EuDA

EGD: How to deliver on the environment, the society and the economy?

Infrastructure managers' point of view

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Inland Navigation Europe
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Inland Navigation Europe

- European Platform of inland waterway authorities and bodies promoting inland waterway transport

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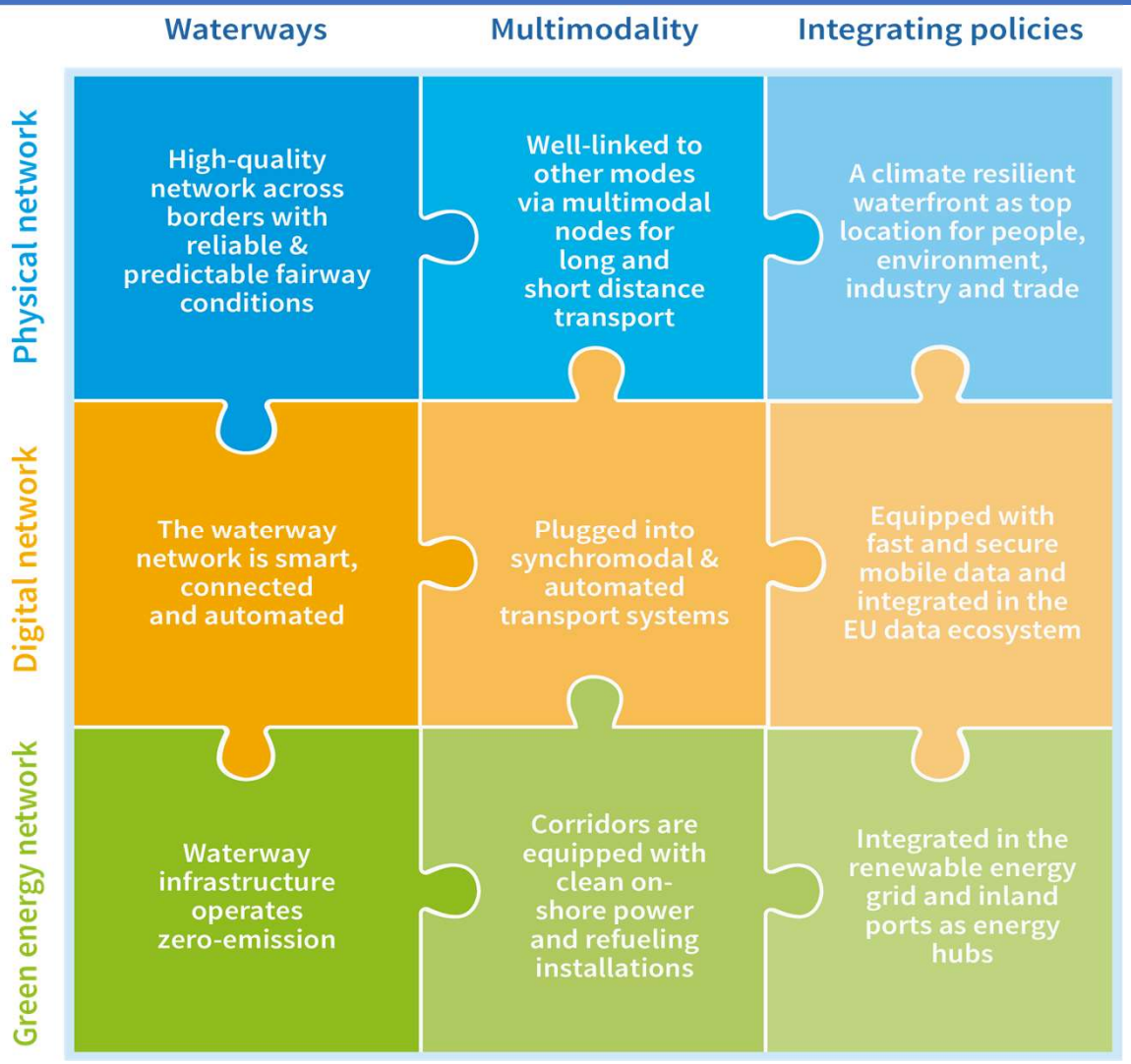
INE mission

More and better transport by water

Going beyond transport

Inland waterway authorities within INE work together on future proof management and development of navigable waterways

Comprehensive approach



Waterways = multi-functional assets

Multi-disciplinary approach

- Arteries of trade and mobility
- Water supply
- Energy generation
- Recreation
- Safety
- Environment

Working with nature

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Climate change & inland waterways

EGD goal Climate mitigation

- Inland waterway transport player to mitigate climate effects from transport: energy efficiency
- Shifting cargo to inland waterways

