

**Interreg**   
EUROPEAN UNION  
**2 Seas Mers Zeeën**  
European Regional Development Fund

**NATURE SMART CITIES**  
ACROSS THE 2 SEAS  


[www.naturesmartcities.eu](http://www.naturesmartcities.eu)

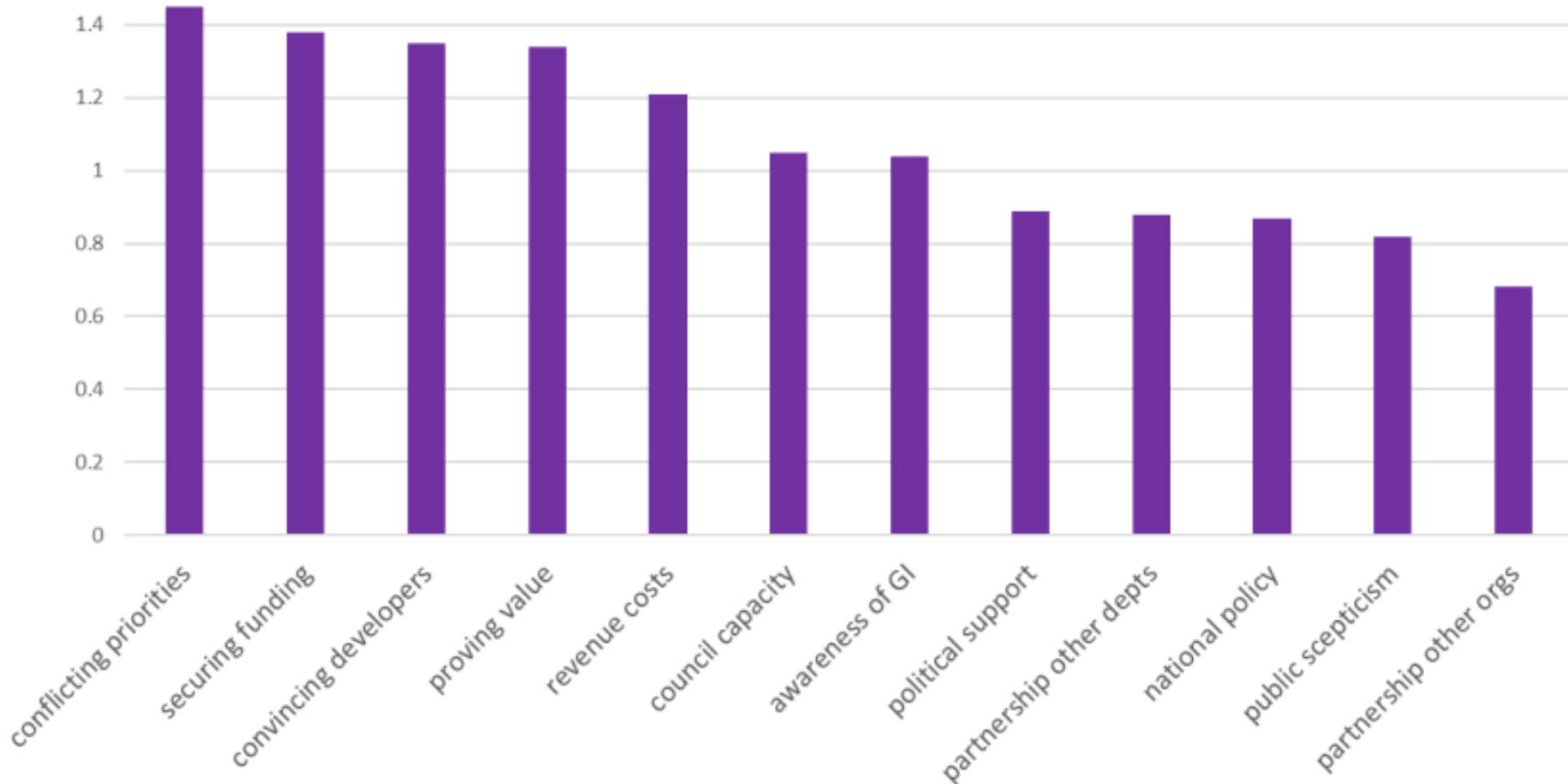


Den Haag



# Een brede berekening van kosten en baten kan drempels verlagen

Obstakels bij het invoeren van groene infrastructuur



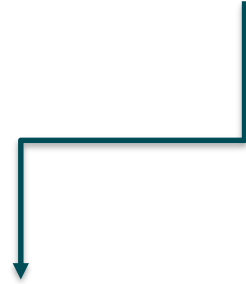
[https://naturesmartcities.eu/public/library/2.%20What%20are%20the%20challenges%20for%20Local%20Auth\\_Ybhm.pdf](https://naturesmartcities.eu/public/library/2.%20What%20are%20the%20challenges%20for%20Local%20Auth_Ybhm.pdf)

# Nature Smart Cities business model

- opgemaakt door partners UA, UGent en Imperial College
- Combinatie van academisch onderzoek & interviews
- Testen & valideren binnen demonstratieprojecten



# Hove: ontharding speelplein Vogeltjeswijk



!! interessante publicaties in projectbibliotheek

Vb. Benefits of Urban Greening, onderzoek over obstakels



A report for the Nature Smart Cities project partnership  
by Phil Back and Alex Collins, Imperial College London  
June 2020

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# Pilootprojecten in de Zuidrand



# Meerwaarde Nature Smart Cities tool

- Vergelijkt bestaande situatie en alternatieve ontwerp scenario's op gebied van ecosysteemdiensten/baten zoals biodiversiteit, recreatie, waterinfiltratie en luchtkwaliteit.
- Kostenramingen voor de verschillende scenario's
- Overzichtelijke factsheet voor onderbouwde business case



