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Guidelines for implementing an Environmental Management System (EMS) according to the PERS standard

Guidelines to support port authorities in Vietnam and Cambodia



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INTRODUCTION

This guideline book is created to assist Cambodian and Vietnamese port managers to develop an environmental management system (EMS) according to the requirements of the PERS standard. An environmental management system is a set of management processes and procedures that enables an organization to analyse, control and reduce the environmental impact of its activities, products and services and that enables it to operate with greater efficiency. PERS or Port Environmental Review System is a tool developed on behalf of the European Sea Port Organisation (ESPO) and the Ecoports Foundation. It defines a standard of good practice for reviewing and reporting significant aspects of a port's environmental management. PERS is based on ISO 14001: the international standard relating to environmental management systems.

The intent of this EMS guideline book is to develop a management approach specific to the environmental concerns of Vietnamese and Cambodian ports. The expected outcome of this approach is continual improvement in port's environmental management. Ports wishing to progress could apply for a PERS certificate.

The guideline book will assist ports in the preparation of an annual environmental report, it will establish a benchmark standard of environmental review for the port sector in Vietnam and Cambodia, by providing a unified methodology and it will encourage ports to network and to share experience and knowledge.

This document was prepared in the framework of the project "Establishing scientific support for ports in Vietnam and Cambodia". The project was executed in 2005 and was co-funded by the European Commission, in the framework of the Asia Pro Eco Programme. The main aim of the project was to strengthen capacity for environmental port and waterway related management. More information on the details of this project can be found at the website <http://www.indochinaecoports.org.vn>

ENVIRONMENTAL MANAGEMENT SYSTEM

Definition

An environmental management system is a problem identification and problem-solving tool that provides organisations with a method to systematically manage their environmental activities, products and services and to help to achieve their environmental obligations and performance goals.

It is a voluntary option for ports to implement an EMS. Many ports all over the world implemented EMS already and reported the benefits beneath:

- a) Cost saving and improved management control
 - Improved business systems and business management
 - Identify environmental (business) risks associated with ports
 - Help to highlight potential for cost saving
 - Greater competitiveness and efficiency
 - Reduced costs through waste minimization and energy efficiency
 - Better cost control
- b) Compliance with legislation
 - Appropriate response to legislative and regulatory pressure
 - Director's liability
 - Improved relationships and influence with regulators
- c) Meeting customer expectations
 - Meeting and pre-empting customer demands
 - Improved profile with customers
 - Marketing advantage
- d) Demonstration of commitment
 - Acknowledgement of leadership
 - Independent certification to show transparency of actions through external review (optional)
 - Enhanced perception of the company or authority
 - Improved stakeholder relationships
 - Increased confidence of investors, shareholders, banks and insurers
- e) Improved environmental performance
 - Continual minimization of environmental impacts
 - Improved control of environmental aspects
 - Better management of environmental issues
 - Raised staff awareness
 - Support for planning and development applications, and other formal assessment

- f) Motivating the port authority towards Environmental Management
 - Confirmation of internal commitment
 - Help to ensure commitment and support for environmental management at all levels
- g) Integrated environmental management
 - Better integration of environmental policy into all the authority's functions
 - Enhanced status of environmental quality within the management process
 - More effective integration with safety, health and quality systems
- h) Monitoring
 - Promotes application of performance indicators to track efficiency of the management system and the actual quality of the physical environment
 - Provides 'early warning system' of potential problems

Guideline book for EMS

This manual is guidance for ports in Vietnam and Cambodia to implement an environmental management system (EMS).

The EMS described will be composed of 1) a port profile 2) an environmental policy 3) an environmental aspect register 4) documented responsibilities and resources 5) review of policy and legal requirements and 6) an environmental report.

This guideline book is therefore built of 6 sections, each detailing one of these six items. Each section in its turn is composed of an 'introduction', 'implementation guidelines' and 'PERS requirements'. The introduction gives a brief overview of the aim and the content of that section, while the 'implementation guidelines' give practical guidance on how to implement that part of the EMS.

The part 'PERS requirements' is inserted for ports wishing to apply for a certification of its EMS. These ports have to follow all 'PERS requirements' from section 1 to 6 (PERS requirements 1.0 to 1.5) and they have to complete section 1.6 of PERS, which is added in ANNEX A.

Relation guideline book – PERS

This guideline book for EMS is based on the requirements for PERS, the Port Environmental Review System, developed by the European Sea Port Organisation (ESPO) and the Ecoports Foundation. Table 1 gives the relation between the guideline book and the PERS.

For any question related to PERS, the Ecoports foundation can be consulted (foundation@ecoports.com)

Table 1: Comparison EMS guideline book - PERS

<i>Guideline book</i>		<i>PERS requirement</i>
Section 1	Port profile	1.0 Port profile
Section 2	Environmental policy statement	1.1 Policy Statement
Section 3	Register on environmental aspects, Legal requirements and Performance indicators	1.2 Environmental Aspects and Legal requirement
Section 4	Documented responsibilities and resources related to environmental aspects	1.3 Responsibilities and resources
Section 5	Conformity review of environmental policy and legal requirements	1.4 Conformity review
Section 6	Environmental report	1.5 Environmental review 1.6 Best Practices

Other requirements for PERS, besides those given in the table above, are given beneath:

- 1) The policy statement should be signed by a member of the board or senior manager of the port.
- 2) The Ecoports Foundation has to be contacted. They will advise you on the appropriate way to send your compiled documents.
- 3) An administration fee and a review fee have to be paid to the Ecoports Foundation (Details from www.ecoports.com).
- 4) A signed 'Declaration' has to be provided: A senior port manager must sign a declaration on behalf of the port authority that the information supplied in the PERS document is accurate and that the statements made reflect the actual situation in the port:

"On behalf of the Port of, I declare that the information provided, and the circumstances described in the PERS documents are accurate and based on the actual port situation. I further confirm that there are no resolutions of competent authorities to the effect that a violation of significant environmental regulations has been established and/or that there are no decisions in writing that have been made by the prosecuting authorities with regard to prosecution for any criminal offence or any violation of significant environmental regulations"

- 5) Include a copy of the Port Handbook or other relevant publications that may assist the reviewer in appreciating the nature and characteristics of your port and its location.
- 6) After analysis and approval by an independent external reviewer, successful applicants will be issued with a Certificate of Verification and a feedback report (All applicants will receive a summary report of the most important findings with respect to the conformity with the PERS standard).
- 7) In applying for the PERS certificate ports are encouraged to also contribute their examples of solutions to environmental issues to the ECOPORTS database (see Section 1.6 in Annex A). Completed Solutions Forms can be sent by E-mail to foundation@ecoports.com

SECTION 1: PORT PROFILE

Introduction [1] [2]

The purpose of the Port Profile is to examine the port and to provide information on:

- The port's location and cargo handling
- Main environmental aspects in the port area
- The port's environmental policy and programmes
- Port planning and development
- Environmental management and related issues

It aim to reveal

- The most significant environmental aspects
- The person responsible for the management of these aspects
- Legal and other requirements related to these environmental aspects
- Elements of an EMS that exist already
- Strengths and weaknesses of these elements

The information revealed will become the baseline to build an environmental management system (EMS) and to measure future progress.

Implementation guidelines

In Annex B, a Self Diagnosis for Environmental Performance (SDEP) is included. Completing the questions in this SDEP will allow scheduling a Port Profile.

It is recommended that a team completes the questions in the SDEP. This can be done through:

- Interviewing appropriate people in and around the port area: representatives from individual departments such as business, finance, commerce, public relations, engineering, surveying, administration, neighbours of the port, etc.
- Analysing existing documents (e.g. annual report or port handbook) and procedures dealing with environmental issues and collecting information about environmental aspects of the port's operations, products and services.

The following issues should be considered:

- The team that completes the SDEP can be exclusive in-house or it can include external experts. The experts needed are primarily from two fields: environmental impact assessment and environmental legislation.
- Completing the SDEP will involve interviews and field visits. Therefore, the team should ensure that persons interviewed schedule time out from their normal activities.

If there is any additional information on the port and its environment, then please indicate in the final section of the SDEP.

If you are unable to provide any of the information, or consider that the question does not apply to the situation in your port, then leave the question 'blank'.

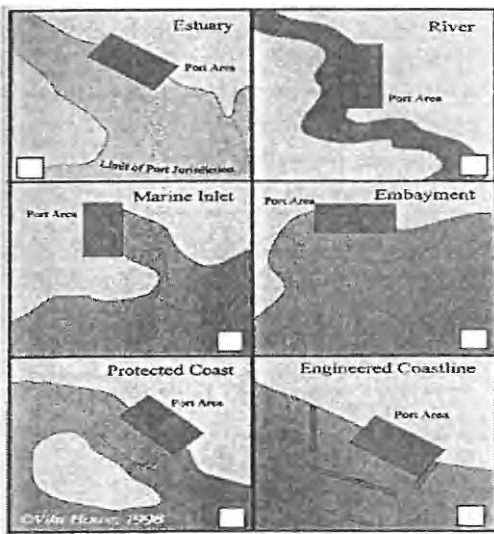
PERS requirements [3]

The template inserted on the next pages contain the format for 'Section 1.0' of PERS. Completing this template is the first step in the PERS.

The SDEP inserted in annex contains similar questions as compared to 'Section 1.0' of PERS, but it is more detailed. As such it allows getting a more detailed profile of the port and a broader basis for the start of implementing the EMS.

