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Key Principles for Ports and Harbour Development



Ports and harbours are frequently situated within the border zone between land and sea. Ports and harbours, and activities pursuant to them, are therefore close to or in direct contact with rich and valuable ecosystems, such as shallow seabeds, estuarine waters, mudflats and coastal wetlands. In this context, the effect of ports on the coastal environment may be not only in terms of the environment but also on economic and social well being of communities dependent on coastal resources. The emerging consensus is therefore, for the adoption of good management practices during planning, design and operational phases to achieve the optimal balance between socio-economic activities and their impacts on the physical, morphological and ecological features of the area where activities are undertaken.

The key principles are to enhance understanding and recognition of actions necessary to minimise the impacts of port development on the coastal zone within an economically and socially sound structure. The principles are generic and thus do not cover approaches designed for a particular regional setting.

Introduction

The global need for coastal facilities has risen dramatically in the last decade due to growing commercial, industrial and recreational needs. New ports and harbours are being developed and existing facilities expanded with great momentum.

Port facilities not only require large areas of coastal land and waters for their construction, conversion or extension, but also for the operation of all port installations, accompanying industrial and commercial installations and transport systems. The impacts of ports on the coastal environment are considerable, but often development of the ports and harbour facilities is unavoidable given the national and global economic significance of their intended use. Maritime transport carries the bulk of the world cargoes and is considered the most environmentally efficient mode of transportation.

Noting the above, opportunities to minimize significant impacts must not be overlooked in the planning and design phases, as mitigation or restoration during or after construction is prohibitively expensive. To address sustainable port development, effective government policy and regulations are important, but must be supported by industry self-regulation. This should include the adoption of good management practices during planning, design and operations, in which an optimal balance may be found between socio-economic activities and physical, morphological and ecological issues. The key principles as elaborated below are developed to increase understanding and recognition of actions necessary to minimise the impacts of port development on the coastal zone within an economically and socially sound structure. The principles are generic and thus do not cover approaches designed for a particular regional setting.



1. All new port development must be compatible with national port development plans and coastal zone management plans

Port development, expansion and operation have significant impacts on the natural landscape, habitats and the ecological functioning of the coastal environment. Countries must develop national port and harbour development plans, which form an integrated and integral part of the rural/urban development and coastal zone management plans and ensure that port development is compatible with national economic, social and environmental development goals.

for Ports and Harbour Development

2. National legislation that provides the mandate for port and harbour development should also authorise the port development agencies/ authorities to discharge their mandate in an environmentally responsible manner

Port legislation often focuses on port authorities' own sectoral concerns, and even where environmental management responsibilities are addressed, they are often expressed only in general terms. Port legislation should address all stages of development and define a mix of regulatory and non-regulatory approaches including voluntary measures, co-ordinating mechanisms and partnerships to enable the port to meet both national environmental and commercial goals in a balanced way. Port authorities must comply with relevant national legislation and regional and international conventions that address sustainable use of the coastal and marine environment.



3. A port or harbour is most successful when it recognises that enhancing environmental performance is a part of its mission and adopts necessary measures within its management and operational policies

Port and harbour authorities must adopt a well-defined environmental policy that commits them to a high standard of environmental performance. The highest level of management must be committed to pursue environmental policy and such policy must be frequently updated to deal with technological developments and stakeholders' interests. The authorities should be willing to undertake the restoration and mitigation measures demanded.

4. The conduct of an environmental impact assessment (EIA) is an essential step early in the planning phase

The EIA process enables the assessment of potential impacts of port and harbour development activities in the early planning phase. Mitigation measures and associated costs can be defined before commitments are made. Early consultation and technical discussions with relevant governmental and non-governmental agencies and other stakeholders should precede the preparation of the EIA. Well-executed cost-benefit analyses of alternative sites and designs are important components of the EIA. Justification for the preferred option should take into consideration biophysical, social and economic factors and should be consistent with ecological sustainability principles. The precautionary principle should be applied where necessary. An envi-

ronmental management plan (EMP) that addresses the implementation of the mitigation measures and the monitoring procedures dealing with environmental performance and effectiveness of these measures form key elements of the EIA process.

