

# Impact of climate change on the maritime industry, Mediterranean Ports - Med

## 1. Policy Objective & Theme

- ADAPTATION TO RISK: Managing impacts of climate change and safeguarding resilience of coasts/coastal systems
- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space
- SUSTAINABLE ECONOMIC GROWTH: Balancing economic, social, cultural development whilst enhancing environment

## 2. Key Approaches

- Knowledge-based
- Technical

## 3. Experiences that can be exchanged

## 4. Overview of the case

Climate Change is a major global challenge and the green house gas (GHG) emissions from transport is recognised. Although there is some recent debate about the levels of CO<sub>2</sub> emitted by global shipping it is still held that in terms of CO<sub>2</sub> emission per unit of transport work, maritime transport is efficient. The total amount of CO<sub>2</sub> emitted by maritime transport should also include the contribution from the ports. Many European shipping companies and ports are taking measures to reduce their carbon footprint.

## 5. Context and Objectives

### a) Context

Interestingly there is a complex relationship between climate change and shipping. It can be considered from the point of view of what the maritime industry contributes toward climate change and any mitigation and adaptation that can be achieved with respect to the impact. Alternatively the relationship can be considered in terms of how climate change impacts on the maritime industry, e.g. Extreme weather events, erosion of coastal infrastructure and opening of new sea routes. The International Maritime Organisation (IMO) made Climate Change its Theme for 2009. They published a list of relevant and current documents regarding Climate Change and Shipping. The shipping industry itself is addressing issues such as: Hull, engine and propeller design in an attempt to make shipping more energy efficient. The IMO Ship Energy Efficiency Management Plan is expected to reduce fuel consumption of ships. Previous hopeful proposals (national and EU) for the use of market-based instruments to reduce ship emissions is proving difficult to implement. There is considerable research being undertaken in the areas of alternative fuels and wind propulsion for ships and many examples of proactive shipping companies pursuing ambitious environmental policies.

### b) Objectives

The objectives for the maritime companies and ports is to reduce their GHG emissions and carbon footprint. Develop methods to mitigate against the maritime transport contributions to climate change. Additionally, the companies and ports need strategies to allow themselves to adapt to climate change to the coast and oceans.

## 6. Implementation of the ICZM Approach (i.e. management, tools, resources)

### a) Management

The management of environmental policy, including the reduction of GHGs, is the responsibility of the individual shipping companies and port authorities. The shipping companies are privately owned, however the port authorities are a mixture of public and private ownership. As an example, The Valencia Port Authority (VPA) is the body responsible for the management and administration of three state-owned ports located along an 80-kilometre stretch of the eastern edge of the Spanish Mediterranean: Sagunto, Valencia and Gandía.

### b) ICZM tools

Various ICZM tools are used according to the type of organisation, operations and location. Some examples are given:

Wilhelmsen together with their Swedish partner Wallenius in the joint operating car carrier company Wallenius Wilhelmsen, have invested in the design of a concept "zero emission" ship, E/S Orcelle. It will produce no emissions into either the air or sea and will use renewable energy sources, including the sun, wind and waves, as well as fuel cell technology. Established in 2007, the Orcelle Fund is the philanthropic arm of Wallenius Wilhelmsen Logistics that supports the development of alternative energy initiatives aimed at making shipping more sustainable. Additionally, Wallenius Wilhelmsen logistics are developing an ocean cargo terminal (Castor) powered by the sun and wind. The terminal has no conventional power, uses no fossil fuels and releases no harmful emissions into the atmosphere. The Castor Green Terminal includes a terminal and vehicle processing centre (VPC), which will handle products such as automotive, agricultural, construction, and other rolling equipment and offers services for receiving and delivery, cargo handling, storage, loading and discharging in a sustainable environment.

Shipping company AP Moller-Maersk recently won the sustainable shipping operator of the year award by the Petromedia Group. It was praised for the way it challenged conventional wisdom by proving that container ships can save fuel by sailing much slower than traditionally recommended. By halving its top cruising speed over the last two years, Maersk has cut fuel consumption on major routes by as much as 30 percent, greatly reducing costs and achieving an equal cut in the ships' emissions of greenhouse gases. The Beluga Shipping Company have been forward in exploring different means of propulsion and new shipping routes in response to climate change. Skysails have been developed for cargo ships and Beluga are trialling the systems. Depending on the prevailing wind conditions, a ship's average annual fuel costs can be reduced by 10 to 35% by using the Skysails-System. Under optimal wind conditions, fuel consumption can temporarily be cut by up to 50%.

Sea Ports also need to reduce their GHGs and adapt to changes in the coast associated with Climate change. With predicted long-term sea level rises of between 3 to 61cm in the Mediterranean Sea many Mediterranean ports are taken climate change impacts very seriously. The Valencia Port Authority (VPA) is committed to achieving a balance between commercial and economic growth and environmental protection leading to sustainable development. This has led to the creation of an Environmental Policy, approved on 2000 and revised 2006. The Policy details environmental principles on a general level and those required for improving the port area. These in turn signal the different lines of action taken by the port in the form of environmental actions and/or initiatives. The VPA has integrated its environmental actions into its Strategic Plan in order to fulfil the requirements of its environmental policy. The aim of the Plan is to encourage international competitiveness in economic and social affairs within its area of corporate social responsibility. It fulfils its environmental objectives by designing tools for controlling and monitoring environmental quality (e.g. air quality, acoustic quality, water quality) and by establishing methodologies that will encourage companies to remain committed to environmentally respectful activities (e.g. Environmental Management Systems). Efforts are also made to identify the training, communication and awareness needs of port users and society in general.

## 7. Cost and resources

The private and public organisations fund their research through operational funds and research project funding from various public and private sources.

## 8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

Wallenius Wilhelmsen Logistics (WWL), a global shipping and logistics company, managed to cut its green house gas emissions by 32% last year. The company also cut its sulphur dioxide emissions (SO<sub>2</sub>) emissions by 135,000 tonnes in a nine year period from 2000 to 2009.

## 9. Success and Fail factors

An environment of social responsibility is key to the success of the companies. There is the need to recognise their impact on the environment in general and contribution to climate change in particular.

## 10. Unforeseen outcomes

Increasingly, companies are seeing economic advantages in reducing their GHGs, particularly through fuel savings.

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## 13. Sources

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