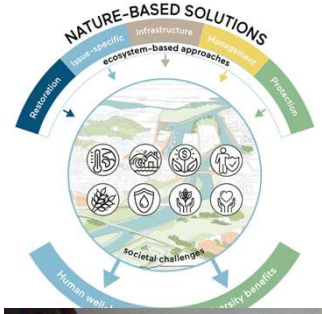
Beneficial Sediment Use and Nature-based

Opportunities for Sustainable and Circular Development

Luca Sittoni; luca.Sittoni@ecoshape.nl

Building with Nature and Nature-based Solutions

Building with Nature is a conceptual approach for creating, implementing and uscaling **Nature-based Solutions** for water-related infrastructures, with **proactive** use of natural processes



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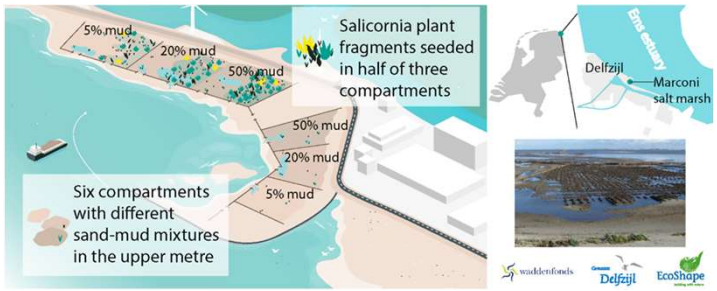
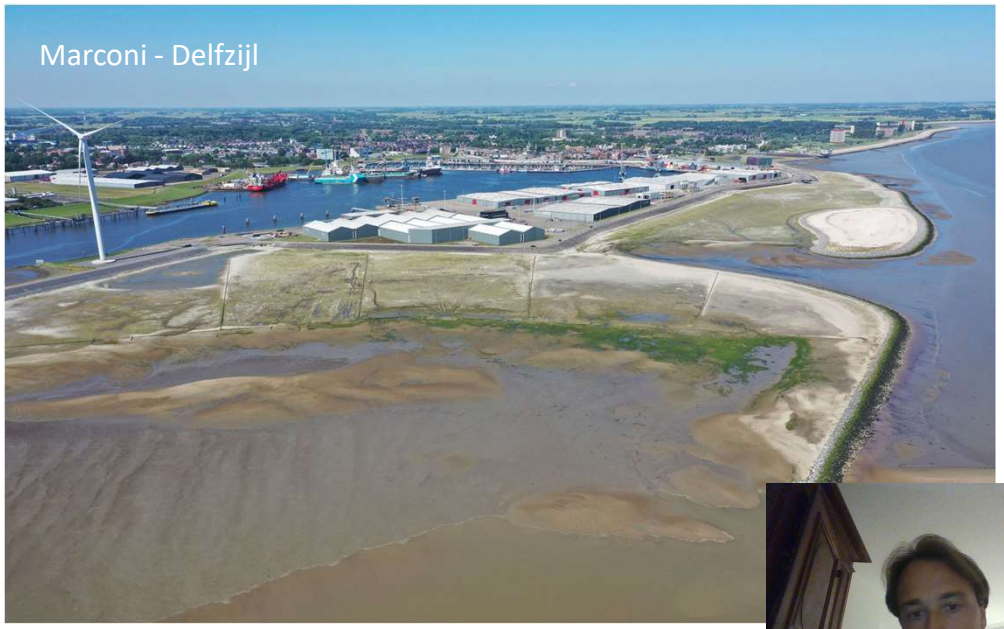
Nature-based Solutions (NbS) fundamentals

Marconi project, Delfzijl



From Baptist et al. 2021, in review



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Nature-based Solutions (NbS) fundamentals

NbS are:

1. Dynamic (adaptive)

Figure 5-29 Tidal creek inside compartment D at 27-05-2019, 30-06-2020, and 20-08-2020 (from left to right).

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Nature-based Solutions (NbS) fundamentals

NbS are:

1. Dynamic (adaptive)
2. Innovative

Figure 4-3 Different measurements on elevation and subsidence on Marconi.

