



Summary report Special Session 6 April 2011:

Sustainable dredging of Mediterranean Ports: the future for sediment management

(summary prepared by A. Barbanti, Thetis SpA)

Sediment management is important/crucial for port activities and development. “Dredge or die” is the key message in several cases. Aims of the Session were to:

- i) define the overall framework and the needs for sediment management at the country and basin scale;
- ii) present and discuss how dredging is affecting port sustainable development and the implementation of IMP;
- iii) review the legislation in force and analyse differences and gaps;
- iv) review and compare practices and solutions adopted and discuss how to promote the diffusion of Best Management Practices;
- v) point out open issues and put forward recommendations for future actions.

The “Setting the scene” session started with a presentation from Marc Eisma (ESPO, Port of Rotterdam) on the significance of dredging and sediment management for the European Port Sector and the Mediterranean Ports. Dredging and disposal of dredged material are constantly identified as top priority environmental concerns by European seaports since 1996, independently of the port’s size. In the Mediterranean dredging seems to have a lower priority ranking compared with the northern Europe ports, but still figures within the top environmental priorities. For this reason, the participation of the port sector as a key stakeholder is crucial in the definition of guidelines, best practices and policy implementation phases.

Ann Carette (University of Antwerp / Flemish Environment Agency) discussed the regulatory aspects of Sediment Management in the EU. She presented an overview of International Conventions (Barcelona and London Conventions and related protocols) and European Regulation: Water Framework Directive; Marine Strategy Framework Directive; Birds- and Habitats Directives; Waste Directive; Proposal for a Soil Framework Directive). Aspects such as “clean up dredging” and “how to dredge” are mainly regulated by environmental protection legislation, while the “what to do with dredged materials” issue also involves International Conventions and the Waste Directive. Integrated approaches such as RBMP (WFD) or program of measures of MFSD are recommended for addressing sustainable dredging.

Andrea Barbanti (Thetis SpA) showed examples on how science can inform the pathway toward more harmonized environmentally safe and sustainable solutions. He focused on three key aspects, such as risk assessment, systemic/holistic approaches and sediment as a resource. Those issues have been discussed through a number of case studies. Conclusions are that complex problems require a combination of tools. Such tools must be strongly scientifically based, used by skilled technicians and supervised/validated in their application. Tools to manage complexity bring added value and are not (or must not be) obstacles for decision-making. Uncertainty is hard to address and communicate and is often not accepted nor understood. We have to accept to deal with it, through formalized adaptive management strategies. Therefore, involvement of scientists since the early stages of the decision process is needed. Science is needed also to communicate, sustain participatory approaches and build consensus. Most importantly, when themes are complex and can be misunderstood.

Todd Bridges (US Army Engineer Research and Development Center - PIANC) presented the role of PIANC in promoting sustainable management solutions, through technical guidelines that try to make operational concepts such as “dredged sediment is a resource and not a waste per se” and “working with nature” (WWN), an integrated process which involves identifying and exploiting win-win solutions which are acceptable to both project designers and environmental stakeholders early in a project when flexibility is still possible and which considers all environmental impacts.

Polite Laboyre (Witteveen+Bos Consulting Engineers – CEDA) presented the contribution and the point of view on sustainable sediment management of another important association, CEDA. Some of



his key messages are the following: i) source control is the first option for a real solution of a problem where contaminated sediments are involved; ii) treatment of dredged material can be considered as a last resort, not as a standard solution. First beneficial use, than storage and finally treatment. The only operational treatment techniques are separation and dewatering. Treatments for decontamination is in general no option because not feasible; iii) the decision what to do in case of contaminated sediments has to be risk based. One should not forget to include the do-nothing option in the risk analysis; iv) In long term management plans beneficial use is the only long term sustainable option. Any storage volume is finite and often siltation is an ongoing process with continuously growing quantities. Even in case of disposal one should take care for the beneficial use of the site after completion of the disposal operations.

The role and experience of Environmental Agencies for sustainable SM is presented by Elena Romano (Italian Environmental Agency - ISPRA). ISPRA supports sediment management through: technical assistance to central and regional administrations on policy development and implementation; projects evaluation and monitoring; research activities.

The “case study” session started with Roberto Casarin (Porto Marghera Commissary), who presented the dredging and remediation of Porto Marghera industrial canals in the context of Italian port dredging needs and practices. The solution being implemented is based on a CDF’s approach, integrated with a comprehensive reclamation and redevelopment of the area as a whole.

