LOCATION Beurs van Berlage Damrak 243 1012 ZJ Amsterdam The Netherlands

CONFERENCE DREDGING FOR SUSTAINABLE INFRASTRUCTURE





19-20 NOVEMBER 2018

AN INVITATION

As a distinguished professional involved in a dredging project's manifold facets, you are invited to partake in an event which is dedicated to advancing industry knowledge in the arena of sustainable dredging.

Please join us for two days in the heart of Amsterdam and meet professionals from all sectors involved in the realisation of a dredging project. Participants will originate from around the world, making it possible for you to take your network to an international level.

The two-day-long programme offers six highly interactive sessions with contributions from internationally renowned scientists and practitioners which address topics set forth in *Dredging for Sustainable Infrastructure*, CEDA and IADC's new guidebook which will be launched at the event. Partake in networking opportunities as well as site visits to sustainable projects situated within the region of Amsterdam.

We look forward to meeting you at the Dredging for Sustainable Infrastructure Conference.



WITH A NETWORKING AREA HOSTED BY:





DredgingToday.com

SUSTAINABLE DREDGING

How can dredging be sustainable? This is the overarching question which will be explored at the Dredging for Sustainable Infrastructure Conference.

THE BEST IS NOT ENOUGH

With growing environmental awareness and increasing climate pressures on low-lying deltas, modern-day society puts incredibly strong demands on the sustainability of water infrastructure projects. Classic approaches towards the design and implementation of such projects no longer suffice in satisfying these demands.

Instead, radically different methods are needed which demand multidisciplinary project teams to adopt entirely new ways of thinking, acting and interacting. Application of these new methods results in innovative water infrastructure solutions that meet the primary functional requirements while at the same time delivering added value for nature and society as an inherent part of project development.

GUIDEBOOK DEBUTS AT EVENT

The Dredging for Sustainable Infrastructure Conference is based on the forthcoming CEDA-IADC guidebook *Dredging for Sustainable Infrastructure* which will be available worldwide in November 2018. The conference's speakers and interactive sessions are centred around the guidebook which will be presented at the meeting and handed out to all attendees.

QUINTESSENTIAL KNOWLEDGE FOR ALL ATTENDEES

Professionals and companies aiming to deliver dredging projects with longevity which also maximise the benefits to society, nature and economy will find this event to be of particular relevance. The Dredging for Sustainable Infrastructure Conference will confer quintessential knowledge for planners, designers, decision makers, regulators, contractors, project owners and environmental advocates.

NETWORK ENHANCES KNOWLEDGE

The networking area is the key meeting point for all delegates throughout the programme to exchange ideas, discuss presented innovations and enhance knowledge exchange. For two days, professionals from across the industry, consultancies, government agencies, research institutes and NGOs all facing similar challenges in their search for better projects will be together under one roof.

We look forward to your participation and hope you enjoy this groundbreaking conference!

Sincerely,



Polite Laboyrie CEDA President



Frank Verhoeven



Coert van Zijll Langhout Managing Director Navingo, Dredging Today

GUIDEBOOK'S DEBUT

The conference celebrates the launch of the CEDA-IADC guidebook *Dredging for Sustainable Infrastructure* and builds on its content.

FROM REACTIVITY TO PROACTIVITY

Containing contributions from leading specialists in the field, the publication *Dredging for Sustainable Infrastructure* will serve as an authoritative guide to delivering dredging projects that enhance the natural and socio-economic systems.

CONFERENCE PROGRAMME DERIVED FROM BOOK'S TOPICS

For water infrastructure projects, the importance of vision and value creation, adapting projects to nature from the onset, and viewing a project and its effect over the long term are key to success. The insights presented in *Dredging for Sustainable Infrastructure* result from a wealth of upto-date knowledge pooled by a team of scientists and practicing industry experts. The publication's information has been moderated by an Editorial Board comprised of CEDA and IADC representatives. At the Dredging for Sustainable Infrastructure Conference, speakers will convey the publication's mainstay topics.

