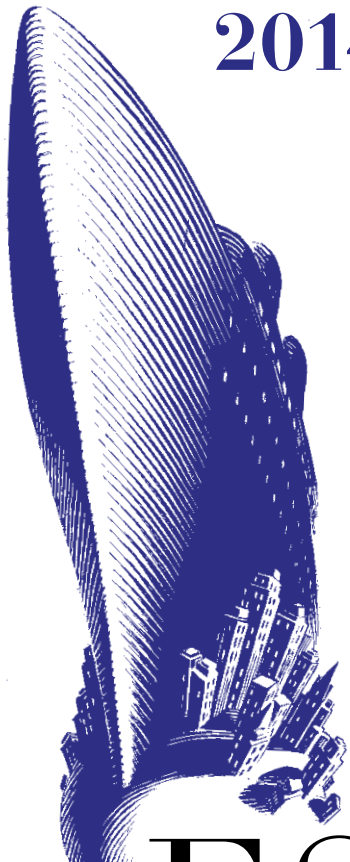
2014



ESPO AWARD

About the ESPO Award

The ESPO Award on Societal Integration of Ports entered its sixth edition this year. The Award was established in 2009 to promote innovative projects of port authorities that improve societal integration of ports, especially with the city or wider community in which they are located. In this way, the Award wants to stimulate the sustainable development of European ports and their cities. With the experience of the first two editions, it was noted that 'societal integration of ports' is a topic that covers many layers. The diversity of applications had been very high, which made the task of the jury to select a winner a very challenging one. To make it easier for ports to know which kind of project to submit, it was decided to make the ESPO Award thematic in 2011.

For the 2014 competition, the theme 'Innovative Environmental Projects' was chosen, addressing innovative port projects that lead to environmental improvement for the benefit of the wider port and local community. Reducing the environmental impact of port operations and improving local environmental conditions for the people working and living around the port are key success factors for the societal integration of ports. In fact, ports grant and maintain their license to operate and to grow from their local communities. Therefore, through the award, ESPO hopes to identify and promote innovative projects set up by ports that address the typical port-city concerns in the environmental field such as local air pollution, water pollution, noise, dust, odours.

The call for proposals resulted in 20 project submissions which are summarised in this brochure. The jury shortlisted the projects of 5 ports on 2 September: Huelva, Koper, Lisbon, Marseille and Rotterdam.

The winning project will be announced on 4 November 2014 at the Albert Hall in Brussels.

ESPO chairman's foreword

It is clear that the five editions of the ESPO award have not lowered the enthusiasm of our members to participate in this year's edition focusing on innovative environmental projects that benefit the wider port community.

Twenty ports have submitted a project. Among them, ports that are participating for the first time and others who have already participated and even won one of the previous awards. Again small and big ports are competing against each other to win the 2014 ESPO award. And as I have said last year, all applicants are winners. Ports that work on environmental projects that improve the quality of life of the direct neighbourhood will more easily get a "license to operate" from the local community.

In 2010 ESPO published its Code of Practice on Societal Integration of Ports. Two years later, ESPO published the third edition of its Green Guide stimulating ports to further improve their track record in environmental management and performance. I believe this year's edition shows how both goals are interrelated and I hope that these two pro-active initiatives of ESPO have inspired some of the applicants of this year's award.

Also this year, the jury had the difficult task to distinguish good projects from very good ones and to choose the best project. I would like to thank all members of the jury for their time and dedication in assessing all submissions.

I hope this year's winning port considers the award as a milestone but not an endpoint. Winning the 2014 ESPO award should be a stimulus to further continue the work on societal integration and on taking further action under the 5 Es: Exemplify, Enable, Encourage, Engage and Enforce.

Santiago Garcia-Milà

Previous winners

2013 Port of Antwerp (Belgium): Heritage, the breadcrumb trail between city and port

2012 Port of Genoa (Italy): Citizens of the Port – Knowing and Living the Port of Genoa

2011 Ports of Stockholm (Sweden): Hamnvision 2015 (Portvision 2015)

2010 Port of Helsinki (Finland): Port as Part of the City

2009 Port of Gijón (Spain): Gijón Port & City Together

And special mentions to Genoa Port Authority (Italy): Genoa Port Center – Breaking Down the "Social Distancing" of the Port and Ghent Port Company (Belgium): Project Ghent Canal Zone - Working Together on the Sustainable Development of the Ghent-Terneuzen Canal Zone

The Projects

- Antwerp Port Authority, Belgium. Sustainability Report for the Port of Antwerp. Collaboration, Partnership and a Long-term Vision.
- Cyprus Ports Authority, Cyprus. Multimodal Port traveller Information System
- Port of Tallinn, Estonia. Mobile Technological Handling Station (MTHS) for Recycling Liquid/pumped Oil-containing Waste and Polluted Sea Water
- CCICO – Port of Calais, France. ROAD 2 RAIL
- Marseilles Fos Port Authority, France. GIREL Research and Development Programme (Infrastructure Management for the Ecological Rehabilitation of the Coast)
- Livorno Port Authority, Italy. Open Web Monitoring System
- Port of Venice Authority, Italy. Motorways of the Sea – New Terminal
- Freeport of Riga Authority, Latvia. Development of Infrastructure on Krievu Sala for Relocation of Port Activities out of Riga City Centre
- Port of Rotterdam, Netherlands. We-nose: an E-nose Sensor Network in Rotterdam Rijnmond
- Port Authority of Lisbon, Portugal. Innovative Dredging Plan
- Port of Koper, Slovenia. No waste, Just Resources!
- Port of Cartagena, Spain. Sustainability-2.0, a Framework for Sustainable Ports.
- Port Authority of Huelva, Spain. Ecological Restoration of Salt Marshes in the Port of Huelva.
- Port Authority of Melilla, Spain. Nereidas
- Port Authority of Valencia, Spain. Eco-efficiency at the Port Authority of Valencia – Towards an Environmental respectful Port Community – CLIMEPORT
- Port Authority of Vigo, Spain. Green Port Energy Center "GPEC"
- Port of Gothenburg, Sweden. Campaign for Cleaner Shipping including Improved Fuel Quality Programme
- Port of Trelleborg AB, Sweden. VISION 2010/2015 - The City and Port Developed in Harmony with Each Other
- Port of Ystad, Sweden. Onshore Power Supply in the Port of Ystad
- London Gateway, United Kingdom. London Gateway Port Development Limited

ESPO Code of Practice on Social Integration of Ports

ESPO published in May 2010 a Code of Practice on Societal Integration of Ports. This Code builds on the experience of the first edition of the ESPO Award and resulted from the project "People Around Ports" that was initiated by the Port of Rotterdam. The Code brings together a series of practical recommendations that can guide port authorities in improving their general public image, attract young people to work in the port and make people living in and around the port area their ambassadors.

The code is available in English and in Spanish from: www.espo.be

The ESPO Award is an initiative of
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The ESPO Award Statue and Logo were designed by François Schuiten.
The ESPO Award Statue was executed by Karl-Heinz Theiss and the Logo by Studio Goffin.
Compilation and editing of texts: Cillian Donnelly, Cécile Overlau, Isabelle Ryckbost, ESPO Secretariat.

How were we to make a choice between twenty projects that are all worthwhile and interesting? It has taken the jury for this year's ESPO Award long hours of discussions to reach an agreement. For all members of the jury it was clear that port authorities do not take their tasks lightly. They know that ports work in difficult circumstances.

Geography is not always flexible and often forces port authorities to find solutions to difficult problems. More often than not there is a lack of space for expanding port activities. Ports have a responsibility towards the community, especially when there is a large population centre in the vicinity.

History in many cases plays an important role. Most ports have grown over the centuries and carry a historical burden. Very often the historical port was integrated in the waterfront of the city. But over the ages the modern port has grown and now cuts off the city from the waterfront. In many ports this asks for drastic relocation measures.

The environmental impact of port activities is a constant worry for all stakeholders in ports, and that worry affects their activities. It is remarkable to see how inventive ports are in their efforts to limit the negative effects.

The applications for this year's ESPO Award prove that port authorities take up their responsibility with enthusiasm and imagination. They also clearly point out to their neighbours that we should never forget that ports are an essential part of modern society's welfare and wellbeing. The management of the port environment, in the broadest sense of the word, has over the past decades become an essential part of the ports' management as a whole.

Dirk Sterckx

Chairman of the Jury, former Member of the European Parliament

THE JURY

Rosa Maria Darbra
Technical University of Catalonia

Denis Davoult
Strategic Advisor – Urban Affairs, AIVP - International Association of Cities and Ports

Bill Hemmings
Programme Manager - Aviation & Shipping, Transport and Environment

Marta Moretti
Board Member, River-Cities Platform Foundation

Jakob Svane
Special Adviser on Ports and Maritime Affairs, Confederation of Danish Industry

Dr Chris Wooldridge
Scientific coordinator of EcoPorts

ANTWERP PORT AUTHORITY

Sustainability Report for the Port of Antwerp
Collaboration, Partnership and a Long-term Vision

THE PROJECT. Under the motto "Strong Through Collaboration" the stakeholders have developed a vision for the future of the port. "The Total Plan" was an important catalyst for a debate on sustainability at the level of the port as a whole. This resulted in the presentation of the first Sustainability Report of the whole Antwerp Port Community on February 2nd, 2012. This was a world first: never before had the various private and public partners in a port community published a joint sustainability report covering an entire port area. With this benchmarking exercise the Antwerp port community gave form to its ambition of being the sustainability leader in the Hamburg – Le Havre range. The decision to publish a report for the port as a whole was a deliberate choice by the entire port community. To promote the implementation of sustainable measures in the daily practices / management of all entities in the port, a manual for Corporate Social Responsibility was included in the second Sustainability Report, published October 2013. Knowledge, experiences and other information is shared in this manual and will hopefully result in further improvement of the sustainable performance of the overall port of Antwerp.

Innovative environmental added value of the project. The Sustainability Reports are considered the core of our innovative, long-term vision for the flowering of Antwerp as a sustainable port. Establishing collaboration was the first, most important step, leading to the Sustainability Report. The innovative approach of the project is a better understanding of the relative impact of different sources contributing to the environmental state in the port area. A sustainability report for a port area / community makes it possible to identify

significant sources / actions that contribute to the environment. This makes it possible to develop an appropriate policy and begin relevant measures to improve the state of the environment

Possible impact of the project. The Sustainability Report resulted in an increased awareness regarding sustainability in the port and the role in which all entities can play for further improvement. The stakeholder process, discussing the different sustainability indicators and the interpretation of the results, enhanced the co-operation among the different public and private partners active in the port area. The Sustainability Report is a driving force for all entities to implement new measures into their daily management and also to share their experiences with others.

Stage of implementation of the project. Ongoing, systematic consultation was seen by the various stakeholders as particularly useful and has been pursued by all parties. After publication of the first Sustainability Report a critical analysis of the process in collaboration with the stakeholders was made, and recommendations for improvement were incorporated into the second report. A manual for Corporate Social Responsibility was also included in the report in which information and experiences regarding a number of topics are shared. This manual will be further developed, new topics will be added and the information will be continuously updated. The partners and the stakeholders are now in the process of outlining the third report due to be published in the autumn of 2015.

Port of Antwerp

"Sustainability has many aspects. But for an international port such as Antwerp to commit itself as a community to grow as a sustainable port is perhaps the most sustainable and most challenging decision that we have taken."

Marc Van Peel
Alderman for the Port and Chairman of Antwerp Port Authority

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CYPRUS PORTS AUTHORITY

Multimodal Port Traveller Information System

THE PROJECT. The project aims at implementing a single Multimodal Port Traveller Information System that allows for the reception, analysis and dissemination of transport related information for the port community. This system effectively enhances the decision making process with regard to the transportation of specific cargo, based on arrival and departure of ship / cargo. Essentially, the system is a web based application which disseminates information to its users in real time and advocates the collaboration of stakeholders affected. This innovative project integrates maritime and road transport information facilitating cargo route from port to final destination and vice versa. It brings together the Port Community with the various stakeholders operating outside the Port, such as local authorities, government organisations, the police, the fire service and civil society actors, thereby connecting the Port of Limassol with the local community.

