RENOVATION OF A FLOOD AREA IN THE SCHELDT ESTUARY USING DREDGED MATERIAL FROM THE DURME RIVER

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Within the framework of the Flemish flood protection programme "SUKPLAN" for the river Scheldt estuary, Waterwegen & Zeekanaal (the Flemish agency responsible for the control of around 3,000 km navigable waterways in Flanders) plans to renovate the Flood Area "Potpolder IV". Dredged material from the Durme river will be used as building material for the construction of new embankments. The project is a pilot within the Interreg 2 Seas programme, "Using Sediments as A Resource", USAR.

CAUSE
- Sediment transport and deposition due to tidal movement
- Extraction ponds/wetland creation
- Shoaling purposes of old sand material for the dikes and raw material for dewatering activities
- Dredged material from the Durme river (maintenance works) as building material for the construction of new embankments
- Treatment of all other sediments (Sandy Loam or Clayey Sand) as core material: 30%
- Physical location of the samples: river bed or slope
- Plasticity index criteria
- UK-ADAS textural triangle
- 15% < fines fraction (< 63 µm) < 80%
- Re-use of dredged material from the river (maintenance works) as building material for shoaling purposes of old sand extraction ponds/wetland creation
- Overflow frequency and volume: T1, T5, T40 and T100
- Overflow periods T1, T5, T40 and T100
- Overflow dike
- Ring dike
- 2 pumping stations
- Pumped volume: 1,836,150 m³
- Overflow volume: 1,581,950 m³
- 226,000 m³ dredged material
- 6,8 km
- 82 samples
- Technique: Swamp excavators

QUALITY
- Re-use of material classified as fine sand or silty to sandy silty loam or loamy clayey sand as core material: 30%
- Overflow frequency and volume
- Overflow volume
- Pumped volume
- Overflow frequency and volume: T1, T5, T40 and T100
- Overflow volumes: T1, T5, T40 and T100
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- Overflow frequency and volume

NUMERICAL MODELLING

Hydrologic modelling of the flood area and river basin combined with a MIKE hydraulic modelling of the Durme river for return periods T1, T5, T40 and T100.

• Literature: "Sediments as A Resource", USAR.

DREDGING WORKS

- 226,000 m³ dredged material
- 6.8 km
- 82 samples
- Technique: Swamp excavators

QUALITY

- 15% < fines fraction (< 63 µm) < 80%
- Soil samples taken from the river bed and slope of the dike along the Durme can be used for building up the core of the new dike or not.
- Physical location of the samples: river bed or slope
- Silt fractions (I+II) > 30%
- Plasticity index criteria
- UK-ADAS textural triangle
- Re-use of material classified as fine sand or silty to sandy silty loam or loamy clayey sand as core material: 30%
- Treatment of all other sediments (Sandy Loam or Sandy Silty Loam): dewatering, adding additives, ...