

Is climate change adaptation all about water?



International conference | 25-26 April 2023 | Brussels

Steven Broekx - VITO

The economics of NBS in climate change adaptation



What we should do

... and why we *do not always* do it.

Expected economic impact of climate change



EVALUATION OF THE SOCIO-ECONOMIC IMPACT OF CLIMATE CHANGE IN BELGIUM

STUDY COMMISSIONED BY THE NATIONAL CLIMATE COMMISSION

Final Report

Koen De Ridder¹, Koen Coudere², Mathieu Depoorter³, Inge Liekens³, Xavier Pourria³, David Steinmetz³, Eline Vansuytrecht¹, Katelijne Verhaegen², Hendrik Wouters²

¹ VITO
² KENTER
³ ECORES

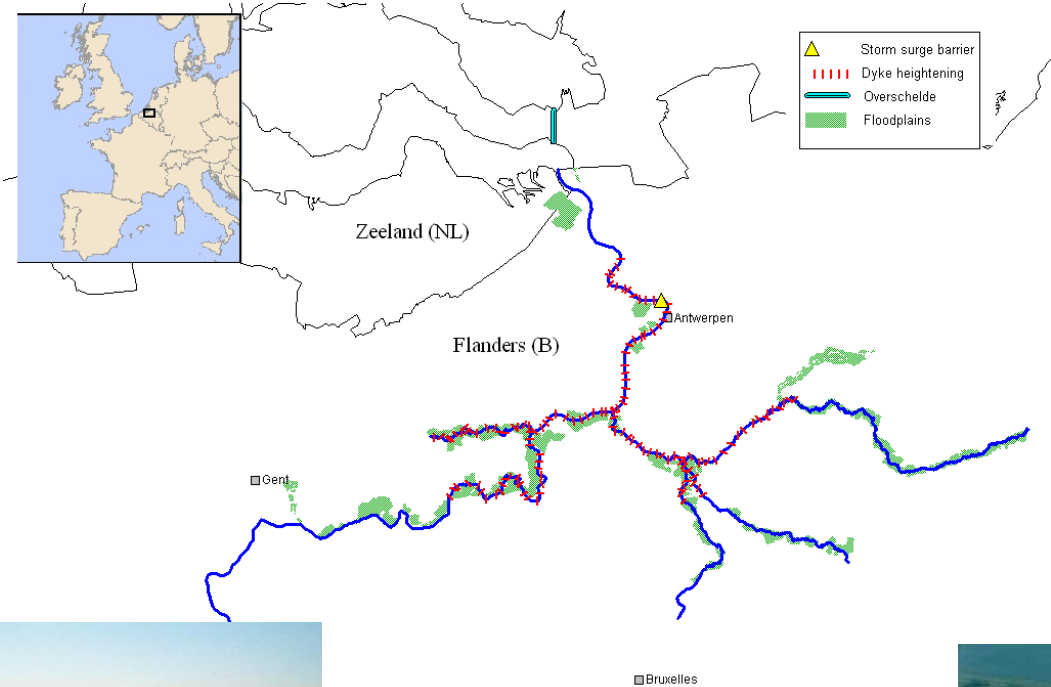
July 2020 (2020/RMA/R/2271)



- Costs of climate change: 9,5 billion € per year in 2050, 2% of GDP
- Main costs:
 - Health impact and reduced labour productivity due to heat stress
 - Material damages due to floods
 - Drought impact agriculture
 - *Transboundary effects, biodiversity*



The Flanders Sigmoplan



The Flanders Sigmoplan



	Costs	Benefits	Other	Pay back
Storm surge barrier	387	727	- 1	41
Higher Dykes	240	691	-	27
Floodplains 1/4000	233	733	+ 6	20
Risk based 'optimal' combination floodplains + dykes	139	730	+33	13

The Flanders Sigmaphan – we are doing it.



Overview of ongoing projects – www.sigmaphan.be

Flemish adaptation policy



Impact category	Expected damages due to climate change	Benefit ratios of measures	cost of	Importance co-benefits in assessments of total benefits	Foreseen investments of Flemish authorities	Main role of Flemish authority
Coastal zone management	++	10		+	+++	Implementor
Fluvial flooding (big rivers)	++	1 – 5		+	+++	Implementor
Droughts and water scarcity	++	unknown		++	++	Facilitator
Pluvial flooding (heavy rainfall in urban areas)	++	0.5 - 2		++	+	Facilitator
Heat stress	+++	unknown		++	+	Facilitator

We are not doing enough in some areas

Why do we not invest more in NBS?



“If you possess so much natural capital, why do you need additional funding?”

Return on investment rainwater infiltration



My return on investment rainwater storage tank

- Costs: 3.000 €
- Subsidy: 500 €
- Savings on water bill: 30 m^3 (toilet, washing machine) $\times 4,3\text{€/m}^3 = 129\text{€}$
- Pay back time: 19 years



My return on investment nature-based infiltration measures: 0

Societal benefits

- Protection water resources (**avoid scarcity cost**)
- Reduced pollution from combined sewage overflows
- Flood risk prevention



Possible strategies



Implementation of more NBS is a challenge, but feasible.

Combination of measures:

- We need green and grey infrastructure.
- Better demonstrate and communicate benefits of NBS as a cost-effective solution. Be realistic.
- A longterm financing strategy. Reform of economic instruments to provide a bigger stimulus to invest in NBS:
 - Reform water tariffication systems, infiltration bonus, solidarity mechanism,...
 - Synergies: health, insurance sector, biodiversity policy, spatial planning

More information?



- steven.broekx@vito.be
- <https://www.natuurwaardeverkenner.be/>
- <https://klimaat.vmm.be/>
- <https://klimaat.be/news/2020/socio-economische-impact-in-belgie>
- <https://remotesensing.vito.be/case/natural-capital-accounting>
- <https://papbio.vito.be/>