EGD goal Climate adaptation

- River navigation strongly depends on precipitation and water levels
- Floods can cause water levels to exceed the maximum permitted for navigation (insufficient bridge clearance, too strong currents…)
- Droughts can result in insufficient fairway depth and width (waiting times at shallow sections, reduced payload on vessels, temporary/local closures of navigation, increased fuel consumption)
- Climate change plays on top of natural climate variability
- Short and long term effects of climate change
- Vulnerability increased due to larger vessels and JIT logistics

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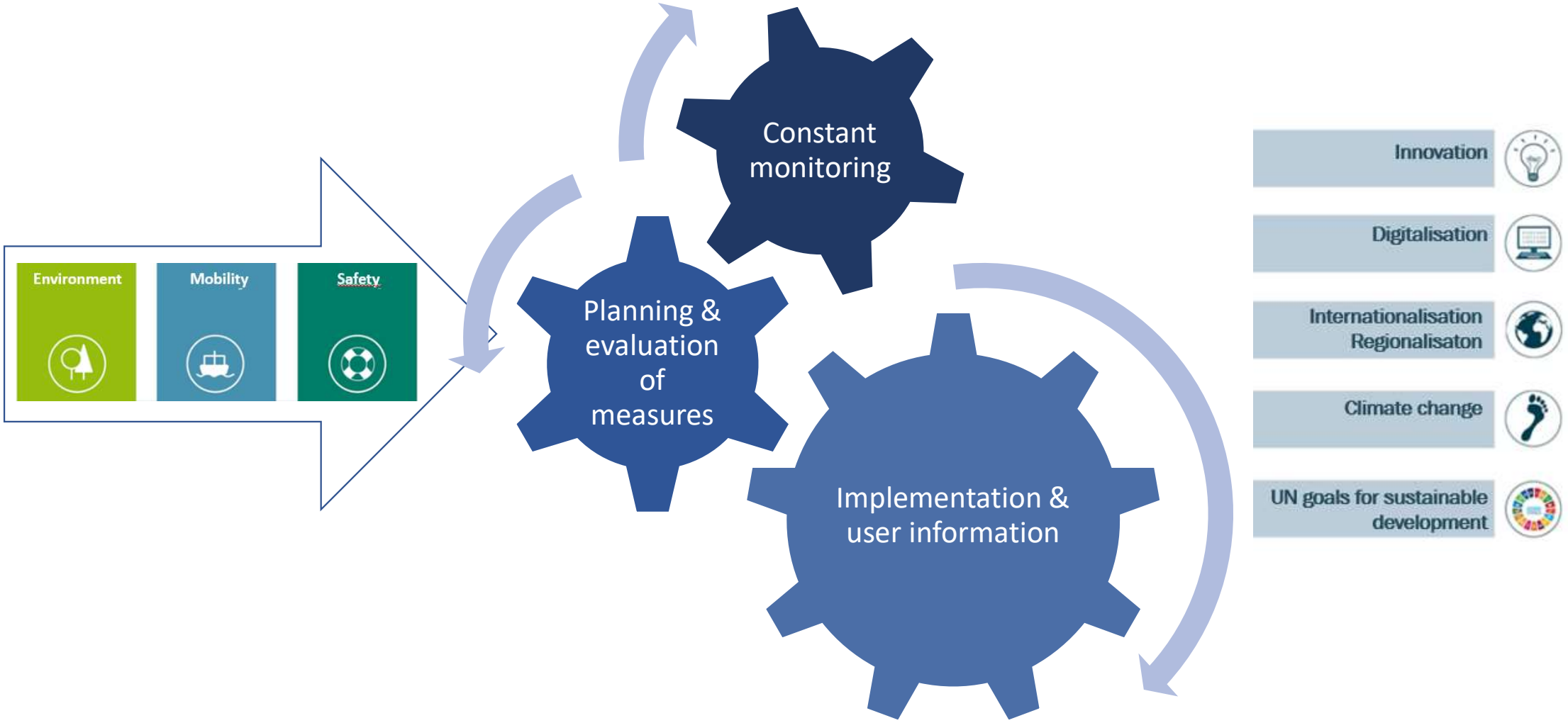
Proactive & flexible approach to increase resilience



