



International Finance Corporation

Environmental, Health and Safety Guidelines for

Port and Harbor Facilities

These guidelines are for the design, construction and use of ports, harbors and associated facilities. Other guidelines that are applicable to project features associated with ports and harbors, such as construction camps, office buildings, warehouses, maintenance facilities, and equipment and materials storage areas, are provided in the General Health and Safety Guidelines and in the General Environmental Guidelines that include requirements for liquid effluents, air emissions, waste disposal, hazardous materials, and employee health, safety and training.

The guidelines incorporate the general provisions of the World Bank policies for water resources management, international waterways, cultural properties, indigenous peoples, involuntary resettlement, biodiversity and wildlands. Environmental issues that are identified by the project sponsor or other interested parties, but not addressed by World Bank policies or guidelines, must be brought to the immediate attention of IFC for consideration and guidance.

Project Siting

The principal elements of World Bank policy regarding the siting, land acquisition and development of ports and harbors are summarized below. Sites for ports and harbors should be chosen through a systematic, documented process that includes consideration of alternatives and their environmental impacts. The sponsors must provide information regarding project siting, addressing the following guidelines:

- a) The site must be selected taking environmental factors into consideration in a manner that will minimize, to the extent possible, impacts to natural resources, sensitive ecosystems, cultural resources and populated areas.
- b) Land acquisition must be carried out in accordance with World Bank resettlement policy that requires quantification of impacts on land-based livelihood, and fair compensation to landowners and people relying on the land for their residence and/or livelihood.
- c) The siting process should consider indirect environmental and sociocultural impacts that may occur as a result of the development including: increased traffic created by the transporting of materials; increased demands on local infrastructure and labor resources; and increased stress on air quality, water quality and fisheries resources.
- d) Selection of the site should be made after consultation with government agencies, affected communities and affected local nongovernmental organizations.

Project sponsors must provide IFC with a complete record of the process by which the site was selected, including the analysis of alternative sites, and the consultation with government agencies, affected communities and local nongovernmental organizations.

Dredging

Project sponsors must develop a dredging program to minimize impacts on environmental resources as a result of: (1) changes in water quality and circulation, including depletions in

dissolved oxygen levels; (2) resuspension of toxic contaminants from existing sediment deposits; (3) contaminant uptake by and accumulation in fish and shellfish; (4) increased turbidity causing decreased photosynthesis activity; and (5) disposal of dredged materials. The following provisions should be implemented to ensure that impacts from dredging are minimized.

- a) Field investigations should be conducted to develop a dredging program that minimizes overall environmental impacts.
- b) Physical and chemical analyses of sediments should be performed prior to disturbance, and a plan developed to minimize sediment resuspension in environmentally sensitive areas.
- c) Disposal options should be evaluated and an option selected that minimizes the impacts to sensitive habitats and aquatic or terrestrial ecosystems.
- d) The increased turbidity at a dredge site should be minimized to the extent possible through the use of less intrusive dredging procedures, silt curtains and the timing of dredging activity to coincide with low flow.
- e) Turbidity should be monitored and maintained at a concentration below 200 mg/L, subject to local conditions, and dredging activity should be restricted during critical spawn-and-set periods for shellfish.
- f) Land disposal of dredged material must be conducted in a manner that will minimize impacts on terrestrial ecosystems, underlying groundwater, surface runoff and land use.

Construction Materials

- a) In siting raw material borrow pits, quarries, and asphalt and concrete plants, project sponsors should consider adjacent land uses, and the environmental and cultural resources potentially affected by their operation.
- b) Borrow pits, quarries, and asphalt and concrete plants should be developed and operated in accordance with the General Health and Safety Guidelines and in the General Environmental Guidelines, so that potential impacts on air quality, water resources, ambient

noise levels and sensitive natural environments are minimized.

- c) Project sponsors must ensure that borrow pits and quarry sites used to support the project are subject to a closure and reclamation plan that incorporates the following provisions.
 - i) The land should be restored, to the extent feasible and practicable, to conditions capable of supporting prior land use, or uses that are equivalent to the prior land use.
 - ii) Significant adverse effects on adjacent water resources must be prevented or, if unavoidable, mitigated.
 - iii) Native vegetation should be planted to prevent erosion and encourage self-sustaining development of a productive ecosystem.
 - iv) The final grading for the closure should ensure that stormwater runoff does not accumulate and become stagnant, potentially contaminating surface waters.

d) Closure plans for asphalt and concrete plants should be in compliance with government requirements and include provisions for: disposal and/or recycling of excess materials; disposal of hazardous wastes; control of erosion; and reclamation of the site.

