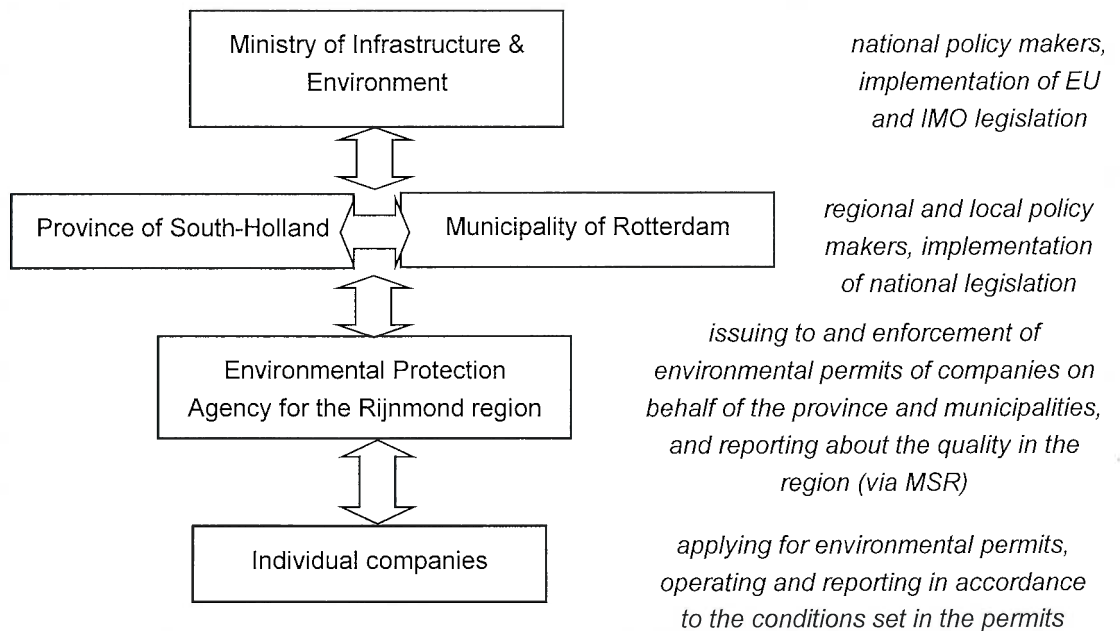


Figure 4 The main responsibilities of the other organizations

#### Organization of Monitoring City region of Rotterdam

For over 18 years several governmental agencies/ - organizations<sup>1</sup> annually cooperate in the Environmental Monitoring of the City region of Rotterdam (MSR). In this report one can read the state of the environmental quality in the Rijnmond region. Previously the emphasis was on environmental aspects, but the focus has shifted towards the physical environmental quality. The concept of 'environmental quality' includes not only the classical environmental themes such as air quality, noise, external safety, waste and soil but also energy, water, biodiversity, transport, spatial planning and health. Because of this shift in emphasis this report provides a more solid support for administrators and policymakers in their policy decisions. Because qualitative and quantitative data are placed in a "cause-effect chain" they can quickly find answers to questions like:

- What activities are effective and protect the environment?
- What is the main greenhouse substances of harmful activities?

<sup>1</sup> City of Rotterdam, Port of Rotterdam Authority, Environmental Protection Agency Rijnmond, Rotterdam-Rijnmond Public Health Service, Police Rotterdam-Rijnmond, Province of South-Holland, Rijkswaterstaat Zuid-Holland, The Schieland en de Krimpenerwaard District Water Board, Delfland Water Board and Hollandse Delta Water Board.

- What effects will these emissions have on the air quality, soil, etc.?
- To which extent are people exposed to these harmful effects?
- What are the effects of the physical environment and exposure to health and nature?
- What regional and local measures are taken to protect the environment?