Danube

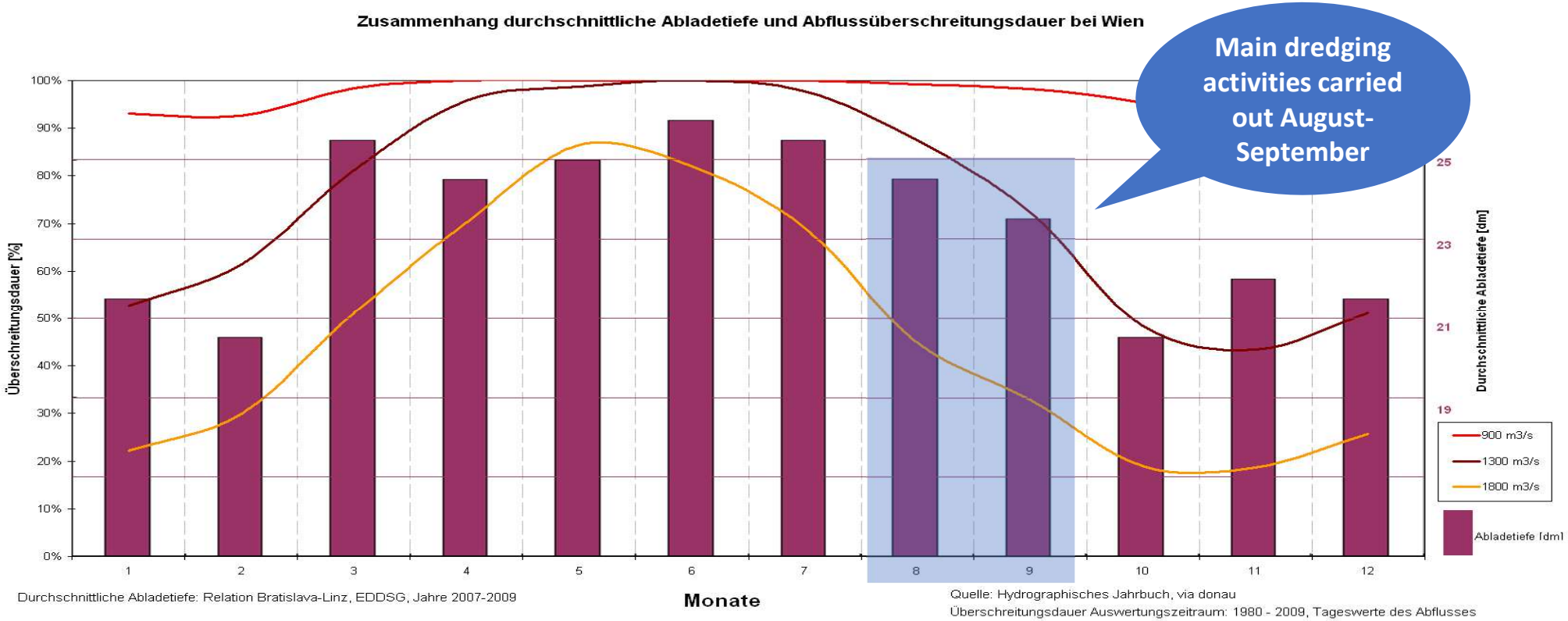
viadonau

- Austrian waterway manager
  - owned by Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology
- National mission

- International perspective and cooperation
  - Fairway Masterplan for the Danube: 2.50m fairway depth on 343 days per year (recommended level of service, politically endorsed by Danube Ministers of Transport 2014-2016-2018-2020-2022)
  - Step-by-step implementation by EU Fairway Danube projects

Proactive dredging on the Upper Danube

Upper Danube has character of mountain river: high stream velocities, bedload transport of gravel
Few potentially shallow sections in free-flowing areas, possibly insufficient fairway depths during low water season
=> On-time dredging of critical shallow sections



Durchschnittliche Abladetiefe: Relation Bratislava-Linz, EDDSG, Jahre 2007-2009

Quelle: Hydrographisches Jahrbuch, via donau
Überschreitungsdauer Auswertungszeitraum: 1980 - 2009, Tageswerte des Abflusses

Innovative dredging and dumping approach

- Period 2015 – 2021: reduction of maintenance dredging from ca. 280,000 m^3 to 70,000 m^3
- New approach: Dump dredging material from downstream in free-flowing sections upstream to keep sediments longer in the system => stabilisation of water levels, prevention of riverbed erosion and cut-off riverside arms of wetland park
- Each m^3 of dredging costs ca. 10 EUR