Innovative environmental added value of the project. With urban traffic being the only mode of transport between port and hinterland, Cyprus Ports Authority in co-operation with the Public Works Department and Limassol Municipality, have implemented a system that enables the monitoring and real time routing of road traffic around the Port in relation to ship arrival and / or departure. Road traffic information is related to Maritime traffic information at Limassol Port, in order to optimize road traffic, port operations and logistics and hence minimise carbon dioxide emissions, maximize efficiency of operations based on cargo delivery / loading and passenger management,

as well as reduce unnecessary noise levels and traffic congestion in the city. More importantly, having experienced a tragic accident in 2011 with the loss of 13 human lives, the system enables the safe and secure transportation of dangerous cargo outside the city, minimising the risk of accidents through controlling and managing traffic, based on the information provided by the system.

Possible impact of the project. The system has contributed significantly towards the port societal integration by transforming a port from being a distant, but necessary evil, into a corporation that cares and caters for the everyday problems of citizens. Ignorance of what is transported and where, has been transformed into knowledge and information.

The implementation and operation of the system promotes the interaction between the Port Community and the Local Community. Several interested stakeholders work together, based on the system information, in an attempt to overcome common issues. This interaction ensures maximum transparency of intentions between stakeholders and also builds a culture based on co-operation for the common benefit of the area and the Port.

Stage of implementation of the project. The system has been completed and is operational.

cyprus ports authority

"Ports are an important part of economic and social development that are closely linked to the environment they serve. Therefore, devoting extra care to ports societal policies aimed at preserving natural ressources is a moral responsibility for all. Impacts deriving from port operations should be addressed by applying a systematic methodology in a way that ensures the unhindered development of social structures and activities. Cyprus Ports Authority, by implementing the "Multimodal Port Traveller Information System" project, reinforces environmental and social preservation from the possible consequences associated with the port's functioning, through the direct and targeted electronic communication of all involved stakeholders and relevant bodies."

Alecos Michaelides
Chairman

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PORT OF TALLINN

Mobile Technological Handling Station (MTHS) for Recycling Liquid/Pumped Oil-Containing Waste and Polluted Sea Water

THE PROJECT. Mobile Technological Handling Station (MTHS) provides a new innovative technological solution for optimum handling of liquid/pumped oil containing waste from ships and/or polluted sea water whereby the hazardous waste is recycled into a 100% recoverable REACH certified oil product.

MTHS is of great importance both nationally and internationally as it increases Estonia's operational ability to fight against Baltic Sea pollution through having the practical ability to pump large amounts of contaminated sea water from vessels into reservoirs.

MTHS project has been developed by the Port of Tallinn and its daughter company Green Marine taking into account the best practice from scientists, research institutions and companies.

Innovative environmental added value of the project.

- The extremely flexible, automatically operated handling system which is controlled from one location by one operator using a touch screen, laptop or remotely online, allows waste in various proportions (oil/water/sediment) to be treated without the need for manual recalibration of the equipment and minimises the loss of usable output components. An integrated residual heat recovery system allows major savings on electricity and thermal energy through preheating the waste before treatment. All of the equipment conforms to the EU's highest technical conformity and safety standards.

- Less energy is spent on handling oil waste compared to similar available processes (the energy is recovered), the amount of hazardous waste is significantly diminished in result of handling, and the process is environmentally sustainable and economical.

The treatment process yields a 100% recoverable REACH certified oil component that is of stable quality, has a market and a product price that can be standardised. The waste generated in the process does not end up in landfills. Practically all of the waste generated in the process is recovered. The solids separated by centrifuge and decanting are used.

The new, smart technology consumes 1.58 kWh less energy to process 1 m3 of oil waste than the old process and produces 7% less hazardous waste by mass.

- The MTHS process ensures that the amount of airborne emissions is significantly less than with other existing technologies.

Possible impact of the project. The development of MTHS was motivated by the Port of Tallinn's goal to implement the company's social responsibility policy more effectively, offer services that better comply with environmental requirements, to take into account the principles of social corporate responsibility and to give extra value to local communities as well as to society in general.

The solution brings benefits to many different parties like shipping companies, the Estonian Maritime Administration, Police and Border Guard Board, Estonian Rescue Service, Ministry of the Environment and Environmental Inspectorate, and also to local communities who wish to live by a clean sea.

The MTHS project is a good example of public-private partnership (PPP), which involves public sector authorities and private parties.

Stage of implementation of the project. MTHS is in operation since March 2011.

PORT OF TALLINN
The Port of Good News

"The Port of Tallinn aims to contribute to the sustainability of the Baltic Sea. In developing the MTHS project we have put together technological possibilities and environmental aspects, which ensures the sustainability of both the port and the environment in the best possible way."

Allan Kiil
Member of The Management Board

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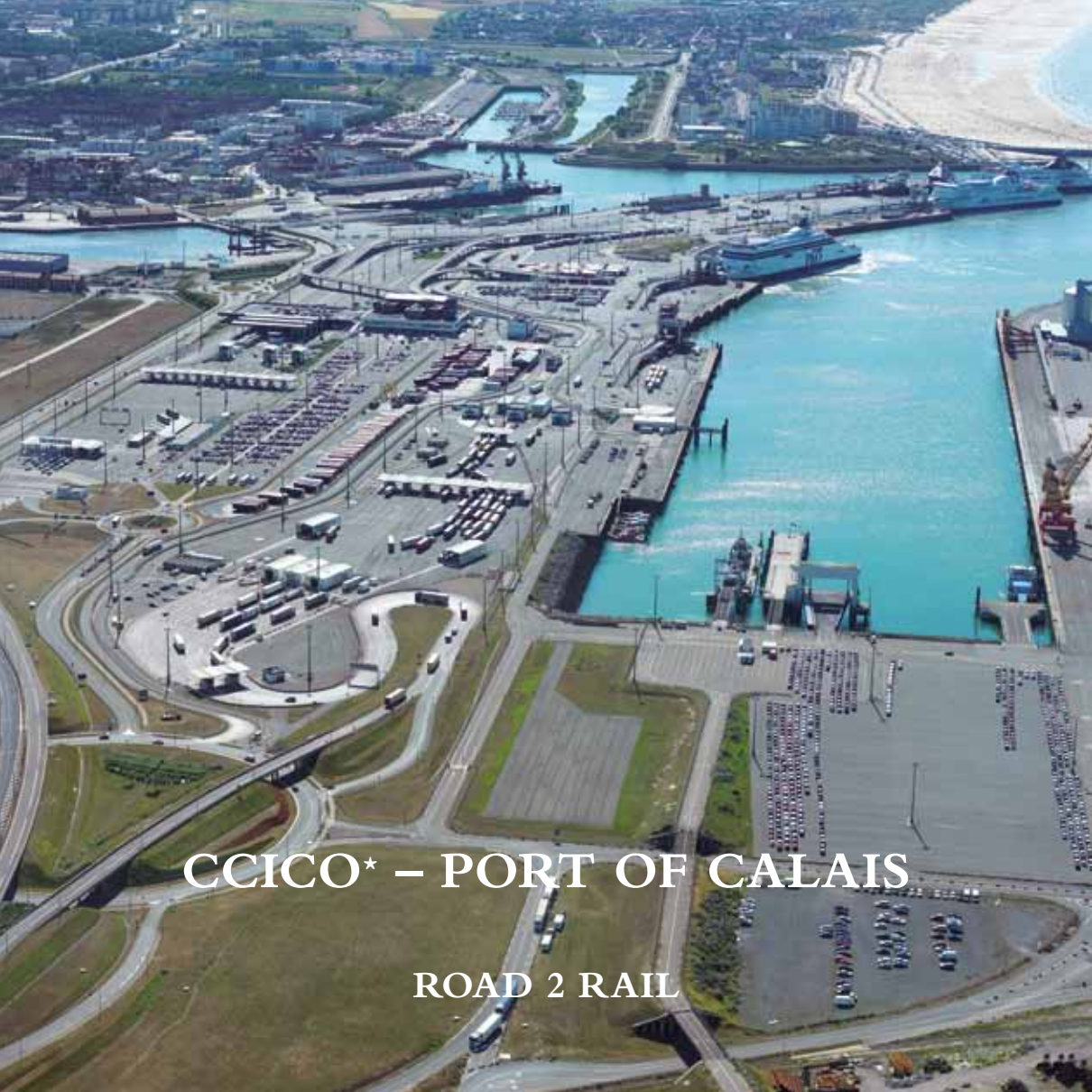

CCICO* – PORT OF CALAIS

ROAD 2 RAIL

THE PROJECT. The construction of a multimodal platform consisting of a rail terminal, a multimodal interface area and an information exchange platform, which will connect the port of Calais with the rail terminal of Le Boulou (Perpignan).

This service will constitute a link between Rail and the Maritime transport, contributing to the Trans-European Transport network by improving the connections between Northern Spain, the Benelux countries and the UK.

Innovative environmental added value of the project

Innovation is technological. The project offers a new service:
– Road hauliers do not have to invest on specific trailers in order to use the service.
– 2 round trips per day of unaccompanied unitised freight traffic

Innovation is economic. The project allows for to route unaccompanied freight traffic: unaccompanied trailers can be routed from the hinterlands to the UK or from the UK to the hinterlands without drivers benefitting from the high RoRo crossings frequency (40 roundtrips daily).

Innovation is organisational. The project improves operations efficiency and traceability:

– A remote registration process enters information into a database from which all relevant information will be dispatched to the relevant parties. This procedure will allow the automation of tasks (gate access, match of identity information, etc.) for greater productivity and a better service.
– Automatic reporting of the trailer journey will be forwarded to the relevant parties.

Possible impact of the project. During the project development, a noise study has concluded that no major impact would affect the residential area, based on a limited number of trains (2 rounds trips daily). For further expansion, in order to maintain the quality of life in the vicinity of port activities, a 275m sound barrier with a height of 2 m 50 cm could be erected.

Because communication is the key of integration, a public meeting should be organised in particular to meet the local community, to hear their remarks, discuss the expected impacts and benefits of the rail traffic through the city, and planned actions to mitigate the impacts.

A noise monitoring network is in place around the port. Any relevant reclamation emitted to the Calais City Hall can be followed to the Port of Calais in order to ensure it is relevant to our activities.

Stage of implementation of the project. The contractor will be chosen in Q3 2014.

Works are expected to start on the construction in October 2014 and are anticipated to be completed in Q2 2015.

In Q4 2014 a public meeting will be organized to introduce the Multimodal Platform project, the impacts of the rail traffic through the city and the planned actions to mitigate the impacts.

* Chambre de Commerce et d'Industrie Côte d'Opale (CCICO)

Calais
PORT DE CALAIS

"Societal integration is a core component of our development projects. Each project generates a variable impact on its environment. Because we want a sustainable economic development of our activities, we must evaluate the generated impacts on our environment in a global approach : air, noise, traffic increase… Each unevaluated impact generates a risk to miss the expected objectives of the project.
That is why solutions must be found and the impacts must be lead to an acceptable level for our stakeholders, the community and the port. When the impacts are wide, the project must be transparent to facilitate its implementation."

Laurent Devulder
Strategy & port Development Manager

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MARSEILLES FOS PORT AUTHORITY

GIREL Research and Development Programme (Infrastructure Management for the Ecological Rehabilitation of the Coast)

THE PROJECT. The main innovation put forward in the Grand Port Maritime de Marseilles (GPMM) idea is the global approach it proposes based on the following objectives:

- Development of a method for the evaluation of marine ecosystems with the aim of providing decision-making support in terms of management and sustainable development strategy.
- Definition of an action plan within the scope of the GPMM port designed to contribute to restoring local and surrounding marine ecosystems.
- Development of proven operational tools to implement the plan, incorporating integrated development and compensatory measures where necessary.

Three technical pilots should make it possible to validate and/or correct the results of the initial study phases. The first pilot consists of specific reefs adjoining port structures (breakwaters, quays) and actions to optimise their ecological performance or the benefits they provide at local or micro-regional level (creating corridors).

A second pilot involves reseeding the environment with specimens captured at the post-larval stage, and once grown, returned to the sea at a stage when they are less vulnerable to predators.

The last pilot is a large-scale demonstration of the possibilities of replanting cystoseira, an alga that forms the keystone of the rich ecosystems in rocky areas beaten by the waves.

Innovative environmental added value of the project. The main priority for nature conservation policies is to preserve sites, maintaining good habitats and biodiversity characteristics. As regards to marine life, the implementation of MPAs (Marine Protected Areas) is the most visible action on the sea activities

and space organisation. However, this is known to be insufficient ensuring the prevention of marine ecosystems damage.

