



NoMEPorts project - The port sector's initiative in port area noise mapping and management Layman's Report

The NoMEPorts project (Noise Management in European Ports) has been the port sector's EC LIFE funded initiative targeting the management of noise generation and related annoyance caused to people living around and in proximity to seaport areas. This report presents and explains the impact of the NoMEPorts project towards that direction. It initiates with an overview of the project that contains the rationale of the initiative, its consortium, aims and research pathway. The results of the project are then presented and the impact of the developed tools for port areas noise management is highlighted. The dissemination of the project's outcomes and the planning of follow up actions are analytically discussed. Noise management of seaport areas can be seen as part of the integrated noise management efforts in urban (cities, municipalities) and industrial areas and it contributes to the reduction of noise annoyance and exposure of the population to noise levels and related impacts to human health and quality of life. The aim is the sustainable operation of seaports and other industrial areas. From a port operational perspective noise mapping and management offers an opportunity for the study of different current and future development scenarios and their impact. As such it can be seen as a valuable tool in the field of port planning and strategic management. Overall, noise mapping and management adds to the decision making toolkit that enables evidence-based port operational and environmental management.

A. Summary of project scope and objectives

The EU Directive 2002/49/EC on the Assessment and Management of Environmental Noise (Environmental Noise Directive END) requires that industrial port areas near large agglomerations are included in noise maps. The noise maps have to be drawn up by competent authorities designated by the Member States. The Directive however does not specify how to define these noise maps. Responding to the challenge the NoMEPorts project takes the initiative to develop a good practice guide on efficient noise mapping and management for port industrial areas. It should be noticed that port areas



are of particular noise interest due to the combination of industrial and traffic related noise sources.

The main objective of the NoMEPorts initiative is the definition of a harmonized common approach on port area noise mapping and management through the development of a Good Practice Guide. The broader project's objective is the reduction of noise, noise-related annoyance and health problems of people living around port industrial areas through demonstration of a noise mapping and management system. The system builds on previous EU supported research outcomes by making use of a new EU noise calculation method and a noise emission database developed within the EU co-funded projects HARMONOISE and IMAGINE. NoMEPorts demonstrates the use of these systems specifically for port industrial areas. The demonstration leads to the definition of relevant noise sources in industrial port areas, to the creation of noise maps and to the definition of proposals for action plans in order to reduce noise annoyance. The synthesized experience and the lessons learned feed to the development of the Good Practice Guide on Port Area Noise Mapping and Management (GPG PANMM).

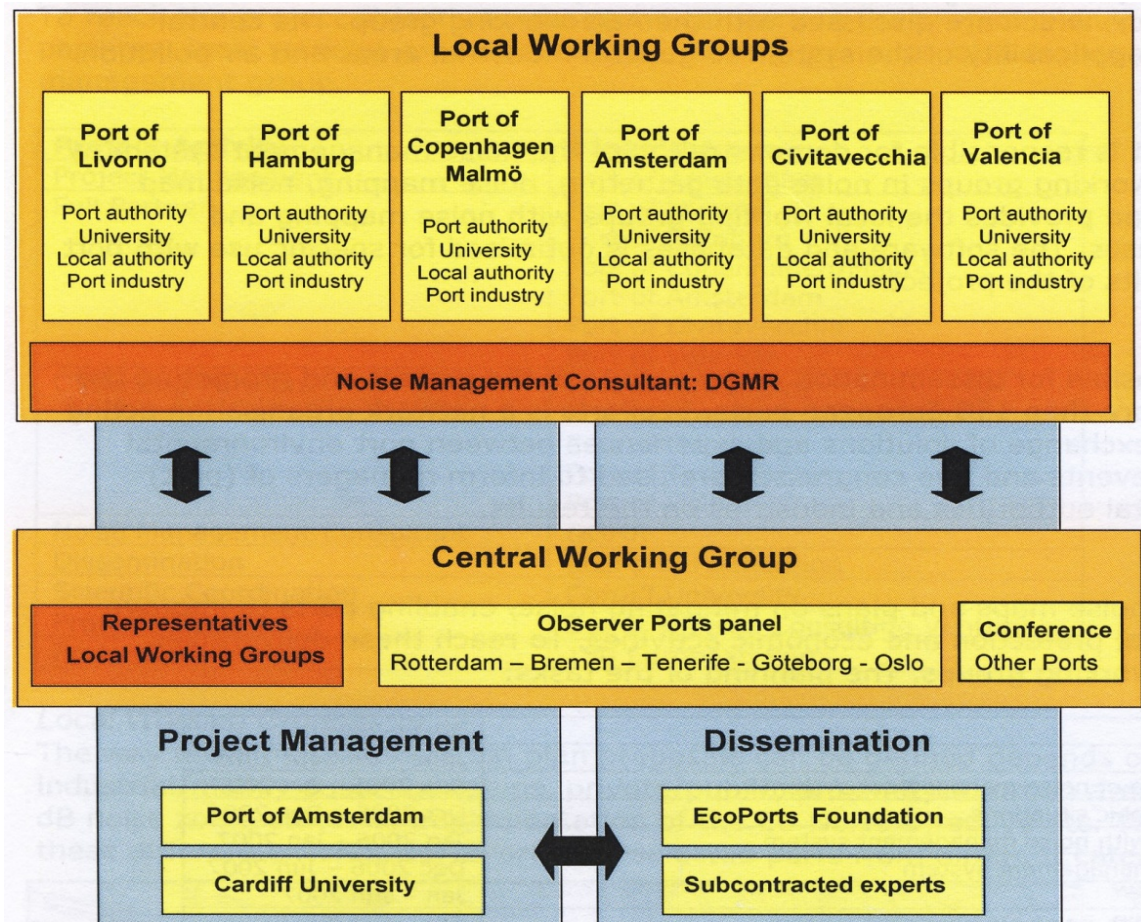
The Port of Amsterdam took the initiative to bring together a consortium of 14 partners from 8 countries as seen on the following table. The selected port authorities cover a wide geographical variety within the European continent in order to reflect geographical and cultural differences.