Format for Section 1.0: Port Profile

1. Legal Status and Port Operators			
What is the Port's legal position?	<input type="checkbox"/> Municipality <input type="checkbox"/> (other)	<input type="checkbox"/> State	<input type="checkbox"/> Private Company
Further detail:	.....	
Who is the owner of the land?	<input type="checkbox"/> Municipality <input type="checkbox"/> (other)	<input type="checkbox"/> State	<input type="checkbox"/> Private Company
Further detail:	.....	
Who operates the terminals?	<input type="checkbox"/> Public Companies <input type="checkbox"/> (other)	<input type="checkbox"/> Private Companies	
Further detail:	.....	
Who does the stevedoring?	<input type="checkbox"/> Public Companies <input type="checkbox"/> (other)	<input type="checkbox"/> Private Companies	
Further detail:	.....	
Who carries out cargo handling?	<input type="checkbox"/> Public Companies <input type="checkbox"/> (other)	<input type="checkbox"/> Private Companies	
Further detail:	.....	

2. Port Location and Port Area	
<p>Please tick the geographic setting of the Port:</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <div>  </div> </div> <p>Other location:</p> <p>Total quayage (m):</p> <p>Maximum draught (m):</p> <p>Tidal range (m):</p> <p>Further detail:</p>	<p>Please describe the area of the Port:</p> <p>Area of Port's land (km² or specify units):</p> <p>Further detail:</p> <p>Port jurisdiction limit onshore (km or specify units):</p> <p>Further detail:</p> <p>Area of Port's navigable water (km² or specify units):</p> <p>Further detail:</p> <p>Port jurisdiction limit offshore (nautical miles):</p> <p>Further detail:</p> <p>Length, largest vessel (m):</p> <p>Draught, largest vessel (m):</p>

2a. Use of Surrounding Land	
<input type="checkbox"/> Agricultural land	<input type="checkbox"/> Open water (lakes, rivers, reservoirs)
<input type="checkbox"/> Conservation / Protected Areas	<input type="checkbox"/> Urban / City
<input type="checkbox"/> Forestry / Woodlands	<input type="checkbox"/> Industry
<input type="checkbox"/> Nature	<input type="checkbox"/> Recreational
<input type="checkbox"/>	<input type="checkbox"/>
2b. Coastal and Marine Characteristics	
<input type="checkbox"/> Boulders	<input type="checkbox"/> Offshore Islands
<input type="checkbox"/> Cliff	<input type="checkbox"/> Offshore Banks
<input type="checkbox"/> Rocky foreshore	<input type="checkbox"/> Rivers
<input type="checkbox"/> Tidal flats (mud)	<input type="checkbox"/> Sandy Beach
<input type="checkbox"/> Sea Walls / Coastal defence	<input type="checkbox"/> Shingle Beach
<input type="checkbox"/> Dune Systems	<input type="checkbox"/> Salt Marsh
<input type="checkbox"/>	<input type="checkbox"/>

3. Port Business					
Tonnage: (million tons / year)	<input type="checkbox"/> 5<15	<input type="checkbox"/> 15<25	<input type="checkbox"/> 25<50	<input type="checkbox"/> 50< 100	<input type="checkbox"/> >100
Further detail:	.....			
TEU* –containers: (thousands / year)	<input type="checkbox"/> < 250	<input type="checkbox"/> 500<1000	<input type="checkbox"/> 2000<3000	<input type="checkbox"/> > 5000	
	<input type="checkbox"/> 250<500	<input type="checkbox"/> 1000-2000	<input type="checkbox"/> 3000<5000		
Further detail:	.....			
Passengers: (thousands / year)	<input type="checkbox"/> < 1000	<input type="checkbox"/> 1000<3000	<input type="checkbox"/> 3000<7000	<input type="checkbox"/> > 7000	
Further detail:	.....			

4. Main Commercial Activities and Cargo Handling			
Commercial Activities	Quantity **	Cargo Handling	Quantity **
<input type="checkbox"/> Aggregates (sand, gravel..)	<input type="checkbox"/> Dry bulk	.....
<input type="checkbox"/> Ship repair, marine engineering	<input type="checkbox"/> Liquid bulk (non oil)	.....
<input type="checkbox"/> Petroleum product processing	<input type="checkbox"/> Trade cars / Vehicles	.....
<input type="checkbox"/> Ro-Ro	<input type="checkbox"/> Perishable Goods	.....
<input type="checkbox"/> Marinas / Leisure	<input type="checkbox"/> Petroleum / Oil Products	.....
<input type="checkbox"/> Chemical Industry	<input type="checkbox"/> Roll-on, roll-off	.....
<input type="checkbox"/> General manufacturing	<input type="checkbox"/> General cargo	.....
<input type="checkbox"/> Fish market and processing	<input type="checkbox"/>
<input type="checkbox"/> Storage and packaging	<input type="checkbox"/>
<input type="checkbox"/> Refrigerated Cargo	<input type="checkbox"/>
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

5. Main Cargoes

Cargo	Tons/year	Cargo	Tons/year	Cargo	Tons/year
Petroleum:		<input type="checkbox"/> Timber	.....	Pyrites	
<input type="checkbox"/> Crude oil	<input type="checkbox"/> Wood products	.....	minerals:	
<input type="checkbox"/> Refined products***	Ores:		<input type="checkbox"/> Alumina	.....
<input type="checkbox"/> LNG (liq. nat. gas)	<input type="checkbox"/> Bauxite	<input type="checkbox"/> Cement	.....
<input type="checkbox"/>	<input type="checkbox"/> Coal	<input type="checkbox"/> Phosphates	.....
Dry Bulk:		<input type="checkbox"/> Iron ore	<input type="checkbox"/> Potash	.....
<input type="checkbox"/> Animal feed	<input type="checkbox"/>	<input type="checkbox"/> Pyrites	.....
<input type="checkbox"/> Chemicals	Liquid bulk (non-oil):		<input type="checkbox"/> Sulphur	.....
<input type="checkbox"/> Cocoa	<input type="checkbox"/> Liquid chemicals	<input type="checkbox"/>
<input type="checkbox"/> Coke	<input type="checkbox"/> Liquefied gases	.....	Other:	
<input type="checkbox"/> Grains	<input type="checkbox"/> Perishable liquids	<input type="checkbox"/> Cars	/
<input type="checkbox"/> Scrap (iron)	<input type="checkbox"/> Water	.....	vehicles	
<input type="checkbox"/> Soya	<input type="checkbox"/>	<input type="checkbox"/> Fish	.....
<input type="checkbox"/> Tapioca			<input type="checkbox"/> Fruit	.....
				<input type="checkbox"/> Livestock	.....
				<input type="checkbox"/>

6. Environmental Management

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

.....

How is environmental management organised in the Port? Does the Port have environmental review tools?

☐ Designated personnel:

If yes, how many employees:

- ☐ Environmental committee
☐ Environmental working group
☐ External consultants
☐ Environmental department

- ☐ Environmental management plan
☐ ISO 14000 certification
☐ EMAS certification

Is environmental responsibility defined at board level?

☐ Yes ☐ No

* TEU: container equivalent to 20 feet

** Please quantify if possible. (tons / year, number of activities in the port, units, km, etc.)

*** Refined oil products include fuel oils, kerosene, motor spirit, asphalt and bitumen.

LNG = Liquefied Natural Gas

Other remarks regarding the port:

.....

SECTION 2: ENVIRONMENTAL POLICY STATEMENT

Introduction [4]

The environmental policy statement is a written statement that forms the cornerstone of an EMS. It includes the port's intentions and principles in relation to its overall environmental performance and gives a framework for action against which the management system may be judged.

The board of directors is responsible for the initiation of the policy and for providing assistance to others who are given the task to develop the final policy. This final policy needs to contain statements of commitment to:

- Implement an environmental policy that is appropriate to the nature, scale and environmental impacts of its activities, products, or services.
- Comply with relevant local, national and international environmental legislation, regulations and requirements.
- Continual improvement of environmental quality, prevention of pollution and due regard for nature conservation.
- Provide a framework for setting and reviewing environmental objectives and targets
- Publish an annual report available to the public and consult adequately with the local community and relevant organisations on the environmental programme.
- Communicate the policy to employees and consult with the local community on the environmental programme.

Implementation guidelines

The port policy can be built as a set of specific statements. These statements can incorporate:

- A brief overview of the activities and services.
- A general statement of intent. This statement should outline the role of the port and how it proposes to maximize the opportunities presented by managing the environmental aspects of its activities.
- Statement on specific issues such as:
 - o How legal issues will be addressed
 - o How will be dealt with important environmental aspects
 - o How issues such as training and communication will be dealt with.
- A statement of what might be expected from external parties. These are companies, suppliers, contractors, etc. who are associated in the port area.

- A statement indicating how the management systems will be developed.

The final policy will depend on those items that were identified as important during the completing of the port profile.

In Box 1 and Box 2, an example of a port policy statement is given, with respectively the policies of the Associated British Ports and the Port of London Authority (PLA).

Box 1: Illustration of the implementation of an environmental policy in the Associated British Ports (ABP)

ABP's Environmental Policy [5]

It is our policy to manage our existing obligations to the environment in a responsible manner and to develop our ports and transport business to meet the needs of the country's trade in a way which has due regard to sustainable development for both our business and the environment.

This broad policy covers a number of particular issues. As part of our commitment to the environment, ABP undertakes to:

1. Manage our operations so as to be economically and environmentally sustainable. This involves not only complying with relevant legislation, but also adopting and promoting best practice and introducing robust environmental management mechanisms.
2. Identify, understand and prioritize all of the environmental risks inherent in our business, allocating the necessary resources to ensure that these risks are managed effectively and economically.
3. Operate our ports to meet the growing demand for trade and ensure the economic health of the country while having due regard for any adverse environmental effects arising from handling particular cargoes.
4. Promote an organisational culture where responsibility for positive environmental management is embraced by each individual, whatever their role or position
5. Develop the mechanism for reporting on our actions by setting and publishing targets against which our performance can be measured (see Indicators below)
6. Continue our work with environmental non-government organisations (NGO) in partnership towards shared objectives which benefit the environment
7. Use science and information to help us to understand the environment and its needs when making decisions.