Restoration of natural balance

Reduction of carbon footprint

Reduction of dredging cost

Broadening waterway management toolkit

permanent

temporary

high water

low water

loaded barges

permanent

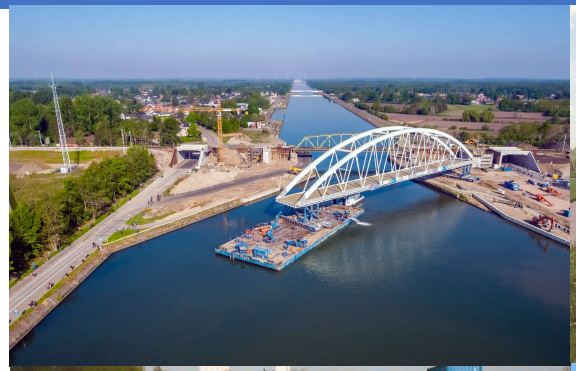
temporary

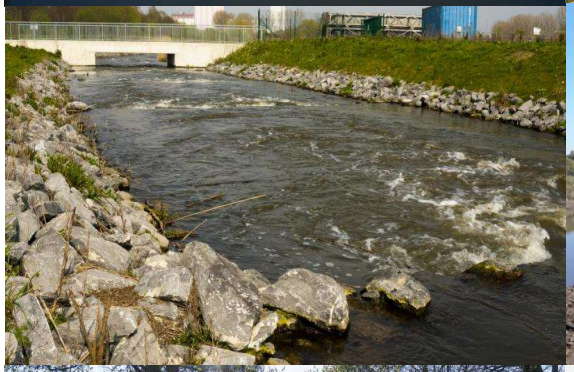
Belgium

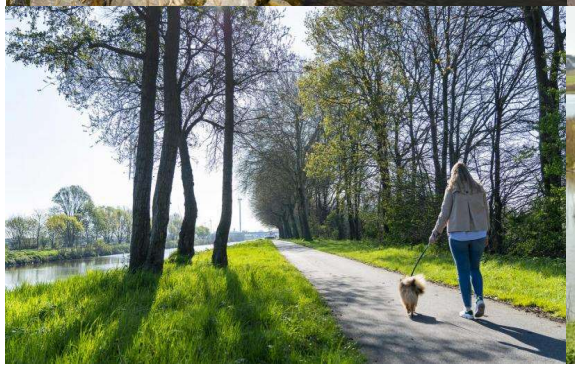
De Vlaamse Waterweg nv

- Flemish waterway manager
  public company to manage Flemish navigable waterways
- Mission

- Involved in cross-border projects
  - Seine-Scheldt projects
  - Enhancement of Albert canal and canal to Charleroi
  - Room for the River (high water) and Blue Deal (low water)
  - USAR and Smartsediment






Climate change impact in Flanders

Drought higher impact on waterway transport

Categories low water

- Drought level 1 “alarm”: water system may come under pressure with risk of water scarcity if no precautionary measures are taken (years: …)
  - Possible accompanying IWT measures: grouped lockage; navigation ban for pleasure craft
- Drought level 2 “crisis”: water system reaches a critical level with effective water shortage (years: …)
  - Associated IWT measures relevant: draught restrictions in case water level < target level; IWT navigation ban in case the water level < minimum level

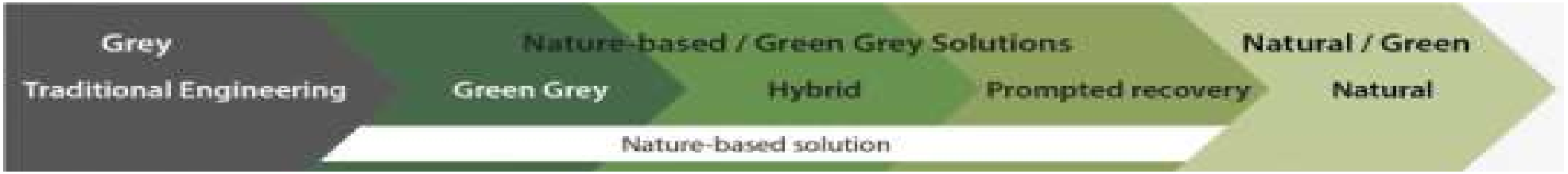
Cost impact

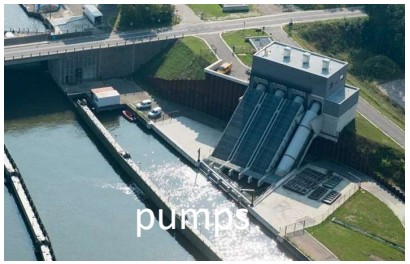
- Current situation: ca. € 3.5 mln/y (measured over last 10 years)
- Future: ca. € 13 mln/y due to an increase in low water events

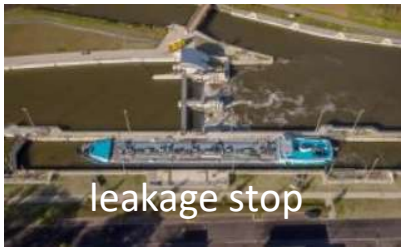
Working with nature

Creating resilience to high and low water

- Blue Deal: use water differently and efficiently - use less water, reuse more water - retain water locally as much as possible
- Room for the river: nature restoration and water storage







Sustainable dredging

- USAR
  - Circular approach
  - alternative, resource efficient approach based on the potential to use sediments as a resource for new materials
  - “Operational Sediment Management System” – ICT tool for water managers
- Smartsediment
  - Countering erosion in Scheldt delta, restoring biodiversity
  - Sand replenishment
  - Use clean sediments to restore habitats
  - Navigation channel maintenance
  - Groyne construction

  Smart sediment management within limits set by nature protection

  Supported by ES tool

THANK YOU

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