

SBI VOL. 10 ISSUE 5 | 2016

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FREE TRADE ZONE

Towards Sustainable Dredging

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LARGEST TSHD IN CHINA

ECOSYSTEM SERVICES

Heading Towards Sustainable Dredging

THE ONGOING NEED FOR NAVIGATION IN THE CONTEXT OF THE CONTINUALLY GROWING WORLD POPULATION AND TRADE, TOGETHER WITH THE CHALLENGES provided by climate change, are major drivers in the dredging sector. This growth means that there is a permanent need for marine infrastructure projects and this is especially so for people living in low-lying delta areas.

WORDS BY RENÉ KOLMAN, SECRETARY GENERAL OF THE INTERNATIONAL ASSOCIATION OF DREDGING COMPANIES (IADC).

However, 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.

Simply designing and developing solutions, however, is not enough. To enable broad implementation and to ensure effective realisation, these solutions have to be widely accepted by clients, project financiers and other stakeholders. To that end, the benefits of these solutions or approaches should be taken into account in the evaluation method used. This is where the concept of ecosystem services (ES) comes into play.

Natural Resources and Ecosystem Services

The ES concept has been on the discussion table for decades, but over recent years it has been gaining more recognition both within the industry and beyond. It contributes to 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 the integral evaluation of the effects projects have (either benefits or disadvantages) and in 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 to society, such as the provision of food and other resources, coupled with air and water quality regulation. Though these benefits are always delivered, project



One benefit of ecosystem services is that it addresses the challenges of flooding. At the Polders of Kruikeke in Belgium, a new dyke will be built land-inwards (the horizontal line in the middle going from the River Scheldt to the right). This new ring dyke will protect the houses lying just outside the flood area during storm tide.

stakeholders (including developers, financiers, governments, etc.) do not always perceive them as a full 'economic good'. An ES assessment can provide quantifiable information and data that can be included in a traditional cost-benefit analysis of a project. Thus, an ES monetary valuation can be utilised to make a full environmental cost-benefit analysis and to weigh the cost of investment against not only technical profits, but also environmental and socio-economic benefits. An ES assessment also allows for a better comparison between project alternatives – not just scenarios that

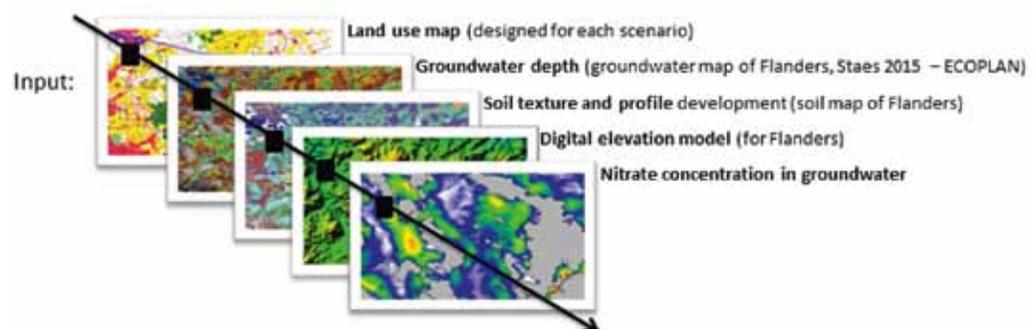


René Kolman is the Secretary General of the International Association of Dredging Companies (IADC), the umbrella organisation for the worldwide private dredging industry. He takes a leading role in promoting the industry's long-standing commitment to environment and sustainability. Mr Kolman studied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

mitigate negative effects, but also ones that positively contribute to the environment – delivering ecosystem services. Furthermore, qualitative ES assessment can be carried out when monetary valuation is not possible. In this way, other considerations can be added to the evaluation, such as habitat and biodiversity targets.

Integrated Marine Infrastructure Project Optimisation

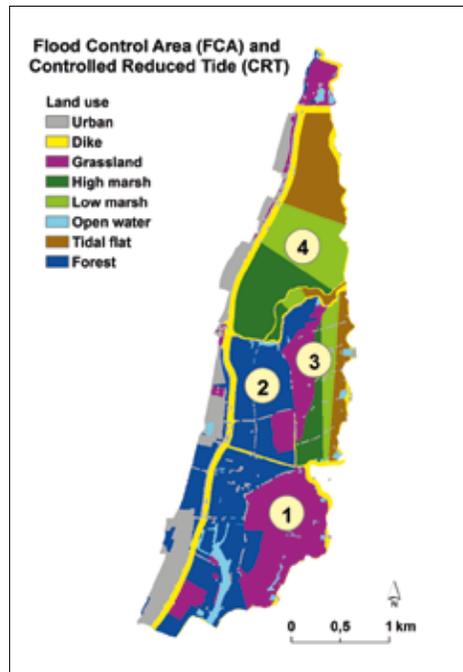
The International Association of Dredging Companies (IADC) recently commissioned >>



Combined schematic overview of the required data from the different biophysical maps. For each 5x5m raster cell, data from the different layers is combined and used to estimate the different ES in the Polders of Kruibeke.



Study area the Polders of Kruikebe in the Zeeschelde, the Belgian part of the tidal River Scheldt.



Integrated Plan for the Flood Control Area (FCA) Polders of Kruikebe with four different zones: (1) bird area, (2) alder brook forest, (3) tidal marsh combined with bird area (FCA-CRT), (4) tidal marsh (FCA-CRT).

a study in order to promote an understanding of the value of the ecosystem services approach. The goal of this study was to increase awareness among dredging industry professionals and project stakeholders, especially those who are in a position to further the ES concept within their own organisations. The study, entitled “Ecosystem Services: Towards Integrated Marine Infrastructure Project Optimisation” was carried out by the Ecosystem Management Research Group (ECOBIE) of the University of Antwerp. A specialist in ES and a group of experts from 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 identifies the general concept of ES and the overall considerations regarding its use in the context of dredging projects. Five case studies in highly distinct environments are highlighted, each demonstrating the outcome of ES application. The case studies are: Wind Farms at Sea (C-Power) in Belgium; Botany Bay in Sydney, Australia; the Polders of Kruikebe in Belgium and the Western Scheldt Container Terminal and

Sand Engine in the Netherlands. The results presented in the report do not evaluate the projects themselves; they only assess the feasibility of the ES approach in gaining a more integrated insight. The report also gives general indications on the governance of ES assessments and their applicability in dredging practice. From the report, one can conclude that while classic environmental impact assessments focus on the potentially negative effects of a dredging project on nature and society, taking an ES perspective allows a look at both the negative effects as well as the new opportunities that may arise as secondary benefits.

Taking ecosystem services into account right from the design phase of a project allows not only the generation of added value that might otherwise be overlooked, but also the avoidance of destruction which is impossible to mitigate, plus support from different stakeholders. As such, this goes a long way to help companies in the dredging industry achieve project success.

i. www.iadc-dredging.com



An aerial view of the Sand Motor (also known as the Sand Engine), an artificial peninsula on the coast near Ter Heijde/Kijkduin in the Netherlands. It is an innovative pilot project developed to nourish the coast naturally. The Sand Engine is one of the projects analysed using the ES concept.



The bird island sanctuary at the mouth of the Seine near Le Havre Port 2000 was created to compensate for natural habitats lost during the construction of the port. It is an example of a dredging project where the ES concept could be applied to discover positive or negative project effects.