THEORY BECOMES PRACTICE

At this high-profile conference, new avenues towards the development of sustainable water infrastructure will be explored, and translated to your own project context. Experience first-hand what it means to apply this new approach in practice. Four key enablers to ensure success will be discussed, including the issues of valuation of ecosystem benefits, stakeholder engagement, adaptive management of dredging projects and the beneficial use of dredged materials.



CONFERENCE PROGRAMME

Presentations and highly interactive technical sessions encourage participants to engage with each other, enhancing knowledge exchange and transfer.

Day 1



REGISTRATION & OPENING OF THE NETWORKING AREA

Pick up your name card and conference documentation, and drink a coffee in the networking area.

10:30 OPENING

Polite Laboyrie

Frank Verhoeven

CEDA President, Chairman of the Editorial Advisory Board of Dredging for Sustainable Infrastructure, Witteveen+Bos, The Netherlands IADC President, The Netherlands

10:40 WHAT IF? THE GRAND VISION OF SUSTAINABLE INFRASTRUCTURE

Filled with surprises, an activity will open the audience's minds about sustainable water infrastructure. A 'Grand Vision' will be created as designated individuals give short pitches about an envisioned sustainable future. Participants will be encouraged to spread the wings of their imagination by answering a number of 'Whaf if?' questions. Visions will be selected by vote to expound upon them in small groups in the next session. This session is supported by Gijs van der Boomen, director of KuiperCompagnons.



12:00 LUNCH IN THE NETWORKING AREA

13:00 SHHH! TIME TO REFLECT

After the morning's inspirational session, it is time for quiet reflection. In small groups, participants will discuss one of the selected visions with their peers. What are the possibilities for realising the vision in their own projects, the challenges and ways to overcome these challenges? A selection of the discussed solutions will be shared in the reconvened plenary under the skilful guidance of Mike van der Vijver, Managing Partner of MindMeeting.



The organisers reserve the right to make adjustments to the schedule as necessary.

14:00 TECHNICAL VISITS

Four field trips offer delegates a first-hand investigation of sustainable approaches realised within the region of Amsterdam. While registering, list two preferences from the following activities.





EENDENKOOI

A duck decoy – dating from 1652 – is reconstructed in its original location on the former island of Ruigoord. Embedded into the landscape, the publicly-transparent project's ground and water plans are completed, and its green plan and catch installation are under way. Photo © SengerPhoto

IJBURG EXTENSION

Amsterdam is growing yet again with a new island emerging in the IJmeer lake. Situated adjacent to IJburg, the 82 hectare project – being realised by Boskalis with soft and hard bank protection – will host housing to relieve the city's rapid population growth and include a nature area of three hectares.



MARKERMEERDIJK

Stretching from Amsterdam to Hoorn, dykes protect North Holland from flooding caused by the North Sea. Although stronger than initially thought, the infrastructure called the Markermeerdijk is being updated to ensure the region is protected from rising sea levels by 2021. Innovative strategies which are cheaper and stronger are being employed such as dykes on peat and vacuum consolidation among others.



PLASTIC WHALE

drinks and a buffet dinner.

Amsterdam's rings of canals are renowned around the world. On a daily basis, the waterways host boats, tourists, residents and wildlife alongside an unwanted visitor: plastic. Help remove unwanted plastic and give birds, fish and locals alike a cleaner home. From a boat made from previously collected plastic, fish plastic from the waterways while seeing the city's beautiful sights.

17:30



DRINKS AND DINNER IN THE NETWORKING AREA Back at the Beurs van Berlage, mingle with fellow delegates while enjoying

Day 2



FORMAL BOOK LAUNCH

The first copy of *Dredging for Sustainable Infrastructure* will be conferred by Polite Laboyrie, Chairman of the Editorial Board.

9:30 FOUR KEY ENABLERS TO DREDGING FOR SUSTAINABLE INFRASTRUCTURE

Dynamic sessions span four of the key enablers set forth in the book. For 15 minutes, speakers delve into each topic and a one hour interactive activity follows. Turn to page 8 for descriptions of enablers.