In the report, the MSR partners present the answers through approximately 100 indicators, text and images. On the back cover of every report you will find a dot. If you put all the reports side by side, the dots will form the trend of the overall environmental quality. In recent years, the quality of the environment is relatively stable. Please see appendix 3 for the link to the latest report.

## 6. Conformity review

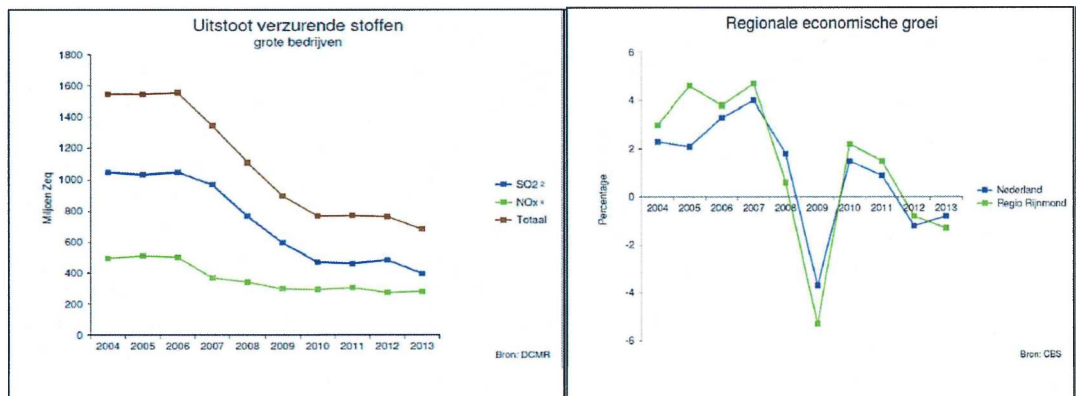
### 6.1 Introduction

The conformity review doesn't provide an overview and/or compliance statement for each legal requirement, but shows information to identify improvement or actions necessary to achieve, maintain or restore compliance with legislation or other standards.

In general, organizations such as the Inspection from the Ministry of Infrastructure and Environment, the Province of South-Holland, Regional environmental protection agency (DCMR) and the Harbour Master are mainly responsible for enforcing the legal requirements. The Port of Rotterdam Authority has no direct responsibility regarding the enforcement of legislation. There is, however, regular communication (meetings, etc.) between the Port of Rotterdam Authority and the competent authorities to address environmental compliance and measures for improvement. The Port of Rotterdam Authority supports "Milieu Stadsregio Rotterdam (MSR)", a report about the environment in the Rotterdam Region, and contributes information. The different environmental aspects including the review are presented in the annual report of MSR 2013 and the trend report of MSR 2014 (see Appendix 3 for the link to the MSR website).

### 6.2 Identification of possible improvements

Every year MSR produces the environmental overview of the current situation in the Rijnmond region (including the port area) and the topics which are 'on course' and the environmental aspects which are 'not on course' (see appendix 3). In general, environmental policy is aimed at decoupling growth and environmental pressure. This is evident when economic growth is accompanied by a reduction in environmental pressure (absolute decoupling) or when economic growth increases at a faster rate than environmental pressure (relative decoupling).



The graph for the emission of acidifying substance shows a sharp decrease as of 2006. There is no direct correlation between the regional economic development (going up-and-down) in the same time span of seven years.

Specific points for improvement related to the port activities are:

- To improve the quality of life in the Rijnmond region by (i) maintaining a high level of safety in the port area and Rijnmond region, (ii) developing the port within the set environmental boundaries, (iii) reducing the nuisance for residents in the Rijnmond region and improving biodiversity in the Delta, and (iv) having a sustainable and structural dialogue with municipalities surrounding the port area;
- To develop the sustainable Global Hub by (i) improving the accessibility of the port area and facilitating clean modes of transport, (ii) promoting the transport of cargo with the lowest carbon emission per ton kilometre and (iii) creating the right conditions for clean and fuel efficient shipping;
- To develop a sustainable Industrial Cluster by pro-actively promoting energy efficiency, a transition towards a biobased economy and the production and use of sustainable energy within the port area.