# 16 ecosystemdiensten



Food



Materials



Education and raising awareness



Habitat for biodiversity



Carbon sequestration



Physical and mental health



Noise pollution



Aesthetic appreciation



Attractor for companies and investments



Air filtering



Micro climate regulation



Recreation, and Tourism by external visitors



Social cohesion



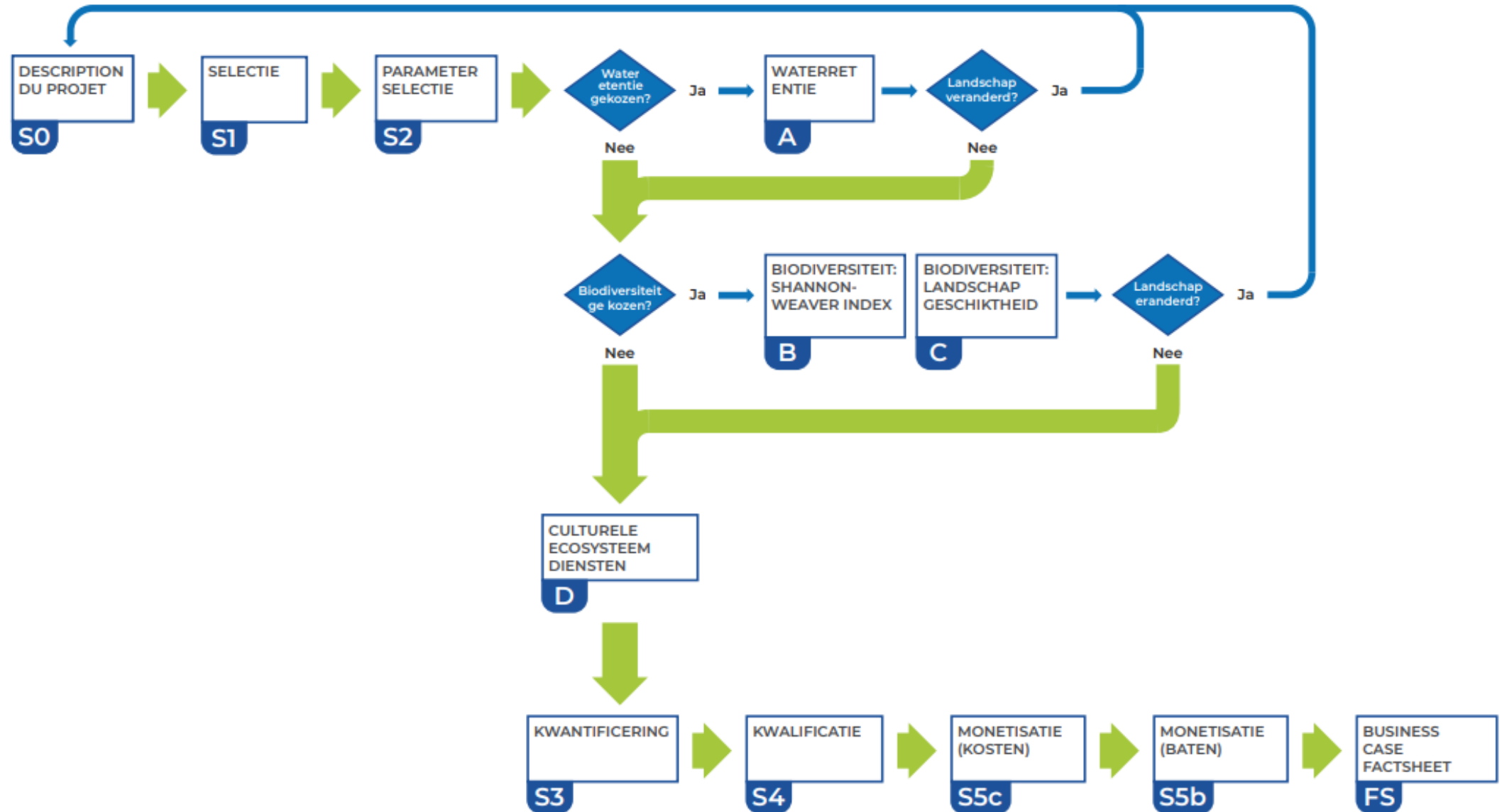
Real estate prices



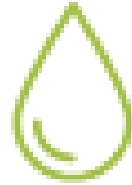
Water retention and infiltration



# Stroomdiagram



# Voorbeeld: inzicht in impact maatregelen



## Water run-off reduction

<b>Grey</b>	↔	<b>Green</b>
0 m <sup>3</sup> /year by grass road verges		4300 m <sup>3</sup> /year

# Voorbeeld: inzicht in impact maatregelen



## Micro climate regulation

**Grey**

0,27°C



**Green**

2,02°C reduction

# Voorbeeld: inzicht in impact maatregelen



## Carbon Sequestration

<b>Grey</b>	↔	<b>Green</b>
0 tonne CO <sup>2</sup> by 2060		135 ton CO <sup>2</sup> by 2060