Box 2: Illustration of the implementation of an environmental policy in the Port of London Authority [6].

The *Port of London Authority* (PLA) as a statutory harbour authority has environmental duties under the Harbours Act 1964. The PLA is also a competent authority under the Conservation (Natural Habitats &c.) Regulations 1994 and the Countryside and Rights of Way Act 2000. It is therefore a requirement for the PLA to ensure continuing compliance with environmental legislation (including the relevant EC Directives) and to take the environment into account in its actions and decisions.

The Government's policy paper, "Modern Ports", states that it is necessary to maintain an appropriate balance between the long-term protection of the environment and the securing of sustainable economic growth

Whilst ensuring continuing compliance with environmental legislation (including the relevant EC Directives) and taking the environment into account in its actions and decisions, the PLA must also give weight to appropriate and proportionate development plans and opportunities.

The PLA recognizes that a well-researched baseline understanding of the estuarine regime is necessary to provide the basis for effective, objective and scientific decision taking.

To this end, it is Board policy that the PLA shall:

1. Continue to work and build partnerships with regulators and NGOs, wherever there are areas of common interest.
2. Complete baseline environmental studies at locations of specific environmental sensitivity by the end of 2005.
3. Carry out a baseline environmental study for areas of lower environmental sensitivity between 2005 and 2006.
4. Continue to maintain oil pollution response resources for Tier 1 response at immediate notice and for Tier 2 at 4 hours notice.
5. Implement an environmental management system to assess the impacts of the port's activities on the environment, including the establishment of a suite of environmental indicators.
6. Report on and publish environmental indicators as part of an environment management system.
7. Formulate measures to mitigate the effects of spillages of hazardous and noxious substances.
8. Co-ordinate and oversee port facility waste management plans.
9. Follow best environmental practice in regard to its own activities, including the appropriate management of those parts its own estate within Special Protection Areas, sites designated under the Ramsar convention, Sites of Special Scientific Interest and other nature reserves.
10. Prepare and publish a Maintenance Dredging Framework, including guidance for berth operators and stakeholders, which will provide a decision making framework for the PLA's licensing of third party dredging and approval of its own dredging operations.

PERS requirements [3]

Box 3 contains an example for the Policy Statement as required by 'Section 1.1' of PERS. Ports can use this example to build their own policy, which is the second step in the PERS.

Box 3: Example for Section 1.1 of PERS: Policy statement

Port of

Environmental policy

Port of shall contribute to a long-term sustainable development by minimising the emissions to air, land and water in all our operations. The activities and services of the port concentrate on.....with associated environmental effects and impacts on.....

To minimise environmental effect and impact we shall:

1. Have an appropriate environmental management programme that guides and improves our environmental performance, focuses on prevention of pollution, and pays due regard to nature conservation.
2. Give all employees training on environmental issues and encourage them to actively regard the environment in their daily work.
3. Keep ourselves informed about, comply with, and as far as it is economically justified, exceed present environments legislation and other environmental requirements to which we subscribe.
4. Work to prevent environmental accidents and maintain a high level of preparedness to reduce the effects of any accidents or incidents that may occur
5. Use our resources as efficiently as possible and endeavour to reduce the use of energy and raw materials in proportion to the volumes handled, working towards the following specific goals.....
6. Demand products and services that in their production, utilisation and destruction/recycling minimise the negative environmental effects.
7. Influence, specify demands and co-operate with clients, suppliers, authorities and other participants, to fulfil our environmental policy and consult adequately within the local community and relevant organisations on their environmental programmes.
8. Periodically revise the environmental policy, taking due notice of the results from completed environmental audits and changes in future conditions.
9. Publish an annual report available to the public.

Signed by.....
Senior Manager
Port of

SECTION 3: REGISTER ON ENVIRONMENTAL ASPECTS, LEGAL REQUIREMENTS AND PERFORMANCE INDICATORS

Introduction

When the port profile and the environmental policy are drawn, then the next step in the port environmental management is to identify significant environmental aspects, legal requirements and performance indicators.

An environmental aspect is an element of the Port Authority's activities, products, or services, which interact with the environment. A significant environmental aspect is an aspect with a significant impact on the environment.

For each activity, product or service that is identified as a significant environmental aspect, legislation has to be checked. The aim is to manage the port in line with legal requirements.

To be able to report on the performance, environmental performance indicators have to be indicated. An environmental performance indicator should allow measuring the Port Authority's progress in achieving compliance with legislation and improving environmental quality through the actions on its environmental aspect. The indicator should provide information that demonstrates, over time, the effectiveness of the port's environmental management programme in attaining high grades of environmental quality standards through continuous improvement.

Implementation guidelines

A designated environmental coordinator has to contact a responsible person for each activity in the port. The environmental coordinator, together with this responsible, have to identify significant environmental aspects related to that activity.

How to identify a significant environmental aspect?

(1) The environmental policy normally commits to obey the law, to prevent pollution and to improve continually. (2) The port profile provided data on environmental aspects and impacts, including problems in the past and potential future problems. It also gives information on how the law applies to these problems. (3) The business plan for the next five years sets business priorities.

All the information given in these three documents needs to be balanced in order to select the significant environmental aspects.

The identification of significant environmental aspects should be repeated for each activity and each identified aspect should be included in an environmental aspect register. An example of an environmental aspect register is given in Table 2.

For each significant environmental aspect in Table 2, it has to be indicated which impact is related and who is the person in charge for this aspect. Besides this, the legal requirements have to be identified and possible solutions for the aspect should be added. In the last column of the register, an environmental performance indicator can be inserted.

Table 2: Example of an environmental aspect register

Significant environmental aspect	Impact on	Person in charge	Legislation + Other requirements	Possible solution	Environmental performance indicator
Operations oil terminal: Oil contamination in the water	Water, sediments	<ul style="list-style-type: none"> Safety, environment and quality manager Engineering department Updating information on legislation: administrative department 	<ul style="list-style-type: none"> Marpol 73/78 National Oil Spill response plan National standards for water quality Local standards for water quality 	<ul style="list-style-type: none"> Installing kerbing around the edge of an entire jetty and including drainage points on the surface of the wharf, connected by a storage tank, enables all spills to be collected for recycling/ disposal. A significant number of oil spills are caused by operator error, such as failing to close valves or overfilling tanks during transfer operations. Proper training of facility personnel can reduce the occurrence of operator-related spills and reduce the severity of impacts when a spill does occur. Maintenance of equipment Inspection of illegal dumping 	<ul style="list-style-type: none"> Records with number of oil spills / year Water quality (DO, pH, ...) Habitats and ecosystems
Port waste	Land, soil	Harbor master Updating information on legislation: administrative department	Marpol 73/78	<ul style="list-style-type: none"> A local waste contractor will be hired to pick up all the waste around the port once a month and he will take it for disposal. Separate collection of glass, paper, and batteries to be recycled by an external company. Re-use of wooden pallets. Charges on ships for waste reception facilities Establish a system for collecting data on waste collected, disposed and recycled 	<ul style="list-style-type: none"> Tons of waste collected by the contractor Tons of paper/glass collected each year Number of pallets re-used Ships waste statistics
Noise & Dust	Air	<ul style="list-style-type: none"> Plant manager Environmental manager 	Marpol 73/78 annex VI (emissions from ships) National standards for air quality	<ul style="list-style-type: none"> Invest in new machines that produce less noise. A buffer zone will be foreseen in the strategic plan. Planting of trees along the port boundary to prevent dust emissions leaving the port. Install a dust monitoring system 	<ul style="list-style-type: none"> Noise monitoring results Dust monitoring system
Lack of environmental knowledge	Precipitation, water, air, soil	Environmental manager		<ul style="list-style-type: none"> Specific training for environmental managers Workshops and training for all port staff Establishment of an environmental awareness team: interested port staff can join the team and give suggestions for environmental improvements (e.g. car pooling, recycling, energy saving, etc) Development of an intranet based environmental awareness system that introduces staff with the environmental issues faced by the port. 	Number of incidents/accidents

PERS requirements [3]

Table 3 contains an example for the Environmental Aspect register as required by 'Section 1.2' of PERS. Completing a similar table is the third step in the PERS.

Table 3 is similar to Table 2 and consists of 6 columns that have to be completed as following:

Column 1: A reference number for the aspects has to be given. A system of referencing can be chosen by the port.

Column 2: Add the significant environmental aspects (activity, products, service) with the main emissions/related issues/involved generated waste identified and group them by the (sub) departments, tenants or organisations responsible. Major aspects of tenants and organisations located in the port should be included if they contribute to the major environmental issues of the port. These aspects are important in performance control and emergency situations. Aspects of tenants and organisation in the port don't have to be recorded in as much detail as the ports own aspects.

Column 3: Add a general description of the impact(s): e.g. soil-, water-, air contamination, use of resources, energy, related, local issues and / or related to emergency situations.

Column 4: The person responsible for managing the aspect (ports own aspects) or the name of the organisation responsible (tenants and organisations) has to be indicated.

Column 5: Relevant legal and other requirements have to be indicated; e.g. a permit name and applicable chapter (number).

Column 6: In this column, additional information can be added.

