ESPO / EcoPorts Port Environmental Review 2009

European Sea Ports Organisation's Review of Environmental Benchmark Performance in collaboration with the EcoPorts Foundation (EPF)

Foreword

This summary represents the major results of the periodic review specifically designed to track the environmental benchmark performance of respondent member ports within ESPO. ESPO and EPF acknowledge with grateful thanks the cooperation of all the respondent ports for their willing participation in the Review

The review (planned to be repeated in 2013) provides substantive evidence of the sector's progress towards the key aims (initially set up by the EcoPorts Foundation) of raising awareness, sharing knowledge and implementing Environmental Management Systems. The results confirm the positive trends of port management response options in dealing with their liabilities and responsibilities; and in terms of delivering continuous improvement of environmental quality and sustainable development. These have been achieved by organizational initiatives focussed on monitoring, cost reduction, risk analysis, and environmental reporting.

The headline outcomes of the ESPO / EcoPorts Port Environmental Review 2009 can be summarized as following:

- Global, headline issues including climate change, energy consumption, and stakeholder involvement join the list of priority environmental issues of significance identified in the latest port sector environmental review.
- Noise, air quality and waste management lead the 'Top-Ten' environmental priorities just ahead of operational activities such as dredging and port expansion.
- The European port sector can demonstrate continuing progress and positive trends in terms of its benchmark performance on such critically important issues as implementation of environmental policy, management, monitoring of environmental improvement and systematic reporting.

We are very grateful to Dr. Antonis Michail, Policy Advisor at ESPO and Secretary of EcoPorts, and Dr. Chris Wooldridge, Senior Lecturer at Cardiff University and Scientific Coordinator of EcoPorts, for bringing this report together. We hope that you will find it of interest.

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1. Introduction

Environment issues are key components of the management of port activities and those of the logistic chain. Close cooperation between port authorities and their stakeholders is identified as essential for port development. Building on the increasing significance of sustainable port area management, the European Sea Ports Organisation (ESPO) and EcoPorts Foundation launched the ESPO / EcoPorts Port Environmental Review 2009. The review reveals the priorities of the European port sector in environmental management and updates the European benchmark of performance.

The current document is the executive summary of the results of the ESPO / EcoPorts Port Environmental Review 2009. It highlights the main outcomes of the Review, and discusses the progress achieved by the port sector over time and the future trends.

2. Background

In February 1996 ESPO commissioned the first environmental survey about ports in order to assess response to the recommendations of the ESPO Environmental Code of Practice. The Environmental ESPO Questionnaire was useful to obtain an idea about the most important environmental problems in ports. 281 ports from 15 different European countries took part in this questionnaire. In April 2005 the results of a second study, the ESPO Environmental Survey 2004, were published. The Survey was carried out with the collaboration of EcoPorts Foundation and with the assistance of Cardiff University. In that case, 129 ports participated in the survey. The survey not only identified the issues which were at stake for EU ports in the field of environment but also it established a port sector's European benchmark of environmental performance. It allowed a comparison of the results of both studies and also investigation of emerging trends. In 2009 a third major environmental survey was carried out under the umbrella of ESPO and in close collaboration with the EcoPorts Foundation, the ESPO / EcoPorts Port Environmental Review 2009.

The ESPO / EcoPorts Port Environmental Review 2009 identifies the issues which are at stake for EU ports in the field of environment and demonstrates the sector's performance

in terms of environmental management. The review up-dates the results of the previous similar exercises of 1996 and 2004, and assesses the progress that has been achieved over the past 14 years. Furthermore, the review establishes a port sector's European benchmark of environmental performance, against which individual ports will also be able to evaluate their own environmental management in relation to some fundamental questions.

The ESPO / EcoPorts Port Environmental Review 2009 was launched during the GreenPort conference in Naples, February 2009. It benefited from the development of a web based tool. This made easier the completion of the review by interested ports online and facilitated the analysis of the results. The review was available online for the period of March until November 2009.