# Inzicht in impact maatregelen

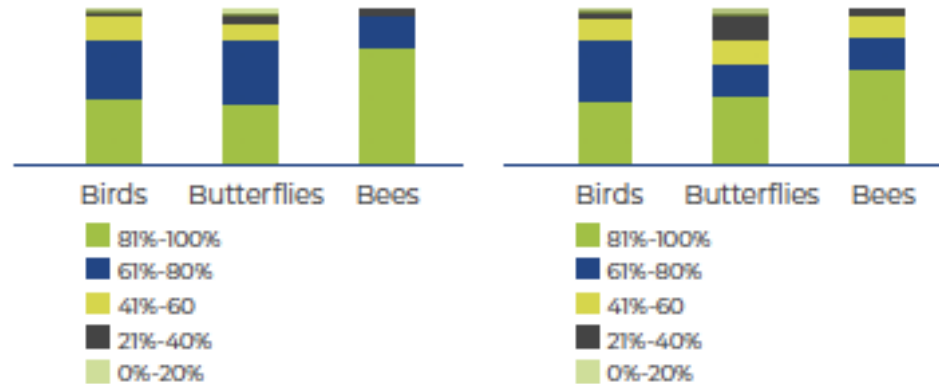


## Biodiversity

**Grey**  
Structural  
diversity 2,2/6



**Green**  
Structural  
diversity 3,1/6

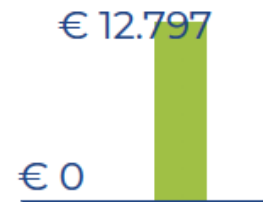


# Voorbeeld baten

## Monetary benefits

Euro/year

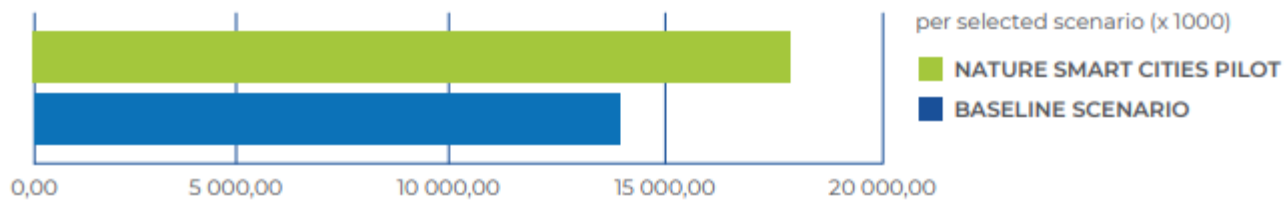
- Water runoff retention carbon sequestration aesthetic appreciation heat island education & awareness



## Monetary Benefits (euro/year)

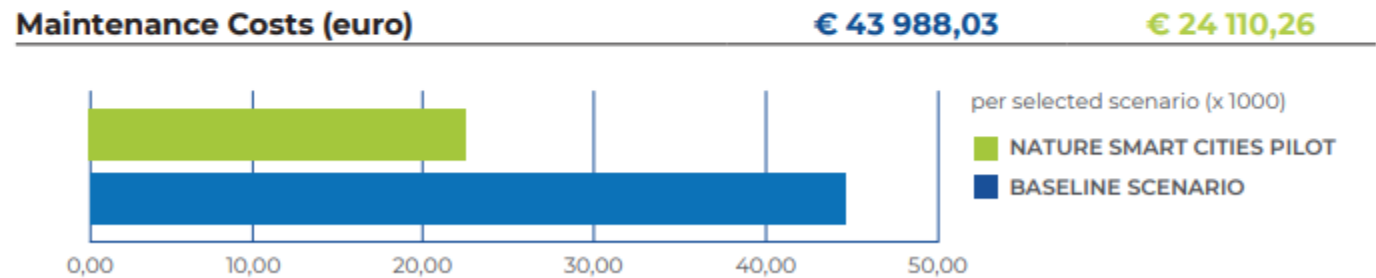
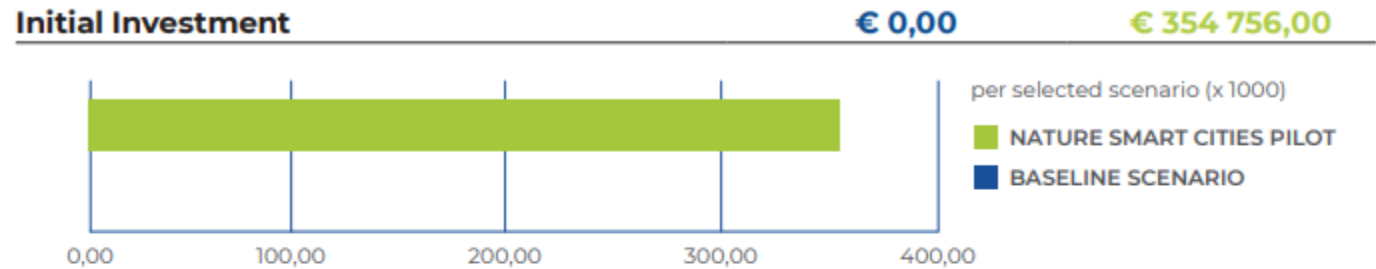
€ 13 893 232,09

