Chapter 15
Guidelines for Elaboration Management Action Plan for Ecologically Sustainable Development and Management of SEE Seaports of Trans-European Transport Networks

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Abstract Sea transport is considered globally as one of the most environmentally harmless forms of transport. For this reason the ports' activities are a subject to special precautions to ensure that they support the sustainable and environment friendly development of sea conditions. The work presents, first, the main features of the common model (CM) for improved seaports' ecology, and second, it elucidates the guidelines about the preparation of Managing Action Plans (MAP) for South-East Europe (SEE) harbors. Also, the work describes the general structure of MAP and gives a list of tangible instructions and recommendations streaming the elaboration of MAP for an improved management of SEE seaports of TEN-T.

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15.1 Introduction

Nearly half of the global population resides in coastal areas. The dramatic increase of human pressure on the environment, being concentrated along the coasts, leads to degradation of coastal systems and destruction of habitats in the coastal zone (Wooldridge 2004). Although sea transport may be considered as one of the most environmentally harmless forms of transport, the type and magnitude of activities at ports should be subject to special precautions to ensure that they support the sustainable and environment friendly development sea conditions.

For example, ISO Standard 14001 (EN ISO 14001 2004) and the Environmental Management Auditing Scheme (EMAS 2001) claim the implementation of *Environmental Management System* (EMS) and nowadays it is considered as a prerequisite in the certification process. In particular the seaports sustainable development depends on the application of well-defined environmental management instruments considering social, economic, legal, technical, and environmental imperatives (Ondiviela et al. 2012). However, even though the seaports from *South-East Europe* (SEE) have systems (or elements of such systems) for environmental management, only few meet the international standards for certification (Marinski et al. 2012).

In order to improve the eco-performance of SEE seaports and implementation of EMS, especially in ports, the TEN ECOPORT project (http://www.tenecoport.eu/) has developed a *common model* (CM) and *Guidelines* able to yield a long-term *Management Action Plan* (MAP), as a core element of the ecologically and sustainable development and management of ports of TEN-T networks within SEE area. The CM consists of management and preparative/executive cycles and it identifies the main actors responsible for the improvement of port ecology, namely port decision makers, port environmental office, port operators, stakeholders and research institutions, and the important steps to be followed in the process of construction of MAP (Marinski et al. 2014).

This work aims, first, to remind in short the main features of the CM, and second, to elucidate the guidelines about the MAP preparation for ports. In addition it describes the MAP's structure and gives a list of tangible instructions and recommendations streaming the elaboration of MAP for an improved management of SEE seaports of TEN-T.

15.2 Common Model Basic Features

Capitalizing on the results of ECOPORT 8 project, TEN ECOPORT project has taken further steps towards an improvement of the environmental quality of the SEE ports (Damiani et al. 2013; Floqi et al. 2013). The practical way to achieve this goal is to apply the approach, procedure, and tools of the CM for SEE ports (Marinski et al. 2014). Apparently, the CM has to be built on sound principles, and has to rely on innovative methods and models for environmental protection.