ICZM (Integrated Coastal Zone Management) principles encourages wider thinking and cooperation through water catchment areas or ecological functions considerations. Though ports basins and infrastructures are usually considered lost places for marine biodiversity, GIREL (Infrastructure management for the Ecological Rehabilitation of the Coast) is an innovative attempt to make these artificial submarine structures play an unexpected role for the aquatic life support.

Possible impact of the project. The Mediterranean region is listed as one of the 34 biodiversity "hot spots" of the world. All around the ports of Marseilles and Fos, this results in a dense MPA network, from the Camargue to the newly created marine National Park of the Calanques. Furthermore, local communities strongly invest in artificial reefs to mitigate the impact of human activities. Fishing, diving, sailing are social and cultural activities that maintain a strong link with the Mediterranean identity tradition. Not surprisingly, GIREL involves many stakeholders such as the local water public agency, the Mediterranean sea cluster, private engineering companies, scientists and local MPAs.

Stage of implementation of the project. At this stage, many objectives have already been achieved. Scientific inventories carried out before the experimental phases show fish sizes and abundances comparable to MPAs characteristics, which had never been studied before and confirms the potential marine life enforcement possibilities within seaports.

First results regarding the efficiency of the different demonstrators should be available by the end of winter 2015, and will allow the Marseilles Port Authority to proceed with its global strategy for the ecological valorisation of maritime infrastructures.

Marseille Fos
Le port euroméditerranéen

"The reconciliation of industrial and commercial ports with their environmental surroundings is clearly one of our most difficult but thrilling challenges. There still lies a long way ahead for the societal integration of ports but we are deliberately choosing to make it possible and will be proactive actors on this mission. Many questions are raised and particular attention paid to local issues often leads to non-standard problems to solve. This is the reason why environmental challenges stimulate innovation so much. Thanks to the support of our numerous and active partners, GIREL is one of our most promising and ambitious programs in that field. It's a great satisfaction to observe how much the different stakeholders, private or public, have taken a strong interest in this program with great expectations and even contributing to the elaboration of new solutions to encourage marine life in our basins. As a maritime and coastal economic and territorial community, this means we all share the same gratitude to the sea for the richness it brings us."

Christine Cabau Woehrel
CEO of the Marseilles Fos Port Authority

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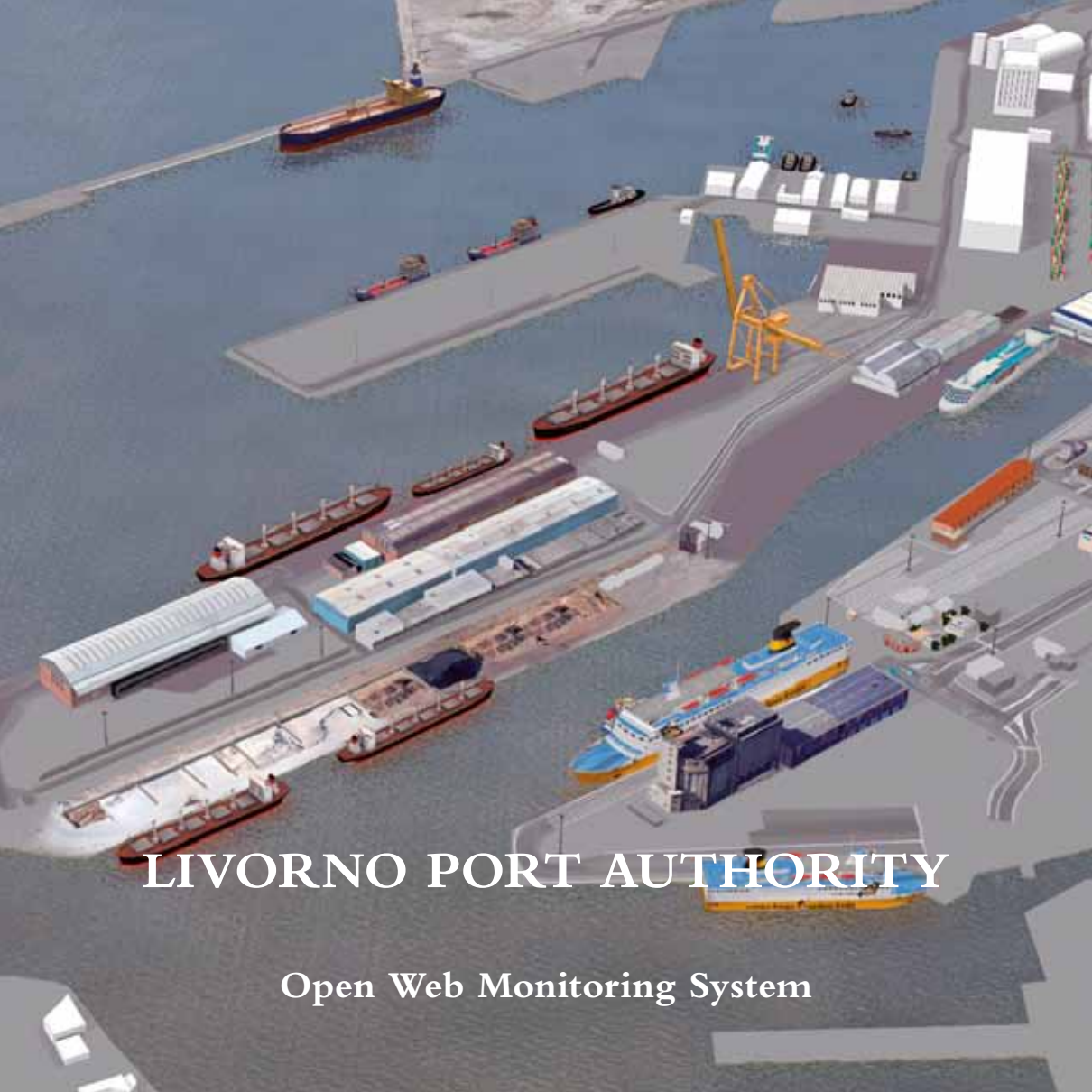


LIVORNO PORT AUTHORITY

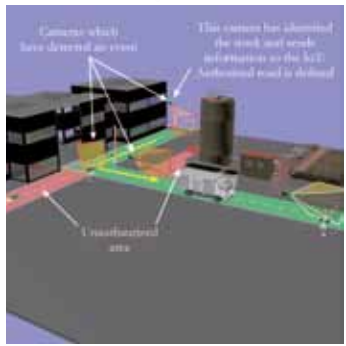
Open Web Monitoring System

THE PROJECT. The project aims at the development and integration of a heterogeneous, fragmented, independent, multi-purpose sensing layer into a cloud of services managed by the Port Authority. The objective is that of offering a way for the communities of the Port ecosystem (i.e. customs, terminal operators, city hall) to follow a good practice (hopefully standard) for running monitoring activities and enforce security regulations. Along the same line, we want to supply the Port Authority and the city hall a set of sensor data (coming from third parties) enabling the real-time environmental assessment of any activity occurring on the Port landside. We envision the establishment of a large-scale application-neutral and hardware-independent multi-purpose sensing layer in the Port landside. In our scenarios, we want to abstract the raw information coming from sensors (i.e. pollution, temperature, humidity, illumination, proximity, presence, transit, images) as an instrumentation layer of an open cloud of services.

Innovative environmental added value of the project. With the Open Web Monitoring System a new generation of sensing devices and back-office monitoring facilities inspired by the Internet of Things (IoT) is being deployed on the Livorno Port landside. This framework project represents a first attempt in establishing an IoT on a port landside together with a regulatory directive on further extension of the sensing layer and the back-office applications. In relation to the environmental sustainability task, the Open Web Monitoring System will possibly be used by the Authority to get the real-time pollution signature of air and water over-riding the need of delegating third parties for such measurements.

Possible impact of the project. In accordance with the growing importance of social integration, the project is contributing to develop and improve co-operative synergies with the city. The aim of Livorno Port Authority is to consolidate the role of community manager in order to optimise relations between the Port and the surrounding societal environment. Rather than a project directly targeted at pollution reduction, the Open Web Monitoring System is a powerful and effective tool in the hand of the Port Authority to assess the environmental impact of any Port industrial activities. The results coming from the Open Web Monitoring System will be turned into classes and delivered as training lectures (professional profiles) hosted by the Authority, and academic classes on IoT innovation attached to institutional university courses in order to have an impact on the supply side of the labour market. All of these activities will contribute to a better quality of life of inhabitants in and around port areas.

Stage of implementation of the project. The preliminary stage of the project is ongoing, since the technical specification for installing a set of sensor nodes have already been defined. These sensor nodes for traffic monitoring, truck tracking and dangerous goods tracing will be placed on the Port landside by the end of 2015.



"Livorno Port Authority will play a significant role endorsing the challenge of the Future Internet as an enabling technology for targeting Sustainable Growth which is quite challenging for historical ports like Livorno in accordance with the 'Extended Green Port™' concept. The Port is implementing piloting actions encompassing ICT solutions for maritime transport and sea-to-land logistics through the implementation of prototypes / demonstrators together with an educational and dissemination target for knowledge transfer.

The Port Authority has kicked off the project as a pilot experience. The idea is that of promoting, regulating, and governing innovation, it is not that of driving choices."

Antonella Querci, Director of Development and Innovation Departement
Francescalberto De Bari, Head of Economic Planning, Strategic & EU projects, and Innovation Area

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PORT OF VENICE

Motorways of the Sea – New Terminal

THE PROJECT. According to the final design the new Motorways of the Sea terminal will be equipped with 4 quays – 2 of them yet operating – loading/unloading and freight handling areas along the edges of the wharves, loading/unloading areas for the north and south rail spurs of around 600 × 30 m^2, buffer areas and areas (also built/covered) with specific functions.

The project aims to enhance viable, regular and reliable sea-based transport services integrated in the logistic chain and so contributing to the reduction of economic, social and environmental costs related to port and logistics activities (reduce congestion through modal shift, improve interoperability & co-modality, facilitate coherent traffic quality and logistic chain integration)

Innovative environmental added value of the project.

- The improvement of the environmental compatibility of port activities. The new Motorways of the Sea Terminal Project supports the environmental recovery of the existing industrial site thereby improving the environmental status of the lagoon (32,000 tons of asbestos removed; 18,000 tons of contaminated soil removed; 5,000 mc of contaminated sediments removed). The dredging project for the North Basin has removed 474,335 mc of sediments; 268,000 of clean sediments "Entro A" were disposed in salt marshes (in order to contribute to the lagoon revitalization) and 200,000 of "Entro C" sediments – considered as polluted and unrecoverable – to Tresse island.
- The complete ousting, starting from the end of 2013, of ferries navigation in proximity of Venice historical centre.

- The complete ousting of 100,000 trucks per year from the "Ponte della Libertà" (the only bridge to access and leave Venice).

Furthermore, the project is based on the most innovative green policies; management of rainwater and wastewater, use of alternative energy production and consumption of content through cooling systems, and innovative heating and lighting (LED) technology.

Possible impact of the project. The Project aims to develop integration between port activities and the city by:

- reconverting a polluted area dismissed by industrial production (it has been build up in a 38 hectares site in which, till 10 years ago, there was an aluminum industrial production), and generating new job opportunities in respect of mass tourism – the biggest issue for the city – in Venice.

- moving from Venice historical centre 450 ships and (up to) 100,000 trucks per year from the Liberty Bridge.

Stage of implementation of the project. The first stage of the project – clean-up project of the area, realisation of the North basin, practicality of the first wharf, realisation of parking area, the entrance passage and related functions (document control, weighing, inspection) and buffer areas and areas with specific functions – has become operational since 4 June 2014.

The remaining infrastructure, under the project, will be completed in the first half year of 2015. The environmental survey and restoration will go on until the very end of the project.

PORT OF VENICE

WHERE THE EARTH REVOLVES AROUND THE SEA

"The environmental added value of the new Motorways of the Sea Terminal of Venice can be identified mainly on the complete ousting of ferries navigation and trucks traffic in proximity of Venice historical center and the recovering activity of a polluted area – 38 hectares – dismissed by industrial production. In particular, this last action has improved the environmental status of the lagoon (i.e. 32,000 tons of asbestos removed; 18,000 tons of contaminated soil removed; 5,000 mc of contaminated sediments removed).