USING AN ECOSYSTEM APPROACH

Professor Dr Patrick Meire

Professor at the University of Antwerp and Researcher at ECOBE, Belgium

9:45

Interactive Activity

10:45 COFFEE BREAK IN THE NETWORKING AREA



INVESTING IN STAKEHOLDER ENGAGEMENT

Jaap van Thiel de Vries General Manager Hydronamic at Boskalis, The Netherlands

Ynzo van Zanten Chief Evangelist at Tony's Chocolonely, The Netherlands

11:40

Interactive Activity

12:30 LUNCH IN THE NETWORKING AREA



APPLYING ADAPTIVE MANAGEMENT

Dredging Group Manager at HR Wallingford, United Kingdom

Interactive Activity

Dr Mark Lee

14:45 COFFEE BREAK IN THE NETWORKING AREA



SEEKING WIN-WIN SOLUTIONS THROUGH BENEFICIAL USE OF SEDIMENTS

Dr Todd Bridges

Senior Research Scientist at USACE Research and Development Center, USA

15:30

Interactive Activity

16:30 CONFERENCE WRAP-UP

17:00 CONFERENCE ENDS FAREWELL DRINKS IN THE NETWORKING AREA

17:00 CEDA ANNUAL GENERAL MEETING

Following the conference's conclusion, a half hour meeting will be held with CEDA members.

18:30 DPC AWARDS

The annual Dredging and Port Construction Innovation Awards will be held at Amsterdam's De Koepelkerk. Separate booking is required. For further information and bookings, visit <u>www.dpcawards.com</u>.

The organisers reserve the right to make adjustments to the schedule as necessary.

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NETWORKING AREA

Throughout the event's two day duration, a networking area with displays will be organised alongside the conference's programme within the Beurs van Berlage.

Alongside the conference programme, delegates are welcome in the Networking Area to enjoy coffee and refreshments as well as connect with fellow industry professionals to grow their networks to an international level.

Companies which are looking to have a memorable presence at the event which leaves a lasting impression on the event's delegates can opt to have a display dedicated to its products and services.

As a Networking Area sponsor, your company will be featured in relevant event outreach. Contact the Dredging Today team to secure a dedicated place in the Networking Area or to receive more information about sponsor packages.



Anne Visser Dredging Today

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Above is an impression of the display's design which will be customised for the event.

FOUR KEY ENABLERS

Addressing uncertainties relevant to the use of key enablers for dredging for sustainable water infrastructure projects is fundamental to success.

THE FOUR KEY ENABLERS TO DREDGING FOR SUSTAINABLE INFRASTRUCTURE

Sustainable development of water infrastructure can be achieved through the use of four key enablers. These enablers are:

- Using an Ecosystem Approach
- Investing in Stakeholder Engagement
- Applying Adaptive Management
- Seeking Win-Win Solutions through Beneficial Use of Sediments

A number of uncertainties are relevant to the use of these key enablers in the development of sustainable solutions for water infrastructure, including: the nature of future conditions relevant to solution development (e.g. social, economic, environmental conditions), uncertainties relevant to the social and institutional acceptability of innovative solutions, and uncertainties related to project progress, policy development, interdisciplinary collaboration and procurement. Addressing these and other uncertainties is fundamental to successful development of sustainable infrastructure through application of the four key enablers.

USING AN ECOSYSTEM APPROACH

The concept of Ecosystem Services (ES) is a holistic approach and addresses the whole ecosystem. It can be used as a starting point for the integrated assessment and evaluation of project benefits and impacts. Nature-based solutions focus on the use of natural processes in the implementation and operation of hydraulic engineering infrastructure. Ideally these concepts result in lower life-cycle costs in monetary terms, but this is not always the case. Often nonfinancial benefits like ecosystem services and biodiversity are important selling points. In such cases, decision makers should be facilitated to value the project-induced benefits for nature and society in order to justify the extra investments that may be involved. Contingent Valuation Methods can be used to expresses non-financial values of water



infrastructure developments in monetary terms, in order to include them in a Socioeconomic Cost Benefit Analysis (SCBA). The approach is based on the ES concept. In order to understand the way in which the benefits of the natural environment can be valued, it is important to note the definition of value that is used. The economic value of ecosystems is defined as the amount of both material and immaterial forms of welfare that nature generates for society. This means that the economic value is larger than the cash flows derived from nature. These cash flows, which can be rather limited for non-exploited pristine nature areas, form the financial value. The economic value however also comprises all types of ecosystem services like contribution to clean water, carbon sequestration, coastal protection, recreation, etc. The broad welfare definition means that the economic value is a purely anthropocentric measurement. Economic value pertains strictly to human welfare. It does not capture intrinsic values, such as welfare for other organisms, plants and animals

