ECOWARE LIFE98
ENV/B/000254

Ecology Cluster for Overall Waste Re-engineering

Funding: European
Duration: May 1998 - Oct 1999
Status: Complete with results

Background & policy context:

The monitoring of garbage and waste material flows generated by port and port-related activities, such as warehousing, stevedoring and cargo handling, is becoming an increasingly important management issue in European Port Policy. In order to tackle increasing volumes of waste materials in ports, an efficient garbage and waste management system is urgently required. This management system should not be limited to one application in a single port but should constitute a port policy for all European ports. In addition, the ecological effects of increasing activity, and the related increase in waste volumes, increases handling costs. In order to contain these costs, the management of waste should be re-engineered via an integrated and flexible garbage and waste management system that optimises recycling possibilities of waste and garbage and that efficiently handles the remaining volumes.

Objectives:

The aim of the project was to create an Ecology Cluster for Overall Waste Re-engineering in Belgian seaports, and to develop an integrated management system in all Belgian ports that would be transferable to other European ports via a targeted dissemination strategy. The Ecoware management system would emphasise all aspects relating to the collection, sorting, recycling, transport and disposal of non-recyclable waste.

1. Ecoware had five key objectives:
2. identification and mapping of waste and garbage material flows in Belgian ports (ECOMAP)
3. establishment of a Flemish Ecology Testlab (FET) to create and test an electronic system for Ecology Management and Control (ECOMAC) and Ecology Routing and Logistics (ECOROL)
4. implementation of an efficient Integrated Technology (IT) system to guarantee a long-term structured Community solution (ECOTECH)
5. transfer of the Ecoware know-how via a targeted training programme (ECOTRAIN)
6. large scale dissemination of the Ecoware results and know-how to other European ports and relevant public and private policy makers (ECOTEL) with the objective of stimulating the development of an integrated pan-European waste and garbage management policy.

The project's results were expected to contribute to:

- the re-engineering of existing garbage and waste handling management procedures through an IT management and control system, and through the use of an efficient and integrated routing and logistics system
- the reduction of present volumes of port and port-related garbage and waste volumes
- the consolidation of existing environmental legislation, based on the results of the Ecoware pilot project, and focusing on the prevention/reduction of waste and garbage volumes.

Parent Programmes:
- LIFE - EU financial instrument supporting environmental, nature conservation and climate action projects

Institute type: Public institution
Institute name: European Union
Funding type: Public (EU)

Partners:
The project was developed in the context of the implementation of a new regulation (Marpol 73/78) concerning seaborne waste and reception facilities in European harbours. The requirements of this regulation have been fully integrated into the objectives of the project. Meanwhile, all Member States have ratified Marpol 73/78 and the directive 2000/59/EC came into force on 27 November 2000.

The project resulted in the successful development of a practical tool for waste management, which is supported by all actors concerned and which can be implemented in any port structure.

**Key Results:**

The output of the project is very much in line with what was originally proposed. Two out of the three objectives have been achieved:

- the re-engineering of existing garbage and waste handling and management systems in Flemish ports was the main objective. An IT management and control system was developed and demonstrated. This system monitors waste and garbage flows at each stage of port and port-related activity. A web-based application is available where all waste-related activities are brought together with all related parties. From the pre-notification of waste from the ship, to the collection of the different waste fractions, to waste disposal, all routing and logistics actions have been integrated in a clear, practical and transparent way. Communication between all related parties is facilitated through the management system. This is clearly visualised and documented with sufficient communication formats. Port personnel have been trained in order to guarantee the efficient use of the newly developed system. Overhead presentations, a handbook and a manual are available for these purposes.

- the reduction of current volumes of port and port-related garbage and waste: a detailed inventory has been drawn up and can be used as a reference for future evaluations. So far however, this objective has not been achieved, but the project has contributed to it eventual achievement. It is recommended that the industry should focus on improving reuse possibilities.

- the consolidation of existing environmental legislation has been achieved in the new EC-directive 2000/59/EC, which came into force on 27 November 2000. This directive is aimed at port reception facilities for ship-generated waste and cargo-residues. Furthermore, it should also be noted that all Member States have now ratified Marpol 73/78, which outlines what waste can be disposed of at sea and what waste must be discharged at harbour facilities.

**Environmental policy and legislation implications:**

The project must be viewed in a wider context, where the overall objective is a reduction in the pollution of the seas. To achieve this pollution reduction a more stringent enforcement regime must be established to discourage waste disposal at sea. A logical strategy is the up-grading of port-disposal facilities. Furthermore, as the amounts of waste are expected to increase through the introduction of the EU Directive an efficient recycling and recovery infrastructure is needed to address this problem. The project has developed a software tool which can facilitate waste logistics and treatment. The environmental benefits could be significant if the software is used effectively, and with the participation of police-state control.

**Innovation, demonstration value:**

The innovative character of this project is that the overall waste management system covers all parties involved and that it can be implemented in all hardware configurations:

- the system has been designed to facilitate interaction/communication with any related party within the waste disposal chain: ship, shipping agents, port authority, waste collectors, waste treatment plants, regional waste authorities, port state control, ...
- the system has been developed either for implementation in existing port-networks (e.g. Seaga in
Antwerp) or for Web-based implementation and is built in an open structure. In this way the implementation does not require heavy investment, is easy to manage and can be easily adapted to local conditions.

- the system can comply with many configurations e.g. if the port authorities leave waste collection to the free market, a notification of certain waste will be communicated to all relevant contractors, who can then compete for the work.

Sustainability and continuation of the project:
As the project ended 6 months before the EU Directive came into force the results can easily be adopted by other harbours. While many harbours are considering the waste problem, Antwerp seems to be the first to take steps to tackle the problem. However, there is already considerable interest in the project from harbours in and outside the EU: Dunkerque, Bremerhaven, Rotterdam, Marseilles, Hamburg, Barcelona,...

Progress to date:
- Gent: since 01/04/01 notification of waste delivery by ships is compulsory (via Enigma)
- Antwerp: notification compulsory since 01/03/01. Only 35% of information provided is correct.
- Zeebrugge: notification compulsory since 01/07/01.

Objective: that by 28/12/02, there will be no more problems with the notification of delivery from ships.

Following the successful introduction of the waste monitoring and management system, the project beneficiary set its sights on developing a strategy to minimise bottlenecks at port disposal facilities and an efficient recycling and recovery programme. Source: LIFE Focus: “A Cleaner, greener Europe” (2004).

**STRIA Roadmaps:**
- Network and traffic management systems
- Water transport (sea & inland)

**Transport policies:**
- Environmental/Emissions aspects