3. The sample of respondent ports

122 ports from 20 European Maritime States participated in this survey. The Maritime States represented are: Belgium (3[1]), Bulgaria (1), Croatia (3), Cyprus (1), Denmark (16), Estonia (1), Finland (5), France (11), Germany (9), Greece (2), Ireland (5), Italy (1), Latvia (1), Netherlands (4), Norway (2), Romania (2), Slovenia (1), Spain (13), Sweden (13), and UK (28). The response rate and the diversity in ports' typology allow drawing a truly representative overview of the EU port sector. The two graphs below demonstrate the characteristics of the sample of respondent ports in terms of geography and size (annual tonnage of commodities handled).

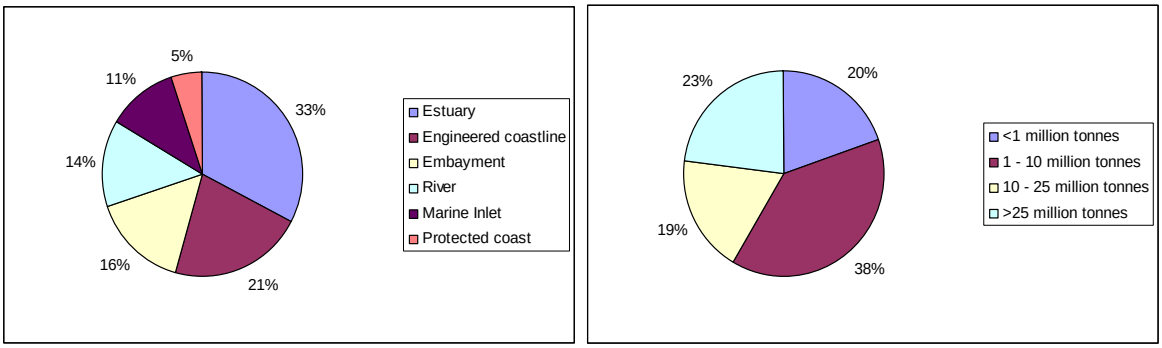

Figure 1: Geographical and size characteristics of the sample

It can be noticed that one out of three of the respondent ports are located in estuaries. Estuary locations are deemed to be of high significance with respect to environmental issues by virtue of the fauna, flora, habitats and ecology of their waters. A balance can be observed in the number of ports located on engineered coastlines, embayment and rivers.

[1] The number in brackets indicates the number of ports from the specific country that participated in the review

Fewer ports are located in marine inlets and protected coasts. Regarding the size of the respondent ports, it can be seen that most of them handle 1-10 million tonnes of cargo annually. Overall it can be observed that the majority of respondent ports are of medium and large size handling more than 1 million tonnes of cargo on an annual basis.

4. The Top-10 environmental priorities of European Ports

The major outcome of the review is arguably the re-definition of the top environmental priorities of the European port sector and the study of changes in those over time. Within the review ports were asked to define their top-10 environmental priorities. The overall outcome is shown on the following table. The table presents the 2009 results together with the ones from the similar exercises that took place in 1996 and 2004 so that the variations over time can be demonstrated. Environmental issues that consistently appear over time are mapped with the same colour.

Table 1: Top 10 environmental priorities of the European port sector over time

	1996	2004	2009
1	Port development (water)	Garbage / Port waste	Noise
2	Water quality	Dredging: operations	Air quality
3	Dredging disposal	Dredging disposal	Garbage / Port waste
4	Dredging: operations	Dust	Dredging: operations
5	Dust	Noise	Dredging: disposal
6	Port development (land)	Air quality	Relationship with local community
7	Contaminated land	Hazardous cargo	Energy consumption
8	Habitat loss / degradation	Bunkering	Dust
9	Traffic volume	Port development (land)	Port development (water)
10	Industrial effluent	Ship discharge (bilge)	Port development (land)

Noise pollution is pointed out as the current top environmental priority by the European port sector as a whole, followed by air quality. The European Noise Directive is considered to be one of the main triggering factors for the high priority on noise within the ports environmental agenda. The significance of air quality clearly signals the priority given to issues related to the health of people working or living around ports, and it is in line with the European political agenda. The management of garbage/ port waste remains high within the environmental priorities of the sector.