Table 3: Example for section 1.2 of PERS "Environmental Aspect Register"

Environmental Aspect Register			Port of:		
1	2	3	4	5	6
Ref. Nr.	(sub) department, tenant, operators	Impact on	Responsible person / organisation	Legal and other requirements	Remarks
	Aspects				
	Port				
	Harbour Department				
H1	Bunkering-spillage of fuel	Land / soil	harbour master	Soil protection act, § 5-2	containment
H2	Ship movements-noise	Area nuisance	Harbour master	Permit 1, requirement 23	monitoring
H3	Ship movements-waste removal	Land / soil	harbour master	Permit 2, requirement 5,6,7	facility
H4	Ship discharge ballast-wastewater	water	harbour master	Permit 2, requirement 18	monitoring
	Maintenance Department				
M1	Dredging-sediment disposal	land / water	port engineer	Permit 2, requirement 8-12	bi-yearly
M2	Dredging-release of contaminants	water	Port engineer	Habitat law, § 4-3	bi-yearly
	Environmental Department				
E1	Port operations-noise	Area nuisance	environmental engineer	Port Noise Plan, section 4	monitoring
E2					
	Tenants and Organisations				
T1	Ship operators-noise	Area nuisance	"STAR shipping Inc."	Permit / noise capacity plan	monitoring
T2	Chemical tanks-wastewater	Water	"Big Chemicals Ltd."	Permit / water act	sewer outlet nr 5
T3	Chemical tanks-explosion risk	Total environm	"Big Chemicals Ltd."	Permit	Emergency plan
T4	Storage of bulk product-dust	Air / land	"Bulk & Co Ltd."	permit	monitoring
T5	Ship repair-noise	Area nuisance	"LV maintenance Ltd."	Permit / noise capacity plan	monitoring

SECTION 4: DOCUMENTED RESPONSIBILITIES AND RESOURCES RELATED TO ENVIRONMENTAL ASPECTS

Introduction

The environmental management system should be well documented. This is necessary to demonstrate the adequacy of the management structure and the responsibilities of the port personnel. Significant environmental impacts related to the job of each member of the port staff have to be described. Documents should also include roles and responsibilities of each staff member in achieving conformance with the environmental policy and requirements of the EMS.

Besides indicating responsibilities of port staff, the documents have to show which resources are specifically allocated to environmental management.

An external auditor will use these documents in case a request for certification is submitted.

Implementation guidelines

The environmental coordinator should draw an organization chart. This chart has to include different departments and their responsibilities towards the environment. An example of such a chart is given in Diagram 1.

The environmental coordinator should also draw a list with environmental responsibilities of key personnel. Key personnel are those people who are responsible for significant environmental aspects that are identified in section 3. Table 4 can be used to draw the list.

In a separate document, a description of the resources allocated to port environmental management has to be given. An example of such a description is: "In March 2005, x euros was spent to oil pollution abatement tools" or "In January 2006, x euro will be spend for waste collection from ships", etc.

All documents have to be updated regularly.

PERS requirements [3]

The template inserted in Diagram 2 contains an example for the organisation chart as required by 'Section 1.3' of PERS. Completing this chart is the fourth step in the PERS.

This fourth step also requires completing the first three columns of Table 4 (name, job title and department). The communication address is not required for PERS.

A third item that is required in this section of PERS is the description of resource allocation for environmental management.

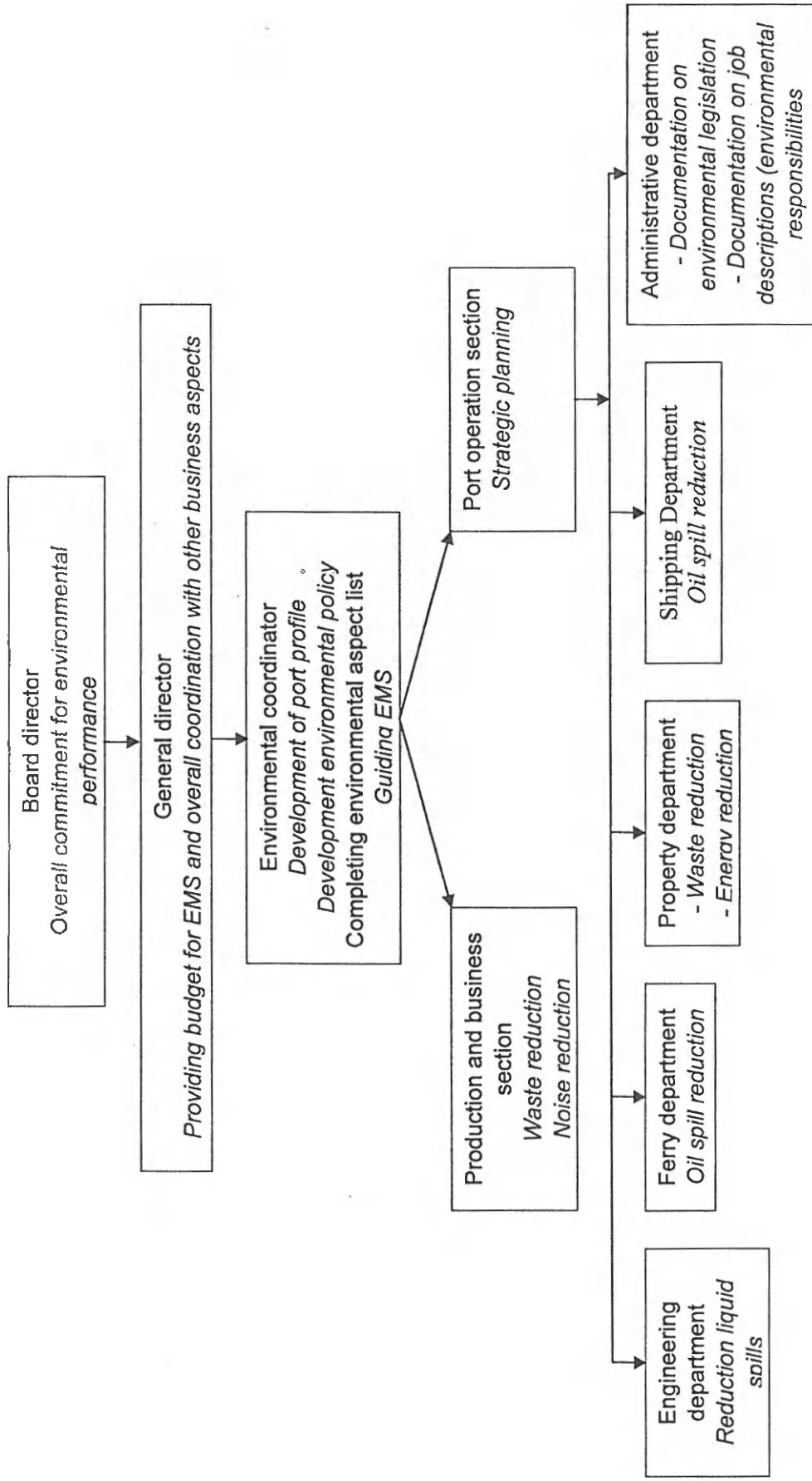


Diagram 1: Organisation structure of the port (*Environmental responsibilities in italic*)

Table 4: Environmental responsibilities of key personnel

Indicate the names of the responsible persons and his job title, as well as the department they are working in.

	Name	Job title	Department	Communication address
Port operations (dredging)				
Port operations (navigation)				
Port operations (shipping)				
Port operations (terminals)				
Cargo handling operations				
Jetty/wharf management				
Site management				
Strategic planning				
Supplies acquisition				
Operator licensing/permit				
Quality management				
On site contractor management				
On site conservation				
Emergency planning				
Waste management				
Marina/slipway management				
Environmental document management				
Environmental data management				
Soil pollution assessment				
Air quality monitoring				
Water quality monitoring				
Traffic manager				
Other:				
Other:				

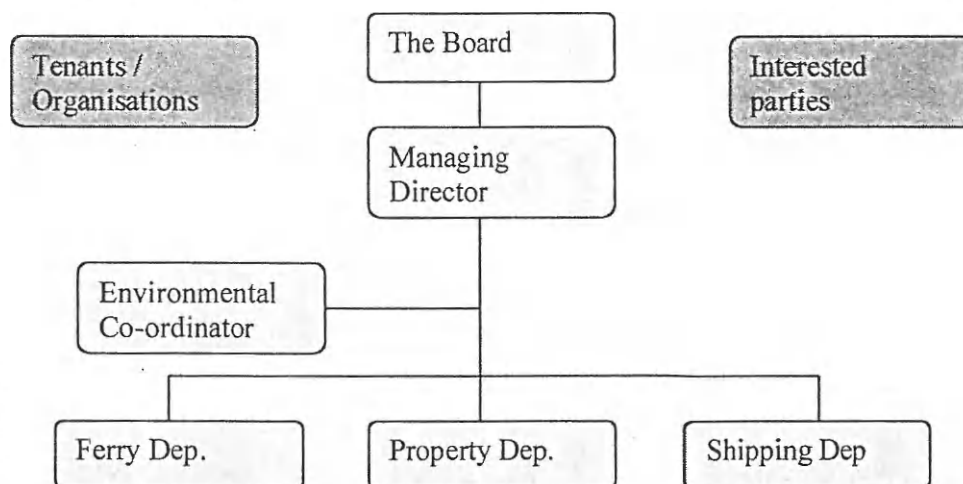


Diagram 2: Example for section 1.3 of PERS: Organization structure

SECTION 5: CONFORMITY REVIEW OF ENVIRONMENTAL POLICY AND LEGAL REQUIREMENTS

Introduction

The next step in environmental management is the review of the policy and the legal requirements. A periodic review is necessary to obtain an objective evaluation of the performance of the port, the management system and processes to protect the environment.

The main objectives of the review are:

- Determine whether the policy is properly implemented
- Review compliance with environmental legislation
- Identify areas for potential improvement of the EMS

The review can be carried out by both internal personnel as well as by external parties. In either case, the reviewer should be independent, objective and properly trained. As expertise is needed from various fields, teams generally carry out the review.

Based on the results of the review, the policy may be adapted and then, the EMS starts all over again. As such, continual environmental performance can be reached.