### 6.3 Priorities

As of September 2012, the Municipality of Rotterdam, the Province of South-Holland, the Ministry of Infrastructure and Environment, the Ministry of Economic Affairs, Deltalinqs and the Port of Rotterdam Authority work together to achieve the Port Vision 2030. This Port Vision contains a high ambition regarding sustainability and the quality of life in the Rijnmond region. Within this ambition, the following priorities linked to the environment have been listed:

- Maintain a high safety level for groups of people present in the vicinity of the port area and for people working in the port area
- Increase the economic growth of the port activities within the set environmental boundaries by reducing emissions
- Increase the economic growth of the port activities within the set environmental boundaries by assessing the available environmental space and being 'in control' regarding the management of this space
- Reduce the nuisance of port activities in urban areas surrounding the port
- Enhance the port and improve the quality of life in the Rijnmond region

- A transition towards more bio-based (chemical) industry, increasing sustainable energy production and carbon capture for usage and storage (CCS)
- The further integration and clustering of industrial activity within Rotterdam and at the level of Antwerp-Rotterdam

- A substantial improvement of the efficiency of the logistic chain
- A reduction of the footprint of the logistic chain



## 7. Environmental report

The aim of the environmental report is to provide environmental information to senior port management, the public and other interested parties regarding the environmental impact and performance of the ports major environmental aspects. It may be regarded as a major communication tool with these parties.

As stated before, the port of Rotterdam does not have one environmental report, since we have incorporated it in different publications like our annual report, the MSR (environmental monitoring Rotterdam Rijnmond including the port area) and our Port Compass 2030. The links to all three reports can be found in appendix 3.

The minimum requirements as listed below can be found in the following reports:

- a. A description of the nature and size of port activities: annual report.
- b. The environmental policy statement: Port Compass 2030 and Port Compass 2014 progress report.
- c. An overview of major environmental aspects, impacts and the port's performance on these issues: annual report, Port of Rotterdam website and Milieumonitoring Stadsregio Rotterdam.
- d. A brief description of the environmental management organization: website Port of Rotterdam and website DCMR.
- e. Some examples of environmental actions/ projects: website Port of Rotterdam and website Change Your Perspective.
- f. Contact information: annual report, website Port of Rotterdam

In future reapplications, the Port of Rotterdam Authority will show progress regarding the indicated, specific priorities (see Chapter 3).



## 8. Best practices

This chapter provides four examples of environmental measures which have been taken within the port of Rotterdam area to improve environmental conditions. These conditions also contribute to improving the way of life for the citizens in the region Rotterdam Rijnmond.

### 8.1 Sustainable incentives for shipping

Air quality and deposition of classical pollutants may block developments in port areas. Stricter standards for the emissions of NO<sub>x</sub>, soot and CO<sub>2</sub> applicable to all or new built vessels is a good start for getting a cleaner fleet in our port. Beside this the Port of Rotterdam Authority is of the opinion that ship operators that invest in clean technologies or running on cleaner fuels should be rewarded. For seagoing vessels and barges the port of Rotterdam has separate incentive programs.



Since January 1, 2011, clean seagoing ships with a score 31 points or more on the Environmental Ship Index (ESI) receive 10% discount on the GT section of their port dues in the port of Rotterdam. Ship owners can register their vessels for an ESI score on the website of the World Climate Initiative (under the auspices of the IAPH): [esi.wpci.nl](http://esi.wpci.nl). The ship agents receives the discount every quarter. The agent or broker is responsible for making the discount over to the

ship's owner. In 2013 1.8M€ was paid for vessels with an ESI score of 31 or more. 4.7% of calling vessels received such discount in 2013.