Some environmental issues, namely dredging operations, dredging disposal, dust and port development, appear consistently within the top 10 of priorities in Europe in the last 15 years. Those highly prioritised environmental issues for a large majority of European ports form a basis for environmental collaboration in the port sector.

Of significance are considered to be the two "new entries" on the 2009 'Top-10', namely the relationship with the local community and energy consumption. These clearly reflect the political priorities on energy efficiency and climate change as well as the realisation by the port sector of the significance of good port-city relations and societal integration for the operation of a sustainable port.

The table demonstrates changes in port environmental priorities from 1996 to 2009. Many of these reflect prevailing political drivers: e.g. implementation of EU Directives, such as the European Noise Directive, the Directive on Waste Reception Facilities in ports and the Habitats Directive, which have an impact on noise management, waste management, dredging operations, dredging disposal and port development.

The results give a good indication of the environmental priorities of the European port sector as a whole. It is interesting though to examine the way in which factors such as the size or the geographic location of a port influence its environmental priorities. The following two tables demonstrate the top environmental priorities according to the size and the geographical location of the ports in Europe.

Table 2: The influence of port size on the environmental priorities

	< 1 million tonnes (24 ports)	**1 - 10 million tonnes** (47 ports)	**10 - 25 million tonnes** (23 ports)	**> 25 million tonnes** (28 ports)
1	Garbage/ Port waste	Dredging: operations	Air quality	Air quality
2	Noise	Air quality	Port development (water)	Noise
3	Dredging: disposal	Energy consumption	Noise	Garbage/ Port waste
4	Dredging: operations	Noise	Dust	Dredging: operations
5	Energy Consumption	Dust	Relationship with local community	Port development (land)
6	Dust	Dredging: disposal	Garbage/ Port waste	Relationship with local community
7	Relationship with local community	Garbage/ Port waste	Energy consumption	Dredging: disposal
8	Bunkering	Relationship with local community	Port development (land)	Conservation areas
9	Ship waste	Ship waste	Ship waste	Port development (water)
10	Cargo spillage (handling)	Port development (land)	Dredging: disposal	Climate change

Regarding the influence of the port size on environmental priorities the following observations can be made:

- Noise management is a top priority issue independently from the size (annual tonnage of cargo handled) of the port.
- Air quality is the most important environmental consideration in large and very large ports.
- The common top environmental priorities for all sizes of ports appear to be noise, port waste, relationship with local community and dredging disposal.

- Some issues that do not appear in the overall top 10 of environmental priorities are of significance for ports of different sizes. Bunkering and cargo spillage during handling are within the environmental priorities of small ports (<1m tonnes). The largest ports (>25m tonnes) give a high priority to issues such as conservation areas and climate change. It is also interesting to note that ship waste appears within the environmental priorities of all the ports handling less than 25m tonnes of cargo annually.

Table 3: The influence of port geography on the environmental priorities

	Estuary (40 ports)	**Engineered coastline** (26 ports)	**Embayment** [2] (39 ports)	**River** (17 ports)
1	Conservation areas	Air quality	Air quality	Dredging: disposal
2	Dredging: operations	Garbage/ Port waste	Noise	Dust
3	Dredging: disposal	Noise	Energy consumption	Noise
4	Relationship with local community	Energy consumption	Garbage/ Port waste	Dredging: operations
5	Port development (land)	Port development (water)	Dust	Garbage/ Port waste
6	Port development (water)	Ship waste	Dredging: operations	Relationship with local community
7	Air quality	Hazardous cargo (handling/storage)	Relationship with local community	Environmental risk assessment
8	Noise	Dredging: operations	Ship waste	Ship waste
9	Garbage/ Port waste	Ship exhaust emissions	Dredging: disposal	Energy consumption
10	Dust	Relationship with local community	Port development (land)	Port development (land)

Regarding the influence of the port geography on environmental priorities the following observations can be made:

- The common top environmental priorities for all locations of ports appear to be noise, port waste, relationship with local community and dredging operations.
- Some issues that do not appear in the overall top 10 of environmental priorities are of significance for ports of different sizes. It is interesting to note that conservation areas although not appearing in the overall top 10 are indeed the top environmental priority for ports located in estuaries. The handling and storage of hazardous cargo and the ship exhaust emissions are within the top priorities of ports on engineered coastlines. Environmental risk assessment receives a lot of attention in river ports while ship waste appears again within the top priorities of ports of certain geography.
- Air quality is the top priority issue for respondent ports located on engineered coastlines and embayment while dredging operations and disposal are within the top environmental priorities of river ports.