Implementation guidelines

- 1) To check whether the environmental policy is properly implemented, the reviewer has to check the environmental performance indicators set in the aspect register (section 3).
- 2) The reviewer also has to check relevant international, national and local legislation, regulations and guidelines and control compliance with it.
- 3) A summary of priorities for improvement should be made. Therefore, it is important to think of changes or planned changes in:
 - Legislation
 - Processes, materials, activities, infrastructure
 - Supplier, contactors
 - Staff, personnel, organizational structure
 - Environmental impacts

Based on this information, a new port policy can be set and new environmental aspects can be selected.

PERS requirements [3]

According to section 1.4 of PERS, a review document of 0,5 to 1 page is required. This report should discuss the legal compliance in general and it has to set priorities for actions that will allow to improve the port's performance towards the environment.

SECTION 6: ENVIRONMENTAL REPORT

Introduction

In a final stage, it is required to draw an environmental report. The aim of this report is to provide environmental information to all port staff, neighbours of the port and other interested stakeholders.

The report can be seen as an annual report, including details on environmental progress made in the passed year and it can include strategic plans for the future.

The benefits of this report is that the transparency of policy and actions will improve stakeholders' trust and it can be used for public relations and marketing.

Implementation guidelines

The information gathered during the preparation of the previous sections can be used to build the environmental report. The most efficient way to prepare the report is simply combining all the previous sections. Examples of sections that can build the report are:

1. Introduction on the location of the port, the import and export, number of containers handled, passengers, etc.
2. Environmental performance actions: waste management, oil spill prevention actions, trainings, workshops, etc.
3. Environmental information: water quality measurements, air quality measurements, amount of waste collected, amount of waste recycled, etc.
4. Incidents/accidents in the previous year compared with years before.

The port it selves can choose the format of the report.

PERS requirements [3]

Following on the review document, the next step required by PERS is an environmental report that is published at least every two years. The minimum requirements for the information in the environmental report is as follows:

1. A description of the nature and size of port activities (section 1.0 of PERS)
2. The environmental policy statement (section 1.1 of PERS)
3. An overview of major environmental aspects, impacts, and the port's performance on these issues (section 1.2 of PERS)
4. A brief description of the environmental management organization (section 1.3 of PERS)
5. Some examples of environmental actions / projects (section 1.4 and 1.6 of PERS)
6. Contact information of the port

REFERENCES

1. Christopher Sheldon and Mark Yoxon, *Installing environmental management systems: a step by step guide*, Earthscan publications Ltd, London, UK, 1999, p32.
2. Andreas Sturm, *ISO 14001 Implementing an Environmental Management System* (Version 2.02, 1997), Ellipson AG, 1998.
3. Ecoports Foundation & ESPO, *Port Environmental Review System – A methodology for implementing the recommendations of the ESPO environmental review*, version 2.0, 2003.
4. Raymond Martin, *ISO 14001 Guidance Manual*, National Centre for Environmental Decision Making Research, Technical report NCEDR/98-06, 1998, p18-19.
5. <http://www.abports.co.uk>
6. <http://www.portoflondon.co.uk>

ANNEX A: SECTION 1.6 OF PERS

Introduction

Port Authorities can demonstrate their competence in environmental management by providing examples of successful approaches to environmental issues or solutions to environmental problems that they have developed.

Examples of best practice are positive indications of the port management's ability to deliver environmental protection and sustainable development. They provide the reviewer with tangible evidence of achievement, and can contribute to the EcoPorts Foundation's database of port-sector derived solutions for the mutual benefit of participating port members (see www.ecoport.com)

The selection and choice of best practice examples and solutions to environmental problems is left to the discretion of the port itself. A reporting template can be found at the end of this section. Please sign the authorisation (Solution form Section 5) if you are willing for the examples to be added to the EcoPorts' database and thus shared with other port professionals.

Implementation guidelines

- Study the Solution form carefully and read through the notes attached to the template,
- Use the checklists in the notes to identify key words,
- Short, descriptive summaries can be used in each sub-section, but the more detail you give, the better the review assessment and the more value your contribution to the database,
- Time invested in completing this section can have added value because current or recent successes can be summarized for the Annual Report,
- Recognize the benefits of recording and sharing the port's achievements in terms of collaboration with other ports, public relations and demonstration of professional practice.

PERS requirements

Provide **two** examples of best practice or solutions, using the template provided on the next pages.

SOLUTION FORM

Port of:

1. Concern

Describe the original problem in detail by explaining the cause for concern, identifying the major issue and listing the related port activities.

For example, not possible to expand or develop port due to proximity of designated conservation area and the need for dredging, spoil disposal and associated engineering works problem of dust and impact on air quality associated with cargo handling and on-site storage...

2. Environmental Issue

Select issue details:

Air Quality

General
Industrial
Monitoring
Odours
Petroleum Industry
Ship Exhaust

- ☐ No Further Details
☐ Emissions
☐ No Further Details
☐ No Further Details
☐ Emissions
☐ Cargo Vessels
☐ Ferries
☐ Tankers

Vehicle Exhaust

- ☐ Freight Traffic
☐ Site Vehicles
☐ No Further Details
☐ Dry Bulk

Cargo

Spillage

- ☐ Run-off
☐ No Further Details

Dredging

Storage
Capital

- ☐ Monitoring
☐ Land
☐ Monitoring
☐ Sea

Disposal

- ☐ No Further Details
☐ Monitoring
☐ Aggregates

Dust

Cargo Handling & Storage

- ☐ Dry Bulk
☐ Grains
☐ Minerals
☐ Ores
☐ Other
☐ Solid Fuels
☐ Wood Products

Energy Use

General

- ☐ No Further Details

Environmental

General

- ☐ No Further Details

Management

Recycling

- ☐ No Further Details

Habitat Loss

Dock Yard Construction

- ☐ No Further Details

General

- ☐ No Further Details

Intertidal

- ☐ No Further Details

Land Reclamation

- ☐ No Further Details

Other

- ☐ No Further Details

Hazardous Cargo

General

- ☐ No Further Details

Storage

- ☐ No Further Details

- ☐ Run-off

Health & Safety	Transport	<input type="checkbox"/> No Further Details
	Emergency Planning	<input type="checkbox"/> No Further Details
	Employees	<input type="checkbox"/> Chemical
Noise		<input type="checkbox"/> Health
		<input type="checkbox"/> Noise
	Management	<input type="checkbox"/> No Further Details
	Public Health	<input type="checkbox"/> No Further Details
	Industrial	<input type="checkbox"/> No Further Details
	Monitoring	<input type="checkbox"/> No Further Details
	Other	<input type="checkbox"/> No Further Details
	Terminals	<input type="checkbox"/> Bulk
		<input type="checkbox"/> Cement
		<input type="checkbox"/> Containers
Port Development		<input type="checkbox"/> Liquefied Gases
		<input type="checkbox"/> Oil / Petroleum
		<input type="checkbox"/> Passengers / Ferry
		<input type="checkbox"/> Perishable Goods
		<input type="checkbox"/> Ro-Ro
		<input type="checkbox"/> Solid Fuels
		<input type="checkbox"/> Cars
		<input type="checkbox"/> Forklifts / Tugmasters
		<input type="checkbox"/> Freight (HGV / LGV)
		<input type="checkbox"/> No Further Details
Soil Contamination	Vessels	<input type="checkbox"/> No Further Details
	Zoning	<input type="checkbox"/> No Further Details
	Land	<input type="checkbox"/> No Further Details
	Local Communities	<input type="checkbox"/> No Further Details
	Residential Developments	<input type="checkbox"/> No Further Details
	Sea	<input type="checkbox"/> No Further Details
	Urban / City Growth	<input type="checkbox"/> No Further Details
	Zoning	<input type="checkbox"/> No Further Details
	Chemical Storage	<input type="checkbox"/> No Further Details
	Fuel Bunkering	<input type="checkbox"/> No Further Details
Traffic Volume	General	<input type="checkbox"/> No Further Details
	Industrial	<input type="checkbox"/> No Further Details
	Remedial / Cleaning	<input type="checkbox"/> No Further Details
	Spillage / Incidents	<input type="checkbox"/> No Further Details
	Congestion	<input type="checkbox"/> No Further Details
	General	<input type="checkbox"/> No Further Details
	Disposal	<input type="checkbox"/> Hazardous Waste
		<input type="checkbox"/> Liquid Waste
		<input type="checkbox"/> Solid Waste
		<input type="checkbox"/> Special Wastes
Waste		<input type="checkbox"/> No Further Details
	Fishery Waste	<input type="checkbox"/> No Further Details
	General	<input type="checkbox"/> No Further Details
	Industrial	<input type="checkbox"/> Hazardous Substances
		<input type="checkbox"/> Packaging
		<input type="checkbox"/> Scrap Metals
	Management	<input type="checkbox"/> No Further Details
	Marine Litter	<input type="checkbox"/> No Further Details
	Sewage	<input type="checkbox"/> Domestic
		<input type="checkbox"/> Industrial
Water Quality	Ship	<input type="checkbox"/> Ship
		<input type="checkbox"/> Garbage
		<input type="checkbox"/> Oily Waters
	Anti-Fouling Paints	<input type="checkbox"/> No Further Details
	General	<input type="checkbox"/> No Further Details
	Industrial	<input type="checkbox"/> Effluent
		<input type="checkbox"/> Thermal Discharges
	Monitoring	<input type="checkbox"/> No Further Details
	Oil Spills	<input type="checkbox"/> No Further Details

River Pollution Ship Discharge	<input type="checkbox"/> No Further Details <input type="checkbox"/> Ballast Water <input type="checkbox"/> Bilge Water <input type="checkbox"/> General <input type="checkbox"/> Sewage <input type="checkbox"/> Garbage <input type="checkbox"/> Hull Flushing <input type="checkbox"/> Oily Mixtures
Urban Waste Water Waterfront Drainage	<input type="checkbox"/> No Further Details <input type="checkbox"/> General <input type="checkbox"/> Rainwater <input type="checkbox"/> Spillage
Other: Describe:	
<div style="border: 1px solid black; height: 50px;"></div>	

3. Motivation

Detail the reason for response to the concern by ticking the appropriate key word(s) and adding further explanation

- ☐ Legislation
- ☐ Port/City development
- ☐ Costs
- ☐ Complaints
- ☐ Environmental Quality
- ☐ Other

For example:

Complaints from local community and pressure groups concerning storage of hazardous material and perceived potential threat of spillage and leakage to air and water courses...