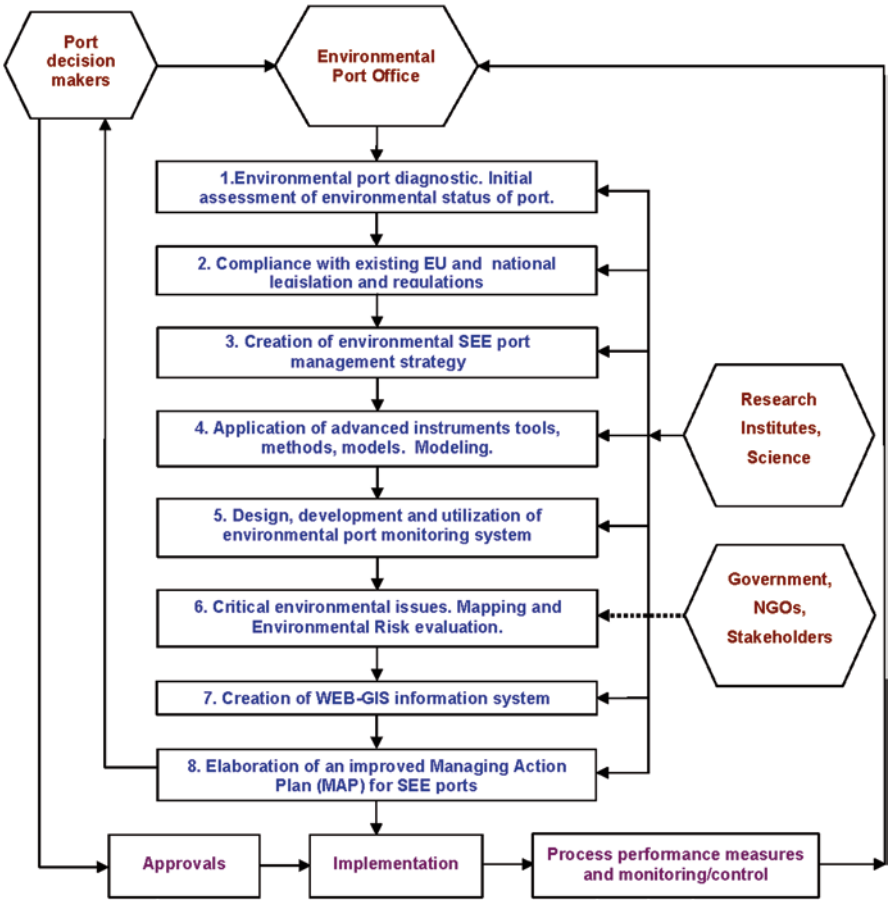

Fig. 15.1 Schematic view of management and preparative cycles, consecutive steps, and major actors of common model (CM) for ecologically sustainable development and management of South-East Europe (SEE) ports of TEN-T

Principally, any model should be a conceptual scheme that describes a given complex system such as seaports. The port systems could comprise multiple views such as planning, analysis, design, implementation, deployment, structure, behavior, input data, and output data. Thus, the model is required to describe and represent all multiple features of the considered system. Therefore, the CM for ecological and sustainable port development and management takes the form of a procedure, steps or guidelines that are schematically presented in Fig. 15.1.

The CM procedure has to be initiated by the port decision makers with the creation of a relevant port environmental office. The environmental office in ports should perform the eight consecutive steps of the preparative (internal) cycle of the CM (see Fig. 15.1): an initial assessment of port environmental status, to harmonize measures with the existing EU and national low, to create an environmental

management strategy, to guarantee the application of advanced methods, models, and tools for better port management, including utilization of a monitoring system to observe the port environment, to map the critical environmental issues in the port area through a WebGIS information system, and based on the results to elaborate a MAP for an improved port ecology. Thereafter, the MAP has to be approved by the port government body before being implemented, which is followed by an institutional monitoring and control.

It is important to note that the elaboration and more importantly the implementation of MAP cannot be efficient without the involvement of port operators and stakeholders, since without an active collaboration and agreement with them, the port authorities alone will be not able to guarantee and perform an effective environmental management of SEE ports.

In addition, the CM illustrates the supporting role of research institutes and innovative science in all steps of the CM and the important influence of national governments, NGOs, and all interested parties, in particular when identifying and mapping the port critical environmental issues and environmental risk evaluation.

The management cycle of the CM is a continuous process of planning, implementation, control, review, and improvement of actions undertaken to meet the port's environmental obligations.

Integrating environmental management with other processes can improve financial quality and environmental performance of the SEE ports. In most cases this provides an answer to legal requirements, controls port sustainability, identifies significant environmental aspects or prevents and assesses air and water quality degradation.

To this end it is expected that the procedure and steps of the CM would help to resolve the decision difficulties related to ISO14001 as the CM suggests a realistic and constructive planning that is able to meet the needs of decision makers and management authorities of the SEE ports.

15.3 Guidelines for Management Action Plan Elaboration

Specifically, the building of a MAP for environmentally friendly and sustainable SEE ports development, according to TEN ECOPORT, has to follow the guidelines, instructions, and recommendations given below:

Cover Page of the MAP The cover page should include the following information: title, who prepared the document, date, approval body, who is responsible for the MAP implementation, etc.

Structure Chart of the MAP The structure chart is simply a table of content of the MAP.

Definitions of Terms Used in the MAP This part should give a short description and specification of all terms (technical, financial, etc.) used in the MAP.