The three biggest northern european ports (Rotterdam – Marco Wensveen; Hamburg – Axel Netzband; Antwerp – Agnes Heylen) have common characteristics and problems and adopt similar solutions: i) big amounts of sediments to dredge every year, with a large percentage of sediments of marine origin; ii) a management strategy based on relocation along river banks and in open ocean of non / low level contaminated sediments, while the most contaminated sediments are treated (grain size separation and dewatering) and disposed upland and/or in CDFs; iii) reduction of pollution sources (diffuse and point sources) at basin scale.

Michael Aftias (Ydronomi Consulting Engineers) presented the status of management of sediments dredged in ports and harbours in Greece. The situation here is very different from the northern Europe ports, in terms of environmental settings and quantities. The focus is on the relationship between sediment management and ICZM, taking into account the regional scale.

The need for a regional scale / systemic approach was reinforced by the presentation of Linda Lillycrop (US Army Engineer Research and Development Center) on dredging and regional sediment management (RSM) in the USA. She presented some tools needed to support RSM, together with some case studies. RSM is here defined as a systems approach for efficient and effective management of sediments in coastal, estuarine, riverine, and watershed environments. Take-home messages are: manage local projects in regional context; understand local/regional processes, sediment sources & sinks; seek solutions which maximize use and minimize costs; collaborate/communicate with stakeholders and partners; identify opportunities, decision making, coordinate and implement actions; share data, tools, technology and lessons learned.

A round table discussion concluded the Special Session, discussing how sediment management is important/crucial for port activities and development and which approaches should be followed to solve present limitations and to promote sustainable solutions, reconciling environmental, social and economical demands.

Participants in the round table were:

Mr. Paolo Costa, Venice Port Authority, President;

Mr. Luciano Guerrieri, Association of Italian Ports, Vice-President; Piombino Port Authority, President;

Mr. Massimo Montevocchi, Sidra-DEME (Dredging, Environmental & Marine Engineering Contractor), former Managing Director, consultant at present;

Mr. Todd Bridges, PIANC (The International Navigation Association), repres. Environmental Commission;

Mr. Polite Laboyrie, CEDA (Central Dredging Association), chairman Environment Committee;



Mr. Massimo Gabellini, ISPRA (Italian Institute for Environmental Protection and Research), Head of Department for the Prevention and Mitigation of Impacts;

Mr. Andrea Ferrante, High Council of Public Works, Counselor;

Mr. Philippe Bourdeau, former director of DG Research, member of the Ufficio di Piano to oversee the infrastructural works for the safeguard of Venice.

The participants reached a wide consensus on open issues and directions to take to tackle them. Main problem seems to be then not “WHAT TO DO” but “HOW TO DO IT”.

In particular, main outcomes were the following:

- Development and harmonization of regulatory framework is very important, also to guarantee fair competition among member (and non-member) countries. There is a general consensus on having a (better harmonized) EU/Intl. high level legislation (harmonization among EU Directives, update of International Conventions,..), leaving to the MS the definition of more specific rules.
- Basin or regional scale analysis and solutions (SM within RBMP, RSM, SM within ICZM) should be favoured, taking into account local circumstances and needs.
- Environmental and economical / infrastructural aspects should be integrated: the sustainability concept provides the ideal framework for such integration. Risk assessment approaches, but also objectives-based environmental management, rather than simple standards, in a systemic/holistic view.
- An important part of the “sustainability” paradigm is the reuse of dredged sediment, not adequately and sufficiently addressed up to now. It may be not strictly be a problem of considering DM as wastes or not, but a question of how you manage them and how you promote (technical solutions, regulation, incentives,..) the reuse (with or without treatment).
- Participatory approaches and stakeholder involvement are important issues. All stakeholders (Port Authority, Administrative bodies, Research Institute, Environmental Agency, NGO, Operators, Consultants,..) should be involved, at different levels, in regulation development and Regional / RB scale SM planning. Proposal from the Italian Port Association to establish a Working Group to promote harmonization of SM legislation in Italy, agreed from all participants.
- Innovative solutions need to be supported by knowledge and research, but still transfer of good science into rules and practices remains a difficult process. Associations as SedNet, PIANC, CEDA can support the process through their guidances and networking activities.