5. Planning, site selection and design phases of port and harbour development offer considerable opportunity to minimise negative social and environmental impacts

Optimisation of planning, site selection and design processes are essential, as mitigation or restoration during or after construction can be prohibitively expensive. While socio-economic factors are important determinants in site selection, environmental aspects must also be considered. Specific attention should be given to the potential loss of critical habitat, and to morphological changes including coastal erosion and degradation of water quality. Careful site selection may reduce the potentially hazardous environmental impacts and the cost of mitigation and/or restoration, as well as lessen public controversy.

6. Integrating sound environmental management practices into daily operational activities can derive long-term commercial advantages

The EMP provides the framework for managing environmental impacts during the operational phase. Contingency planning that enables an early and effective response to emergencies, accidents or any breakdown in environmental performance is essential. Port and harbour authorities should subscribe the regulations set by regional/international conventions that address marine pollution. Port management should allocate adequate financial resources for environmental management activities and ensure that trained operational staff is provided with well-defined procedures and responsibilities. Although environmental management procedures will increase internal costs, in the long term, the reduction in environmental hazards will be more cost effective than having to rely upon impact remedial and restoration activities.





7. Environmentally responsible technology should be adopted during all dredging operations and management of dredged material

Dredging is often an integral part of port and harbour development and hence should be addressed at the early stage of planning to derive maximum environmental and socio-economic benefits and to limit possibly negative effects. By their very nature, the acts of both capital and maintenance dredging and movement of dredged material are changes to the environment. The use of best/appropriate technology available and the adoption of 'best management practices' and internationally recognised guidelines will significantly assist in considerations of sediment re-suspension and habitat alterations. The best available environmentally sound options for management of dredged material and where possible, promotion of its 'beneficial use' should be sought. Similar rules should be set for all port operations, including safe vessel handling, once the construction phase has been finished.

In the long run, the operational phase may interact more with the environment than the initial development. Dialogues and active involvement of relevant stakeholders is crucial. Port and harbour authorities must endeavour to regularly monitor the operations carried out by contractors during the construction and by port and vessel operators in the operational phase.

8. All coastal engineering structures should be designed such that they do not significantly disrupt the sediment budget or lead to aggravated coastal erosion in adjacent areas

Construction of maritime structures may lead to the physical alteration of the coastal zones, and therefore, the design should be guided by the 'design with nature' principle and every endeavour should be made to minimise impacts on the sediment budget. This may limit morphological effects and unwanted coastal erosion and sedimentation. The performance of these structures vis a vis the stability of the adjacent areas must be regularly monitored and port authorities should take the responsibility of dealing with the effects of increased erosion that may result in adjacent areas.



9. Regional and international co-operation and strategic partnerships promote improved environmental performance

Close collaboration among port authorities, supranational port organisations, international dredging organisations and regional and international environmental management institutions will create an environment that enhances capacity for environmentally responsible port and harbour development. Dissemination of information, exchange of experiences and expertise, development of guidelines and best management practices, development of human resources and building of institutional capacity can be achieved more effectively through strong partnerships and collaboration. Regional and international organisations are encouraged to invest in the development and transfer of new technologies. These organisations play a leading role in assisting countries to develop ports and harbours in a manner that meets the objectives of the maritime conventions ratified by these same countries.

10. Sustainable port and harbour development requires a culture of dialogue, consensus building, partnerships and co-operation

The magnitude of future public and private investments within the port sector requires a broad understanding of all stakeholders involved, including the public, and of the economic and social importance of ports to the community. The community needs to be informed effectively about the environmental impacts associated with port development and the way these projects are managed. Port authorities need to recognise issues of community concern in the earliest stages possible. All stakeholders should be able to contribute to the planning process to limit public concern, controversies and reactions arising afterwards. Hence, the establishment of consultative groups and building partnerships with other stakeholders as part of port planning is crucial.

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