Introduction The introduction has to specify the general context of the MAP. It must be short and concise. It has to be considered that the MAP could be related at least to one or more critical environmental issues specific to the ports.

The key environmental aspects to be considered at ports according to TEN ECO-PORT are:

- Emissions to air (including gases, solid particles and energy, dust)
- Discharges to water (waste waters, accidental releases during loading/unloading operations)
- Releases to soil due essentially to industrial activities
- Releases to marine sediments and activities affecting the seabed (such as dredging)
- Noise, with its potential impact on population and fauna
- Waste generation and dredging disposal
- Loss/degradation of terrestrial habitats
- Changes in marine ecosystems
- Odors
- Resource consumption
- Port development (land and sea occupation).

Reasons for MAP Elaboration When explaining the reasons it has to be kept in mind that the MAP:

- Helps port authorities to get awareness of the complex environmental context in which they operate and their impacting activities
- Provides a useful, practical and an easy way for guiding future implementation actions taken for obtaining a sustainable, economic, social, and environmental development at national and trans-national level, and stimulating the competitiveness in the context of EMS certification

Objectives of the MAP The MAP has to highlight the legislative context that permits ports to promote an environmental management drawn to the adoption of the best available practices for the solving environmental problems

The MAP should weigh the effectiveness of monitoring plans proposed for the assessment of port activities and environmental impacts.

It should also draw the main steps/actions and best available practices in order to reduce the environmental impact and support its continuous improvement of environmental performance in port areas.

Another important objective is to assess the framework for environmental management system implemented in your port.

The objectives do not have to be general but strictly and concretely related to the environmental problem(s) that is the subject of the MAP. The principal aim is to define reference actions to prevent the pollution of water, air, ground, and preserve all natural resources in port areas and nearby coastal zones.

Legal Framework (Local, Regional, EU, International) for MAP Development and Implementation

- When preparing the MAP, one should clarify and comply with: Existing environmental laws, regulations, policies, and guidelines
- Existing environmental agreements/new environmental laws and regulations
- New agreement established (or to establish) among key actors

A Short Description of the Port in Relation to the MAP This section should describe the port's activities, operators, stakeholders, critical environmental issues, ecological needs, etc. related to the MAP.

In addition, the port description has to use relevant and available information for your port arising from sources as specified in the steps of the CM:

- Previous port environmental assessments
- Eco-mapping and other evaluation tools
- Monitoring data and results from EMS, and
- Application of modeling tools and methods

Institutional Organization Chart for Map Implementation The MAP framework should include the following information for port authorities:

- Internal staff and resources:

  a) Human resources to be involved
  b) Internal financial resources
  c) Internal services and facilities already available
  d) Training needs

- External staff and resources:

  a) External and internal Operators within ports (companies, polluters, institutions, public, private, and national)
  b) External financial resources
  c) External services and facilities already available

Activities and Actions Activities and actions planned in the MAP should also be specified using the Round Table results by:

- Verification of the data and results achieved by round table
- Procedures established
- Procedure implemented
- Processing information and data storage

Facilities Chosen, etc. In the MAP should be described actions and activities planned for resolving problems related to environmental issues after the definition of environmental objectives.

Moreover, one has to explain what practically has been or will be done in the port and the timing of the implementation of actions by giving details about procedures, documentation, processing of information, data storage, prices, etc.

Tasks and Responsibilities of Key Actors The MAP should explain who will or is doing what, per action proposed.

It is important to identify precisely all those responsible both in the internal staff and among the port's operators involved as well as to decide on the procedures established and implemented.

Information and Communication System (Info-Management) The main information to be disseminated should be described in the MAP.

15.4 Conclusions

The CM, developed in the framework of TEN ECOPORT project, generalizes and extends the comprehensive ECOPORT8 project results for the SEE ports. The proposed CM for SEE ports is fully harmonized with legislation and regulations nowadays and it could overcome the decision traps related to ISO 14001.

The present guidelines for MAP development, supporting the CM, will help the overall decision-making process as they are streaming and always resulting in a feasible and constructive planning able to meet needs of management port authorities. In this way will be made possible an improved environmental performance of the SEE seaports and the facilitation of the preparation of concrete MAP.

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