Project Activity	Organisations
Project Management	Port of Amsterdam
Full Partners	Port of Livorno Port of Hamburg Port of Copenhagen/Malmö Port of Amsterdam Port of Civitavecchia Port of Valencia
Observing Partners	Port of Rotterdam Port of Bremen Port of Göteborg Port of Tenerife Port of Oslo
Noise Management Consultant	DGMR
Dissemination	EcoPorts Foundation
Scientific Coordination	Cardiff University
Project Support	Bax & Willems Consulting Venturing
Project Information	150 European Ports



B. Description of the techniques/methodology implemented and the results achieved

The technical work in the project was divided over the different groups of partners: local working groups, central working group and project management group. The generic scheme is presented on the following figure.



Local working groups were established within the partner ports consisting of representatives from the port authorities, local competent authorities on environmental affairs and spatial planning, local noise calculation experts and local industries. The noise mapping and management system was demonstrated in all local working groups. Each local working group was responsible for collecting noise data, drawing up noise maps on five detail levels and defining action plan proposals for noise mitigation. The goal of the central working group was to define a good practice guide on the most



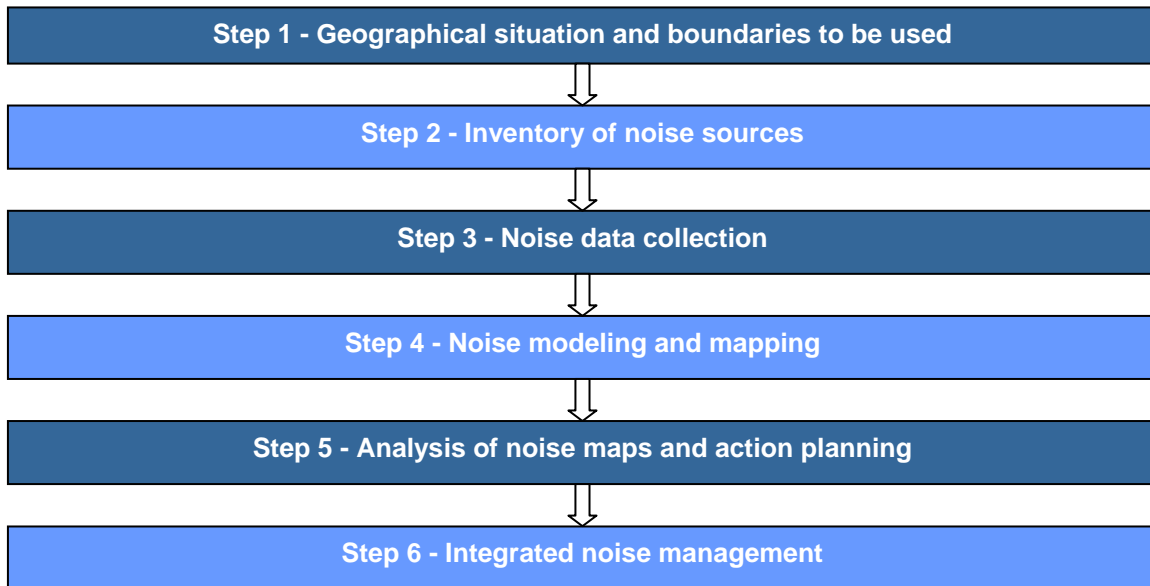
efficient way to create noise maps, action plans to reduce the noise annoyance and ongoing noise management. Representatives from the local working groups and representatives from the other participating ports formed the central working group. The CWG was responsible for discussing the results of the local working groups, drafting the good practice guide and examining the applicability of the management system. The central working group defined recommendations for specification of the EU Noise Directive and future EU Noise policy.