Finally, the project was based on the most innovative green policies and best practices according to the European standards."

Claudia Marcolin
Secretary General

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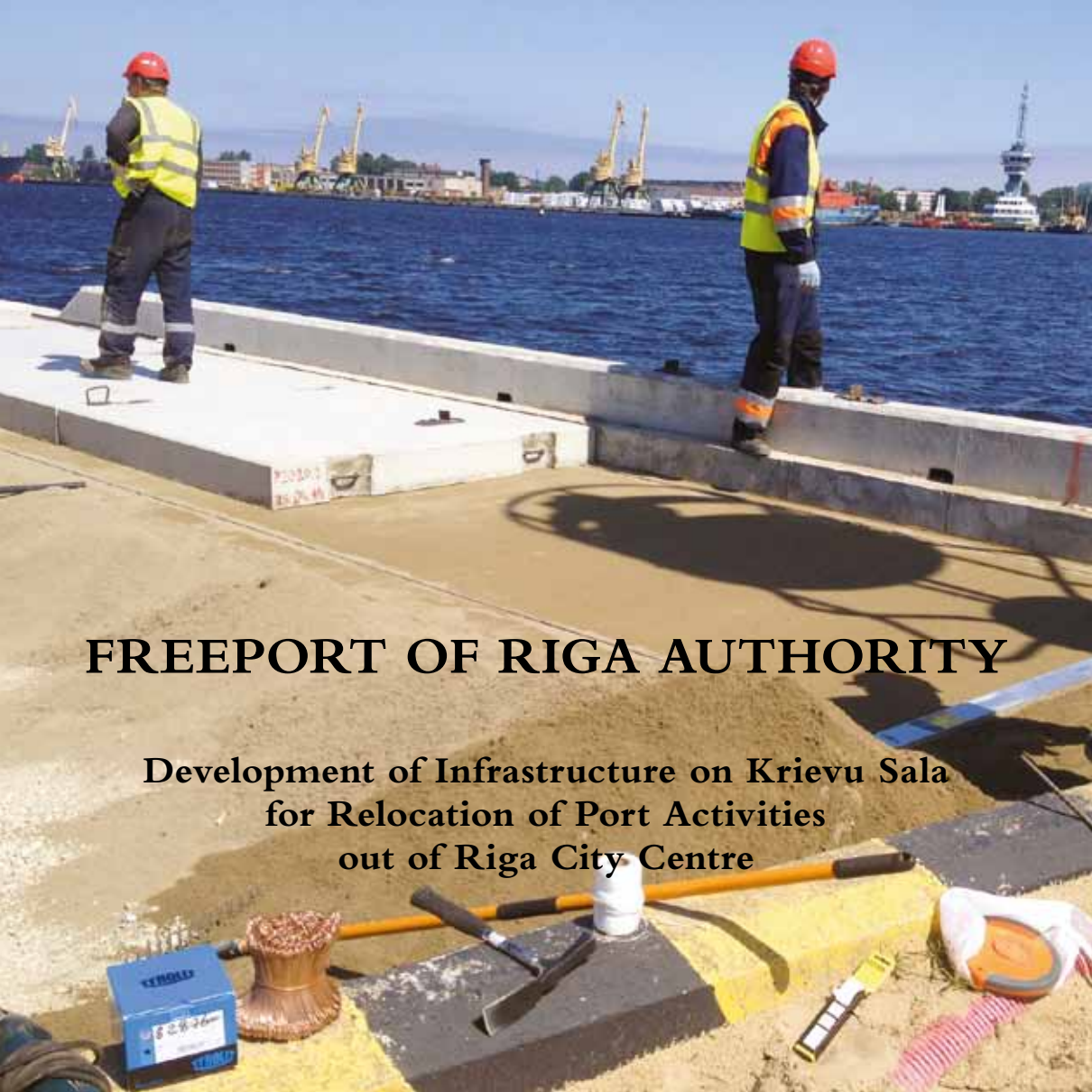

FREEPORT OF RIGA AUTHORITY

Development of Infrastructure on Krievu Sala for Relocation of Port Activities out of Riga City Centre

THE PROJECT. The Krievu Sala project, Development of Infrastructure on Krievu Sala for Relocation of Port Activities out of Riga City Centre, has been initiated by the Freeport of Riga Authority (FRA) to develop new port infrastructure a few kilometres from Riga city centre at undeveloped territory Krievu Sala for relocation of bulk cargo handling operations from Riga city centre.

The Krievu Sala project will be implemented in two phases - the first one is aimed at creating a port infrastructure within 56ha for transhipping up to 15 million tons per year, while the second aims to build the terminal's infrastructure. The Krievu Sala project is developed in close co-operation with private terminal operators and the state-owned railway company Latvijas Dzelzceļš, who are responsible for the implementation of the second phase and the development of Riga railway.

Innovative environmental added value of the project. Achieving sustainability and a decrease of environmental impact plays an important role in identifying the Krievu Sala project action agenda, setting out the initiative to develop the Krievu Sala area as a modern and functional port area with innovative and affordable port technologies and helping to revitalise the surrounding areas in the Eksportosta vicinity as an environmentally friendly, sustainable part of the city.

Environment. The Krievu Sala project has been driven by the specifics of the environmental impacts on surrounding residential and public areas, such as decreasing air pollution, noise, transport loads and improving spatial qualities of the area close to a UNESCO heritage site – Riga Historical centre.

Quality. The Krievu Sala project is expected to use best available technologies within the field of bulk cargo processing, discharge and storage.

Innovation. The Krievu Sala project is a result of the mutual process of design, analysis and exploration. The added value that the Krievu Sala project can create for society is beyond functional design, which can help sustainability and the earning capacity of the community at large.

Possible impact of the project. The Freeport of Riga Authority (FRA) is aware of the importance of the Krievu Sala project for the improvement of the local environment, better preconditions for surrounding communities via optimisation of cargo handling operations at new port area and traffic within Riga city. Ensuring the improvement of the local environment will provide the right balance between the sustainable environment and port development.

The main aim of the Krievu Sala project within the aspect of social integration is to ensure that the community continues to prosper in a way that manages and adapts the impacts of change in the spatial structure. To do this, the Freeport of Riga Authority has opened dialogue with the general public, NGOs, local communities, experts, terminal operators and the private sector, and has strengthened port-city relationship by creating preconditions for a good quality of life for the surrounding areas near Eksportosta and Krievu Sala, and for the revitalisation of the Eksportosta vicinity.

Stage of implementation of the project. The Krievu Sala project first phase is under construction.

FREEPORT OF RIGA AUTHORITY

"We hope that the FRA participation in the Krievu Sala project, the biggest infrastructure project in Latvia in the last 20 years, will help to create greater awareness of the social dialogue between the port and the local community. The project proves that the Freeport of Riga Authority is a serious partner, which is able to ensure sustainable city development and to handle environmental challenges"

Leonids Loginovs
CEO

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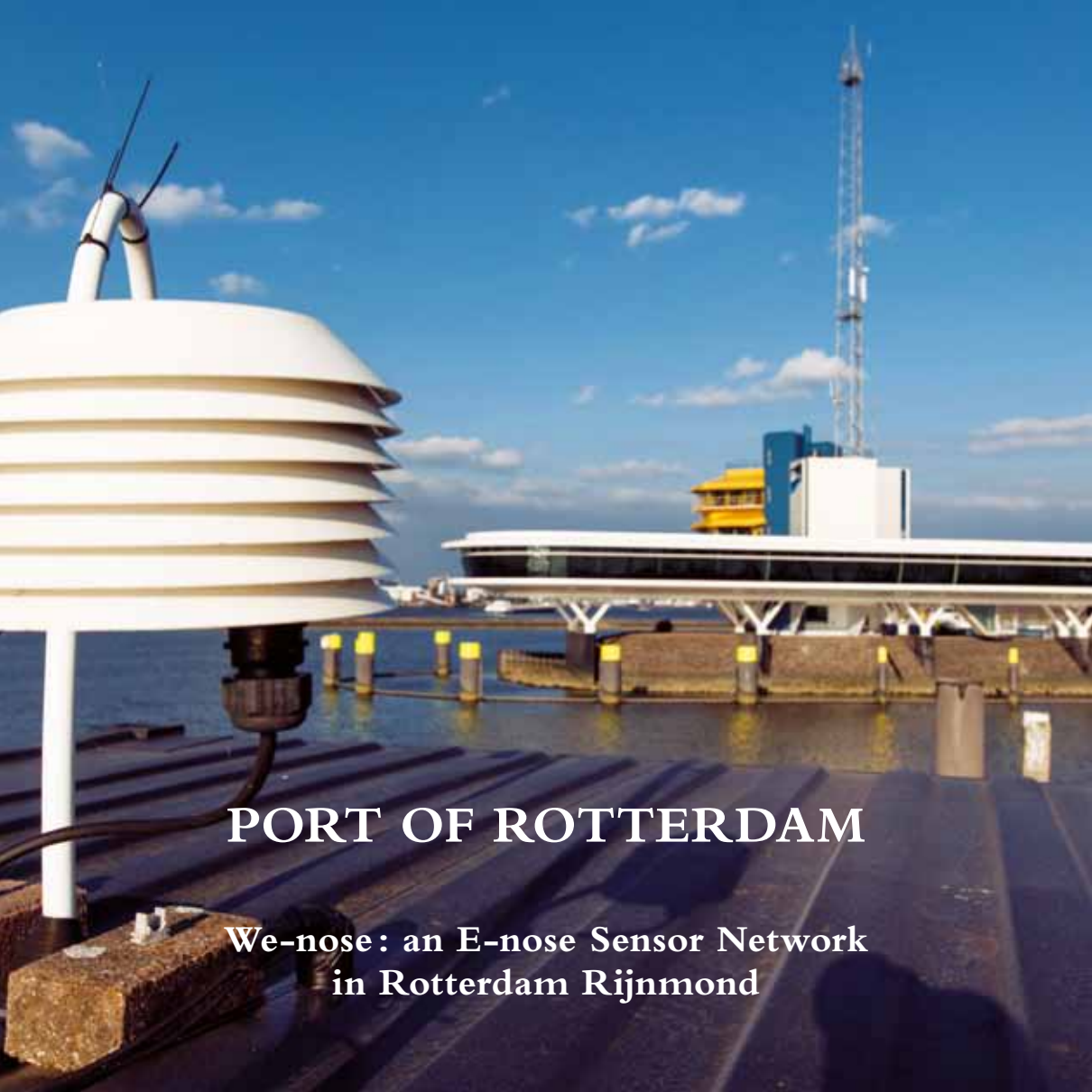

PORT OF ROTTERDAM

We-nose: an E-nose Sensor Network in Rotterdam Rijnmond

THE PROJECT. Both the city and port strive towards a healthy, safe and attractive living environment. One of the tasks is to limit and reduce the (perceived) nuisance caused by port activities, such as the stench.

The e-nose is an innovative instrument, enriching and supplementing existing tools, such as the air measurement network. A network of e-nose sensors in the area provides a good picture of the air composition and how this changes in terms of its nature, place and time.

The Rotterdam Port Authority purchased 77 sensors and in co-operation with the Province of Zuid-Holland, VRR (Safety Region Rotterdam Rijnmond) and the Municipality of Rotterdam. A basic network was officially launched by Her Royal Highness Princess Laurentien of the Netherlands in December 2013. The festive gathering was attended by representatives of business, governments and residents from the area and emphasised the importance of the network for all parties involved by appropriately naming the network We-nose.

Innovative environmental added value of the project. Growth and development of the port and city whilst the environmental preconditions become more stringent and environmental contours shrink demands more than just complying with laws and regulations. And that applies to all of us: the public and private sector, and local residents. The added value is reflected in the joint responsibility. Municipalities, businesses and other parties are

enthusiastic about participating in this network. Moreover, the more parties, the denser the network and the more accurate and reliable the interpretation of the environmental impact. This co-operation is unique given the sensor's innovative character and application as a monitor in that so many 'early adopters' co-operate in the network, providing an extralegal instrument.

Possible impact of the project. Co-creation is key. Businesses as well as municipalities and other organisations participate. Special attention is paid to the people who live in the vicinity of the port of Rotterdam, who are affected most by the nuisance generated. The local residents were consulted right at the start of the project about their experiences and the possible value of an e-nose network. Also the reciprocal effect of port and city was also discussed: growing cities increase the number of residents susceptible to nuisance and growing port activities affect the environmental impact. The we-nose project provides a platform to discuss this delicate matter with all parties involved.

