Solid Waste Management of SEE trans-border corridor ports

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Introduction

• Eco-management of solid waste within harbors & transnational corridors, as part of ecoport 8 Project, is a very important aspect regarding their environmental protection

• To approach this issue:
2- Define and improve the monitoring procedures including:
   - Monitoring of relevant parameters such as quantity, volume, composition of the waste etc, according to indicators proposed by EEA and ISO 14031
   - Selection of monitoring points in accordance to the risk activity areas within the ports
   - Defining the sampling frequency
   - Data processing
3- Adequate solution for an environmental sustainable management of the solid waste in port areas and coastal zones **aiming to protect human health and environment**, from negative impacts caused during collection, transport, treatment, storage and solid waste disposal
Selection of Monitoring Parameters

- The proposed indicators are based on ESEPI & DPSIR model, UNI EN ISO 14031
- Regarding ECI a measurable indicator—“Generation of solid waste” \((P)\), derived from the production of waste on weight bases
- “The composition of waste” \((S)\) – weight share (wt%) of waste (different type of waste), ECI
- As MPI - “Waste Disposal” parameter \((R)\), related to the volume of collected waste and disposal of land filling incineration, re-use, recycling etc
Procedures of Monitoring

• Italy
  - The waste management in the port is regulated by the urban waste plan of the city (Bari)
  - The waste management is in the initial phase and it is included in the environmental protection system of the port
• Greece
  - The waste management can be done by ports:
    - many ports have the required facilities
    - by private companies authorized by the ports through a public procurement
  - There is a “Plan of collection and waste management of ships” that is being implemented by the port of Igoumenitsa, however, in the port of Patras the reception facilities of the solid waste consist of ship loaders and other hauled barges; and then the solid waste is transferred to the disposal centre
• Bulgaria

  Holders of waste must have issued permits
  – Waste management program based on the principles of waste hierarchy; source, collection and recycling of priority waste streams according to the directive 2006/12/EC and UNI EN ISO 14031
  – There is a waste management plan for ship generated waste and cargo residues
  – Adequate reception facilities and activities to ensure the environmental and health requirements and the collection of waste without undue delay to ships
  – Written contracts with third parties involved in waste management of ports
  – Annual report documents about the types, volumes and quantities of generated waste and adopted by ships to fill the public register of waste and the information system for wastes from ships
• **Bulgaria**
  – There are plans and programmes on environmental assessment for setting the framework for future development of any projects in the area of waste management (National Program for Development of Public Transport Ports 2008-2015, Program for waste management in port as integral part of the municipal environmental programmes);
  – Environmental Impact Assessment of any development proposals for installations for hazardous and non-hazardous waste neutralization and installations for household waste treatment is obligatory;
  – During construction activities associated with the development and modernization of the port infrastructure or specialization of port terminals certain measures need to be taken to limit the harmful impact of waste
Romania

- According to Order 322/2006 in regard to harbor installations for the reception of the waste generated by the ships and the cargo residues, port administration provide all facilities to collect and trade the residues from ships.
- The Environmental Department of Constanta Port monitors and keeps the evidence of the quantity and type of waste produced by different activities in the port area, according to UNI EN ISO 14031.
- Data are centralized and reported to environmental agency and other institutions acting in the environmental field.
- **Albania**
  - The port authorities through a tendering procedure organizes the cleaning maintenance of the port basin and port areas (private entity)
  - Ship generated waste and residues are disposed by a private entity authorized by the Port authorities
  - Environmental Impact Assessment of any development of the port infrastructure, specialization of port terminals or other activities (e.g. dredging in port of Durres) is obligatory by the Albanian legislation
  - All used electronic equipments of DPA are exported for recycling (through a private company) to a Greek Reuse/Recycling Company
• Existing problems in the Port of Durres:
  - Shipyard location within the port area
  - Fishing fleet within the port area
  - The remaining waste of import-export Cargo in the quays
  - The waste generated from the ships and the port territory dispose at the dump site of Durres 6 km away from the port aquatorium along the coast
- The situation of waste management in our country is just at the beginnings
- Albanian’s municipalities have been contracting private entities for collection, disinfection, transport, deposition in dump sites & roads cleaning
- There are problems such as:
  - Waste burning in the containers
  - Overloaded containers
  - Temporary dump sites, located close to rivers and sea, which leads the waste to go to the river beds and sea, transported to long distances up to Montenegro and Croatia

**Montenegro**
- The waste management in ports is aiming to comply according to the EU standards
Choice of Instruments

• Very relevant (OPI), referring to ISO 14001, are the port reception facilities i.e. installations, equipments & supporting services

• According to stipulation of Directive 2000/59/EC the Member States have a high degree of freedom to arrange the reception of waste:
  a) fixed reception installations
  b) mobile units

• The main instruments, used for solid waste collection and transport:
  - plastic bags and vessels for parameters monitoring (weight and volume according to the composition)
Fig. 1. Collecting waste from ships
Fig. 2. Depositing plastic bags in vessels according to composition
Fig. 3. Vessel storage facility in the ecological area of the port
Fig. 4. Different colored vessels are used for different types of waste.
Data Processing

• By using monitoring parameters, it has to be done a port register of waste and the information system (database) for wastes from ships and port
• Important information is their disposal:
  - landfills or anaerobic biological treatment to the incinerator, for reuse recycling, for extracting raw material
• A waste information system would help
  - to understand the improvement of SWM in ports
  - to achieve the final goal of the project for the certification as ecological ports
Conclusions

- Collecting waste by their composition and the monitoring of proposed parameters
- Disposal of waste for its recovery by means of recycling, re-use or reclaiming or any other process with a view to extracting secondary raw materials
- Use of organic waste as a source of energy
- An ecological landfill for solid waste and garbage
- An incinerator for sanitary waste and contaminated ship residues
- Multipurpose vessel for marine pollution fighting