The main contribution of the NoMEPorts project is the definition of a common harmonized approach in the field of port area noise mapping and management. The methodology is analytically explained within the main deliverable of the project; the Good Practice Guide on Port Area Noise Mapping and Management (GPG PANMM) and its



associated technical annex. The NoMEPorts GPG PANMM has been compiled as a synthesis and user-friendly interpretation of the environmental Noise Directive (END) and as a summary of the management response options available for the effective implementation of its provisions with a focus on port areas. However, the guide may also be applied to other industrial areas. The GPG PANMM is written for port (environmental) managers, policy makers, environmental authorities, spatial planners and strategic decision-makers.

GPG PANMM establishes a six-step methodology that guides the assessment of the noise situation in and around port areas and leads to the implementation of appropriate noise action plans aimed towards the reduction of noise annoyance and exposure of the population to noise levels and related impacts to human health and quality of life. The six-step methodology is highlighted on the following figure.



The Six-Steps-Methodology for noise management in port areas outlines principles and offers practical guidance to port professionals and managers. At the same time, this methodology contributes to the creation of a level playing field in ports in implementing the Noise Directive. The first step is the study of the geographical situation of the area under examination and the definition of its geographical boundaries. The second step is the inventory of the main noise sources within and around the previously defined study area. Through appropriate noise data collection (step 3) the identified noise sources can be modelled within specialised noise prediction software and noise maps can be produced (step 4). The analysis of the produced maps identifies the priorities of noise management and leads to noise action planning and the implementation of appropriate mitigation measures (step 5). All the previously discussed components are embedded within an integrated noise management system (step 6) that continuously assesses new threats and accordingly responds enabling continuous environmental improvement.

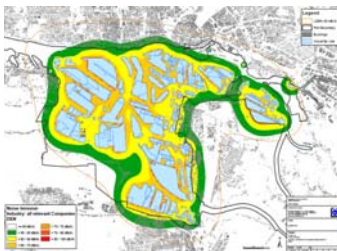
Other main results included

- The local working groups were trained in noise management and use of software tools
- Noise maps were created at 5 detail levels for the 6 full partner ports



- Action plan proposals have been developed by the 6 ports. The action plans incorporate planning and management solutions in order to reduce noise annoyance of people around the port areas
- Demonstrated and optimized software system for noise mapping and management in port industrial areas.
- Reduction of number of houses affected by noise annoyance and reduction of related health-problems
- Recommendations for specification of EU Directive 2002/49/EC and other noise policy

Examples of noise maps that were created within the NoMEPorts project can be seen below. The examples (from left to right) refer to the Ports of Hamburg, Livorno and Amsterdam.



C. Assessment of the environmental impact of the project

The main benefit from the application of the results of the NoMEPorts project is the implementation of a noise mapping and management system in port industrial areas towards managing and consequently reducing noise in port areas. Environmental benefits resulting from the project include the raise of awareness on the necessity of using a noise management tool in ports as a way to control and reduce noise related issues to people living in the port surroundings. The project also allowed the identification of noise traffic as the main contributor to port noise. The NoMEPorts approach facilitated the definition of mitigation measures to reduce noise impact in the surrounding city areas.



In the specific case of the Port of Amsterdam a reduction of noise of more than 30% is achievable through the implementation of the action plans developed during the project. These results overcome the initial expectations foreseen on the project proposal (noise reduction of 25%). Other ports are currently implementing some of the measures developed, thus similar results to Amsterdam are expected.

D. Cost-benefit discussion on the results

A major economic benefit for the ports adopting the methodology developed in the NoMEPorts project, is the reduction of costs, for local environmental authorities, associated to definition of noise maps and action plan proposals for noise mitigation. The NoMEPorts good practice guide and the optimized management system facilitate the identification of potential noise sources and the effective determination of hot spots, thus increasing the efficiency of the noise mapping and reducing associated costs. Noise management enables the assessment of future development scenarios and the prediction of associated noise annoyance. In such way development plans can be re-considered and actions can be taken at an early stage to mitigate the predicted noise impact.

