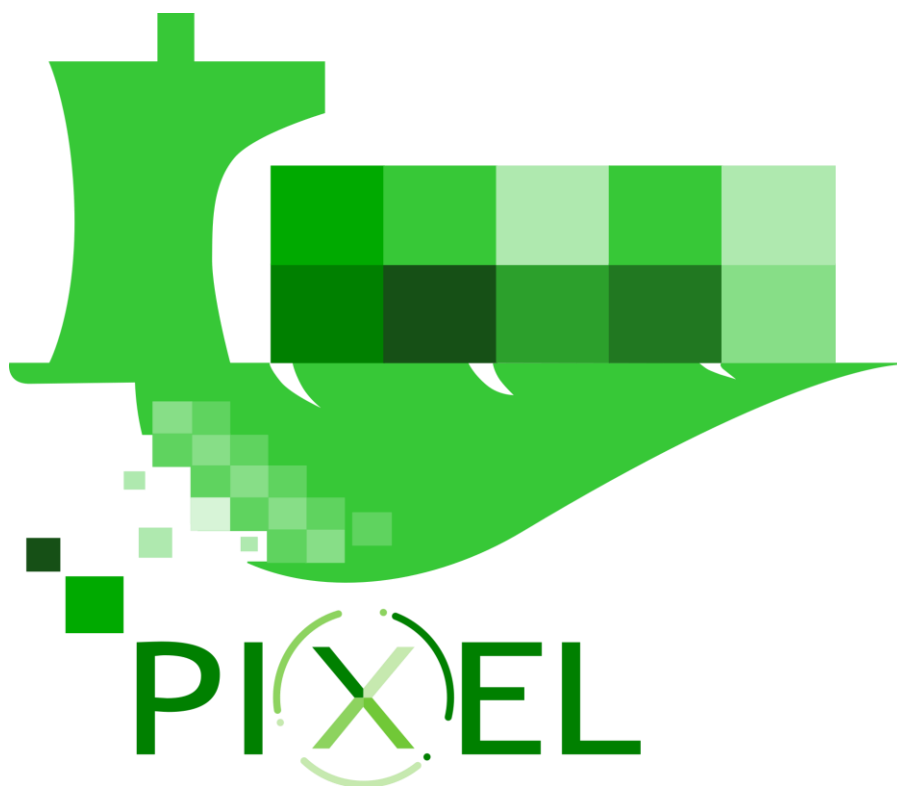


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## **D5.4a Questionnaire to TEN-T ports**

## Introduction

The present questionnaire aims at collecting responses to provide answers to the following questions:

1. Which are the environmental impact and resource consumption metrics currently used by European ports and port terminals?
2. How is data collected to feed the above metrics and with which frequency?
3. Which are the main problems faced in introducing and operating a port environmental impact measurement system?
4. To what extent are environmental impact measurements shared with actors outside the port/terminal?
5. To what extent are environmental-related data shared among actors within the scope of the same port? (e.g. private terminal operator with port authority)
6. To what extent do ports/terminals use any industry benchmarks for assessing their environmental performance?

Each of these questions is addressed in the following sections.

**If you prefer to fill-in an electronic version of this questionnaire, this is available at**  
**<https://www.xxxxxxxx>**

## Respondent details

<b>Port name:</b>			
<b>Country:</b>			
<b>Organisation type:</b>	Port Authority <input type="checkbox"/>	Port terminal operator <input type="checkbox"/>	Both <input type="checkbox"/>
<b>Person filling the questionnaire:</b>	Name:	Position:	

## Question 1

Which metrics do you currently use for assessing the environmental impact and resource consumption of your port/terminal?