Since January 1, 2012 the Port of Rotterdam Authority also introduced an environmental differentiation in the port dues for inland navigation:

category	Standard	individual vessels in 2013
1	Ships with engines that do not meet the CCNR II emission requirements (+10%)	3,537
2	Ships with engines that do meet the CCNR II emission requirements (0%)	354
3	Ships with a valid Green Award Certificate (-15%)	451
4	Ships with engines that are more than 60% cleaner than the CCNR II emission requirements (-30%)	17

Environmental Aspects involved: both incentive programs focusing on the benefits for air quality, mainly NO<sub>x</sub> and soot emissions.

Stakeholders involved:

- International Association of Ports and Harbors/World Port Climate Initiative
- Expertise and Innovation Centrum Barges
- Green Award Foundation

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Website:

Incentive program seagoing vessels:

<http://www.portofrotterdam.com/en/Shipping/harbour-dues/Pages/Apply-ESI-discount.aspx>

IAPH website for Environmental Ship Index: [esi.wpci.nl](http://esi.wpci.nl)

Incentive program inland navigation:

<http://www.portofrotterdam.com/en/Shipping/harbour-dues/Pages/harbour-dues-inland-shipping.aspx>

## 8.2 We-Nose Network

Both the city and port strive towards a healthy, safe and attractive living environment. This means growth and development of the port and city whilst the (environmental) preconditions become more stringent and environmental contours even shrink. That demands more than just complying with laws and regulations. And that applies to all of us: the public and private sector, and local residents. One of the tasks is to limit and reduce the (perceived) nuisance caused by port activities, among other things. One of the main sources of nuisance is stench.

The We-nose network can:

- spot incidents early
- adequately control odour nuisance
- more accurately indicate nature and location
- provide a handle on nuisance and perception of nuisance
- work pro-actively on safety and health
- give shape to 'growing in balance with the environment'
- act objectively during incidents and supervision

An e-nose is an electronic nose: a measuring instrument that indicates in real time the location, nature and intensity of industrial emissions of substances. An e-nose is a so-called anomaly detector. This means that deviations from a base line (background) are indicated. The e-nose consists of four sensors, which together react to a gas mixture. The resulting signal does not give absolute concentrations.



Every gas mixture produces a specific fingerprint, on the basis of which the e-nose can distinguish between different gas mixtures, including those responsible for odour. In this way, the e-nose can 'learn' which mixture is responsible for which odour. The data library for these fingerprints is still growing, as are the accompanying alarm levels.

It is a fact that an e-nose measuring network (We-Nose) is useful and necessary, not only because of the social impact on the themes safety, health and quality of life for the Rijnmond region, but also due to the impact on business operations in industry, supervision and regulations. The Port of Rotterdam Authority wants to be at the forefront of this development and has taken the initiative in realising a region-wide network of sensors (now approximately 300 sensors).

**Environmental Aspects involved:** The e-nose is an innovative instrument, enriching and supplementing existing tools, such as the air measurement network. E-noses detect real-time changes in the composition of the air. The human senses cannot detect all gases. The e-nose can, however. Some gas mixtures are dangerous or a nuisance. A network of e-nose sensors in the area provides a good picture of the air composition and how this changes in terms of its nature, place and time (for industry and transport).

**Stakeholders involved:** cooperation is the success factor of the network. The e-nose was the subject of a study into additional sensors for the air measuring network of the DCMR (Rijnmond Environmental Protection Agency). The DCMR concluded this study in 2013. One of the recommendations was the creation of a network of e-nose sensors with regional coverage. The Port Authority took up this challenge, purchased a basic network of 77 sensors and encouraged other parties to join in. Now the Rijnmond Environmental Protection Agency (DCMR), Safety Region Rotterdam Rijnmond (VRR), the Province of South-Holland (PZH), the Harbour Master of Rotterdam (DHMR), Deltalinqs, the Municipality of Rotterdam, the Municipality of Maassluis, Vopak and the Port of Rotterdam Authority are working together to realise an odour-measuring network. As a result, the network already consists of about 100 sensors.