Unlike the intrinsic value, the economic value of ecosystems can be expressed in monetary terms by means of several economic valuation techniques, after which it can be included in socio-economic cost benefit analyses. Ecosystem services are defined as the benefits that humans derive from nature. Ecosystems generate human welfare because they produce goods and services that humans can use directly or indirectly (through the use of other goods or services). Examples of direct forms of use pertain to goods such as wood, clean water and fish or to services such as recreational opportunities, protection against flooding or climate change. Examples of indirect forms of use are 'nutrient recycling' and 'fish nurseries' which result in 'clean water' and 'fish production', respectively.

INVESTING IN STAKEHOLDER ENGAGEMENT

Sustainable infrastructure projects operate on the boundaries of physical, ecological and socio-economic domains. As a consequence a multitude of interests and backgrounds are involved in the successful development of such projects. This is why they are usually complex and of high exposure. Thoughtful management of these interests – as well as combining them as much as possible in a specific design – is essential to project success. Effective incorporation of interests can only be achieved by careful engagement of stakeholders.



Today, more and more projects are developed in a stakeholder-inclusive way. Different stakeholders have different reasons to participate in such development. Careful selection of partners and management of opposition can help to make a project feasible and successful. Furthermore, due to their novel and innovative nature, sustainable solutions can encounter resistance, as unfamiliarity often triggers a conservative response. Attentive identification and involvement of stakeholders can help make dynamic, sustainable solutions feasible. Stakeholders can be defined as 'any group or individual who can actively affect or be affected by the project'. As such, stakeholders can be anything from individuals affected by a project through to large-scale NGOs whose organisational goals are related to aspects of the project. A practical approach for stakeholder analysis relies on a systematic identification and classification of relevant stakeholders, followed by the assessment of their interests and power.

FOUR KEY ENABLERS

Addressing uncertainties relevant to the use of key enablers for dredging for sustainable water infrastructure projects is fundamental to success.

APPLYING ADAPTIVE MANAGEMENT

Uncertainty is often associated with sustainable projects due to numerous reasons. This can often result in concerns from regulators and stakeholders with regard to the actual effect on environmental receptors. Dredging and placement projects are often permitted with license conditions or regulations based on an assessment of the potential environmental effects. In some cases, strict thresholds might be applied to assure environmental performance with levels deemed to be acceptable, based on the findings of impact assessments. In other cases, less clear environmental limits are specified: sometimes due to the level of uncertainty about effect on and responses by nature, caused by inability to fully appreciate and judge environmental conditions (sensitivity of receptors) and potential project effects (vulnerability to changes); or for other reasons such as sharing responsibilities and risks. Effects on the environment can be both negative as well as positive and monitoring of both outcomes is sometimes required, although monitoring of potential negative impacts is more common to ensure protection of the environment.

For those dredging projects where the outcome is less certain, or accompanied by a low confidence in the prediction of effects, a sequence of more intense and targeted monitoring, impact assessment and management actions can be implemented on a continuous or regular basis for the duration of (and after) the project, in order to keep project expectations and implementation requirements more manageable. Where this is the case, there may be benefits to adopting an adaptive management strategy, whereby the management of the project can be adapted based on the ongoing findings of the monitoring programme. This approach can benefit the environmental receptor as management can be adjusted to ensure the protection of the resource and also benefits the project owner as unnecessary management is not undertaken throughout the project due to high levels of uncertainty. This sequence of activities is jointly understood as 'adaptive management'.