General Environmental Requirements

- a) Project sponsors should assess the potential impacts to shoreline vegetation, wetlands, coral reefs, fisheries, bird life, and other sensitive aquatic and near-shore habitat as a result of the project and develop a plan to mitigate the impacts.
- b) The locations of stationary installations, such as underwater cables, pipelines and wastewater outfalls should be identified and incorporated into the dredging plan.
- c) If studies indicate that major modification to channel depth and cross section may cause an increase in saltwater intrusion to groundwater or surface waters, alternative project designs should be considered.

- d) Air quality impacts during construction should be mitigated.
- e) Operations at the port or harbor facilities should be restricted during quiescent periods in the local community to minimize the impact on ambient noise levels.
- f) Emergency plans, procedures and equipment should be developed and in place for preventing and combating oil and chemical spills and fires during construction and operation.
- g) On-site storage of hazardous materials and wastes should be minimized, and wastes promptly disposed of in accordance with local requirements. As a minimum, wastes should be managed and disposed of in accordance with international conventions and agreements and the obligations therein, including the London Convention 1972, the Basel Convention and other pertinent regional waste management agreements. In no case should waste be indiscriminately dumped onto land or into surface, coastal or marine waters. (Reference: IMO Recommendations on the Safe Handling of Dangerous Cargoes and Related Activities).
- h) The project sponsors should conduct a liquid effluent characterization study and assess water pollution control options for: the port facilities--sanitary and process wastewater streams; and ship discharges--garbage, maintenance wastes, oily ballast waters and sanitary wastewater. The project sponsors should conduct a waste generation and characterization study and assess pollution control options for: solid waste, sanitary waste and process wastewater streams from the port facilities; and collection and environmentally sound disposal of ship-generated wastes according to the requirements of the International Convention for the Prevention and management of Pollution from Ships 1973, as modified by the Protocol of 1978 relating thereto, (MARPOL 73/78). Examples of such wastes include: oily wastes, mixtures of oil, ballast water, chemical wastes and tank washings containing noxious liquid substances, residues of hazardous substances in packed form, sanitary wastewater (sewage) and garbage.

Port and Harbor Safety

Project sponsors should co-ordinate with government agencies responsible for port and harbor safety, including emergency response. Additional guidelines for port and harbor safety are provided below.

- a) Develop a program to co-ordinate harbor traffic with other marine activities.
- b) Implement operational measures for general harbor safety, including signals, wind directional instruments and emergency procedures.
- c) Ensure unauthorized personnel are prevented from entering hazardous or restricted areas.
- d) Establish procedures for handling, storage and transport of hazardous materials.
- e) Implement an operations and public emergency response program for spills of oils and chemicals, fires and major accidents, including emergency equipment and trained personnel, and test critical components of the program on a regular basis.

Hazards Protection

- a) Port and harbor facilities should be located, to the extent possible, to minimize potential risks from earthquakes, tidal waves, floods and fires from surrounding areas.
- b) Berths, terminals, office buildings, maintenance facilities and other structures should be designed to criteria appropriate to the local seismic risk, wind and snow loading or any other dynamically imposed loads associated with climatic and geological factors inherent at the location; certification of the design criteria used must be provided by the structural engineers or architect.

Training

- a) Personnel involved in the construction and operation of the project must be trained on the hazards, safety procedures and emergency response plan associated with their tasks in accordance with the General Health and Safety

Guidelines and in the General Environmental Guidelines.

- b) An on-site team of designated personnel should be trained in handling oil and chemical spill and fire fighting equipment, and in emergency response.
- c) Project sponsors must provide training for monitoring and mitigating the effects of the project on environmental and sociocultural resources.

Record Keeping and Reporting

- a) The sponsor must maintain records of significant environmental matters, including monitoring data, spills, occupational accidents and illnesses, and fires and other emergencies.
- b) Records of public complaints and accidents involving the general public must be maintained.
- c) The above information must be reviewed and evaluated to improve the effectiveness of the environmental, health and safety program, and an annual summary provided to IFC.