

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

Sediment Management in a Circular Economy

Sediments:

- Short or surplus?
- Sink or source?
- ~~Resource or Waste?~~

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<https://dredging.org/>

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<https://sednet.org/>



0. Content

- 1. Sedimentmanagement and the Netherlands.
- 2. Roadmap sustainable sedimentmanagement.
- 3. Policies and regulations
- 4. Conclusions and outlook.



1. Sedimentmanagement and the Netherlands.



1. Sediment management and the Netherlands.

1580 AD



1700 AD



2000 AD



2200 AD ?



Long history of water- and sedimentmanagement.

(Sustainable) Sediment-management is key to retain the Netherlands.

Dredging is an important tool.

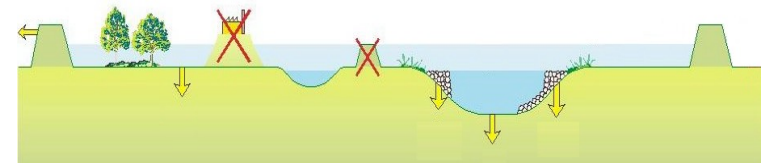
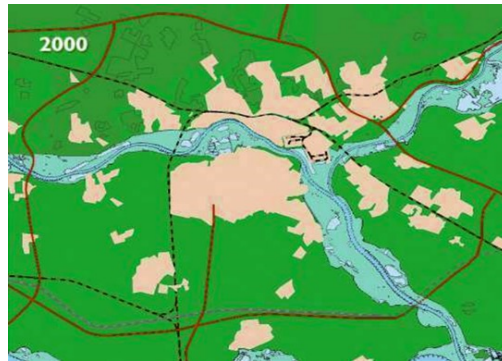


1. Sediment management and the Netherlands, nourishment





1. Sediment management and the Netherlands, removal





1. Sediment management and the Netherlands

- The Netherlands is habitable because (artificial) water systems have been modified.
- The modification of watersystems changed the natural sediment balance.
- The stock of (clean) sediments in our soils and watersystems is decreasing.
- Climate change (droughts, heavy rainfall, sea-level rise) will probably decrease the stock further (session 4).
- **Dredging (by Rijkswaterstaat and contractors) has to be executed in a sustainable way.**



	total	Flood prone
Surface area	42.000 km ²	55%
(Sandy) Coastline	450 km	100%
People	16,5 million	65%
GNP	550 billion €	60%



2. Roadmap for sustainable sedimentmanagement/dredging.



2. Roadmap for sustainable dredging (sedimentmanagement).

- Track 1: Energy Efficiency of dredging:

- No Emissions
- Minimisation of Transport

Equipment en energy carriers.

- **Track 2: Circularity of Sediment management and dredging:**

- Minimisation of Dredging
- Management of Dredged Material (sediments)

Design of Waterborne Infrastructure, dredging projects and the management of dredged material.



2. Track 2: Circularity of sedimentmanagement and dredging

- CE addresses the scarceness (of resources) of raw materials as well as the environmental effects of mining (dredging) and use of those materials.
- CE is about the use and lifecycle of (raw) materials. The general goals are:
 1. Protection of stocks;
 2. Reduction of negative environmental impact of mining (dredging) stocks;
 3. Retention of the valueHigh quality use of the material (maximise the value).
- CE is **a tool** for reaching our global goals for sustainability.
- The 3 goals of CE should be used as a framework for (sustainable) sedimentmanagement (and dredging projects).



2. Track 2: Framework for sustainable sedimentmanagement

	Actions and actors	Explanation
Sediments	1.1 Protect the Stock Policymakers, regulators, scientists	<ul style="list-style-type: none">• We need to be frugal on the sediment stock. They should only be dredged if necessary. We must prevent that sediments cannot be dredged and used because they (still) are (being) contaminated.• It is expected that a large amount of sediments are needed to maintain the Netherlands (beach nourishment, improving dikes/levees). Therefore it is important to make sure that they can be provided/will be available.
Dredged material	1.2 High value use Policymakers, regulators, scientists Assetmanagers and contractors	<ul style="list-style-type: none">• When using sediments it is important that they keep their value. Regulations should facilitate the beneficial use of sediments. Improvement of current regulatory frameworks is necessary.• A definition (or ranking) on high value use is missing. Knowledge (and examples) on this should be expanded and disseminated.
	1.3 Optimisation of (dredging) project design and execution Assetmanagers and contractors, scientists	<ul style="list-style-type: none">• Projects should be executed in good cooperation between client and contractor. Knowledge and skills of both actors should be used in the best possible way.



3. Policies and regulations



EU-WaterFD,
OSPAR/LC, Natura 2000,
EU-Soil Health Law

EU Waste Directive
Landfill Directive
EURAL

in-situ investigation of quality and
quantity (chemical and other
methods)

ex-situ
(chemical)

Preperation

No deterioration?

Operational level

sediment

dredging

transport

destination

Water Act and Decisions
(2009), Nature Protection
act, Soil Quality Decree
(2008), (**PFAS?**)

relocation

direct use

use of product

Environmental
management Act (1989)

treatment

residue

disposal



3. Policies and regulations.

- WaterFD is not clear on sediments.

Technical document of CIS (and SedNet) helps to clear things up! [\(untitled \(europa.eu\)\)](#)

(CIS, Integrated sediment management guidelines and good practices in the context of the WaterFD (2022))

- Sediments are excluded from the scope of the EU Waste Directive (2008/98/EG), the Groundwater-directive and Land Fill Directive.