Environmental impact area		
Emissions to the atmosphere	Metrics being used	
GHG emissions	Total CO <sub>2</sub> equivalent or GHG emissions <input type="checkbox"/>	CO <sub>2</sub> or GHG emissions - Scope 1 <input type="checkbox"/>
	CO <sub>2</sub> or GHG emissions - Scope 2 <input type="checkbox"/>	CO <sub>2</sub> or GHG emissions - Scope 3 <input type="checkbox"/>
	Average CO <sub>2</sub> or GHG emissions / throughput (per tonne or per TEU) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Particulate Matter (PM)	PM <sub>10</sub> concentration (µg/m <sup>3</sup> ) <input type="checkbox"/>	Number of exceedances of maximum 24-hour limit of PM <sub>10</sub> <input type="checkbox"/>
	PM <sub>2.5</sub> concentration (µg/m <sup>3</sup> ) <input type="checkbox"/>	Sedimentable particles concentration (mg/m <sup>2</sup> ) <input type="checkbox"/>
	Number of exceedances of daily limit of particulate matter <input type="checkbox"/>	Annual PM emissions (t) <input type="checkbox"/>
		Other (specify): <input type="checkbox"/>
NO <sub>x</sub> emissions	Annual total NO <sub>x</sub> emissions (t) <input type="checkbox"/>	NO <sub>x</sub> annual average concentration (µg/m <sup>3</sup> ) <input type="checkbox"/>
	Annual total NO <sub>x</sub> emissions from vessels in the port area (t) <input type="checkbox"/>	NO <sub>2</sub> annual average concentration (µg/m <sup>3</sup> ) <input type="checkbox"/>
	Number of exceedances of hourly limit value of NO <sub>2</sub> <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
SO <sub>x</sub> emissions	Annual total SO <sub>x</sub> emissions (t) <input type="checkbox"/>	Annual and/or monthly average concentration of SO <sub>2</sub> (µg/m <sup>3</sup> ) <input type="checkbox"/>
	Annual total number of exceedances of the daily limit value of SO <sub>2</sub> (125µg/m <sup>3</sup> ) <input type="checkbox"/>	Annual total number of exceedances the hourly limit value of SO <sub>2</sub> (350µg/m <sup>3</sup> ) <input type="checkbox"/>
	Annual total emission of SO <sub>2</sub> (kg or t) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Non-Methane volatile organic compounds (NMVOC) emissions	Annual total NMVOC emission from shipping (t) <input type="checkbox"/>	C <sub>6</sub> H <sub>6</sub> annual average concentration (µg/m <sup>3</sup> ) <input type="checkbox"/>
		Other (specify): <input type="checkbox"/>
Other air quality indicators	Annual total number of complaints regarding air quality <input type="checkbox"/>	Other (specify): <input type="checkbox"/>

Environmental impact area		
Waste production & wastewater discharge	Metrics being used	
Waste from ships	Total amount of ship waste collected by the port (t) <input type="checkbox"/>	Total amount of ship waste per type (hazardous/non-hazardous) (t) <input type="checkbox"/>
	Total amount of ship waste per type of handling (t) <input type="checkbox"/>	Total amount of ballast water received (Litres or m <sup>3</sup> ) <input type="checkbox"/>
	<input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Waste from ships per MARPOL category	Annex I: oily bilge water, oily residues (sludge), oily tank washings (slops), dirty ballast water, scale and sludge from tank cleaning (Litres or m <sup>3</sup> ) <input type="checkbox"/>	Annex II: cargo residues containing noxious liquid substances (NLS), ballast water, tank washings or other mixtures containing such substances (Litres or m <sup>3</sup> ) <input type="checkbox"/>
	Annex IV: sewage (Litres or m <sup>3</sup> ) <input type="checkbox"/>	Annex V: garbage, including plastics, food wastes, domestic wastes, cooking oil, incinerator ashes, operational wastes, etc. (Litres or m <sup>3</sup> ) <input type="checkbox"/>
	Annex VI: ozone-depleting substances & equipment containing such substances, & exhaust gas cleaning residues (Litres/m <sup>3</sup> ) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Port wastewater	Percentage of service area surface that has wastewater collection and is connected to the municipal collector or a Waste Water Treatment Plant (%) <input type="checkbox"/>	Percentage of service area surface that has a wastewater collection network (regardless of where it is discharged or if it is treated) (%) <input type="checkbox"/>
	Percentage of the service area surface that has its wastewater discharged into septic tanks (%) <input type="checkbox"/>	Annual total volume of wastewater produced by the port or discharged in port collectors broken down by wastewater type (Urban/ Industrial/ Mixed) (m <sup>3</sup> , % of total wastewater) <input type="checkbox"/>
	Annual total volume of wastewater produced by the port or discharged in port collectors broken down by destination (Municipal collector/ Septic tanks/ Own treatment/ Other) (m <sup>3</sup> , % of total wastewater) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Port waste	Annual total quantity of collected floats by the cleaning service (kg, t, m <sup>3</sup> ) <input type="checkbox"/>	Port waste production (t) broken down by type (Hazardous/Non-hazardous) (t, % of total waste) <input type="checkbox"/>
	Port waste that has been segregated (% of total port waste) and recovered (% of total port waste), broken down by type (Solid Urban/Hazardous/Oils): <input type="checkbox"/>	Port hazardous waste production broken down by detailed waste type (e.g. batteries, fluorescent) (t, % of total hazardous waste) <input type="checkbox"/>
	Port non-hazardous waste production broken down by detailed waste type (e.g. glass, paperboard, organic) (t, % of total non-hazardous waste) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>