€ 17 779 850,92



# Voorbeeld kosten

- Constructiekosten
- Onderhoudskosten



# Resultaat: Factsheet

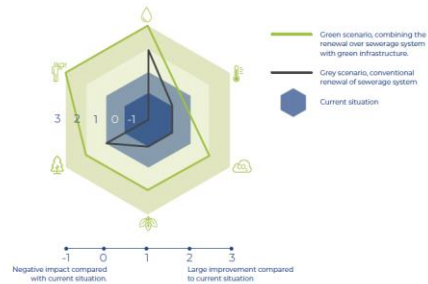
## Wemeldinge Noord, Netherlands

Wemeldinge is a village in the municipality of Kapelle, a municipality in the South-West of the Netherlands. Occasional pluvial flooding occurs in the village after heavy rain showers, due to an aged sewerage system and limited water buffering capacity.

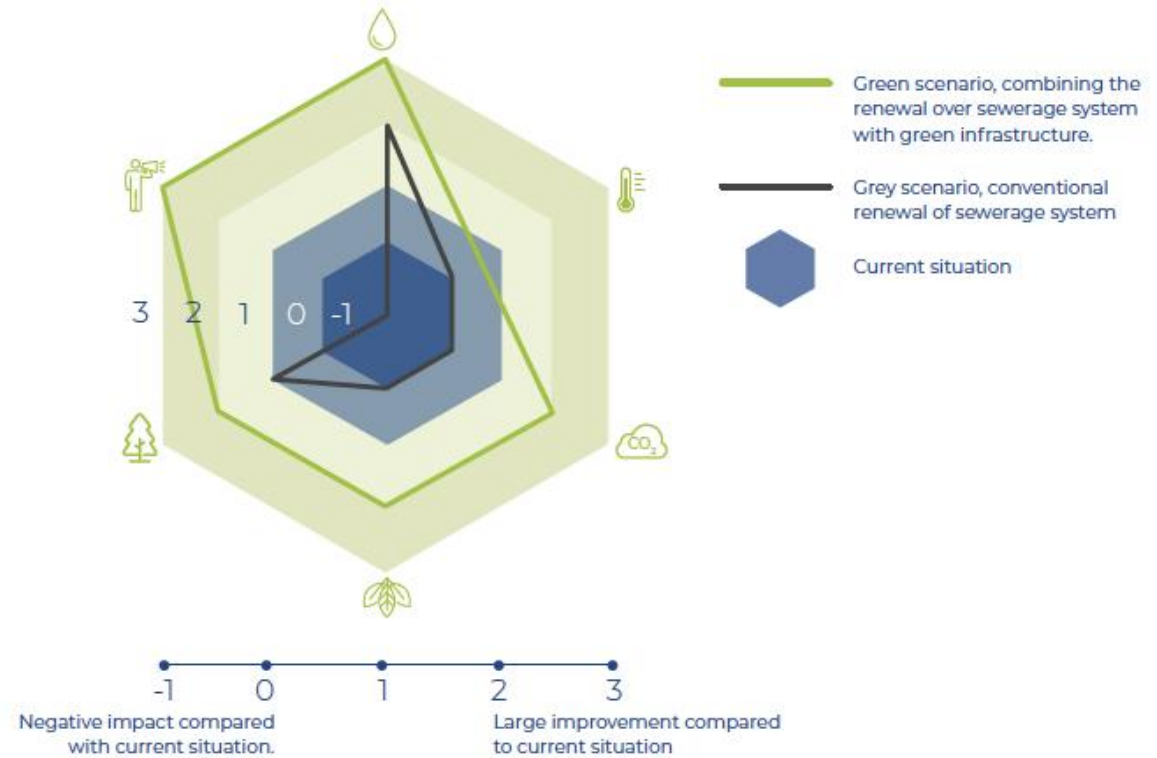
-  **Landscape**  
(Sub)urban residential area
-  **Public area**  
2.5 ha, of which 68% paved
-  **Climate problem**  
Pluvial flooding



## Scenario Comparison



## Scenario Comparison





## Grey ↔ Green

Renewing the sewerage system with wide pipes for draining storm water.

