

# *Stone Revetments Restoration 1997 - 2015*



Bert Kortsmid  
25-09-2011



Waterschap Scheldestromen



Rijkswaterstaat

## Introduction

Location

Stone revetments on dikes

History

## Programme

Scope and Budget

Inspection

Hydraulic conditions

Ecological values

Scenic value

Stakeholders

Model

Materials

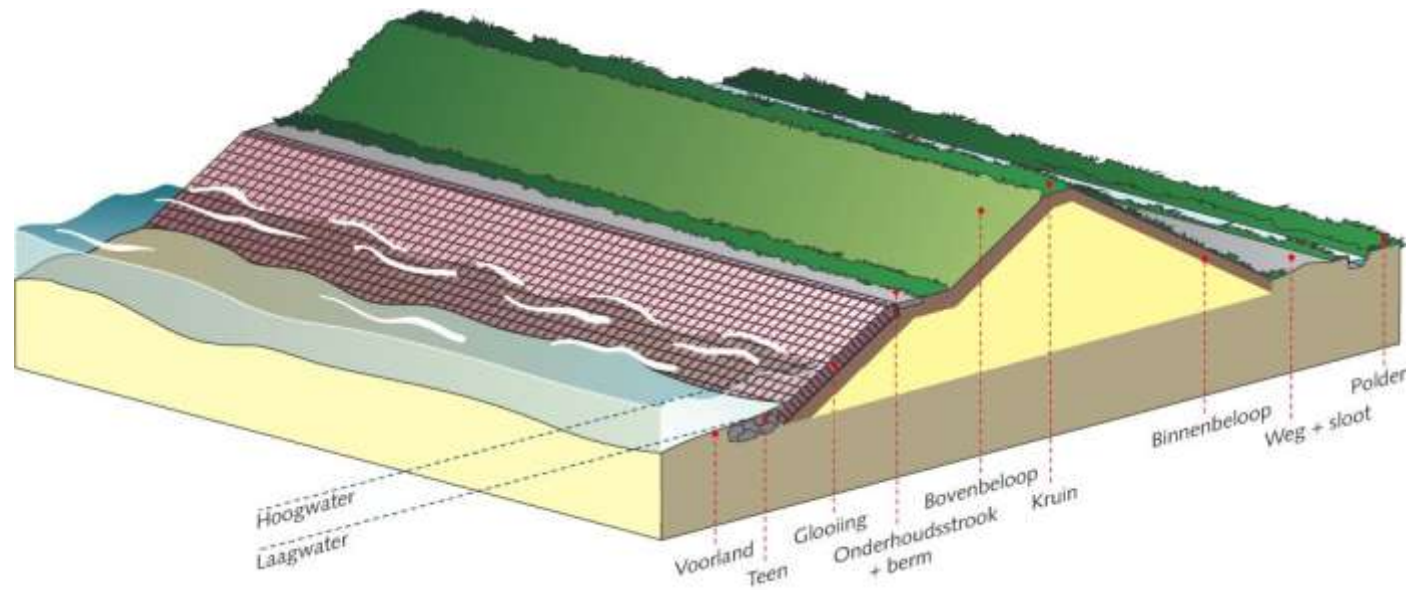


Location:

Oosterschelde en Westerschelde



## Stone revetments on a dike





1953 Flood disaster

1970's Raising dikes and research

1970 - 1990 Still damages due to storms

1990's Another problem: blocks on clay

1995 Stone Revetment  
Programme.



# Stone revetments

## Scope and Budget:

All stone revetment dikes -----→ 325 km

1997: Westerschelde first ---→ 150km

2002: Easterschelde second -→ 175 km

Actual budget: M€ 828.

1-1-2012            100 km to go, ~ M€ 250.

## Process

inventory and check (5-year)



design, 50 years



contract



renovating / reinforcing



as-build and 'return'

r  
e  
s  
e  
a  
r  
c  
h





## Damages to stone revetments Inspection



Hydraulic conditions

1:4000



## Ecological values, nature



One big National Park:

- Permits
- Conditions

Opportunities:  
Regional Politics  
Partnering  
Profit in tender.

Scenic value, historical value, archeological objects



## Surroundings, stakeholders

Shellfishers

Walkers

Bikers

Divers

Caravenparks

Etc.



## Materials

- Quarry stones (with asphalt)
- 'Turned' concrete blocks
- New concrete blocks

2012:

Sustainability

Low CO2  
footprint  
blocks.