Environmental impact area		
<b>Noise</b>	<b>Metrics being used</b>	
	Annual total number of complaints related to noise produced by the port operations <input type="checkbox"/>	Annual/Campaign average sound levels in the day, evening and night period ( $L_{DEN}$ ) (dB(A)) <input type="checkbox"/>
	Annual/Campaign average sound levels in the night period ( $L_{night}$ ) (dB(A)) <input type="checkbox"/>	Annual total number of exceedances of noise limits day and/or night <input type="checkbox"/>
	<input type="checkbox"/>	Other (specify): <input type="checkbox"/>
<b>Dredging</b>	<b>Metrics being used</b>	
	Annual total volume of dredged materials ( $m^3$ ) <input type="checkbox"/>	Annual total volume of each type of dredged material, according to the dredging guidelines of CIEM (Spanish ports) <input type="checkbox"/>
	Annual total volume of contaminated dredged materials (categories II & III of CEDEX guidelines – Spanish ports) <input type="checkbox"/>	Percentage of contaminated dredged materials on the total dredged materials <input type="checkbox"/>
	<input type="checkbox"/>	Other (specify): <input type="checkbox"/>
<b>Environmental incidents</b>	<b>Metrics being used</b>	
	Annual total number of incidents that required the activation of Maritime Plans for pollution emergency response <input type="checkbox"/>	Annual total number of incidents that required the activation of Maritime Plans for pollution emergency response, split by response type <input type="checkbox"/>
	Annual total number of water contamination incidents <input type="checkbox"/>	Annual total quantity of spills (Litres) <input type="checkbox"/>
	<input type="checkbox"/>	Other (specify): <input type="checkbox"/>

Resource consumption area		
<b>The resource consumption metrics reported below, refer to:</b> the Port Authority only: <input type="checkbox"/> the port area as a whole (including port operators and tenants): <input type="checkbox"/>		
Energy	Metrics being used	
Total energy	Annual total energy consumption by the port (KWH, MWh, GJ, PJ) <input type="checkbox"/>	Annual average total energy consumption by the port per throughput (KWH /t, GJ/t of cargo) <input type="checkbox"/>
	Annual total energy consumption in the port area (MWH) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Electricity	Annual total electricity consumption by the port (KWH, MWH, GJ, % of total energy) <input type="checkbox"/>	Annual average electricity consumption per port service area (KWH/m <sup>2</sup> ) <input type="checkbox"/>
	Annual total electricity consumption by the port, per use (KWH, MWH, % of total electricity) <input type="checkbox"/>	Annual total electricity consumption by the port, per source type (green/conventional) (GJ, % of total electricity) <input type="checkbox"/>
	Annual total electricity consumption in the port area (MWH, GJ) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Fuel	Annual total fuel consumption by the port (l, m <sup>3</sup> , t, MWH, KWH, GJ, % of total energy) <input type="checkbox"/>	Annual total consumption of fuel by the port, per type (KWH, MWH, GJ, l, m <sup>3</sup> , t, % of total fuel energy) <input type="checkbox"/>
	Annual total consumption of fuel by the port, per use (KWH, % of total fuel energy) <input type="checkbox"/>	Annual average fuel consumption per port service area (KWH/m <sup>2</sup> ) <input type="checkbox"/>
	Annual average fuel consumption by the port per throughput (l/1000t or l/t, KWH/1000t of cargo) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Heating energy	Annual total heating and/or cooling energy consumption by the port (GWH, KWH, % of total energy) <input type="checkbox"/>	Annual total heating energy consumption in the port area (MWH) <input type="checkbox"/>
	Annual average heating energy consumption by the port per throughput (KWH/1000t of cargo) <input type="checkbox"/>	Annual average heating energy consumption by the port per building area (KWH/m <sup>2</sup> ) <input type="checkbox"/>
	<input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Water	Metrics being used	
	Annual total water consumption at the port (m <sup>3</sup> ) <input type="checkbox"/>	Annual average water consumption at the port per service area (m <sup>3</sup> /m <sup>2</sup> ) <input type="checkbox"/>
	Efficiency of water supply network = Water volume purchased by the PA / water volume consumed by the PA and port tenants (%) <input type="checkbox"/>	Total water consumption at the port per type of use (m <sup>3</sup> , % of total consumption) <input type="checkbox"/>
	Annual total water consumption in the port area (m <sup>3</sup> ) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
Land use	Metrics being used	