[2] Under the category “embayment” also the ports that are located in “marine inlets” and “protected coast” are included

5. Selected benchmark of performance in 2009

This section highlights some of the key outcomes of the review in selected areas of interest. The selected figures provide an indication of the environmental performance of the European port sector in the fields of environmental policy, environmental management and communication. For the first time, the ESPO / EcoPorts Port Environmental Review 2009 examines the response of the European port sector to climate change and energy efficiency; issues that are high on the European and global political agenda. The responses provide the baseline for future performance.

Environmental Policy:

- 72 % of respondent ports have an environmental policy
- 62% make it available to the public
- 58% of ports aim through their policy to improve environmental standards beyond those required under legislation

Environmental communication:

- 69% of respondent ports provide environmental information through their website
- 73% of the ports are aware of the services provided by the EcoPorts Foundation
- 43% of respondent ports produce a publicly available Annual Environmental Review or Report

Environmental management:

- 69% of ports have their own environmental specialist(s)
- 48% of respondent ports have a form of Environmental Management System (30% certified by ISO 14001 and 17% certified by EcoPorts PERS)
- 77% carry out monitoring within the port area
- 60% have identified environmental indicators
- 36% publish factual data by which the public can assess the trend of its environmental performance
- Only a 28% of ports have completed an EcoPorts Self Diagnosis Methodology (SDM) environmental review from Eco Ports, but most are interested in receiving details of this practical checklist (71%)

Climate change and energy efficiency:

- 33% of ports measure or estimate your their carbon footprint
- 51% of ports take measures to reduce their carbon footprint
- 57% of ports have a programme to increase energy efficiency
- 20 % of ports produce some form of renewable energy

6. Selected changes in environmental performance of the European port sector

Overall trends may arguably be more significant than specific percentage responses. The table below illustrates the progress achieved by ports on selected indicators.

Table 4: Changes over time in selected environmental performance indicators

Environmental Management component	1996[3] %	2004[4] %	2009 %	Percentage change (2004-2009)
Does the port authority have an environmental policy?	45	58	72	+14
Is the policy made available to the public?	-	59	62	+3
Does the policy aim to improve environmental standards beyond those required under legislation?	32	49	58	+9
Does the port publish an annual environmental review or report?	-	31	43	+12
Does the port have designated environmental personnel?	55	67	69	+2
Does the port have an environmental management system?	-	21	48	+27
Is environmental monitoring carried out in the port?	53	65	77	+12
Has your port identified environmental indicators to Monitor trends in environmental performance?	-	48	60	+12
Is there a defined procedure for consulting with the local community on the port's environmental programme?	-	36	37	+1

As successive surveys represent different numbers and identities of respondent ports, the results should be interpreted with caution. The trends are more reliable as indicators of progress than the actual percentages

The table demonstrates the progress achieved by the port sector between 1996 and 2009. For example, the increasing trend for ports to produce an environmental policy, to publish an annual environmental report, and establish activities and procedures to manage their environmental risks such as designating environmental personnel, having an environmental management system, and monitoring environmental performance by the systematic use of environmental performance indicators.

7. Perceived challenges for port environmental management

71 % of ports still experience some difficulties in implementing environmental management, due to both internal and external factors. Main challenges (in descending order) are:

- Number of authorities/stakeholders involved
- Expense
- The lack of awareness of good practice
- Status given to environmental issues
- Identification of responsible authority

[3] ESPO Survey 1996
[4] ESPO Survey 2004

- Information and guidance related to legislation

67% of respondent ports experience or anticipate restrictions on developments due to environmental planning controls. Main pieces of EU legislation which raise concerns to ports are: the Environmental Liability, Water Framework and Habitats Directives, because they impose constraints on their development. In fact, 52 % of respondent ports are located within or contain a Natura 2000 designated site. Air and noise regulations also lead to restrictions on both existing and planned activities.