Stage of implementation of the project. The network launched in December 2013 consists of approximately 100 sensors. The control room personnel are being trained, the alarm levels and action protocols designed. Topics such as the stability of the network, how to respond to the generated alarms and also the definition of the alarm level are the subject of an application study that is being conducted in 2014. Also preparations will be made for the establishment of a co-operative to administer, maintain and operate the network.

"We want to remain not only the largest, but first and foremost the best port in Europe, operating in a flourishing and healthy city and region. New techniques are helping us to achieve this. The We-nose network is an example: it is an innovative network of sensors which has been created in the Rotterdam-Rijnmond region. We-nose is a unique project that includes residents, businesses, municipalities and the Port of Rotterdam Authority. Together we are working on a healthy, safe and clean port."

Allard Castelein
CEO

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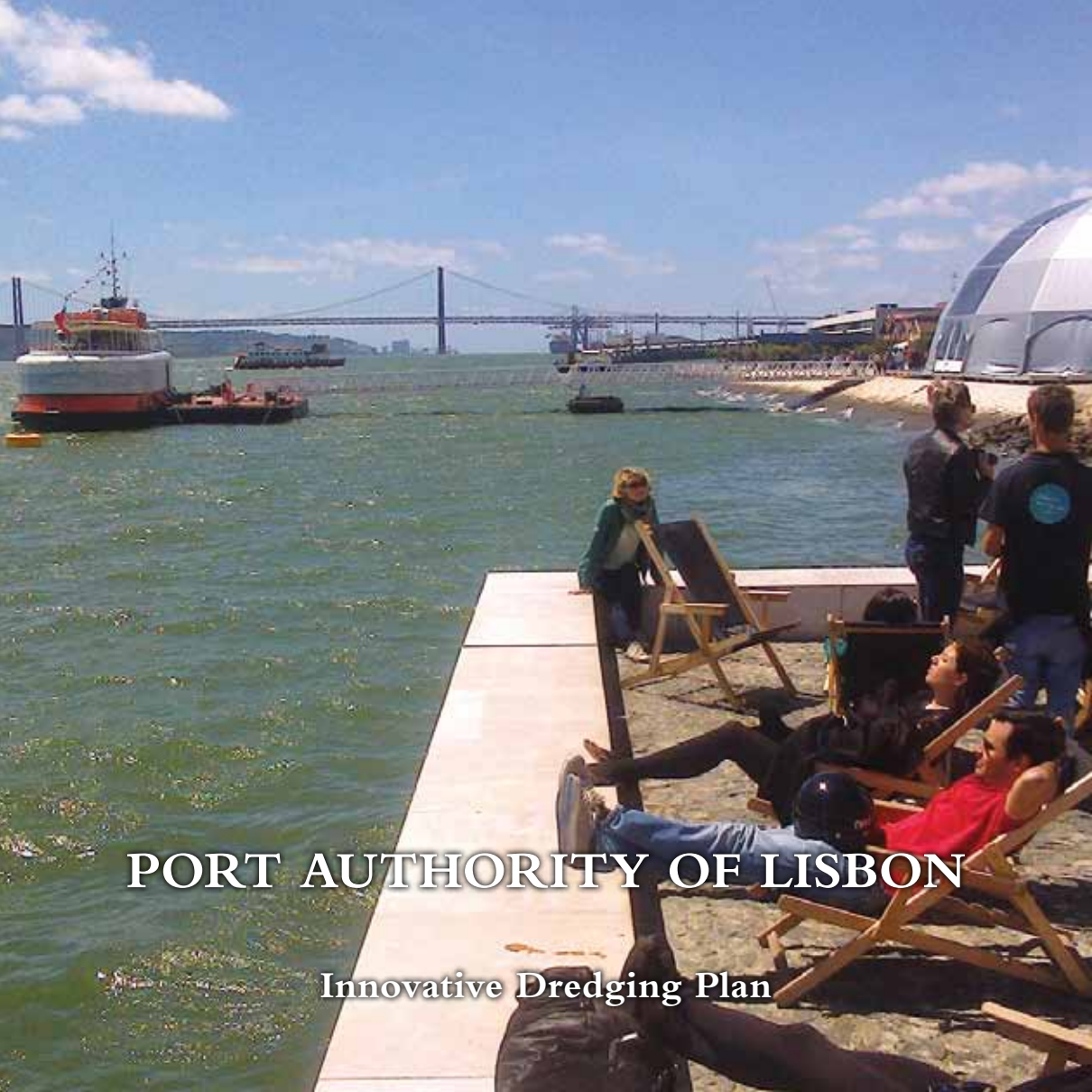

PORT AUTHORITY OF LISBON

Innovative Dredging Plan

THE PROJECT. In the scope of the obligation arising from the transposition into Portuguese law of the Framework Water Directive, the Port of Lisbon Authority prepared a dredging plan for the five year period 2010-2015. This conforms to the proposed conditions, and takes into account a program that may be set by the environmental authorities, the development of which is subject to approval.

The plan contains the biophysical, social and economic framework of the Port of Lisbon, detailing the geographical features with regard to the environment, the matter of marine accessibility and development, as well as the economic, legal and administrative framework of the port authority.

It identifies the existing port structures and details the system of maritime accesses including the port entrance channels and the system of navigation channels in the estuary, giving a detailed classification of all the areas subject to dredging and includes a detailed and innovative study regarding the immersion of sediments in the Estuary. Finally, it sets calendars and an estimate of the volumes to be dredged in each place.

Innovative environmental added value of the project. The plan proposes new ways for collaborating, co-operating and contributing with the natural and social environment. The Port must be considered on the one hand an extremely sensitive natural environment that represents the Estuary of the Tagus River, protected by national, European and international laws, and on other hand, that

it shares its jurisdiction with 11 districts, one of them Lisbon, which has almost one third of the Portuguese population.

This complexity was taken as an opportunity for presenting new ways in which the Port, in collaboration with society, can not only respect its surroundings, but also improve natural and social situations by the use of new techniques, for instance the immersion of dredged sediments in the Estuary or by helping areas with serious problems as Barreiro, Moita or Caparica.

Possible impact of the project. The strategy developed by the Port of Lisbon Authorities is aimed at connecting the Port with neighbouring districts, their citizens and visitors. The dredging is a tool not only for improving the Port operating capacity, but also for improving the environment and life in the Estuary.

The plan has made possible the creation of new activities in which society participates from the beginning. The new activities connects people with the future of the Port and with its past (in the case of the recuperation of the old typical boat "cacilheiro" Trafaria Praia).

Stage of implementation of the project. The dredging plan began in 2010 and is planned to be finished in 2015. Some of the projects included in the plan, for instance the works developed in Caparica beach, Barreiro or Moita are now completely finished.

Porto de Lisboa

"The dredging plan presents to the relevant actors, environmental authorities and municipalities, all the dredging works, in the long (5 year) and short term, planned by the port authority, which aims to improve the environmental, social and economic situation of the estuary, demonstrating that dredging is a tool not only for improving the Port operating capacity but also improving the environment and life of people in the estuary."

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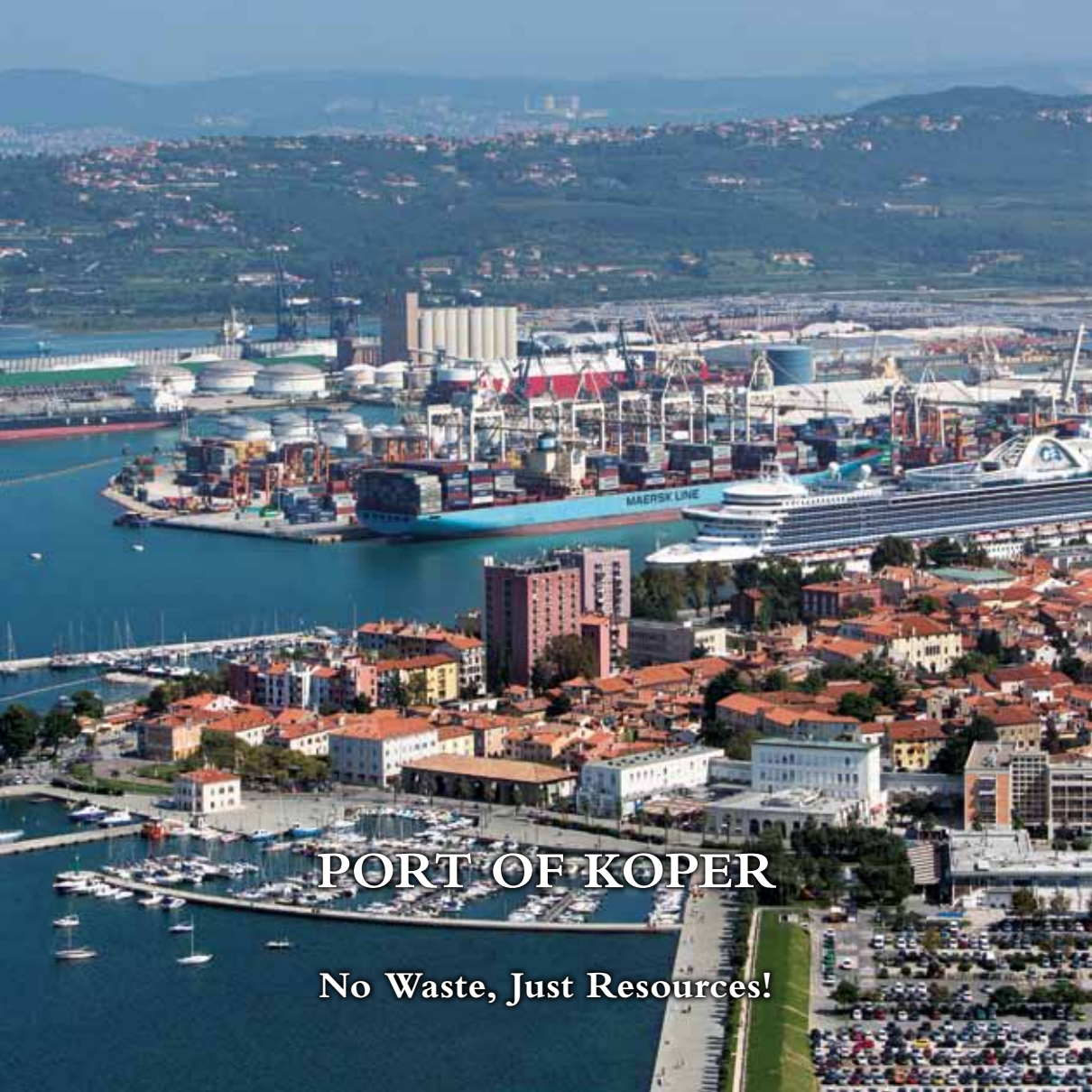

PORT OF KOPER

No Waste, Just Resources!

THE PROJECT. Concern for the environment is a constituent part of Luka Koper's management policy and organisational culture. An important part of this includes the waste management system, and in this context, the project "No waste, just resources here!"

Uncontrolled development and consumerism require ever-more effort to prevent, or at least reduce, waste. Accordingly, the project's basic aim has been to reduce the amount of waste through encouraging its reuse or reprocessing into environmentally-friendly materials. This has ultimately led to the introduction of measures which engender significant social and economic benefits, as well as the promotion of new and innovative approaches to environmental protection.

These measures are: the use of pelletised paper mill sludge as an anti-dusting agent, the introduction of a heating system that use recycled biomass, the operation of a waste separation centre and composting plant, and the reuse of marine silt as a construction material.

Innovative environmental added value of the project. In the context of the "No waste, just resources here!" project Luka Koper has striven to identify new approaches to reduce the environmental impacts of port operations. At the outset we focused on those issues that the local community found particularly problematic, such as dust emissions from the coal depot, the disposal of dredged sediments, energy consumption and waste generation. A solution for all four issues was found in the waste by-products, which - when no longer treated as a waste material - becomes a resource.

Innovative endeavours have encompassed the following:

- a reduction in the environmental impacts of port operations
- extensive consideration of local community opinion

- the recycling of waste materials in the implementation of a sustainable management system which ensures the productive reuse of unwanted by-products over their entire life cycles
- co-operation with local institutions
- the creation of employment.