	Percentage of the terrestrial service zone that is occupied by the active installations, whether these are owned or under concession or authorisation (%) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
<b>Materials</b>	<b>Metrics being used</b>	
	Annual total consumption of paper by the port (t, kg, A4/employee, number of sheets, t/employee) <input type="checkbox"/>	Annual total number of printed copies and photocopies
	Consumption of excipients broken down by type (e.g. grease, lubricants, hydraulic oils, engine oils, paint) (kg, kg/1000t of cargo) <input type="checkbox"/>	Other (specify): <input type="checkbox"/>



## Question 2:

**How do you capture data for the environmental impact and resource consumption metrics being used and how often?**

Emissions to atmosphere	Data collection methods used	Data collection frequency			
GHG emissions	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
Particulate Matter (PM)	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
NOx emissions	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
SOx emissions	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>

		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
O3 pollutants	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
NMVOC	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				

Waste production & wastewater discharge	Data collection methods used	Data collection frequency			
		Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
Waste from ships	Manually, by compiling information through FAL forms	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Continuously (per ship call)	<input type="checkbox"/>
				Other (specify):	
	Automatically, by receiving information through a PCS/TOS <sup>1</sup>	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
Other (specify):					
Port wastewater	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
Port waste	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	

<sup>1</sup> Port Community System / Terminal Operating System

	Other (specify):			

Noise	Data collection methods used	Data collection frequency			
	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				
Dredging	Data collection methods used	Data collection frequency			
	Manually, through on-site measurements	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Automatically, through installed IoT sensors	Continuously (online)	<input type="checkbox"/>	Other (specify):	
	No data capture, calculation using emission factors (proxy data)	Once per year	<input type="checkbox"/>	Twice per year	<input type="checkbox"/>
		Monthly	<input type="checkbox"/>	Other (specify):	
	Other (specify):				

## Question 3:

Based on your experience, which are the main problems faced in introducing and operating a port environmental impact measurement system?

Problems	Significance of problems faced				
	Not significant	Slightly significant	Fairly significant	Significant	Very significant
Lack of automated data collection					
Lack of a standardised list of metrics					
Other (specify):					
Other (specify):					
Other (specify):					
Other (specify):					
Other (specify):					

## Question 4:

**Do you share your environmental impact measurements with other actors/stakeholders?**

Environmental impact	Shared with	Through	
Emissions to the atmosphere	City / regional authority	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS <sup>2</sup> online <input type="checkbox"/>	Other (specify):
	Port users	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Citizens / NGOs	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
Waste & wastewater	City / regional authority	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Port users	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Citizens / NGOs	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
Noise	City / regional authority	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Port users	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Citizens / NGOs	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>

<sup>2</sup> Port Community System / Terminal Operating System

		A PCS/TOS online <input type="checkbox"/>	Other (specify):
Other (specify):	City / regional authority	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Port users	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):
	Citizens / NGOs	Ad-hoc meetings <input type="checkbox"/>	Permanent stakeholder committee <input type="checkbox"/>
		Press releases <input type="checkbox"/>	Annual sustainability reports <input type="checkbox"/>
		A PCS/TOS online <input type="checkbox"/>	Other (specify):



## Question 5

**Do you use any industry benchmarks to assess your environmental performance in comparison to them?**

<b>Environmental impact area</b>	<b>No benchmark is used</b>	<b>Yes, we use the following benchmark (please specify)</b>
Emissions to the atmosphere	<input type="checkbox"/>	
Waste production & wastewater discharge	<input type="checkbox"/>	
Noise	<input type="checkbox"/>	
Dredging	<input type="checkbox"/>	
Environmental incidents	<input type="checkbox"/>	
Other (specify):	<input type="checkbox"/>	
<b>Resource consumption area</b>	<b>No benchmark is used</b>	<b>Yes, we use the following benchmark (please specify)</b>
Energy	<input type="checkbox"/>	
Water	<input type="checkbox"/>	
Land use	<input type="checkbox"/>	
Materials	<input type="checkbox"/>	
Other (specify):	<input type="checkbox"/>	