



PIANC

The World Association for
Waterborne Transport Infrastructure

Initial Assessment of Environmental Effects of Navigation and Infrastructure Projects

Background

Working Group (Envicom) 10 (Environmental risk assessment in dredging and dredged material disposal) outlined a procedure to provide a scientific basis for making a decision when a potential high risk has been identified during previous screening or environmental impact assessment. However, the report did not consider the initial assessment of environmental risks during the planning phase. As a consequence, it did not identify the range of specific events and pathways to which environmental impact might arise. A new report or an additional framework is therefore required to fill this gap and at the same time ensure a transparent method during the initial assessment process for navigation and infrastructure projects.

Scope

Members of Envicom WG 10 and Envicom consider that a report is therefore required to outline the potential pathways of environmental effects from navigation and infrastructure projects (not only dredging issues) and provide a methodology for an initial assessment taking an holistic view of the environment. The method developed should, where possible, be compatible with the 'Working with Nature' philosophy, take account of existing national screening methods for environmental effects and provide a transparent, high level evaluation process. The initial assessment is required soon after project needs and objectives have been established and should address the following:

- The establishment of environmental assessment needs and objectives;
- An understanding of the ecosystem in which the project is to be undertaken to identify the environment related functional changes;
- An holistic ecosystem approach;
- Consideration of various lines and weights of evidence;
- The requirement to only use existing readily available information
- Investigate and evaluate the possibilities for alternatives

In such an overarching approach, several elements will be important, including the role of expert knowledge of the system, the understanding of the project components and their different construction techniques as well as stakeholder consultation to identify possible win-win opportunities.

Objective

The objective of the proposed WG is to provide an initial assessment 'tool' for navigation and infrastructure projects by combining existing ideas and approaches worldwide, and developing a global standard of practice. To aid the user, the document should identify and briefly describe the events and functional chains (pathways) of environmental change, from the possible external driving forces, and the likely environmental receptors that might be affected by the various potential technical components of any navigation and infrastructure project.

For each relevant pathway, the initial assessment method should use basic, simple generic terms and when possible should be integrated with existing frameworks, such as those recently developed by the PIANC Report 100 from EnviCom WG13 and the Waste Assessment Guidance of the London Convention.

The classification of potential effects should identify the most significant areas of concern, as well as the expected area of influence. It will identify areas where modified project design, mitigation measures or further assessment will be required, but most importantly define events that will not have a significant environmental impact.

A methodology is required to summarize the specific pathways to allow an initial assessment of the project as a whole. In this process the WG should provide a method of assessing the likely effects of the project components in the context of natural change in time (short to long term) and space, (e.g., floods, storms) (near field/far field), other accepted anthropogenic activity (e.g., fishing) and the ability of the identified habitats or species to recover from damage, i.e., temporary as opposed to permanent effects. Members of the WG should identify recent examples of where this is taking place, considering these issues and where possible, summarize relevant conclusions and provide signposting to further information.

This analysis structure therefore acts as decision support system/tool for an initial opinion, allowing minor effects to be eliminated from further assessment and to focus on more significant impacts in a tiered approach.

Report

The report shall comprise:

- o Introduction on the issue and how it fits into the existing knowledge base achieved from recent previous reports from PIANC, CEDA and others and conforms to the 'Working with Nature' philosophy;
- o Description of the initial assessment process developed; the method should assess the real effects from a project and not just the perceived effect. The assessment approach must account for the magnitude, frequency and duration of the initiating event along the spatial pathways and place this into perspective with the natural variability of the physical, chemical and biological aspects of the whole ecosystem.
- o Comprehensive international survey of existing initial assessment approaches under consideration of legislative demands.
- o Descriptions of aspects of navigation and port infrastructure projects that give rise to environmental impact: e.g., drag head disturbance, overflow, spillage into the water or on land during the dredging operations, noise and vibration from piling operations, bank redesign, building of groins, relocation of river channel, bed lowering, shaping of floodplain, etc.
- o Description of types of ecosystem receptors for different initiating events: e.g., habitat type, morphology, fauna, and flora.
- o Description of environmental functional chains (pathways) especially, waterborne and (semi) terrestrial. This should include examples of how they may be assessed. Emphasize the need for specific system understanding, which may be the only information available in countries in transition as a precursor to using various models, including hydrodynamic, plume, sediment release rate, noise and ecological models at the next level of assessment;
- o Description of best-practice examples.

Audience

The audience in both developed and developing countries would be project designers, environmental staff, civil engineers, dredging practitioners and those responsible for drawing up environmental assessments, the regulators who have the decision-making responsibility and contractors who will have to carry out the projects to any guidelines developed through the evaluation process.

Members

Members of the WG should include representatives from the target audience, i.e. consultants, regulators and contractors, Port Authorities and EIA practitioners. The range of expertise should cover at least practical port design and construction knowledge and experience, geomorphology, physical processes, biology, ecology and hydraulic as well as hydro-ecological modeling. It would be beneficial to include a regulator to ensure that the approach of the group addresses the requirements of the decision makers.