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Nature-based Solutions (NbS) fundamentals

NbS are:

1. Dynamic (adaptive)
2. Innovative
3. Site specific

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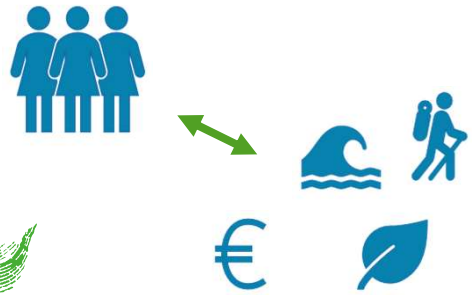
Nature-based Solutions (NbS) fundamentals

NbS are:

1. Dynamic
2. Innovative
3. Site specific
4. Multifunctional



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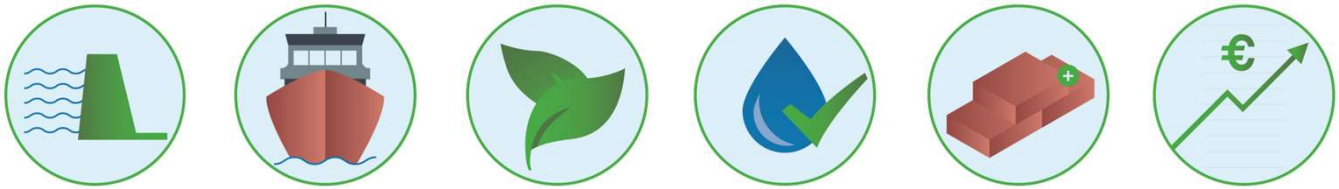
Beneficial Use 2020 CEDA/PIANC Definition

"the use of dredged or natural sediment in applications that are beneficial and in harmony to (human and natural) development"

(…as opposed to waste it at sea or store it in a remote deposit forever)



Flood risk management | Navigability | Nature development | Water quality | Building material | Loca econo

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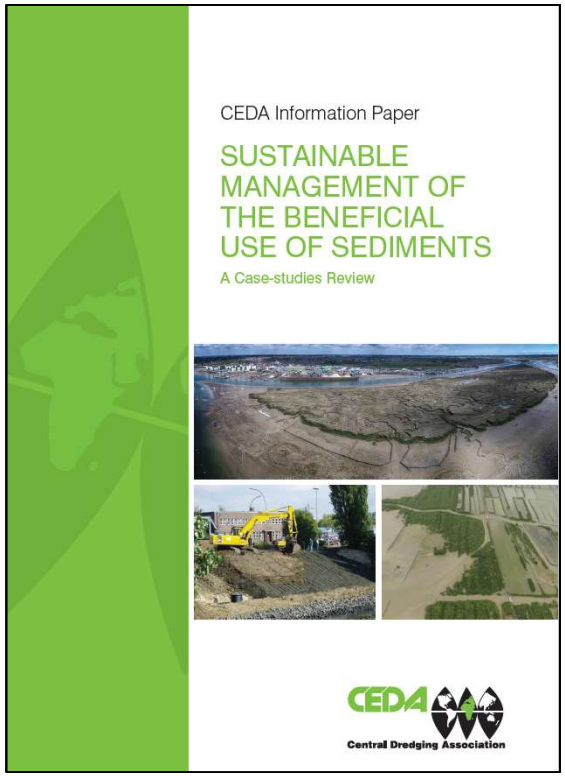
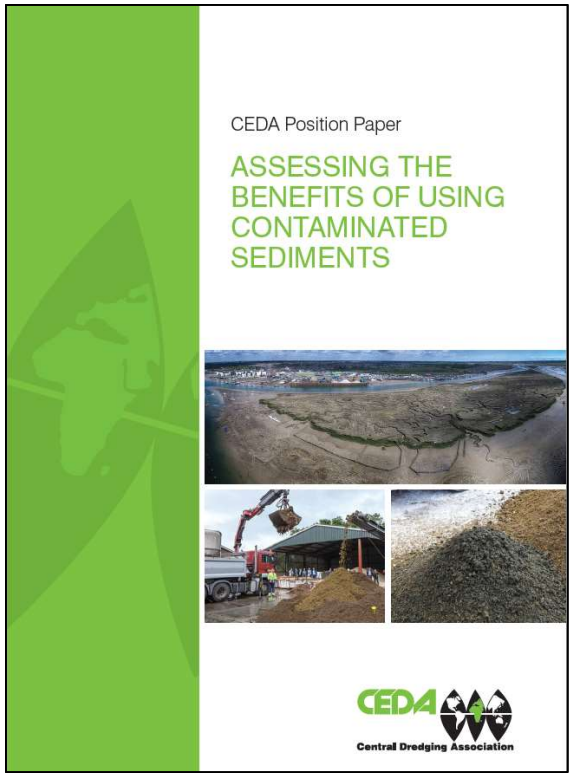
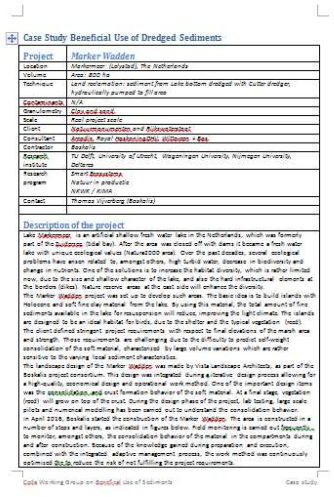
CEDA Beneficial Use Classification