Adding a large pipe which carries the water from rainstorm peaks to a lower-lying area.

Improving the road quality using asphalt only.

Increasing green area with at least 0,6 ha.

Construct permeable green streets, parking places and wadis.

Complement with new grey sewage system, such as the wide pipe which is also part of the grey scenario.



### Water run-off reduction

Grey ↔ Green  
0 m<sup>3</sup>/year by grass road verges ↔ 4300 m<sup>3</sup>/year



### Micro climate regulation

Grey ↔ Green  
0 °C ↔ -0,09 °C



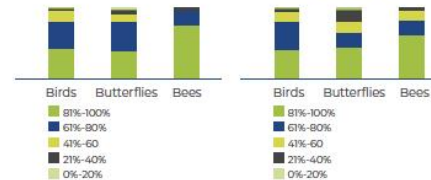
### Carbon Sequestration

Grey ↔ Green  
0 tonne CO<sub>2</sub> by 2060 ↔ 135 ton CO<sub>2</sub> by 2060



### Biodiversity

Grey ↔ Green  
Structural diversity 2,2/6 ↔ Structural diversity 3,1/6



### Awareness raising/Education

- ✓ Designed in collaboration with residents, to stress what citizens can do to avoid flooding.
- ✓ Wadis show raised water levels after rain storms.
- ✓ Organisation of fairs with demonstrational setups.
- ✓ Concrete example of Kapelle's ambitions on sustainability.



### Aesthetic appreciation

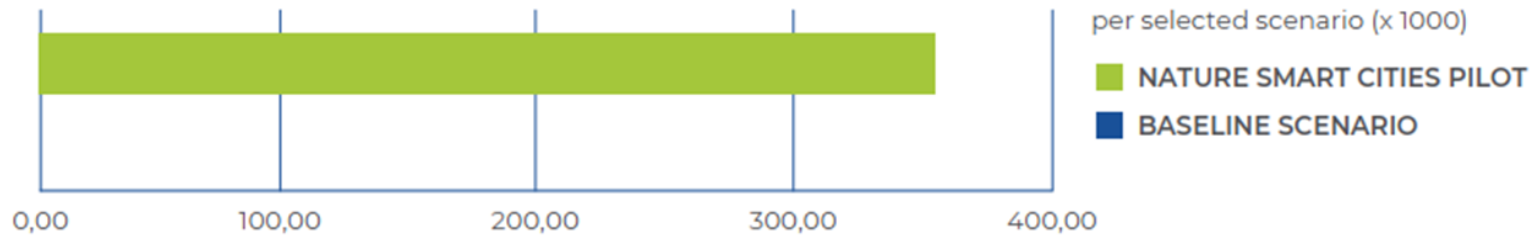
- ✓ Increased functional green space makes Wemeldinge a more attractive place to live.
- ✓ Green space encourages cycling and walking.
- ✓ Green areas and wadis will encourage children's outdoor play.