4. Solution description

Identify the category of solution by ticking the keyword(s) that applies

- ☐ Managerial
- ☐ Technical
- ☐ Procedural
- ☐ Regulatory
- ☐ Financial
- ☐ Other

4.a Chosen solution

Give a brief description of the chosen solution

4.b Alternative solutions

Give description of any considered alternative solutions! Have these solutions been investigated?

4.c Evaluation criteria

Describe the evaluation criteria applied during the evaluation process

5. Solution details

Give detailed descriptions of the chosen solution! According to the project proposal the detailed description is proposed to contain at least 500 words. Give technical details and process conditions. If it is a managerial solution please subscribe the organisational conditions, management systems and administrative conditions. If available, refer to further documentation (research reports, summary sheets, publications, supplier brochures, images, etc.). Attaching photos would be really useful!

Attached files:

6. Implementation / Time schedule

(Planned) Start date of implementation:

(Expected) End date of implementation:

Are there any aspects that require special attention? What was the planning and time schedule for the implementation? Were there any problems while executing the solutions?

7. Effectiveness / effects

Did the solution live up to your expectations? (If yes: how? If no: why not?) What were the quantitative effects of the solution (in kg, km², %, hours of time, etc.)? How is result of the solution monitored or registered? What were the qualitative effects of the solutions? What are the (dis)advantages of the solution? Is the chosen solution also applicable in other circumstances?

8. Costs

Provide a description of the costs and resources that were required to implement the solution in terms of time, training, finance, administrative effort, interruption to commercial activity etc. Give details of the investment, fixed cost and variable costs of the operation! Mention any specific problems encountered during implementation

9. Benefits

Describe the main benefits of implementing the solutions in terms of improvement of environmental quality, reduction in resource consumption, financial savings, improved public relations, increased efficiency of operations, protection of fauna, flora and habitat etc! Is the situation currently monitored?

10. Contact for information

Port of:

Contact name:

Job title/position

Postal address:

Telephone:

Fax:

E-mail:

Website:

Signed:

.....

On behalf of:

.....

ANNEX B: SELF DIAGNOSIS FOR ENVIRONMENTAL PERFORMANCE



Vrije Universiteit Brussel



UNIVERSITEIT VAN AMSTERDAM



Project

**ESTABLISHING SCIENTIFIC SUPPORT FOR ENVIRONMENTAL
MANAGEMENT FOR PORTS IN VIETNAM AND CAMBODIA**

VN/Asia Pro Eco/01(91168)

Co-funded by Asia Pro Eco Programme



**SELF DIAGNOSIS FOR
ENVIRONMENTAL PERFORMANCE
(SDEP)**

Contact details

- 1a. Name of Port:
- 1b. Country:
- 1c. Name of contact person:
- 1d. Contact Email address:
- 1e. Telephone contact person:
- 1f. Fax:
- 1g. Port Website address:

Introduction

This Self Diagnosis for Environmental Performance (SDEP) has been designed in the framework of the project “Establishing scientific support for environmental management for ports in Vietnam and Cambodia”. This project is co-financed by the European Commission, in the framework of the Asia Pro Eco Programme, - a European Community initiative to promote a cleaner, more resource efficient and sustainable solutions to environmental problems in Asia. The SDEP is developed by the Free University of Brussels (Belgium), with the assistance of the University of Amsterdam (The Netherlands), the Institute of Marine Environment and Resources (IMER) (HaiPhong, Vietnam), the Sub-institute of Geography in Ho Chi Minh City (Vietnam), the Port Authority of Phnom Penh and the port Authority of Sihanoukville (Cambodia).

The SDEP is based on an environmental survey, developed on behalf of the European Sea Ports Organisation and the Ecoports Foundation¹ and it is adapted according to the Asian situation.

The main aim of the tool is to assist port managers in the review of the environmental performance of their port. The questionnaire concentrates on the status of the port's environmental management and aims to review the way the port authority is now dealing with significant environmental aspects. The SDEP can be completed by port managers and can then be used by them as the starting point for the implementation of the “Guidelines for implementing an Environmental Management System (EMS) according to the PERS system”, which is also developed in the framework of the above-mentioned project. As such, the implementation of these two tools will lead to an improved environmental performance of the port.

For any question relating to completing this document, the Human Ecology Department of the Free University of Brussels may be contacted:

human.ecology@vub.ac.be

Prof. L. Hens, L. Verbeeck, Q. Le Xuan



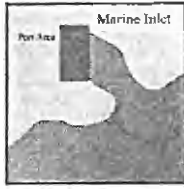
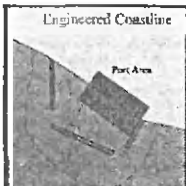


Laarbeeklaan 103, 1090 Brussel, Belgium

The quality and usefulness of the present version of the SDEP will be improved according to the feedback from users.

¹ www.espo.be/publications

PART 1: PORT DESCRIPTION

2. Please indicate the location of your port by ticking the appropriate box.

<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 

3. Please state Annual Total Tonnage for all commodities.

<input type="checkbox"/> < 0.5 million tonnes	<input type="checkbox"/> 3 – 5 million tonnes
<input type="checkbox"/> 0.5 – 1 million tonnes	<input type="checkbox"/> 5 – 10 million tonnes
<input type="checkbox"/> 1 – 3 million tonnes	<input type="checkbox"/> > 10 million tonnes

4. Please state Number of Passengers (people/year)

<input type="checkbox"/> None	<input type="checkbox"/> 5,000 – 10,000
<input type="checkbox"/> < 1,000	<input type="checkbox"/> 10,000 – 50,000
<input type="checkbox"/> 1,000 – 3,000	<input type="checkbox"/> > 50,000
<input type="checkbox"/> 3,000 – 5,000	

5. Please indicate the volume of cargo in TEU in last 5 years.

YEAR				
TEU				

6. Please specify the commercial activities of your port (left column) and the types of cargo handled (right column). For the cargo handled, please quantify.

Port Area Commercial Activities	Cargo Handling Please indicate units (e.g. million tons, TEUs)	Quantity
<input type="checkbox"/> Aggregates (sand, gravel...)	<input type="checkbox"/> Aggregates (sand, gravel...)	.....
<input type="checkbox"/> Ship repair, marine engineering	<input type="checkbox"/> Dry bulk	.....
<input type="checkbox"/> Petroleum product processing	<input type="checkbox"/> Liquid bulk (non oil)	.....
<input type="checkbox"/> Ro-Ro	<input type="checkbox"/> Semi bulk	.....
<input type="checkbox"/> Marinas / Leisure	<input type="checkbox"/> Trade cars / Vehicles	.....
<input type="checkbox"/> Chemical Industry	<input type="checkbox"/> Perishable Goods	.....
<input type="checkbox"/> General manufacturing	<input type="checkbox"/> Petroleum / Oil Products	.....
<input type="checkbox"/> Fish market and processing	<input type="checkbox"/> Roll-on, roll-off	.....
<input type="checkbox"/> Storage and packaging	<input type="checkbox"/> General cargo	.....
<input type="checkbox"/> Refrigerated Cargo	<input type="checkbox"/> Containers	.....
<input type="checkbox"/> Other:	<input type="checkbox"/> Chemicals	.....
<input type="checkbox"/> Other:	<input type="checkbox"/> Other: .....	.....

PART 2: MAIN ENVIRONMENTAL ISSUES

7a. Which of the following issues are current problems related to activities within the port area? Please indicate the level of significance of each problem. Indicate with L for Low level, M for Medium Level and H for High level of significance.

ISSUE	Maritime traffic	Terrestrial traffic	Bunkering	Container handling	Dry Bulk	Liquid bulk	General cargo	Fishing activities	Port services, administration	Ship maintenance	Dredging, & disposal	Storage and	Hazardous cargo	Port development	Leisure activities	Other:
1. Air quality																
2. Antifouling paints																
3. Bunkering																
4. Cargo Spillage																
5. Cargo storage run off																
6. Conservation designations																
7. Contaminated land																
8. Dredging																
9. Dredging disposal																
10. Dust																
11. Energy Consumption																
12. Fisheries waste (land)																
13. Garbage/ Port waste																
14. Habitat loss/degradation																
15. Hazardous cargo																
16. Industrial effluent																
17. Industrial emissions																
18. Light pollution																
19. Noise																
20. Odours																
21. Pollution from rivers																
22. Port development (land related)																
23. Port development (water related)																
24. Risk of small oil spills																
25. Risk of spills from tanker accidents																
26. Risk from port industry activities																
27. Risk of traffic accidents (water)																
28. Risk of traffic accidents (on land)																
29. Other risks:																
30. Sediment contamination (marine)																
31. Ship discharge (ballast)																
32. Ship discharge (bilge)																
33. Ship discharge (sewage)																
34. Ship exhaust emissions																
35. Soil contamination																
36. Solid waste																
37. Surface run-off																
38. Traffic volume																
39. Vehicle exhaust																
40. Visual Impact																
41. Waster water																
42. Water quality																
43. Other(s) ... please state:																

7b. From the list that you have ticked, please RANK THE TOP 5 issues that you want to tackle by priority, (1 = the highest priority)

1 Highest priority
2
3
4
5 Lowest priority

7c. Concerning your 5 most important problems listed in 7b, which of the following information do you have about them? Please provide in each column briefly the information you have.