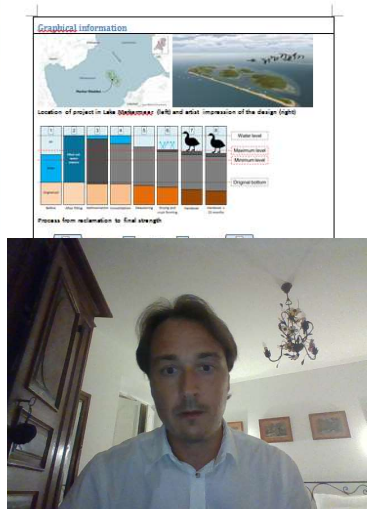
CEDA WG Beneficial Use2019 Publication





- Collected 38 Case Studies, 11 Countries
- Clean and contaminated
- Last 30 yrs, focus last 10 yrs





Explore and submit your case study @
https://dredging.org/content/case_studies.asp?q=&major_function=&major_technique=

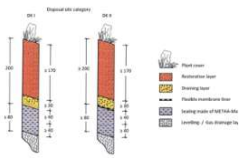
CEDA WG Beneficial Use Website

Used by SedNet and PIANC as open common shared case-studies bank

Home

Submit case study

Filters: Free search | Function | Technique | Search



Use as sealing material

after dewatering, Hamburg - DE

Use in dyke construction reinforcement

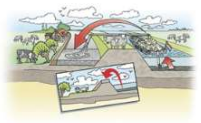
to enhance flood resilience after industrial dewatering, Hamburg - DE

Habitat restoration

through creation of islands, Lelystad - NL

Habitat restoration

through creation of islands, Wisconsin - US



Raise elevation of low-lying peatlands

Use in ceramic industry

Use for coast defence and nature restoration

Creation of natural habitat and morphological

PIANC WG 214 on Beneficial Sediment Use

- Started in Jan 2019 → DRAFT report by Dec 2021
- International / Global coverage (EU, USA, China, Japan, Australia)
- Transition from technical to governance with Regional focus

Key messages so far:

- BU is not new, but **current sustainability ambitions offer a new wind of opportunities**
- **Barriers:**
  - Cost
  - Perception and partnership (supply – demand)
  - Legal and contamination
- **Enablers:**
  - International sustainability ambitions (e.g. circularity)
  - Proactive stakeholders' engagement (incl. private – public)
  - Inclusive business cases and financial models
  - …

SedNet Sediment and Circular Economy WG

- Exchanges and open discussions on BU options, sustainability (environmental, social and economic benefits);
- Gathering information from other groups (CEDA, PIANC) and events;
- Submitting good practice to the **EU stakeholders platform on CE**
- Supporting RTD initiatives, especially trying to include Sediments topics in incoming **Horizon, ERDF and Life call texts**, and favouring the constitution of partnerships,
- Connecting with SedNet “Sediment quantity” WG to exchange information and perspectives