E. Transferability of project results

Through dissemination of the results a level playing field for noise mapping and management in port industrial areas is promoted by the use of the uniform guidelines developed in the project. It should be noticed that the approach and outcomes of the project have been consistently disseminated and promoted by various different means throughout the duration of the project. Disseminating activities included:

- Regularly updated website (<http://nomeports.ecoports.com/>) with news, information, and project deliverables
- Links to the project from all partners' websites
- Circulation of 4 newsletters informing on the status of the project and various press releases
- Organization of 2 international conferences
- Articles published in newspapers, industrial journals, environmental magazines and magazines for acoustical experts.



- Presentations of the NoMEPorts project in relevant conferences worldwide
- Establishment of notice boards on all the locations where the project was implemented
- Presentation by Ecoports Foundation to its entire network
- Presentation within formal meetings of the European Seaports Organisation, ESPO

NoMEPorts Closing Conference –24/25 April 2008 – Amsterdam

In April 2008 the NoMEPorts Closing Conference took place in Amsterdam. During the Conference the “Good Practice Guide on Port Area Noise Mapping and Management” (GPG PANMM), the project’s major outcome has been launched. A representative of the Dutch Ministry of Environment, the Director of the Environmental & Building Department of Amsterdam, and the Chairman of EcoPorts Foundation received the first copies of the Good Practice Guide and they underlined the importance of the port community being pro-active in self regulation.



The EcoPorts Foundation welcomed the GPG PANMM and committed to promote this practical tool for port area noise management on its workshops and seminars throughout Europe. In such way the mechanism for the continuity and further promotion of the project's outcomes can be ensured.

New tool - Interactive role playing sessions

Within the conference a role playing interactive session was organized in order to demonstrate the contribution of the NoMEPorts approach and the GPG in tackling the daily challenges of noise management in port areas. The so-called “Game” fully achieved its aims and was received with enthusiasm from the participants. The participants were invited to play the role of the main stakeholder groups with an interest in port area noise management (Port Authority, Local Community Action Group, Spatial planners, Companies’ representatives, Environmental Authority) and to develop their standpoint and argumentation regarding an imaginary, but nevertheless realistic, port development scenario in the Port of NoME in Eco-Land.



The NoMEPorts approach was in that way demonstrated and evaluated in practice in a pleasant, interactive and educative way.

Over 1000 hard copies of the GPG PANMM are sent over to an extensive network of interested specialists including several hundreds of seaports and inland ports in Europe, America, and Asia, government bodies and politicians, steering committees on environmental management issues, and technical specialists and acousticians. The EcoPorts Foundation, bringing together a wide network of stakeholders in port areas and the logistic chain, welcomed the GPG PANMM and committed to promote this practical tool for port area noise management on its regular national and international workshops and seminars throughout Europe. In such way the know-how will be further spread throughout Europe and introduced in the organizations of the relevant users. In the Ecoports approach also the experiences of implementing the good practice guide in the daily port operations are shared within its network, bringing lessons for eventual further improvements. Therefore, the continuity and further promotion of the project's outcomes can be ensured. The NoMEPorts website will continue to run for the following years after the end of the project in order to ensure the communication between interested parties and the provision of up to date information on noise management. The partner ports making use of their local and international networks will continue to promote the NoMEPorts tools and approach in workshops, congresses, meetings and environmental magazines.

Noise management of seaport areas can be seen as part of the integrated noise management efforts in urban (cities, municipalities) and industrial areas. The approach that has been established within the NoMEPorts project can be transferable with the necessary adaptations to other industrial areas such as inland ports, dry ports and large logistic centers. The NoMEPorts tools have been developed to assist in the noise management of seaport areas, arguably the most complex between the industrial areas.



It may be suggested that the demonstrated usefulness of those tools in seaport areas is logically transferable to often simpler in terms of activities and noise sources other industrial areas. Furthermore, it is believed that a similar phased approach can be followed for the management of other significant port environmental issues such as air quality. Noise and air pollution are two phenomena often strictly interconnected. A large variety of noise sources are also sources of airborne pollutants (e.g. mobile vehicles, ships, stationary combustion engines used in industry). The state-of-the-art of scientific knowledge allows the use of mathematical models to make complex cause-effect mechanisms comprehensible. Further research on the applicability of the NoMEPorts approach to port area air quality management is needed. An efficient framework for such research can be provided under the umbrella of a new EU funded initiative. ECOPORTS Foundation in consulting ports on their willingness to participate on such an initiative got very positive reactions and the interest of the port sector towards that direction can be confirmed. A new project proposal is in the development phase.