Possible impact of the project. We believe that all environmental improvements and innovations implemented by Luka Koper over the last year – in particular those addressed by the project "No waste, just resources here!" - significantly contributed to a reduction of the impact of port operations on the local environment. All new investments and development projects are scrutinised to ensure that they have the least possible impact on the environment. Likewise, the company invests in technical improvements and the modernisation of technological processes in the context of environmental considerations.

Stage of implementation of the project. The project "No waste, just resources here!" is fully operational. Cellulose sludge has been used to reduce dust at the Port of Koper since December 2013.

Luka Koper's biomass boiler, which replaces the previous fossil fuel one, is currently undergoing trial operation.

The Waste Management Centre, located within the port zone, was inaugurated in 1997 and its operations are constantly increasing. Indeed, biodegradable waste collected across Koper municipality has also been processed at the plant since 2013.

Research into the alternative use of dredged sediments was concluded in May 2014 and it ascertained that bricks manufactured from locally dredged clay-rich silt are suitable for commercial use. Next year materials created from dredged marine sediment could also be used in the renovation of the nearby Škocjanski Zatok Nature 2000 Reserve, Slovenia's largest and most important brackish wetland.

LUKA KOPER
Port of Koper

"The corporate social responsibility is an integral part of the corporate governance, since Luka Koper, d.d. is well aware of its commitment to the local environment. Due to the spatial extent of the port's area and its environmental impact, Luka Koper, d.d. in its role of the concessionaire is committed to remain attentive to the needs of the local community, endeavouring that latter hall identifies itself with the development plans, giving them all support. The investment in the corporate social responsibility is therefore understood as an investment with a significant return."

Dragomir Matić
President of the Management board

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PORT OF CARTAGENA

Sustainability-2.0, a Framework for Sustainable Ports

THE PROJECT

Sustainability-2.0 should not be seen as a single project, but as a smart tool that helps senior management boost and spread sustainability throughout the Port Authority and port community. A single HSSE management has been developed and launched, integrating sustainability in its management, and its workers' everyday life, within a continuous process.

Sustainability-2.0 commits the Port Authority and the entire port community to the optimal use of natural resources, and reducing pollutants, climate change, and the loss of biodiversity. Implemented through several actions and regulations, objectives like reductions in resource consumption, emissions, waste generation, and improvement of port water quality have been achieved.

However, one of the problems addressed by the project is not strictly environmental, but related to people. Information and participation are key elements of Sustainability-2.0, because the only way to achieve the objectives is by making the entire port community committed to them.

Innovative environmental added value of the project

Sustainability-2.0 is an innovative environmental management tool providing a framework where many projects are carried out.

Some successful examples of projects are:

- Preservation of the Manzanilla de Escombreras
- Yellow-legged gull control leading to a new Adouin seagull settlement, a Mediterranean endemism nowadays settled and breading in the Port facilities.

Possible impact of the project

The effects of changing minds through Sustainability-2.0 can be seen across the entire Port Community, contributing to make the Port greener, safer, more secure and committed to society. Some examples include:

- ***3 environmental agreements*** signed with companies operating in the Port.
- First port in Spain with an EMAS certificate.
- 11 Port community companies are ISO 14001 certified.
- 2 Port community companies have joined EMAS.
- Increasing interest in Port's environmental awards, more than 20 participants.
- Raising use of public port areas, over 160 days of occupation.
- Promoting the Port's website, over 1000 visits a day.
- Evolution of Port's social network, over 4000 followers in our first year.
- Development of port smart tool.

Stage of implementation of the project

Sustainability-2.0 is fully implemented. However, this is a tool that will last as a general framework to develop all our HSSE and CSR policies, which should be fully developed before its next strategic review by 2020.

For ten years, many actions have had a successful end, showing that the project is feasible, and it is possible to create the adequate climate to change minds, transforming the Port Community into an environmentally friendly community.

Puerto de Cartagena

Autoridad Portuaria de Cartagena

"Throughout its three thousand years of existence, the Port of Cartagena has been the driving force behind the Region's economic growth and success. But winds of change are blowing towards a more sustainable and environmentally friendly society. So the aim of our Port is to face and lead these changes, as we have done for the last three millenniums.

Committed to sustainable growth

Committed to society

COMMITTED TO YOU"

Antonio Sevilla Recio
President

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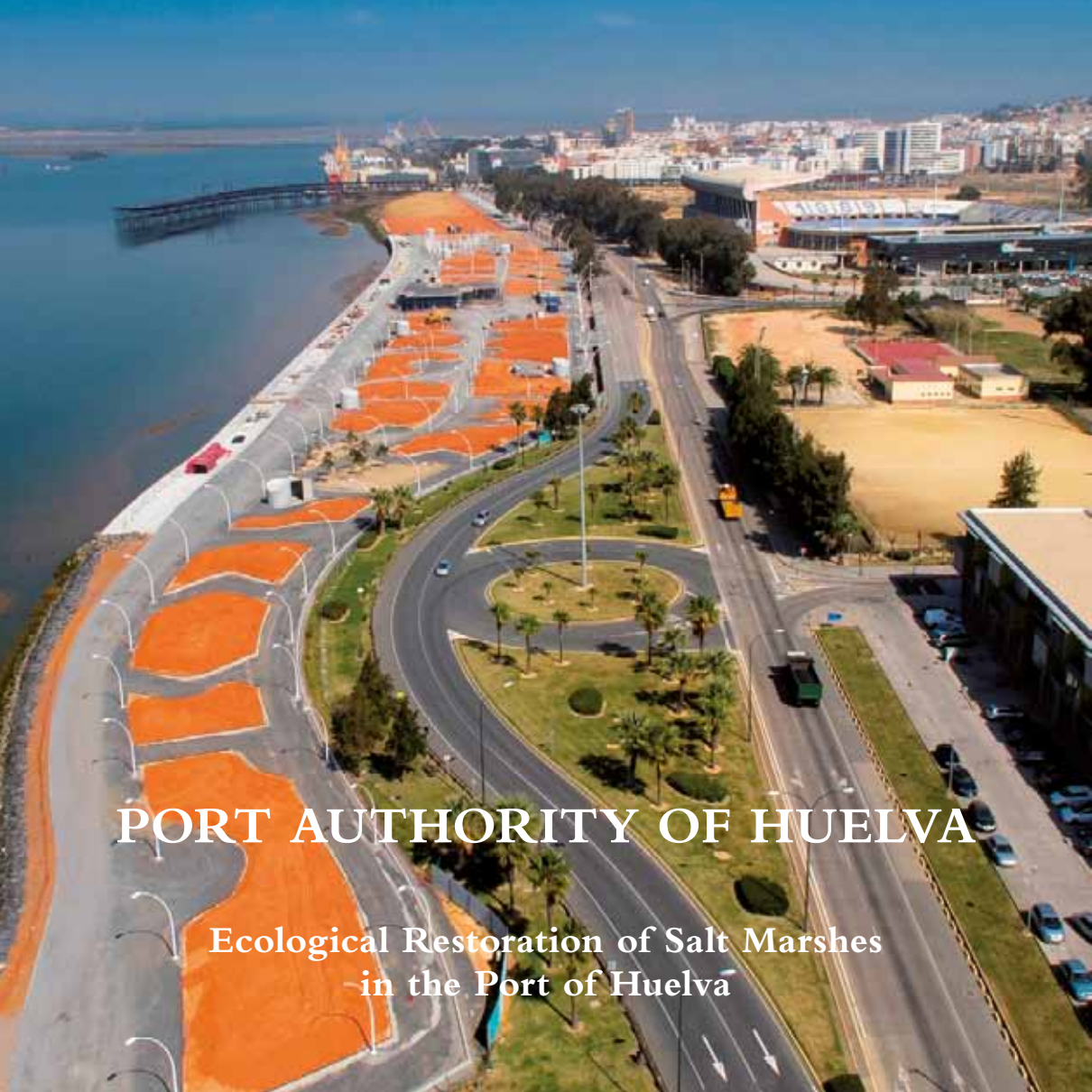

PORT AUTHORITY OF HUELVA

Ecological Restoration of Salt Marshes in the Port of Huelva

THE PROJECT. The project implemented by the Port Authority of Huelva, is the environmental and social restoring of salt marshes, dunes and river beaches in the Port Area, using small cordgrass, Spartina maritime, as the bio-tool.

This area is located in the Inner Harbour, in a stretch of five kilometres on the left bank of the river Odiel, adjacent to the city of Huelva. Due to the important basic chemical industrial complex existing since the 1960s, this area suffered serious environmental degradation, preventing social use of the area.

The goals of the project have been the following:

- Diversification and conservation of protected habitats and species of high environmental interest, included on some European red lists.
- Enhancement of the natural resources of the area.
- Improvement and diversification in the functionality of the marshes due to the construction of an infrastructure adjacent to, and above, the marshes that connects the city of Huelva and the Port.
- Stabilization and restoration of the marshes.
- Erosion control in areas of low marsh.
- Environmental information.

The project budget was €27 million.

Innovative environmental added value of the project. The innovative character of the project is due to the following aspects:

- Use of Spartina maritime as the bio-tool for the ecological restoration of degraded and contaminated marshes. This is a groundbreaking action in Europe.

- It has been possible to remove invasive species that had spread through the degraded marshes, displacing native species.
- This project has facilitated the restoration and development of a healthy ecosystem of marshes, allowing the creation of habitats for birds and wildlife protected at the European level.
- It has been possible to combine environmental restoration, social uses and industrial activity within the Port Zone.

Possible impact of the project. The results of the opinion poll released by the Port of Huelva highlight the social and environmental success of the ecological restoration. The project has offered both environmental and recreational benefits to the population of Huelva. It has restored a degraded area, promoted social use by creating a pedestrian path for citizens to visit the area and promoted environmental education, through the installation of environmental interpretation panels providing information about different aspects of the ecological restoration carried out have been installed.

Stage of implementation of the project. This project consists of two phases:

1. Environmental restoration of a four kilometre stretch of the left bank of the river Odiel, consisting of marshes, dunes and beach that had a high degree of environmental degradation. This first phase is fully operational. Current work activity monitors the habitats created and the ecological roles of the restored marshes.
2. The construction of a river-walk along a stretch of one kilometre on the left bank of the river Odiel, where an area of bare mud had been completely damaged. This phase is currently being implemented.

Puerto de Huelva

Autoridad Portuaria de Huelva

"In the Port of Huelva coexists one of the major industrial centres of Spain, alongside protected areas (12,000 hectares) of international importance for migratory waders, natural habitats and wild protected fauna and flora. Sustainability is a key pillar of the Port's institutional strategy and environmental issues are considered both a strategic concern and opportunity.

This has been a successful experience in the use of a bio-tool. It has made possible the recovery of an environmental space that currently facilitates balanced ecological activity and has allowed the city to recover the historical social and cultural value of this natural area."

Port Authority of Huelva

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PORT AUTHORITY OF MELILLA

Nereidas

THE PROJECT. The Nereidas project aims to develop a standardisation tool for the implementation of preventive and compensatory measures for environmental impacts related to transport and port activities.

The project will also aim to provide adequate solutions to minimise CO_2 emissions, biodiversity reduction and external costs in Mediterranean ports, while at the same time minimising the potential environmental impact of new infrastructure.

Innovative environmental added value of the project. If successful, the results of the action will lead to a more environmentally sustainable port and will pave the way for new investments in port infrastructure, focused on improving the carbon footprint of these type of facilities and their effect on the flora and fauna.

Possible Impact of the project. The responsibility of ports in cities is always increasing. No growth and development of ports is possible without regard to the environment. The Port of Melilla devotes its efforts to sustainable growth in order to contribute to the improvement the City of Melilla and to other Mediterranean ports with a tool that is developed with the aim of reducing CO_2 emissions from port activities.

Stage of implementation of the project. There are six stages to be undertaken by the Nereidas project's partners. At this moment the project is in the **Pilot Phase**.

1. Port Enviromental Impact Analysis. Leader: C&C
2. First Study Phase: Proposal of possible solutions to reduce pollution caused by transports and ports activities in the Mediterranean Ecosystem. Leader: University of Murcia
3. Pilot Phase: Preparation and deployment of the prototypes. Leader: CIMNE
4. Second Study Phase: Towards Certification & Adaptation of Environmental Procedures in Mediterranean Ports. Leader: ATISAE
5. Dissemination and Communication. Leader: MPA
6. Administrative & financial management. Leader: MPA

Puerto de Melilla

Autoridad Portuaria de Melilla

"The Port of Melilla will continue focusing on respect for the environment as a fundamental part of its port activity. We want to keep growing and we want to do it sustainable. Nereidas is source of pride for all of us at the Port of Melilla.