Contacts: B.Lemiere@brgm.fr, Arjan.Wijdeveld@Deltares.nl, J.Gebert@tudelft.nl, dirk.dedecker@ovam.be

Defining circular use of dredged material

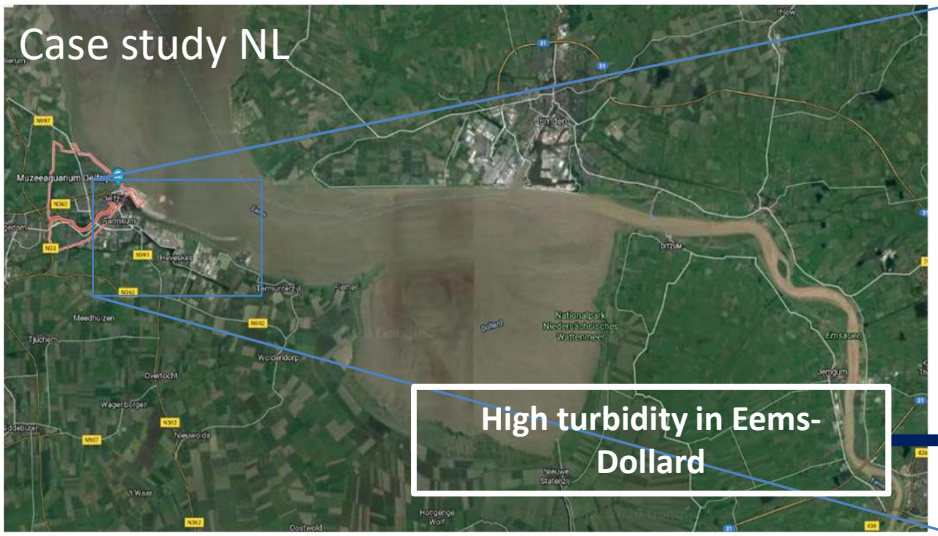
Following nature

1. Maximizing: ADVANTAGES AND VALUE
   (Builds economic, natural, and social capital)

Together with partners

2. Maximizing: Closed cycles and reusability
3. Minimizing: Production of waste

NETICS
THE SEDIMENT ENGINEERS



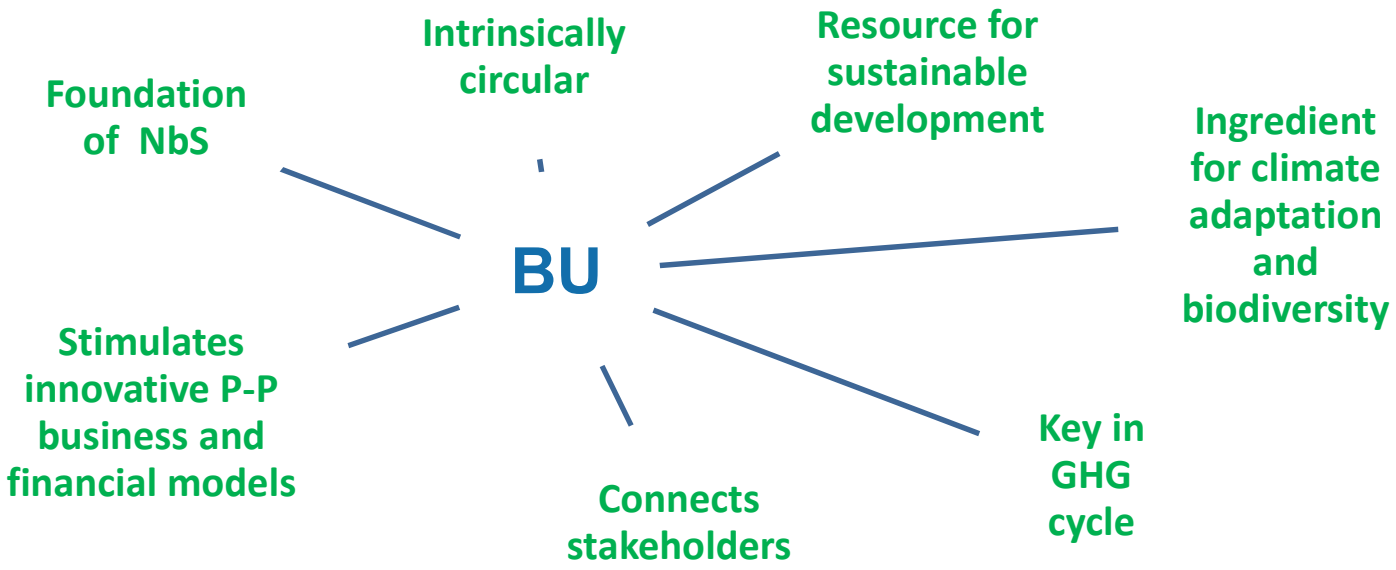
High turbidity in Eems-Dollard

Supply of fine (salty) sediments

Beneficial use in dike

Sediments ripening into clay

Global relevance of Beneficial (Circular) Use



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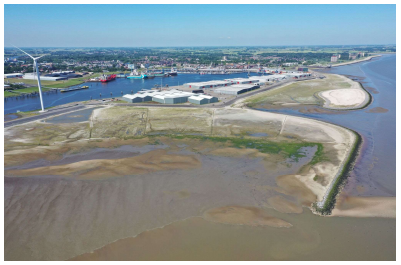


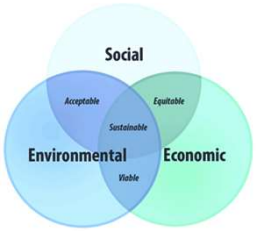
The time is ripe for NbS, BU and circularity

EU Strategy on Adaptation to Climate Change:

1. Integrating adaptation into macro-fisical policy
2. *Nature-based Solutions for adaptation*
3. Local adaptation actions

*"Implementation of NbS on a larger scale **would increase climate resilience and contribute to multiple Green Deal objectives**."*