For businesses, the network is particularly important in connection with activities on their own company premises. The sensor can make an active contribution to how processes are steered (production processes can be modified) and provides a direct view of the environmental nuisance caused by emissions into the air, including odour. In addition to sensors on a company's own premises, information is obtained from the network in the public space. For instance, it is possible to gain insight into the prevailing environmental nuisance in the surrounding area and the contribution the business process makes to this. Not only does the network result in a better interpretation of an undesirable emission, it is also important to companies that they can exclude themselves as perpetrator.

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### 8.3 Onshore power supply

What began as an initiative of the Port of Rotterdam Authority has grown into the standard for the use of on shore power supply in the Netherlands. Hundreds of inland waterway vessels use the over 500 quayside electricity connections on a daily basis in the port of Rotterdam. These connections are linked to the specially designed on shore power supply system. Connections for river cruise vessels are also linked to this system which is available in Dutch, German, English and French.



Onshore power supply makes diesel generators surplus to requirements. The electricity that the ports buy is green, making harmful (local) emissions a thing of the past. Onshore power supply also eliminates noise disturbance for both the skipper, his environment and the local residents.

Onshore power supply services are based on highly reliable, remote readable electricity meters which are placed along the quayside. The quayside electricity connections (400 Volt and 230 Volt) can be activated and deactivated remotely by skippers and consumption is registered and invoiced automatically on behalf of the ports. Onshore power supply is very user friendly, which makes coins or cards a thing of the past. The connections can, after registration on the website, be operated by mobile telephone (0900-1492), the onshore power supply app (available for Android and Apple) or via the website [www.walstroom.nl](http://www.walstroom.nl).

The use of power generators on inland vessels is not permitted at locations where on shore power supply is available. Hundreds of tons of NO<sub>x</sub> can be reduced by the use of onshore power supply which can result locally in an improvement of air quality of up to 0,5 ug/m<sup>3</sup> NO<sub>x</sub>. Now the Port of Rotterdam Authority is one of the partners in the onshore power supply initiative.

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Onshore power supply

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or Maurits Prinssen, contact details see §8.1.

## 8.4 Too good to waste – waste management at the Port of Rotterdam

Rising numbers of people, organisations and sectors are taking responsibility for their own waste – and that applies to the shipping industry too. The Port of Rotterdam Authority facilitates the efficient collection, transport and processing of waste: waste that we are becoming better and better at recycling.

The success of our waste policy is evident from the fauna and flora in the port, but we are not there yet. The enormous quantity of plastic in our oceans continues to grow, birds are dying and the food chain is under threat. The environment is becoming increasingly polluted.

The film 'Too Good to Waste' shows the problems we face and the solutions we are working on. The common theme of these solutions is that they help raise our awareness of the fact that, together, we can do something to fight the pollution of our oceans.



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Website film: <https://www.youtube.com/watch?v=wCO90lo1-GE&feature=youtu.be>





## Appendix 1 - Glossary of terms

**Environmental aspect:** Elements of the Port Authority's activities, products, or services which interact with the environment. Note: **Significant Environmental aspect:** A significant aspect is an aspect with a significant impact on the environment.

**Environmental impact:** Any change to the environment, whether adverse or beneficial, wholly or partially resulting from the Port Authority's activities, products or services

**Environmental management audit:** A systematic evaluation to determine whether or not the environmental management system and environmental performance comply with planned arrangements, and whether or not the system is implemented effectively, and is suitable to fulfil the Port Authority's environmental policy

**Environmental management system:** This covers the organizational structure, responsibilities, ways and means of implementing functional and effective environmental management. It ensures that the activities of the Port Authority, and their impacts, conform with environmental policy and associated objectives and targets. It includes the preparation and implementation of a documented system of procedures and instructions providing the basis for a programme of continuous environmental improvement.