Adaptive Management (AM) helps to achieve desired goals by addressing uncertainty, incorporating flexibility and robustness into project design, and using new information to inform decision-making as the project develops. Goals include an efficient project design and streamlining implementation protocols to minimise wasting resources which, when holistically viewed, could be decreasing the project's overall environmental footprint.

The basic steps of AM are:

1. Plan: Defining the desired goals and objectives, evaluating alternative actions and selecting a preferred strategy with recognition of sources of uncertainty;

2. Design: Identifying or designing a flexible management action to address the challenge;

Implement: Implementing the selected action according to its design;
Monitor: Monitoring the results or

outcomes of the management action;

5. Evaluate: Evaluating the system response in relation to specified goals and objectives; and

6. Adapt: Adapting (adjusting upward or downward) the action if necessary to achieve the stated goals and objectives.

The illustration of the monitoring evaluation adjustment loop shows the basis of AM and can be established as a solid element of the project management.

SEEKING WIN-WIN SOLUTIONS THROUGH BENEFICIAL USE OF SEDIMENTS

There is a large and growing interest, worldwide, in using dredged sediments beneficially to create added value. This interest is being fuelled by recognition that:

- 1. sediments are an important natural component of ecosystems,
- 2. sediments are a critical part of restoring degraded ecosystem functions and habitats, and

3. that natural and nature-based features sustained by or constructed using sediments can provide a range of valuable economic, social and environmental benefits and services.

As stated in the principles of sustainable dredging by WODA (World Organization of Dredging Associations): 'Dredged material management should be based upon a holistic and systematic understanding of the ecosystem and natural processes. Beneficial use of dredged material, such as placement to nourish shorelines or to enhance or restore wetland ecosystems/marshes and upland habitat, should be given priority'.



What are the necessary ingredients for making more effective and efficient use of dredged sediments?

If there is a large and increasing demand for beneficial use of sediments, as proposed here, then why aren't the project owners, government agencies, and contractors comprising the international dredging community making more rapid progress toward using 100% of all dredged sediment beneficially? It may be argued that 100% beneficial use is not a feasible goal, given the variety of logistical and economic factors that pertain to dredging projects. However, it is reasonable to ask what the dredging community should be doing in order to increase the amount of dredged sediment used beneficially.

Many ingredients and actions could be proposed as important factors for increasing beneficial use of dredged sediments such as:

- 1. leveraging innovation to increase the affordability of beneficial use,
- streamlining and modernising regulatory concepts and processes related to dredging and dredged management,
 advancing the science and engineering that supports Working,
 Building, and Engineering with Nature, and
 sharing best practices across the sectors and organisations, internationally, that contribute to dredging projects.

Sustainable sediment management contributes to the economy, ecology, and human safety and wellbeing. The key concept for creating added value through beneficial use of dredged sediment is to organise our projects and process with the conviction that dredged material is a resource to be utilised rather than a waste to be disposed. When that is done, we will be Dredging for Sustainable Infrastructure.

MEET THE SPEAKERS

Selected from internationally renowned experts including members of the multidisciplinary team of authors who contributed to the publication, the conference's speakers are scientists, practitioners and project owners with backgrounds in engineering and environmental sciences as well as decades of relevant experience.

PROFESSOR DR PATRICK MEIRE



Patrick is a professor in biology and head of the research group Ecosystem Management (ECOBE) at the University of Antwerp in Belgium. His research

focuses on the environmental impact of human activities on aquatic and wetland systems, and these insights are used to develop concepts for integrated water and ecosystem management. He coordinates the OMES project, monitoring the environmental impact of the Sigmaplan, an undertaking which promotes safety against flooding as well as leisure, nature and navigation resources within the Scheldt estuary in Flanders. He obtained a PhD in biology from the University of Ghent in Belgium.



JAAP VAN THIEL DE VRIES



Jaap graduated from the department of Fluid Mechanics of Delft University of Technology in 2003. He worked in Deltares as a senior

advisor/researcher. In 2013, he joined Hydronamic, the Engineering group of

Boskalis as a senior engineer within the Marine Environment and Morphology group. On behalf of Boskalis, Jaap has been part of the EcoShape management team that coordinates the Building with Nature (BwN) programme. He was programme manager of the BwN project in Demak, Indonesia.