The European project Nereidas, born within the European Union, is based on the objectives of the Trans-European Transport Network (TEN-T). The aim of TEN-T passes to achieve 60% reduction of CO2 emissions by the year 2050 and is consistent with Directive 2011/92 / EU of the European Parliament and the European Council of December 13, 2011."

Pilar Parra Serrano
CEO

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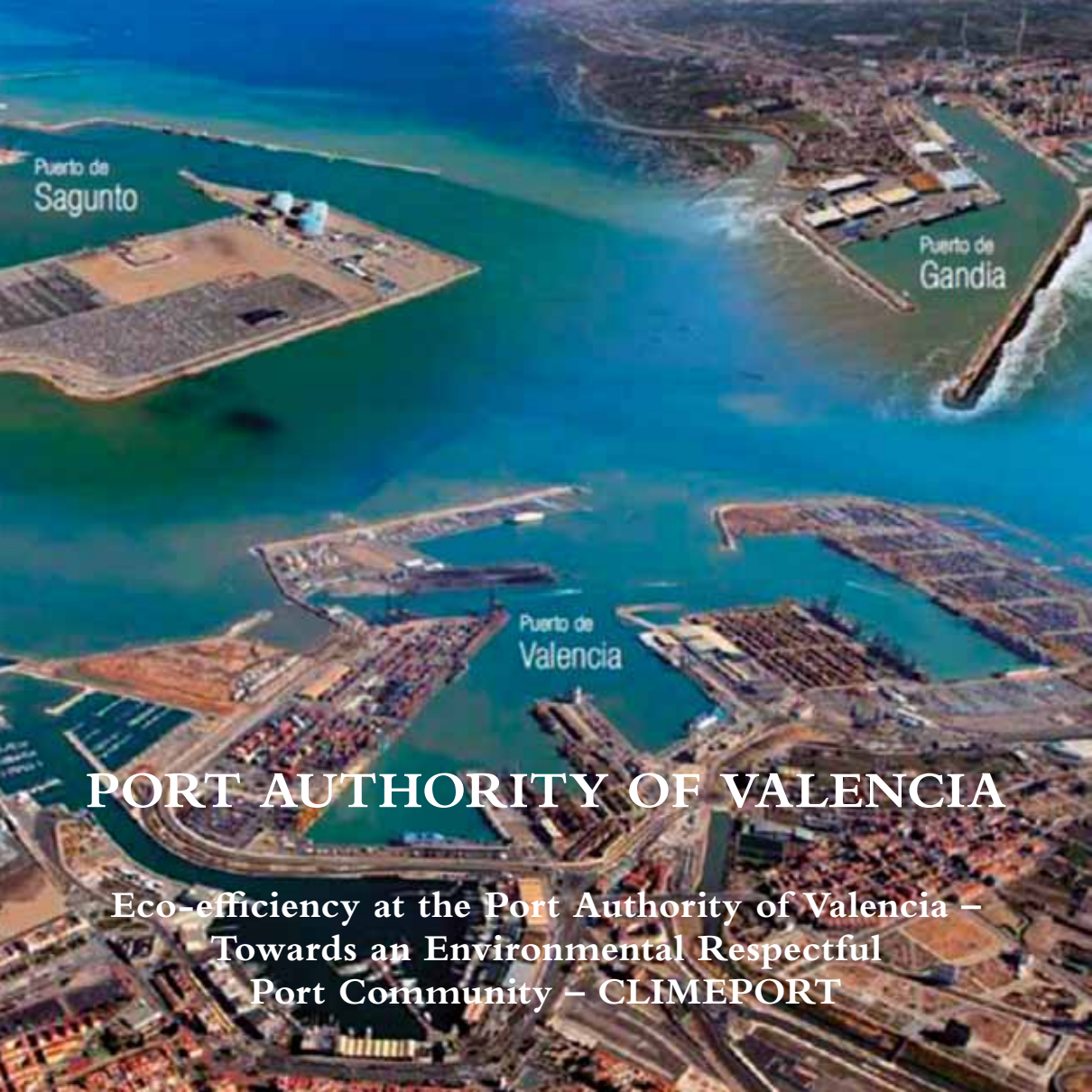

PORT AUTHORITY OF VALENCIA

Eco-efficiency at the Port Authority of Valencia – Towards an Environmental Respectful Port Community – CLIMEPORT

THE PROJECT. The production of goods and services at competitive prices that human needs, improve the quality of life for people consuming fewer resources and producing less pollution by using the best available techniques.

Based on the Definition of Eco-efficiency given by the World Business Council for Sustainable Development (WBCSD), which can be summarised as, to produce or give more and better service.

Further to this philosophy, the Port Authority of Valencia (PAV) has being developing several projects since the early 2000s that have led to environmental improvements in terms of eco-efficiency.

These projects have been oriented from less knowledge to more knowledge, being the first oriented to know the state of the art and further developing new project based on the results obtained from the previous one. The eco-efficiency has been analysed from several environmental items, such as:

a) Electric Energy Consumption
b) Material Consumption
c) Renewable Energies
d) Waste Management
e) Emissions
f) Sustainable Mobility
g) Port Facilities Efficiency
h) Greenhouse Gas Emissions (GHG)

All the above items use the Ecoport II initiative in which the port community is fully represented. Just after all this knowledge was acquired, the PAV was in position to share this knowledge with the port community and, from this point, research further improvements of the pictured situation.

This research was compiled through the several R+D projects representing items g) and h) and particularly the CLIMEPORT project (EU Med Programme), Mediterranean Ports' Contribution to Climate Change Mitigation.

Innovative environmental added value of the project. This innovation is divided into two areas, one is the reduction of GHG and the general improvement of the environment, providing, economical and social benefits to the port tenants; and the second is to bring together all the port community (port services providers, port tenants, administrative bodies, and port users) to take part in the environmental initiatives led by the PAV. This means that nearly 200 companies are affected by the initiatives led by the PAV as well as more than 19,000 workers. Additionally, there has been developed a methodology for the calculation of the Carbon Footprint, verified by Lloyd's Register which is being shared with other ports and port tenants.

Possible impact of the project. Traditionally, the city areas adjacent to the port have been areas with high environmental degradation, and with this project and its initiatives it is intended to integrate the city with the port through the implementation of measures to improve the environmental quality, summarized as follows:

1. Design and development of a methodology oriented to the evaluation of port activities in terms of GHG emissions and Carbon Footprint.
2. Control and monitoring of noise, air and water quality, waste management, etc, as part of the thirty best practices identified and those, oriented to reduce emission levels from port activities.

Stage of implementation of the project. The project is up and running and subject to present and future implementation of the best practices identified.

valenciaport

Autoridad Portuaria de Valencia

"Ports are essential for the logistics chain and the industrial development of a country. They are a tool in the service of society and its economy, so that should be useful to them.

Ports should be respectful to the environment exceeding the applicable legal requirements, as evidenced by the environmental certifications held by the PAV. Taking this principle, the PAV works in different European projects in order to acquire the best environmental knowledge for the implementation of their results in port activities. With all these initiatives, citizens perceive that the commitment to environmental improvement acquired by the PAV is materialised into concrete actions, such as quality control of water, air, noise, waste and consumption of natural and energy resources, achieving a perfect harmony in the port-city."

Federico Torres
Deputy Manager of General Services

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PORT AUTHORITY OF VIGO

Green Port Energy Center "GPEC"

THE PROJECT. The Green Port Energy centre (GPEC) project faces a twofold problem. The first is to address reducing emissions NOx, SOx, CO_2, particulate matter (PM) and volatile organic compounds (VOC) in ports in general, and especially in ports deployed in/or near metropolitan areas. Secondly, increase energy efficiency through polygeneration and distributed generation, and therefore reduce significantly the energy consumption of ships while in port.

The main emission sources are the vessels, buildings, vehicles and port facilities, and the handling and transport equipment for operators. The GPEC project focuses on the main emission source at port, the ships, both due to their power and energy consumption, and the nature of the fuels used and emissions derived from them.

The GPEC is a "Containerised Polygeneration System for Maritime-Port Uses" and is composed by three interconnected main systems:

- Containerised generation system:
  - Polygeneration subsystem, which is responsible for generating and transferring electric energy, thermal energy and cold to the ship.
  - Energy storage subsystem.
- Connection subsystem on board.
- Control and monitoring system, which main objective will be to centralise all information and serve as a management tool.

This technology is an OGSP (Off-Grid Shore Power) solution, for which there is no development, or a business solution yet in place, so this project focuses on it.

Innovative environmental added value of the project. The project aims at developing a solution that achieves, simultaneously, a significant improvement in energy efficiency and effective reduction of emissions from ships in port.

The GPEC is able to supply electric energy, thermal energy and cooling to vessels based on LNG, which is the cleanest source of energy and least polluting of all fossil fuels. It is an autonomous power generation system that allows energy supply in the location where demand exists.

Possible impact of the project. The Port of Vigo is completely embedded in the city, which means the environmental effects caused by port activity have a direct effect on the city.

The type of emissions generated by ships has a high impact not only on the weather, through their contribution to greenhouse gases, but also in air quality and the possible effects on the health of the population.

The use of technologies to reduce maritime emissions is the key, even more when taking into account the expected increase in traffic until 2020.

Therefore we can say that the implementation of the GPEC in the Port of Vigo will not only integrate the port into the city in a more sustainable way, but also contribute to improve air quality, the noise, the energy consumption and the health of citizens.

Stage of implementation of the project. The project started in May 2013 and will be finished in December 2014. The validation of the prototype unit test will be held in October 2014, and the first fully scaled unit will be operational in the Port of Vigo during 2015.

Port of Vigo

Port Authority of Vigo

"With this project, the Port of Vigo meets all the requirements to become a Green Port, allowing to have the ability to supply electricity to vessels. This project also complements the other initiatives that the Port of Vigo has been developing in sustainability, such as support for the use of LNG, improved mobility, the use of renewable energy, environmental management with the most important certifications such as EMAS, ISO 14001 and PERS.

GPEC is a pioneering international project that will certainly give international visibility to our Port Authority, open new ways for future development and provide significant environmental improvements."

D. Ignacio López-Chaves Castro
President

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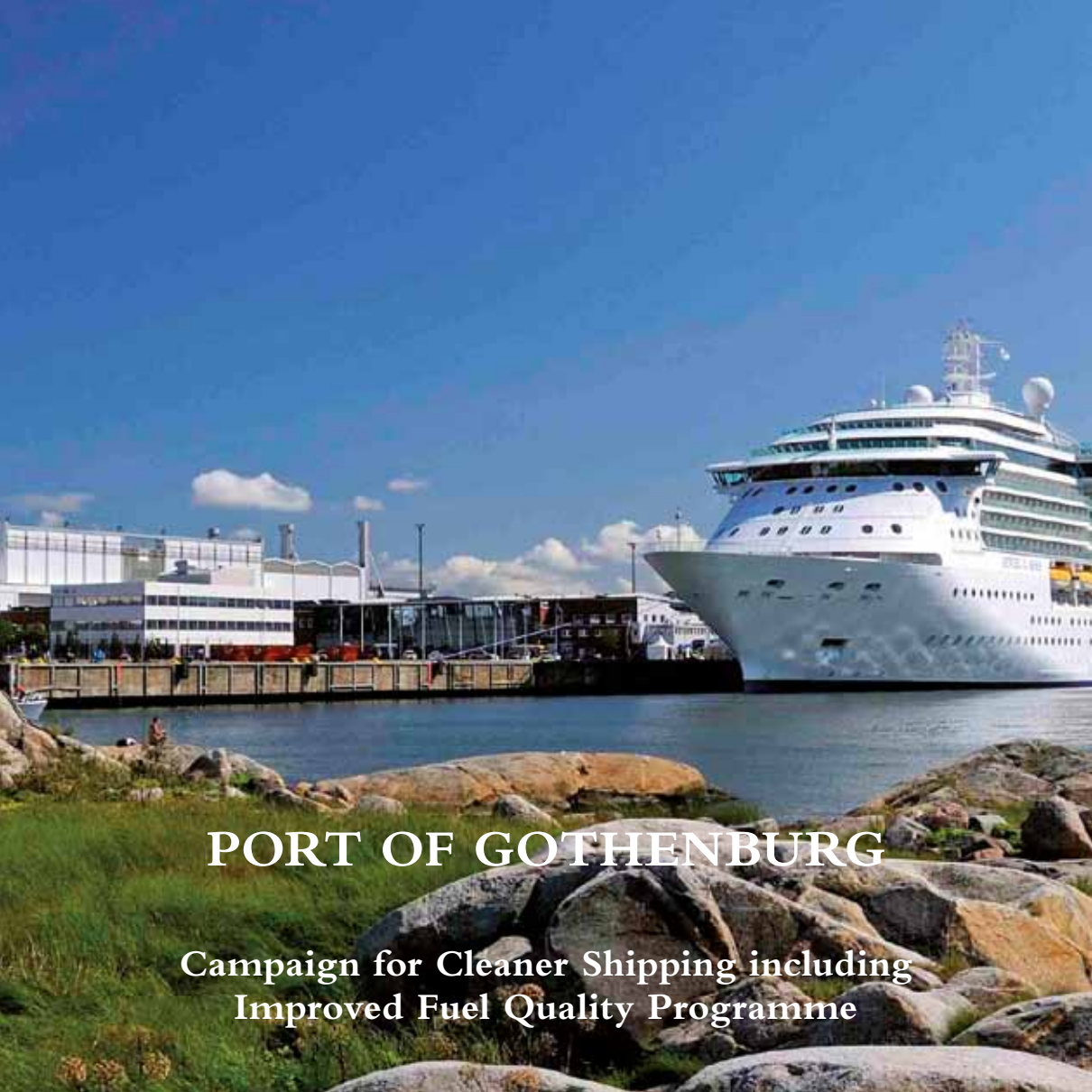