**Environmental objective:** Overall environmental goal, arising from the environmental policy and significant environmental aspects, that the Port Authority sets itself to achieve, and which is quantified where practical. An explicit statement of what the Port Authority hopes to achieve e.g. to improve air quality in the port area, to reduce the environmental impact of ship waste

**Environmental policy:** Statement by the Port Authority of its intentions and principles in relation to its overall environmental performance which provides a framework for action and the setting of its environmental objectives and targets

**Environmental Review:** An initial comprehensive analysis of the environmental issues, impacts and performance related to activities in the port area

**Environmental targets:** A detailed statement, usually quantified within a defined time frame, of measures by which it can be confirmed that specified objectives have been met. e.g. Objective: to improve the quality of harbour seawater near public beach. Target: compliance with EU Directive on Bathing Water Quality Standard. Or, comply with water quality standards by the year 2005, or, to reduce Sulphur Dioxide emissions from ships by 20-% in five years

**Issue:** A generic term for all natural and commercial resources, environmental impacts, and user/operator conflicts relevant to management

**Operational control:** Operational control consists of planned responsibilities, training needs, resources, control measures and information and further, if necessary, instructions, procedures and monitoring. This is to ensure that the activities are carried out in line with legal and other requirements.

**Performance Indicator:** An environmental performance indicator is an information tool that summarises data on complex environmental issues to show the overall status and trends of those issues, and measures the success of environmental policies in achieving their desired results.

**Screening for significance:** can be based on legal requirements, policy statements and risk analysis of the impact of the aspect. If an impact is regarded to be significant (e.g. opinion of stakeholders), the aspect has to be regarded as significant.

**Significant Environmental aspect:** A significant aspect is an aspect with a significant impact on the environment.

**Stakeholders:** Individual or group concerned with or affected by the environmental performance of an organisation, e.g. local community, government, employees, clients, authorities.

## Appendix 2 – Checklist of major environmental issues

Source : ESPO / EcoPorts Port Environmental Review 2009

1. Noise
2. Air quality
3. Garbage/ Port waste
4. Dredging: operations
5. Dredging: disposal
6. Dust
7. Relationship with local community
8. Energy Consumption
9. Port development (water related)
10. Port development (land related)
11. Ship waste
12. Climate change
13. Conservation areas
14. Environmental Risk Assessment
15. Ship discharge (sewage)
16. Cargo Spillage (handling)
17. Sediment contamination (marine)
18. Water Quality
19. Bunkering
20. Vehicle exhaust emissions (including cargo handling)
21. Hazardous cargo (handling/storage)
22. Soil contamination (land)
23. Ship discharge (bilge)
24. Rain water treatment
25. Habitat/Ecosystem loss (water)
26. Contaminated land
27. Industrial effluent to water
28. Antifouling paints
29. Ship exhaust emissions
30. Habitat/Ecosystem loss (land)



*Port Environmental Review System (PERS) for the port of Rotterdam*

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## Appendix 3 – References

**Port of Rotterdam Authority Annual report 2013:**

<https://www.portofrotterdam.com/en/port-authority/finance/annual-report>

**Port of Rotterdam Authority Annual report 2014 (only available in Dutch):**

<http://jaarverslag.portofrotterdam.com/>

**Port Vision 2030**

<https://www.portofrotterdam.com/sites/default/files/upload/Port-Vision/Port-Vision-2030/index.html>

**Port Compass 2030**

<http://portcompass2030.com/?lang=true/>

**Progress report Port Compass 2030, including indicators (State of the Port)**

<https://www.portofrotterdam.com/en/downloads/factsheets-brochures/portcompass-2030>

**Port Statistics 2014:**

<https://www.portofrotterdam.com/sites/default/files/upload/Port-Statistics/Port-Statistics/index.html>

**Environmental Monitoring region Rotterdam (MSR) 2013 and trend report 2014:**

<http://www.msronline.nl/>

**Change Your Perspective (powered by Port of Rotterdam Authority):**

<http://www.changeyourperspective.com/>