# Sediments as a Resource

## Re-use of Sediments in Ports or Coastal Infrastructures

. Sittoni, EcoShape – Building with Nature & Deltares

EcoShape

Workshop Sediment Management in Ports, Eemshaven September 29th, 2019

building with nature

# **Beneficial Sediments Use**



CEDA Beneficial Sediment Use Working Group:

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

(...instead of e.g. disposing it at sea)





## **Beneficial Sediment Use – CEDA Publication**





number of stags and layers, as indicated in figures below. Add maintaining is seried out (population to maintice, amongst officer, the consolidation behavior of the material in the compactments durin and after construction, Secure of the intervieting spin and during properation and execution, combined with the integrated addition management process, the work method was continuously

imized the to reduce the risk of not fulfilling the project real

Explore and submit your case study @

https://dredging.org/content/case\_studies.asp?q=&major\_function=&major\_technique=

## **Beneficial Sediment Use – Ongoing Intl. activities**

EcoShape

### **PIANC WG 214: Beneficial Use of Sediments**

- Building up on current material (CEDA, PIANC, ...):
- Transition from technical to governance
- Highlight success factor or triggers, and hold backs
- Startded Q1 2019, expected publication after 18 months

## SedNet WG Sediment and Circular Economy

- Circular pathways of sediments
- Includes financial and policy considerations







# **Beneficial Use Examples**



#### Technique







#### **Function**

**Raw Material** 

Remediation

Reclamation

Restoration

Resilience











# Ex. 1 in NL: Mud Motor

## Reduce siltation and turbidity

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-	-	_	-	-	-

#### plopical Engineer

neficial use of dredged sediment to enhance salt marsh dev



## **Restore salt marshes**

# Ex. 2 in NL: Marconi

## **Project Partners**

- Provincie Groningen ("State" Gvmt)
- Rijkswaterstaat (Ministry of Infrustructure and Water)
- Hunze en Aa's (Waterboard)
- Het Groninger Landschap (Nature Organization)
- Groningen Seaports
- EcoShape

# Ex. 3 in NL: Kleirijperij Fieme Dallingeweer Breebart Lalleweer Lesterhuis Woldendorp De Heemen Binnen Ae

### From Pilot to Scale Up and Policy? Technical and economic feasibility

# September 2018

April 2018

# September 2018

#### Technical feasibility

**April 2018** 











## Financial feasibility at full scale

VOOL



ar NZ

Fa 3 Euro/m3

Business case Kleirijperij 24 januari

## The Living Lab for Mud: Five live Applications www.livingtabformud.org



# **Key Enablers**

 Alignement and commitment of (public and private) stakeholders to mutual added value

Push boundary of legislation and stimulate update

Demonstrate technical and economic feasibility

**High profile and integrated challenges:** Water quality / ecological; Flood risk and climate adaptation; Need for local resource and circular economy

(Political) will for iconic project, and potential for export