PORT OF GOTHENBURG

Campaign for Cleaner Shipping including Improved Fuel Quality Programme

THE PROJECT. During 2011-2014, a campaign is taking place directed at the port's customers – the shipping companies. The campaign means that vessels that opt for cleaner fuel whilst operating in the port will be compensated financially, and vessels classified as green according to an international index will be compensated.

The background to the campaign is that for several years the port has applied an environmentally differentiated port charge. Shipping lines that use fuel with a sulphur content higher than 0.5% pay a surcharge. It is the income from this sulphur surcharge that has now been reinvested in shipping lines that are investing in the environment.

A reference group was set up early on to create a strong foundation for the project to stand on. The group included different actors from many parts of the industry and the local society. The purpose of the group was to give advice on the type of investments that could contribute to a sustainable development of transportation.

Innovative environmental added value of the project. The original character of this project is, first and foremost, that it is actually based not only on the polluter pays principle, but it also includes a second step; payback to those that actually prove to be environmentally friendly. By reinvesting the revenue, there is not only a penalty for those who pollute, but also a motivation for change.

Further on, in order to include a broader scope than just sulphur emissions, the connection to Clean Shipping Index is very important. In fact, the CSI was

actually started as response to a growing concern for the environment from companies and institutions in the west of Sweden, thereby providing a local connection.

Possible impact of the project. The results from the last few years show that the campaign has been a success. The initiative generated results locally and inspired other ports on a more regional and global scale. The initiative involves the important actors – the shipping companies – but also has a profound effect on local society when the air became less polluted. Local support has proven to be the key for the success of both the implementation and effects of the campaign, and the different actions connected to the campaign.

The work with the reference group has created a unique collaboration where local non-governmental actors have been included in the process of creating tools for the management of environmental issues. This has ensured that the tools are in accordance with the expectations from the shipping lines and the local society – while still going beyond what is requested by the provincial government and current legislation.

Stage of implementation of the project. In 2013, seven shipping companies – with a total of 49 ships – participated in the programme, and their contribution, by using low-sulphur fuel, decreased sulphur dioxide emissions by 120 tons. The programme and the entire environmental campaign will continue through 2014.

PORT OF
GOTHENBURG
The Port of Scandinavia

"This campaign has proved to become an excellent example of how an innovative environmental approach can produce both efficient incentives for shipping to become more environmentally friendly, and in parallel contribute to the a successful societal integration to the benefit of the of the local community."

Edvard Molitor
Environmental Manager

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PORT OF TRELLEBORG AB

VISION 2010/2015 – The City and Port Developed in Harmony with Each Other

THE PROJECT. We are expanding the port capacity on land and water to accommodate longer, wider and deep draft vessels and making it possible to increase the volume of goods to 17 million tons per year.

We will move the port 550 metres south east, in order to create a better environment in the city centre, while attractive areas will be designated for housing and urban life.

In the first part of the project we will build new breakwaters and dredge in the inner port as well as in the fairway, build a new berth, kombi terminal and storm water reception facility.

The next part includes, new check-in and connection road to the port from the east side comprising four new berths. For each new berth that is ready, the port will close a berth in the old port and in the end open up for the new part of the city.

Innovative environmental added value of the project. Together, our environmental work and relocation of the port makes a better environment in the city.

- The traffic and freight flows rationalised, creating a safer and more flexible port that meets the stringent environmental requirements of shipping. The air in central Trelleborg will improve when the port and shipping lines work together to reduce emissions from ships.
- Cleaning of our storm water and one third of the storm water from the city will give a 70-90% removal of pollutants, especially nitrogen, phosphorus

and metals in storm water. It will also alleviate the flooding that the city previously suffered from after heavy rain.

- By moving the port 550 m southeast from the city centre, there will be a measurable noise reduction in the city.

Possible impact of the project

- Release attractive areas near the centre for urbanism and city life.
- When port activities moved southeast of today's rail yard and planning, "Sjöstaden" (Sea city) means that Trelleborg can re-contact with the sea.
- It opens opportunities to develop a vibrant urban environment with contact to the sea in the city centre.
- With a more environmentally friendly port, the city and the port can develop in harmony with each other.

Stage of implementation of the project. We are about to finish the first part of our vision, the new 3 km long breakwaters and dredging was finished during 2013 and the new berth, kombi terminal and storm water reception facility will be inaugurated in October 2014.

The first step in the next part of the vision was taken in May 2014 when the City Council in Trelleborg decided on the Detailed Plan for the Community. The next part includes: new check-in from the east, new connection road to the port from the east side and 4 new berths.

Trelleborgs Hamn AB
-Port of Trelleborg-

"The port of Trelleborg will be needed more than ever! It is both cheaper and more environmentally friendly to transport large volumes of cargo by sea. Moreover, it is highly probable that growing trade exchange between the Baltic Sea countries will require significantly greater transport capacity than both existing and any new bridges and tunnels together can offer. The environmental work performed is done not only for ourselves but mainly for future generations. As Sweden's second largest port situated in the centre of the city, we have a large environmental responsibility and are actively involved in environmental work together with the municipality."

Tommy Halén
CEO

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PORT OF YSTAD

Onshore Power Supply in the Port of Ystad

THE PROJECT. The reason for the project was to diminish air pollution and to reduce noise emissions from the ferries when berthed. The port is situated very close to the city centre and affects the local environment. This could be improved by investing in an Onshore Power Supply system.

Vessels berthed for more than two hours would be able to connect with shore power in all four berths at the same time.

Innovative environmental added value of the project. On board, the system provides electricity for heating, lighting, ventilation systems, ballast pumps, internal ramps etc. It is a very flexible system, and ABB was out first with the technique to convert 50 Hz (Swedish standard) to 60 Hz used by the majority of vessels. Port of Ystad can connect vessels with 50 as well as 60 Hz in up to four berths at the same time, something quite unique.

The system is totally automatic. When berthing, the crew manoeuvres the connector crane and lower the cable and insert it to the electrical socket on board. The system registers the vessels ID and connects the frequency needed, and keeps record of how much power is used for later invoicing.

The use of shore power creates a better environment, in the port area as well as on board. The inhabitants get a better air quality and lower noise, and on board maintenance work can be carried out without disturbances. Savings are also made on operation hours on the machinery.

Possible impact of the project. The use of shore power makes it possible for the port to continue to develop on the current location, and still be able to contribute to society without the necessity to make huge investments moving the port away from the city (which could be possible) or actually being forced to close down the business in the long run. A close down of the port would impact the environment quite hard, as vessels would be forced to call other ports with longer steaming time at sea and longer transportation on land for the freight and passengers.

The inhabitants get better air quality when vessels connect, and can still benefit from the port activities.

Stage of implementation of the project. Today, two vessels are connected and one is due to connect after summer. Both relevant ship owners have an agreement with the port regulating costs and use of the system. The environment benefits by less emissions, and the inhabitants avoid the constant smell when vessels are berthed.

The frequency converter has also proven to function very well, and both of the vessels (and the third on the way) make use of 60 Hz current.

YSTAD HAMN LOGISTIK AB

"The port is situated very close to the city centre, and therefore has a great impact on the local environment in the city of Ystad. As the port is Sweden's fifth largest port regarding ship calls with over 3,500 calls annually, the port operations of course can be noticed by the inhabitants. It is vital for the port not to be have a negative impact but to be an asset to the inhabitants to be proud of and benefit from."

Björn Boström
CEO

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LONDON GATEWAY

London Gateway Port Development Limited

THE PROJECT. DP World London Gateway combines one of Europe's largest logistics parks with the UK's most advanced deep sea port, making it a gateway to the world, and creating the ultimate in Port centric logistics.

Innovative environmental added value of the project. The design, construction and operation of DP World London Gateway in a very sensitive and heavily regulated Thames Estuary has required world class environmental standards to be implemented from day one. This has been recognised by all our customers, regulators, and funders, who are attracted to London Gateway because innovation and best practice is very much part of the project's DNA.

Possible Impact of the project. Managing one of Europe's largest environmental programmes has resulted in reports, information and data covering everything from Roman archaeology, historic wrecks, marine surveys, and ecological works; which the local public, schools, and universities find fascinating.

London Gateway has developed a number of non-technical summary booklets, invited schools in for educational visits, and worked with Essex Wildlife

Trust (EWT) to promote all our environmental works on the project. Data and information is available at a new centre run by EWT where visitors can see the largest container vessels in the world, as well as find out about all the environmental works carried out on the project to date.

Stage of implementation of the project. London Gateway has been open for business since 7th November 2013. The Logistics Park has two major plots under construction with the internal infrastructure road network being completed by the end of 2014.

"Right from the initial stages of the construction and development of DP World London Gateway, managing the Environment has been at the forefront of all the business decision making. The Thames Estuary has a wide and diverse number of users, and initially dredging activities were seen by many as being potentially having a detrimental impact on businesses and leisure pursuits. We used all of the complex data collated from the monitoring to produce a comprehensive set of non-technical publications, presentations, evening seminars, and lectures which have been used to demonstrate that all the Works have been managed in a innovative and environmentally sensitive way."

Marcus Pearson
Environment Manager for DP World London Gateway

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Acotec is a key player in the renovation and corrosion protection of marine, offshore and petrochemical infrastructure. The company's success lies in a complete solution to protect steel and concrete structures for decades. The key values of Acotec's success are:

- Time savings
- Cost savings
- Long term vision
- Environmentally friendly
- Complete solution

With an experience of more than 30 years, the company has satisfied customers worldwide. Basically, Acotec provides Humidur®, the best coating on the market for marine applications in combination with a high-quality and proven application process. DZI Cofferdams are used for underwater safe and dry access to quay walls and tubular pile constructions. After dewatering, Acotec provides thorough inspections, safe cleaning of the surface, high-quality repair works and a final corrosion protection with Humidur®.

Acotec sets the highest quality standards in terms of rehabilitation of infrastructure to satisfy the end customer the best way possible. The company takes full responsibility of the renovation and corrosion protection. Acotec uses local resources in order to guarantee a close contact with the end customer and to provide a social return on the long run. Acotec is able to train local people, supply the necessary equipment and supervise the works to offer the highest quality standards. This method of working has ensured the Acotec-technology to be claim-free and proven in practice.

Since 1984, Acotec has applied these solutions in ports and harbours and along waterways all over the world in countries such as Belgium, The Netherlands, United Kingdom, United States, South-Korea, Japan, Egypt, Scotland, Germany, Israel, Norway, etc. The very first application is still in place and in good condition after 30 years.

After a corrosion treatment with the Acotec-technology, the structures have an added 50 years at least to their life expectancy.

www.acotec.be & www.humidur.be