YNZO VAN ZANTEN



Choco Evangelist Ynzo van Zanten is an economist, author, entrepreneur and storyteller of Tony's Chocolonely. His entrepreneurial ambitions

drove him to set up Innocent Drinks in the Benelux. Ynzo is initiator of the 'Sustainable Leadership & Entrepreneurship' programme of the Amsterdam University of Applied Sciences and a guest lecturer at the University of Amsterdam and Delft University of Technology. In his spare time, Ynzo is a member of the board of both the 10,000 Hours and Plastic Whale foundations.



DR MARK LEE



Currently Group Manager of HR Wallingford's Dredging Group, Mark has a background in marine monitoring and surveying with a focus on

dredging-related projects. For over 20 years, he has specialised in coastal oceanographic surveys and coastal and fluvial sediment transport measurements, and worked on projects in the sectors of ports and shipping, construction, energy, oil and gas, and water. He has undertaken extensive vessel-based and shore-based marine survey work as a Surveyor and Party Chief, and as a Client Representative.



DR TODD BRIDGES



As the US Army's Senior Research Scientist for Environmental Science, Todd's responsibilities include leading research, development and

environmental initiatives for the US Army and US Army Corps of Engineers (USACE). Todd is the Director of the Center for Contaminated Sediments (CCS) and the Program Manager for the Dredging Operations Environmental Research (DOER) programme. He currently leads USACE's Engineering with Nature (EWN) programme, which includes a network of research projects, field demonstrations, and communication activities to promote sustainable, resilient infrastructure systems.



ORGANISING COMMITTEE



Polite Laboyrie Chair CEDA Secretariat Witteveen+Bos





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Coert van Zijll Langhout Dredging Today / Navingo

DredgingToday.com

WHO MADE THIS EVENT?

CEDA

Central Dredging Association (CEDA) is an established authority and the leading independent forum for the professional dredging community and associated industries in Europe, Africa and the Middle-East. It represents dredging professionals and organisations, from government, academia and business, in the region, and fosters and promotes the understanding and advancement of dredging to the wider community.

CEDA is part of the World Organization of Dredging Associations (WODA). CEDA's two sister associations, WEDA (Western Dredging Association) and EADA (Eastern Dredging Association), serve the Americas, and Asia, Australia and the Pacific region respectively. For further information, visit www.dredging.org.

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IADC

IADC stands for 'International Association of Dredging Companies' and is the global umbrella organisation for contractors in the private dredging industry. As such the IADC is dedicated to not only promoting the skills, integrity and reliability of its members, but also the dredging industry in general. IADC has over a hundred main and associated members. Together they represent the forefront of the dredging industry. For further information, visit <u>www.iadc-dredging.com</u>.

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DREDGING TODAY

Dredging Today is a communication platform for the dredging industry. It delivers expert coverage which includes news and updates on markets, projects, vessels, equipment, research, contractors and the authorities dominating these markets. Dredging Today is created and produced by Navingo BV a contemporary, international media company aimed at the maritime & offshore energy sector. For further information, visit www.dredgingtoday.com.

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EVENT & REGISTRATION INFORMATION

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NETWORKING AREA SPONSORSHIPS

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ACCOMMODATION

Blocks of hotel rooms have been arranged with conference rates in a number of hotels in Amsterdam. Please make your reservation online through the dedicated website: <u>http://bit.ly/hotels-dfsi</u>.

REGISTER

Please go to <u>www.sustainabledredging.com</u> to register for the Dredging for Sustainable Infrastructure Conference.

The registration fee includes attendance to:

- the two-day programme of presentations
- highly interactive sessions
- access to the networking area
- an advance copy of the publication Dredging for Sustainable Infrastructure
- ✔ one technical visit
- coffee breaks, two lunches and one buffet at the Beurs van Berlage

PRICES

BOOK INCLUDED FOR ALL DELEGATES





Register by 15 October 2018 to ensure availability. Prices exclude VAT.



http://bit.ly/go-dfsi



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