8. The way forward: towards further improvements

In order to respond to ports' needs for guidance on the implementation of EU environmental law, ESPO launched several initiatives to assist ports with interpretation of the legal framework within which they operate:

- **ESPO Environmental Code of Practice** successive editions review the various EU environmental regulations applicable to ports and provide guidelines and recommendations for their implementation. The next update is due in 2011.
- **ESPO Code of Practice on the Birds and Habitats Directives** (2007) collates experiences of port authorities dealing with the Birds and Habitats Directives. Recommendations and guidelines identify management response options within the existing legal framework. The Code is referenced in the Commission's Environmental Guidelines on the implementation of the Directives to be published in 2010.
- **ESPO annual Award on Societal Integration of Ports** aims to promote innovative projects of European port authorities that develop co-operative synergies with cities, improve the quality and accessibility of port areas and generally promote a positive image of the port as a place to experience, live and work. A Code of Practice on Societal Integration will be published within 2010.

In relation to the top 10 environmental priorities of the European port sector for 2009, the following initiatives have been undertaken or supported by ESPO and EcoPorts:

Top-10 2009	Initiatives
Noise	EcoPorts Noise Management System for ports. The NoMEPorts (Noise Management in European Ports) project (2005-2008) under the umbrella of the EcoPorts Foundation developed a noise management system for ports.
Air quality	World Port Climate Initiative (WPCI) projects: In particular the Environmental Ship Index and the Onshore Power Supply projects aim to improve local air quality in ports.
Garbage / Port waste	ESPO Environmental Code of Practice
Dredging: operations	ESPO Code of Practice on the Birds and Habitats Directives

Dredging: disposal	ESPO Code of Practice on the Birds and Habitats Directives
Relationship with local community	ESPO Award on Societal Integration of Ports / Code of Practice
Energy consumption	World Port Climate Initiative (WPCI) projects
Dust	World Port Climate Initiative (WPCI) projects
Port Development (water)	ESPO Code of Practice on the Birds and Habitats Directives
Port Development (land)	ESPO Code of Practice on the Birds and Habitats Directives

In addition to the specific environmental issue-related initiatives, the EcoPorts tools and methodologies have continued to provide an overarching framework to assist ports in their environmental management.

- **Self Diagnosis Method** (SDM) is a well-established and widely adopted, time and cost-efficient methodology for identifying environmental risk and establishing priorities for action and compliance. SDM is a concise checklist against which port managers can self-assess the environmental management programme of the port in relation to the performance of both the sector and international standards. The use of SDM on a regular basis assists ports to track progress of their environmental management efforts.
- The **Port Environmental Review System** (PERS) assists ports in implementing an environmental management system. PERS is based on internationally recognized professional best practice, and yet, remains a port-specific system developed by ports – for ports. It is formulated to be flexible and capable of evolution so that it can be adapted to future changes in legislation and priorities for action. PERS also includes the option of a voluntary application for a Certificate of Verification by an independent auditor.

The EcoPorts concepts and aims, initiated in 1993, have delivered demonstrable success in implementing major policy objectives through the knowledge network and application of practicable tools and methodologies. ESPO recommends the use of these well established tools by port authorities in their efforts to deliver environmental improvement and sustainable development through effective environmental management programmes. In fact, from 2011 onwards the EcoPorts environmental support services and associated R&D will be fully integrated within ESPO's functional activities.

For more information on the EcoPorts Foundation and the EcoPorts tools please visit www.ecoports.com or contact the EcoPorts secretariat. For more information on ESPO, ongoing initiatives and publications please visit www.espo.be. If you have any questions or remarks on the outcomes of the Review 2009 please contact Mr. Antonis Michail, Policy Advisor at ESPO and Secretary of EcoPorts (antonis.michail@espo.be).