



# **GUIDANCE FOR PORTS IN SMALL ISLAND COUNTRIES**

## **Terms of Reference**

### **1 Background**

In late 2004, a PIANC-IAPH joint working group (WG 97) was established to study the problems facing small island ports which service international and domestic trade, passengers and fishing activities.

The scope of work for the working group included:

- Making an inventory of port facilities and operating conditions, covering design, performance, operations, security, safety and risk-involvement;
- Identifying the most critical issues in the development and operation of these ports;
- Developing recommendations for addressing the issues identified.
- Developing a simple financial model to assist in determining the need for subsidies;
- Highlighting the macro-economic benefits of the ports.

For the purposes of the study, the working group selected thirty-seven island countries and territories spread across the Pacific, Atlantic and Indian Oceans. Most of these were classified as Small Island Developing States. Despite difficulties in gathering detailed information from a number of the island states, the working group was able to produce a comprehensive report.

The key challenges identified include remote locations, small populations, low incomes, limited resources, sensitive environments, lack of reliable energy and vulnerability to natural disasters. The working group presented a number of general recommendations with regard to development and maintenance of infrastructure, and financial and operational management. The working group also concluded that most of these island states cannot develop basic port infrastructure by themselves and require some form of financial assistance.

Since the WG 97 report was published in 2008, PIANC has prepared or updated a number of guidelines relating to environmental management, the planning, design and construction of port infrastructure, and to its inspection, maintenance and

repair. These guidelines are highly relevant to the developing island states however there is a need for planning and engineering solutions which give appropriate recognition to the problems posed by remoteness, limited capabilities and sensitive environments. A number of these island states have experienced difficulty in adapting such guidelines in the face of these challenges.

The proposed new guideline would update and extend WG 97, providing assistance in the application of the PIANC guidelines in a manner reflecting the conditions faced by the island states. Such a working group should attract keen participation by the island states.

Principal funding agencies such as the Asian Development Bank and the World Bank support the regional development of port infrastructure and the promotion of safe, sustainable and energy-efficient port operations. The inclusion in the working group of representatives of the funding agencies would facilitate the incorporation of guidance in the identification and definition of improvement projects in a manner acceptable for consideration of aid funding.

## **2 Objective**

To provide a guidance document specific to the needs of small island ports, covering best practice port planning, design and construction, efficiency and safety in port and terminal operations, environmental safeguards, implementation of sustainable technologies, and natural hazard response planning.

## **3 Typical Issues to be Addressed**

Typical issues to be addressed by the working group include:

- There is a lack of measured port performance data. Guidance is needed as to how this data can be collected cost-efficiently.
- The small size of the ports and terminals and limited hinterland area impose practical limitations on operations and the scope for improvements. Guidance is needed in maximizing the viability of investment in improvements.
- There is often a lack of reliable power supply and potable water, impacting construction and operations. A number of the island countries rely on diesel generators and are subject to large fluctuations in energy prices. Guidance is required on energy efficiency and more sustainable power supply.
- A disproportionately high number of waterside and landside safety incidents are recorded at island terminals. Port operators require guidance on safety improvements.
- Environmental safeguards need to be improved. Guidance is needed on how to avoid spills and pollutants through the implementation of green initiatives, and on dealing with spills and pollutants when they occur.
- Post natural hazard response plans are believed to be lacking or inadequate for most small island states. These islands are often subject to cyclones,

earthquakes, and tsunamis. Damaged port infrastructure can result in the island being cut off from supply lines. Guidance is needed on what a post natural hazard response plan should contain, and how to formulate one.

- The remote location of many islands leads to problems with the supply of materials. This leads to maintenance often being overlooked. There is a need for guidance on asset management and low-maintenance design.
- Construction is expensive due to the need to import materials and equipment. Good examples of cost-efficient design and construction suiting the remote location should be provided.
- Guidance is required in relation to achieving and maintaining compliance with international regulations, such as ISPS, SOLAS, etc.

#### **4 Documents to be Reviewed**

- WG97 – Ports located in small islands (2008)
- WG150 – Sustainable ports - a guide for port authorities (2014)
- WG193 – Resilience of the maritime and inland waterborne transport system (2020)
- WG159 – Renewables and energy efficiency (2019)
- WG188 – Carbon management for port and navigation infrastructure (2019)
- WG158 – Masterplans for the development of existing ports (2014)
- WG185 – Ports of greenfield sites – guidelines for site selection and masterplanning (2019)
- WG224 – Planning of fishing ports (in progress)
- WG175 – A practical guide to environmental risk management for navigation infrastructure projects (2019)
- WG178 – Climate change adaptation planning for ports and inland waterways (2020)
- WG108 – Dredging and port construction around coral reefs (2010)
- WG121 – Harbour approach channel design guidelines (2014)
- WG153 – Recommendations for the design and assessment of marine oil and petrochemical terminals (2016)
- WG135 – Design principles for small and medium marine container terminals (2014)
- WG184 – Design principles for dry bulk marine terminals (2019)
- WG167 – Design of terminals for ro/ro and ro/pax vessels (in progress)
- WG213 – Design guidelines for marine multipurpose terminals (in progress)
- WG31 – Seismic design guidelines for port structures (2001)
- WG225 – Seismic design guidelines for port structures (in progress)
- WG112 – Mitigation of tsunami disasters in ports (2010)
- WG122 – Tsunami disasters in ports due to the great East Japan earthquake (2014)
- WG233 – Inspection, maintenance and repair of waterfront facilities (in progress)
- Other contextual reports by funding agencies such as World Bank and ADB.

## **5 Intended Product**

A guideline covering best current practice, as it applies to ports in small island states, including:

- Port ownership / operating models and characteristics
- Typical trade characteristics and handling requirements
- Inter-island connectivity and supply chain resilience
- Data gathering and performance benchmarking
- Operational efficiency and safety considerations
- Asset management
- Environmental management
- Energy efficiency and sustainability
- Smarter port initiatives
- Social factors and safeguards
- Port and hinterland development planning considerations
- Typical site conditions and their implications
- Design criteria – natural hazards and climate resilience, shore protection
- Safety in design
- Construction types and constructability considerations
- Inspection, maintenance and repair of infrastructure
- Development funding considerations and typical requirements of international funding institutions.

## **6 Working Group Membership and Structure**

The working group should include:

- Port authority or government representatives from each of the regions (Pacific, Indian and Atlantic Oceans)
- Available members of WG 97
- IAPH
- Representatives from funding institutions such as ADB and WB
- Consultants with experience in port planning, maritime and coastal engineering specific to the island regions
- Contractors experienced in construction, maintenance and repair of port infrastructure in the island regions.

The working group should be structured such that each region is represented by a sub-group including regional technical specialists, local port authorities, government and aid agencies. The core working group would bring together the work of the regional sub-groups and produce the main report. This structure would ensure maximum participation by the regional ports, and would avoid duplication in coverage of topics common to all regions.

## **7 Relevance to Countries in Transition**

Most of the small island states are countries in transition.

## **8 Climate Change Considerations**

Many of the small island states are vulnerable to the potential impacts of climate change, including:

- Sea level rise
- Increased frequency and severity of extreme climatic events
- Water temperature/acidification
- Flooding/drought.

These potential impacts will be addressed by the working group.

## **9 Relevance to UN Sustainable Development Guidelines**

The sustainable development goals of the UN are of particular relevance to the small island states. The importance of the ports as life-lines for these countries, and as a major employer, makes the ports a key target for sustainable development. The proposed scope of the working group covers a number of the UN goals.