Integrating ecosystem services for sustainable dredging

RENÉ KOLMAN, SECRETARY GENERAL, INTERNATIONAL ASSOCIATION OF DREDGING COMPANIES

Nowadays, dredging companies are operating in an increasingly complex world – not only are projects getting more complicated from a technical point of view but there is also a growing environmental awareness amongst project proponents, legislators and dredging contractors. Companies are taking ownership of their responsibilities (environmental awareness in this case) by promoting the design and implementation of more sustainable solutions.

However, developing and designing solutions alone is not good enough to receive the general acceptance of all stakeholders. To enable broad implementation and ensure effective realisation, these solutions should be widely accepted by clients, project financers and other stakeholders. To that end, all impacts of the project, positive and negative, should be taken into account in the evaluation method that is being utilised. This is where the concept of ecosystem services (ES) comes into play.

The ES concept has been discussed for decades but over recent years, it has been gaining more recognition within and outside of the industry. It can help enable the design of more sustainable dredging and marine infrastructure works and their efficient implementation and realisation in environmentally sensitive areas. In addition, the concept of ecosystem services could be an important tool for integral evaluation of project effects and achieving broad public support.

The concept of ES aims at classifying, describing and assessing the value of natural resources and ecosystem services in terms of benefits for society, such as provision of food and other resources and air and water quality regulation. Though these benefits are always delivered, project stakeholders (including developers, financers, governments) do not always perceive them as a full “economic good”.

An ES assessment can provide quantifiable information and it allows for a better comparison between project alternatives – not just scenarios that mitigate negative effects but also the ones that positively contribute to the environment – delivering ecosystem services. Also, monetary valuation of ES can be utilised to make a full environmental cost-benefit analysis and weigh the investment cost with not only technical profits, but also environmental and socio-economic benefits. In addition, qualitative assessment can be done for ES when monetary valuation is not possible. In this way, other considerations can be added to the evaluation such as habitat and biodiversity targets.

To help dredging industry professionals, especially those who are in the position to further the ES concept within their own organisations as well as project stakeholders gain an understanding of the value of the ecosystem services approach, the International Association of Dredging Companies (IADC) recently commissioned a study. The Ecosystem services: Towards integrated marine infrastructure project optimisation study was carried out by the Ecosystem Management Research Group (ECOBES) of the University of Antwerp. A group of experts from within and outside of the dredging industry were also actively involved throughout the study to provide input on case studies and discuss intermediate results.

The study has been presented in a report, which is available on IADC’s website. The report provides the general concept of ES and the overall considerations on its use in the context of dredging projects. Five case studies are highlighted and they present the outcomes of ES application. The case studies are: Wind farms at sea (C-Power) in Belgium; Botany Bay in Sydney, Australia; Western Scheldt Container Terminal and the Sand Engine in the Netherlands; and Polders of Kruibeke in Belgium. The presented results do not evaluate the projects but only assess the feasibility of the ES approach to gain a more integrated insight. The report also gives general considerations on the governance of ES assessments and their applicability in dredging practice.

From the report, one would realise that while classic environmental impact assessments focus on the potential negative effects of a dredging project on nature and society, taking an ES perspective...
allows looking at both the negative effects as well as new opportunities that may arise.

Taking ecosystem services into account from the design phase of a project allows to generate added value that might otherwise be missed out on, discover impacts that could be mitigated and create support from different stakeholders. As such, this goes a long way in helping companies in the dredging industry achieve project success.

The ES report can be downloaded from IADC’s website.

www.iadc-dredging.com

Polders of Kruibeke

The Polders of Kruibeke are located in the Sea Scheldt (Zeeschelde), the Belgian part of the tidal River Scheldt. It is one of the projects of the SigmaPlan – the Flemish management plan for the Sea Scheldt estuary that focuses on safety, navigation and nature.

The major parts of the plan are flood prevention and nature development linked to the European habitat and bird directives and the recovery of the Scheldt estuary. The Polders of Kruibeke project uses a combination of both techniques – flood safety and nature development – and this has resulted in a mixed habitat configuration of wetland, bird area, alder brook forest and tidal marsh.

This project has been assessed in depth to illustrate to broader applicability of the ES assessment in the ecosystem services report. The construction of the project is compared with alternatives to show that the ES assessment could be used to compare alternative scenarios in an integrated way (including different effects).

The report showcases several scenarios in comparison with the main integrated plan (the reference scenario) to assess the beneficial value of the project. Also, quantitative information and monetary benefits are given on the various ecosystem services such as agricultural production, wood provisioning, climate regulation, water quality regulation, air quality regulation, recreation and biodiversity. By utilising the different scenarios and quantifying them, the ES assessment stated that the Polders of Kruibeke project is much more beneficial for society then otherwise concluded when only looking at flood safety benefits. By utilising the quantitative and qualitative information, contractors and relevant stakeholders can make informed decisions about a dredging project.

About the author

René Kolman is the Secretary General of the International Association of Dredging Companies (IADC), the umbrella organisation for the worldwide private dredging industry. He takes a leading role in promoting the industry’s long-standing commitment to environment and sustainability. Kolman studied at the Nautical School in Rotterdam and holds a degree in Economics from the University of Groningen in the Netherlands.