*"**Sediments** relocated inside of surface waters for the purpose of managing waters and waterways or of preventing floods or mitigating the effects of floods and droughts, or for land reclamation, shall be excluded from the scope of this Directive if it is proven that the sediments are **non-hazardous waste** and without prejudice to compliance with obligations under other relevant Community legislation".*

The exemptions and the EU waste list make it clear that **DM (dregded sediments)** is a waste material. However with very specific characteristics.

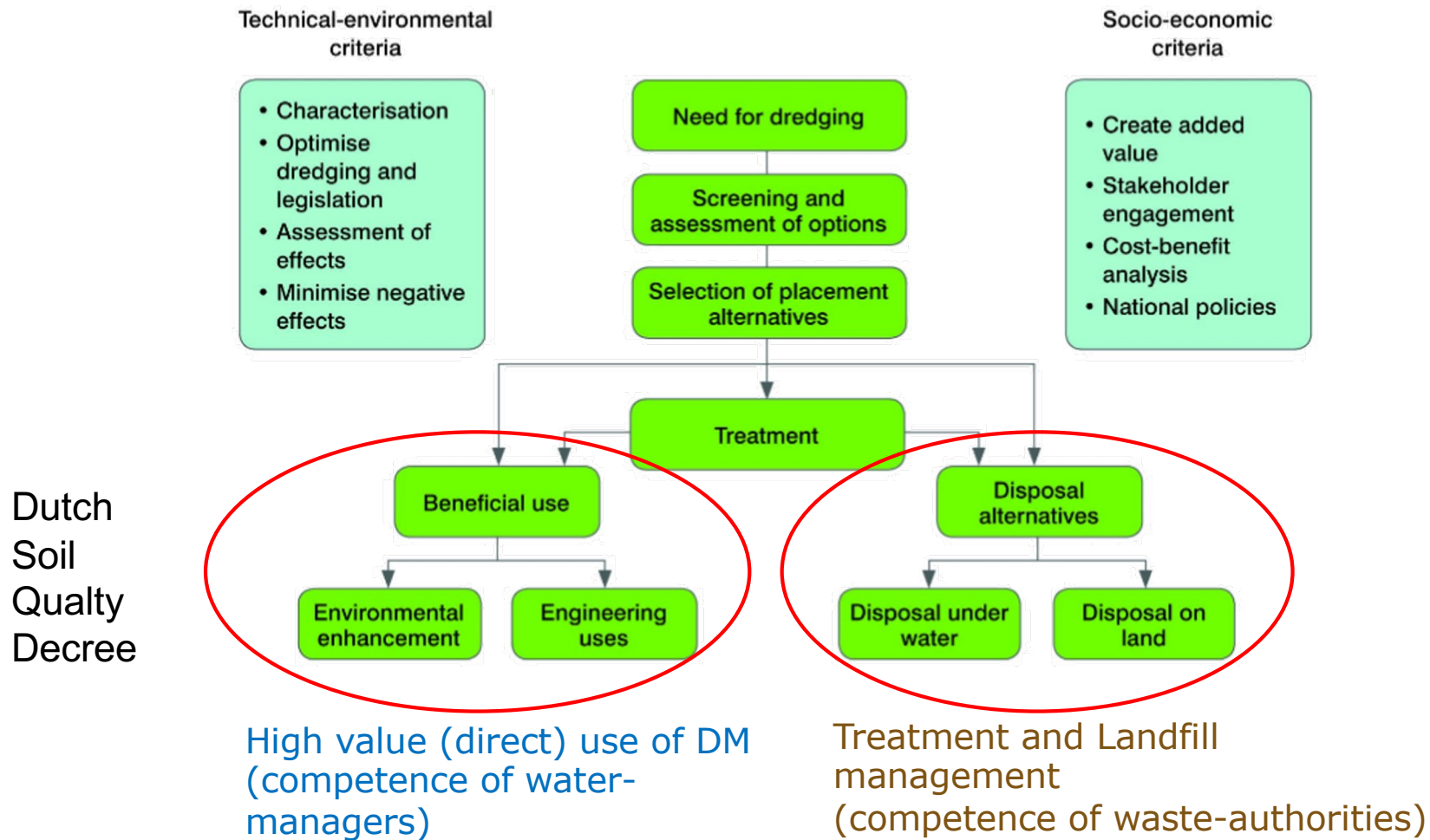


3. Policies and regulations.

- In a CE waste materials should also be a resource!
- In line with the above the WasteFD provides end of waste criteria!
- If the use of DM is **functional and proportional** it can be regarded as a resource.
- **DM (sediments) therefore can be seen as a waste material and a resource as well !**
- (Aggregates are only a resource.)



3. Policies and regulations (in practice)





4. Conclusions and outlook.

- The WasteFD and WaterFD already created a framework for sustainable (circular) practices in sedimentmanagement.
- The specific properties of sediments have to be known to underpin the functionality and proportionality of the (beneficial) use of DM, but also for the waste management options!
- At the moment the definition of (waste list criteria for) (hazardous) waste does not take into account the specific properties of sediments!
- Elaboration of the WasteFD is needed to further facilitate sediment management in a circular economy.
- We need a EU technical document on DM handling (beneficial use, treatment and disposal) under the WasteFD!
- The Dutch Soil Quality Decree can be used as an example (first draft)!



Thank you very much for your attention.