# Financial Information

## Initial Investment

€ 0,00

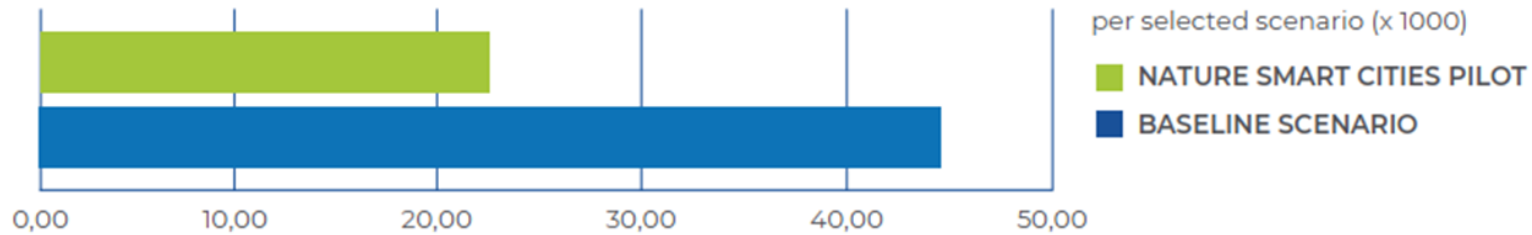
€ 354 756,00



## Maintenance Costs (euro)

€ 43 988,03

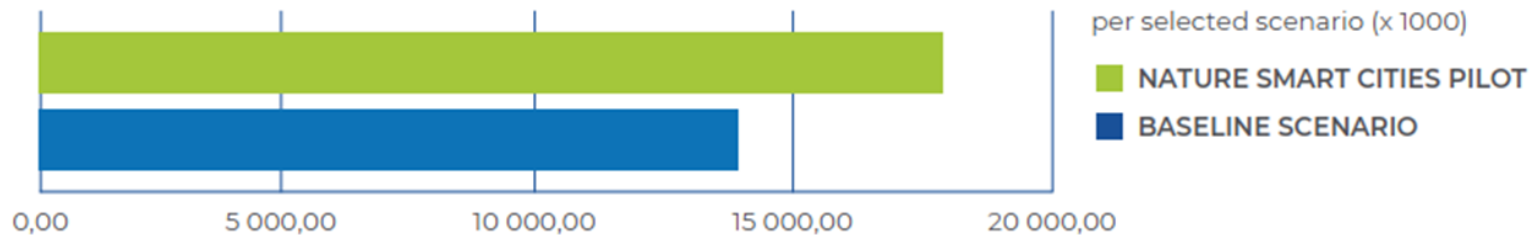
€ 24 110,26



## Monetary Benefits (euro/year)

€ 13 893 232,09

€ 17 779 850,92



# Wanneer gebruiken?

- *Inspiratie voor potentiële maatregelen*
- *Snel inzicht in impact van maatregelen*
- *Stap in ontwerpfase*
- *Onderbouwen van subsidiedossiers*
- *Overtuigen van andere diensten, bestuur en inwoners*



*“Vorig jaar volgde ik in Brugge de workshop. Ondertussen paste ik het Business Model toe op enkele projecten en ik moet zeggen dat dit telkens uiterst positief onthaald wordt door verschillende diensten binnen ons bestuur. We intenderen het model standaard te integreren in ons ontwerpproces.”*

*Yann Raes [Afdeling coördinatiebureau en stadsontwikkeling Harelbeke]*

# Traject

1.

AAN DE SLAG  
MET KAARTEN  
EN DATA

25/04

voormiddag

**Waarom en waar**  
Gevolgen van  
klimaatverandering  
en kansrijke locaties

2.

GLUREN BIJ DE  
BUREN

09/05

voormiddag

**Wat en hoe**  
Principes,  
maatregelen en  
goede  
voorbeelden

3.

INPUT OP JE  
PROJECT

30/05

voormiddag

**Optimaliseer**  
je project via  
interviews met  
collega's en  
experts

4.

BEREKEN DE  
KOSTEN EN  
BATEN

13/06

voormiddag

**Vergelijk** de  
kosten en  
baten van  
verschillende  
oplossingen

5.

VIND EXTRA  
GELD

13/06

namiddag

Info over  
**financierings-  
mogelijkheden**  
voor jouw project



**Provincie  
Antwerpen**



# Plan Vandaag

Voor het veilige klimaat van morgen

[www.planvandaag.be](http://www.planvandaag.be)



Provincie  
Antwerpen