	Nature of the problem or concrete data?	Information on the source of the problem (the cause) "Environmental Aspect"	Information on the impacts of the problem	Information on possible solutions and costs to the problem	Information on the legal aspects of the problem
	Example: There is a high risk for oil spills	Example: The risk is caused by oil tankers visiting the port	Example: Impacts on water and substrate	Example: - An oil spill response plan has to be designed (costs: x euro) - Shipping routes have to be changed (costs: y euro) - Personnel needs training to avoid accidents (costs: z euro)	Example: In 2004, the government developed a new law that raises fines for oil spills, implements new safety standards, changes navigational rules and imposes a fee to establish fund for state and local oil spill response and training
1					
2					
3					
4					
5					

7d. Concerning your 5 most important problems listed in 7b, do you implement the following activities? If you do, please give a brief description in each column.

	Monitoring the problem. Please name the criteria monitored (frequency of monitoring, what is monitored).	Addressing the problem in port management plan. Please give name and date of the plan.	Assigning responsible person(s) to deal with the problem. Please give name and position.	Provide more information on the procedure to deal with the problem
	<i>Example:</i> - The yearly number of oil spills is monitored - The quantity of oil spilled is monitored	<i>An 'oil spill management plan' will be implemented from the first of January 2006.</i>	<i>The harbour master, Mr X (name) is responsible for the implementation of the 'oil management plan'. He will have assistance of 25 technicians.</i>	<i>The draft of the 'oil spill management plan' is added in attachment to this document.</i>
1				
2				
3				
4				
5				

PART 3: ENVIRONMENTAL POLICY AND PROGRAMMES

8a. Does your port experience difficulties in implementing environmental legislation due to any of the following factors? (Tick box)

- No difficulties ☐
- Costs/ Expense ☐
- Lack of Equipment ☐
- Lack of Training ☐
- Lack of Guidance ☐
- In-house skills shortage ☐
- Knowledge shortage ☐
- Priority given to environment ☐
- Identifying responsible external agencies ☐
- Identifying responsible person within the port ☐
- Multiplicity of agencies ☐
- Lack of information about legislation ☐
- Confusing information on legislation ☐
- Changes in national standards ☐
- Other(s), please state:
- Other(s), please state:

8b. Explain the problem(s) indicated above

.....

.....

9a. Does your port have an environmental policy? If yes, please attach the policy to this document and then go to question 10. If no, proceed 9b.

YES ☐ NO ☐

9b. Does your port plan to design an environmental policy? If yes, proceed to question 11b. If no, proceed to 14.

YES ☐ NO ☐

10. Does your port have a plan to put the policy into practice?

YES ☐ NO ☐

11a. If you have a policy, then please indicate in column A what is included in your policy and then proceed to question 12a.

11b. If you plan to design a policy, then please indicate in column B what will be included in it and then proceed to question 12b.

	A	B
Solid waste management	<input type="checkbox"/>	<input type="checkbox"/>
Wastewater management	<input type="checkbox"/>	<input type="checkbox"/>
Traffic management	<input type="checkbox"/>	<input type="checkbox"/>
Ecological management	<input type="checkbox"/>	<input type="checkbox"/>
Solutions to air pollution	<input type="checkbox"/>	<input type="checkbox"/>
Solutions to water pollution	<input type="checkbox"/>	<input type="checkbox"/>
Solutions to soil pollution	<input type="checkbox"/>	<input type="checkbox"/>
Preparedness for small oil spills	<input type="checkbox"/>	<input type="checkbox"/>
Preparedness for large oil spills	<input type="checkbox"/>	<input type="checkbox"/>
Habitat rehabilitation	<input type="checkbox"/>	<input type="checkbox"/>
Occupational health	<input type="checkbox"/>	<input type="checkbox"/>
Safety	<input type="checkbox"/>	<input type="checkbox"/>
Financial aspects	<input type="checkbox"/>	<input type="checkbox"/>
Human resource aspects	<input type="checkbox"/>	<input type="checkbox"/>
Conservation of energy	<input type="checkbox"/>	<input type="checkbox"/>
Other:		
Other:		
Other:		

12a. Does the plan for environmental management foresee investment in monitoring/measuring environmental indicators?

YES ☐ NO ☐

Go to 13a

12b. Will the plan for environmental management foresee investment in monitoring/measuring environmental indicators?

YES ☐ NO ☐

Go to 13b

13a. Does the plan foresees training for staff on environmental management?

YES ☐ NO ☐

If 'Yes', when will it happen? And how many people are expected to be trained?

Proceed to 14

13b. Will the plan include training for staff on environmental management?

YES ☐ NO ☐

14a. Is there anyone in the port who is responsible for environmental management? If Yes, then tick in the left column of the list beneath. If No, then tick in the right column who you would plan or who you prefer to become responsible for the environment in your port?

	YES	I prefer this person to become responsible for the environment
Port Manager	<input type="checkbox"/>	<input type="checkbox"/>
Environmental Manager	<input type="checkbox"/>	<input type="checkbox"/>
Harbour Master	<input type="checkbox"/>	<input type="checkbox"/>
Port Engineer	<input type="checkbox"/>	<input type="checkbox"/>
Safety Manager	<input type="checkbox"/>	<input type="checkbox"/>
Other, please state:

**14b. Is this person responsible for the following matters? (Indicate yes or no)
Or is another person responsible for this issue? (Indicate function in right column)**

	YES	NO	Other
Handling solid waste issues	<input type="checkbox"/>	<input type="checkbox"/>
Handling wastewater issues	<input type="checkbox"/>	<input type="checkbox"/>
Collecting environmental performance information	<input type="checkbox"/>	<input type="checkbox"/>
Collecting environmental legislations and standards	<input type="checkbox"/>	<input type="checkbox"/>
Checking environmental compliance	<input type="checkbox"/>	<input type="checkbox"/>
Reporting environmental incidents	<input type="checkbox"/>	<input type="checkbox"/>
Responding to environmental hazards (i.e. oil spill)	<input type="checkbox"/>	<input type="checkbox"/>
Contacting relevant authorities about environmental problems	<input type="checkbox"/>	<input type="checkbox"/>
Implementing an environmental management system	<input type="checkbox"/>	<input type="checkbox"/>
Ensuring compliance with the environmental policy	<input type="checkbox"/>	<input type="checkbox"/>

15. Is environmental monitoring carried out in your port?

YES ☐ NO ☐

If yes, proceed to 16a

If 'No', do you plan to do it?

YES ☐ NO ☐

If 'Yes', when will it happen?

If yes, proceed to 16b

If no, proceed to 19

16a. Who is doing the environmental monitoring in your port?

a. the Port Authority? ☐

b. an external organisation? ☐

Name and address of the external organisation:

Proceed to 17a

16b. Who will do the environmental monitoring in your port?

a. the Port Authority? ☐

b. an external organisation? ☐

Name and address of the external organisation:

c. This is not known yet. ☐

Proceed to 17b

17a. Complete in Column A what is monitored and how frequent.

17b. Complete in Column B what will be monitored and how frequent.

	A	B	Frequency
Air	<input type="checkbox"/>	<input type="checkbox"/>
Seawater	<input type="checkbox"/>	<input type="checkbox"/>
River water	<input type="checkbox"/>	<input type="checkbox"/>
Level of pollutants in wastewater	<input type="checkbox"/>	<input type="checkbox"/>
Amount of solid waste	<input type="checkbox"/>	<input type="checkbox"/>
Amount of liquid waste	<input type="checkbox"/>	<input type="checkbox"/>
Soil	<input type="checkbox"/>	<input type="checkbox"/>
Number of accidents	<input type="checkbox"/>	<input type="checkbox"/>
Number of oil spills	<input type="checkbox"/>	<input type="checkbox"/>
Traffic	<input type="checkbox"/>	<input type="checkbox"/>
Risk	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>

18a. For each of the issues for which monitoring is carried out, please specify in A which aspects/parameters are measured.

18b For each of the issues for which monitoring will be carried out, please specify in B which aspects/parameters will be measured.

Examples could include:

Water Quality

(e.g. chemical variables in water samples: BOD, COD, pH, etc)

Soil / Sediment Quality

(e.g. heavy metal levels in samples)

Air Quality

(e.g. number of incidents of odour complaints)

Ecosystems

(e.g. extent and condition of habitats)

Management Performance

(e.g. number of environmental infringements)

Other

.....

Please provide some examples of the indicators used by your port:

A What is measured?
B What is important to be measured?.....
A What is measured?
B What is important to be measured?.....
A is measured?
B What is important to be measured?.....
A What is measured?
B What is important to be measured?.....
A What is measured?
B What is important to be measured?.....

19. Does the port have a specific budget for environmental issues

YES ☐ NO ☐

20. Is maintenance dredging carried out in your port?

YES ☐ NO ☐

21. Does your port aim to improve environmental standards BEYOND those required under legislation? If yes, explain?

YES ☐ , Explain:

NO ☐

22a. Does your port aim to promote environmental awareness by all port users?

YES ☐ NO ☐

If yes, how?

22b. Does your port aim to promote environmental awareness by all port employees?

YES ☐ NO ☐

If yes, how?

23. Is there a defined procedure for consulting with the local community on the environmental programme? If yes, please briefly describe it.

YES ☐ , Description:

NO ☐

If 'No', does your port aim to do so?