Virginijus Sinkevičius (EU Commissione Ocean and Fischeries) at EMD Mare 2021: "it is time to connect human and nature needs for sustianble development"



Road to CAS 2021, October 22nd: https://youtu.be/QHQB_dBLb3c.

Min 1'55". Cora van Nieuwehuizen, Minister of Infrastructure and Water:"BwN is obviously the best way to counter the effect of climate change. Nature is by far our most important ally"

Min 11'15". Peter Glas, Commisionr Delta Commission:"This book is the way forward...one of the motto's of the Delta Program is "Soft where we can, solid if necessary".

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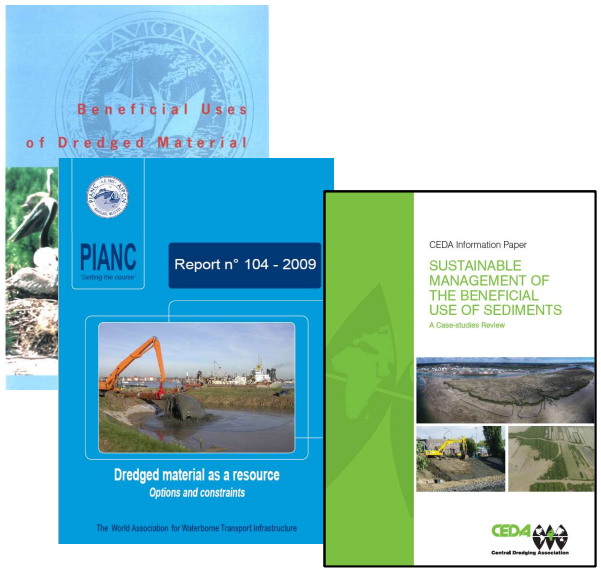
The time is ripe for NbS, BU and circularity



Technolgy → Practical examples / projects →

Imple… legisla…

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Join us at the EcoShape BUS Table

https://www.ecoshape.org/en/tables/beneficial-use-of-sediments-table/

Thank you

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