YES ☐ NO ☐

24. Does the port have any plan to avoid risks?

Oil spill response plan YES ☐ NO ☐

Fire prevention plan YES ☐ NO ☐

Explosion prevention plan YES ☐ NO ☐

Waterway traffic control plan YES ☐ NO ☐

No plan ☐

Other plan

PART 4: PORT PLANNING AND DEVELOPMENT

25a. *Has your port undergone an environmental impact assessment (EIA) in connection with a new development during the last 5 years? If yes, give more details.*

YES ☐ Details:

NO ☐

25b. *Has your port received a certificate of compliance with environmental standards in the framework of a planned project during last 5 years? If yes, give more details.*

YES ☐ Details:

NO ☐

25c. *If yes, what were the main topics of the declaration?*

☐ Air quality
☐ Water quality
☐ Soil quality
☐ Waste

☐ Noise impact
☐ Others:
☐ Others:

25d. *Is your port involved with other organisations in a coastal or estuary management plan?*

YES ☐ NO ☐

25e. *Is your port located within, or does it contain a site with special conservation designations?*

YES ☐ NO ☐

25f. *Has your Port Authority experienced, or does it anticipate any restrictions on development due to environmental planning controls? ? If yes, give more details.*

YES ☐ Details:

NO ☐

PART 5: AN EXAMPLE OF YOUR PORT ENVIRONMENTAL MANAGEMENT

Using the following format, please provide some details of one successful practical solution that you developed in order to solve one concrete environmental problem you encountered.

SOLUTION FORM

Port of

Contact person Tel: Fax:

1. Concern and Issue

Briefly describe the nature of the environmental problem. Identify the major issue(s) (see examples in Question 7a), list the related port activities, and the reasons why you took action.

For example, (1) the port development was restricted by proximity of designated conservation area, the need for dredging, spoil disposal and associated engineering works. (2) the port wished to improve its local public relations image and organised a port 'open day' for local community and other stakeholders.

.....

2. Solution

Identify the category of solution by ticking the keyword(s) that applies and give detailed descriptions of the chosen solution.

☐ Managerial

☐ Regulatory

☐ Technical

☐ Financial

☐ Procedural

☐ Other:

For Example: Technical Solution for Energy Consumption. Shore electricity supply established. Single cable high voltage connection installed on two terminals. Visiting ships require electrical switch or connector. Reductions in emissions and noise produced by vessels in port.

.....

3. Costs and benefits

Costs

Provide a general description of the costs and resources that were required to implement the solution in terms of time, training, finance, administrative effort, interruption of commercial activity etc. Mention any specific problems encountered during implementation

.....

Benefits

Describe the main benefits of implementing the solution in terms of improvement of environmental quality, reduction in resource consumption, financial savings, improved public relations, increased efficiency of operations, protection of fauna, flora and habitat etc.

Is the situation currently monitored?

.....

The EU Pro Eco project VN/ASIA Pro Eco/01 (91168) would appreciate the opportunity to share your experience with other port professionals through its link with the ECOPORTS project.

Do you allow to add this solution form to the database? YES ☐ NO ☐

Using the following format, please provide an environmental problem on which you would like to have a solution or on which you would like to have assistance. Briefly describe the nature of the environmental problem.

QUESTION FORM

1. Identification of the problem

Please name the issue.

.....

2. Why it is a problem?

Please give details of the reason(s) why it is a problem

☐ Legislation

☐ Port/City Development

☐ Costs

☐ Complaints

☐ Other

.....

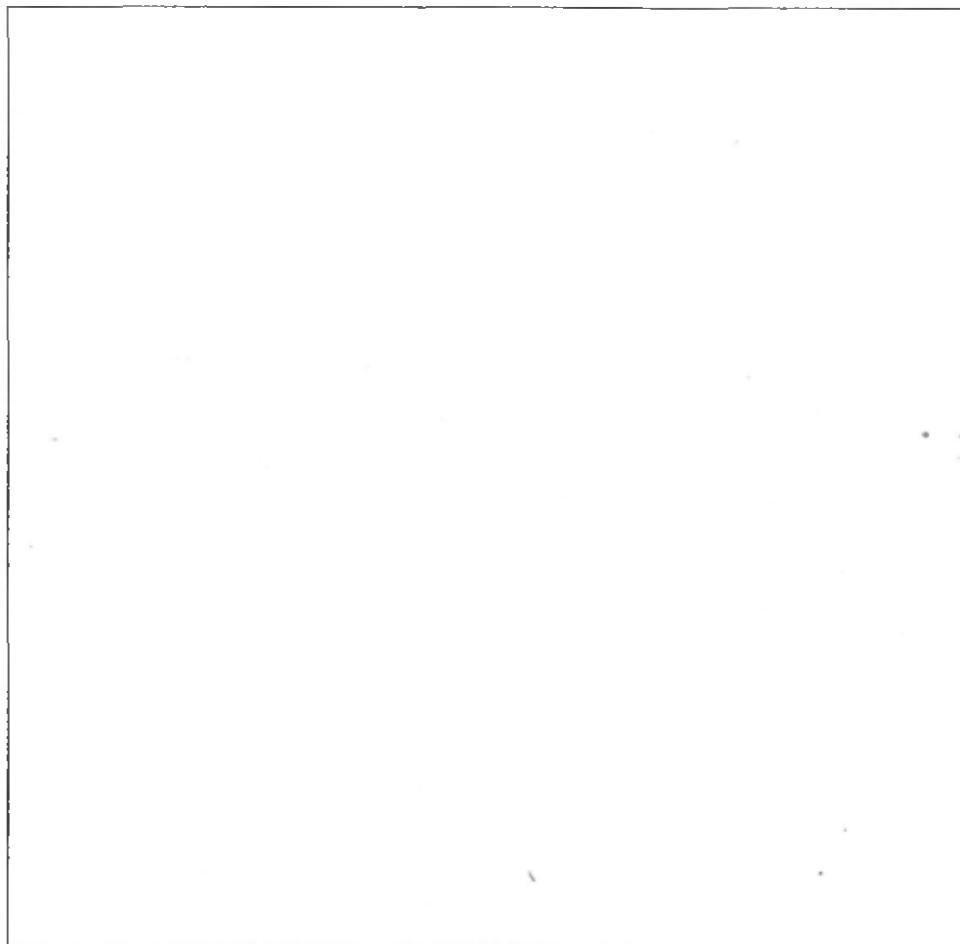
3. Costs

Please estimate the budget that you can foresee to solve this problem?

.....

PART 6: Additional information

If there is any additional information, special circumstances or other remarks concerning the port and the environment, then please note in the box beneath.

A large, empty rectangular box with a thin black border, intended for providing additional information, special circumstances, or other remarks concerning the port and the environment.

ANNEX C: GLOSSARY

AAPA American Association of Port Authorities

Association of ports in the United States, Canada, the Caribbean and Latin America. The association works towards the reduction of environmental impacts of port operations and developments.

Audit

Systematic, periodic, documented and objective verification of the performance of the organisation (port), the environmental management system and processes aimed at protecting the environment.

Certificate of compliance with environmental standards

This certificate is issued to industrial establishments and businesses after the environmental impact assessment report (for those that have to do EIA) or the environmental effects inventory report (for those that do not have to do EIA) has been approved by the competent agency. In the environmental effects inventory report, sources of environmental effects have to be inventoried and solutions linked with each environmental effect must be clearly identified. The industrial establishments and businesses that are not obliged to do EIA, in order to obtain the certificate, must submit the environmental effects inventory report and a declaration of compliance with environmental standards by implementing environmental protection solutions as identified in the environmental effects inventory report.

Ecosystem

A community of plants, animals, and microorganisms that are linked by energy and nutrient flows and that interact with each other and with the physical environment. Mangroves, rain forests, deserts, coral reefs, grasslands, and a rotting log are all examples of ecosystems.

Embayment

An indentation in a shoreline forming an open bay.

Environment

Surroundings in which the Port operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation. The environment in this context extends from within the Port to the global system or biosphere.

Environmental aspect

Element of the Port Authority's activities, products or services, which can interact with the environment.

Environmental Impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.

Environmental Issue

A generic term for all natural and commercial resources, environmental impact or effects and user /operator conflicts relevant to management.

Environmental Management

Management that enables an organisation to establish an environmental policy and objectives, comply with them and demonstrate them to the outside world. The policy must be relevant to the organisation's activities, products, services and their environmental effects. It should be understood, implemented and maintained at all staff level.

Environmental Management System (EMS)

A tool for managing an organisation's impact on the environment. It provides a structured approach to planning and implementing environmental protection measures

Environmental performance indicator

An environmental performance indicator is an information tool that summarizes 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.

Environmental policy

Statement containing an organisation's intentions and principles in relation to its overall environmental performance. The policy provides a framework for action and for setting environmental objectives and targets.

Environmental review

An initial comprehensive analysis of the environmental issues, impacts and performance related to activities in the port area.

ESPO

European Sea Port Organisation: ESPO is an organisation that represents the port authorities, port associations and port administrations of the seaports of the European Union. ESPO was founded in 1993 in response to a growing demand that the sea port sector would present its views and opinions to serve the interests of seaports with regard to the development of the European Community, the single market and its common transport policy.

Habitat

Place where an organism lives: plant forms, forests, mangrove area, etc, where species or communities are living in.

Hazardous/dangerous cargo

Storage of this kind of cargo may result in an environmental risk, depending on the chemical/physical characteristics of the cargo.

Marine inlet

A coastal inlet is a short, narrow waterway connecting a bay, lagoon or similar body of water with the ocean.

Monitoring

Activity involving repeated observation, according to a pre-determined schedule of one or more elements of the environment to detect their characteristics (status and trends).

PERS

Port Environmental Review System: tool designed to assist ports to implement the recommendations of ESPO's environmental code of practice (1994) and environmental review (2001).

Port development (water)

Activities linked to the expansion of the port towards the sea (docks, berths, new facilities, etc.)

Port development (land)

Activities linked to the expansion of the port towards the hinterland (new buildings, industry, streets, etc.)

SDEP

Self Diagnosis for Environmental Protection: The SDEP is a document designed for Vietnamese and Cambodian port managers, to assist them in reviewing the environmental management of the port. This tool can be used to compare environmental management performance with previous years and to assess the opportunities for improvement.

Significant environmental aspect

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

Stakeholder

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

