



**Climate, nature
and water: an integrated approach in Flanders
implementing Natura 2000**

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What is the Sigma Plan?

Protecting Flanders from floods combined with space for nature in the Scheldt
_____ estuary

Partnership between De Vlaamse Waterweg nv
(that manages waterways in the Belgian region of Flanders)
and the Agency for Nature and Forest
(that protects nature and woodland)

An aerial photograph of a coastal town, likely in the Netherlands, showing extensive flooding. A large church with a prominent bell tower is situated in the center, surrounded by residential houses. The surrounding area is submerged in water, with only the roofs of some buildings and trees visible above the surface. The image is in black and white, emphasizing the scale of the flooding.

Origin of the Sigma Plan

Storm tides and serious flooding in the past (1953 and 1976)

The original plan contained three measures

Stronger and higher embankments

Creation of 13 flood control areas

Storm surge barrier



Why the plan needed updating

Climate change

New view on water management

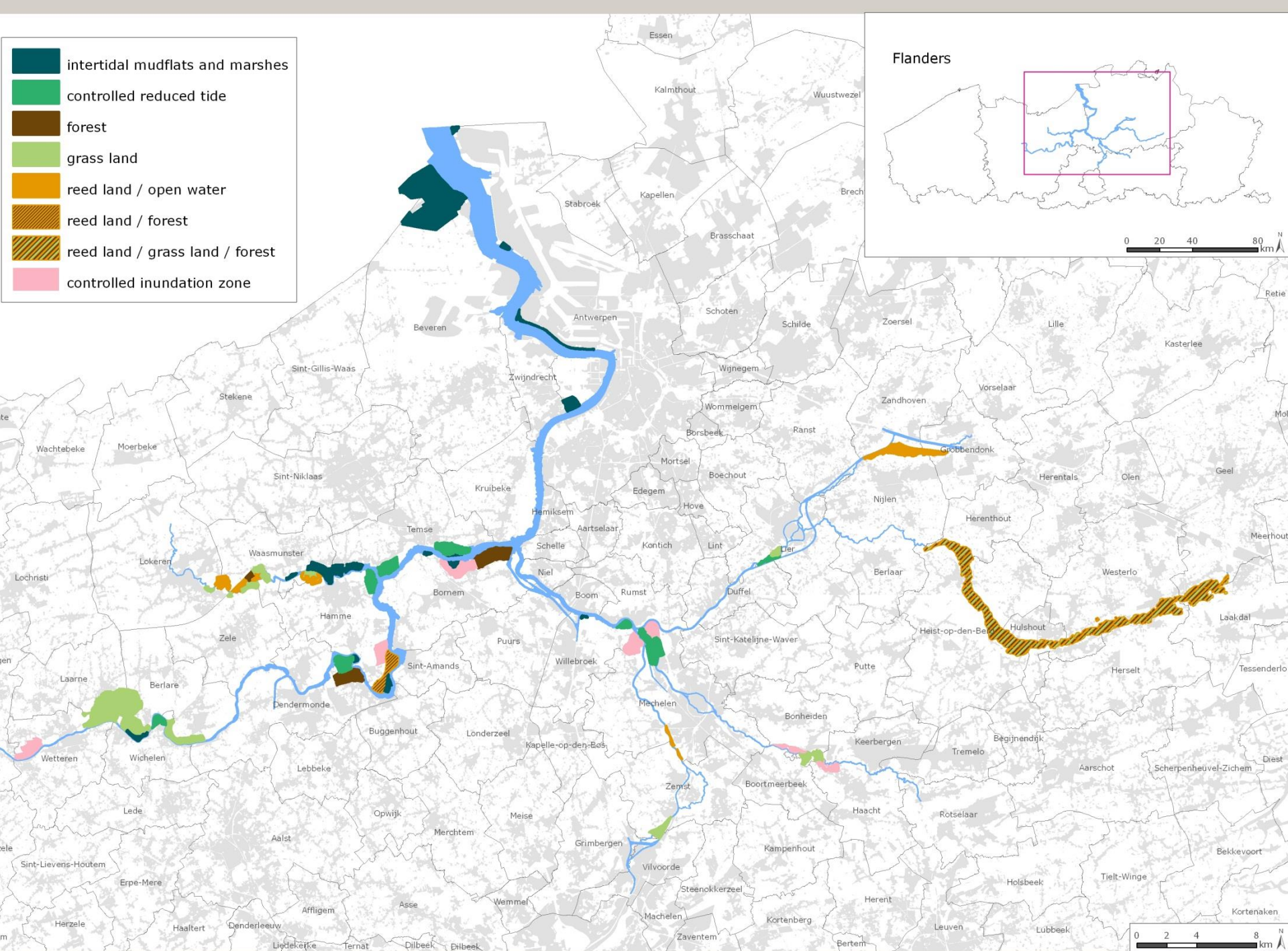
Birds Directive and Habitats Directive (Natura 2000) / Water Framework Directive / Long-term vision for the Scheldt Estuary / Flemish nature preservation law => conservation objectives (2002)



Measures in the original Sigma Plan are no longer sufficient: an update is required



Phased implementation between 2005 and 2030



14 European (+ 3 regionally important)
habitats

37 European (+ 36 regionally
important) species

extra nature

5300 hectares total
1500 hectares ready
1800 hectares in realisation
2000 ha in preparation

together

14.000 ha nature in the Scheldt estuary

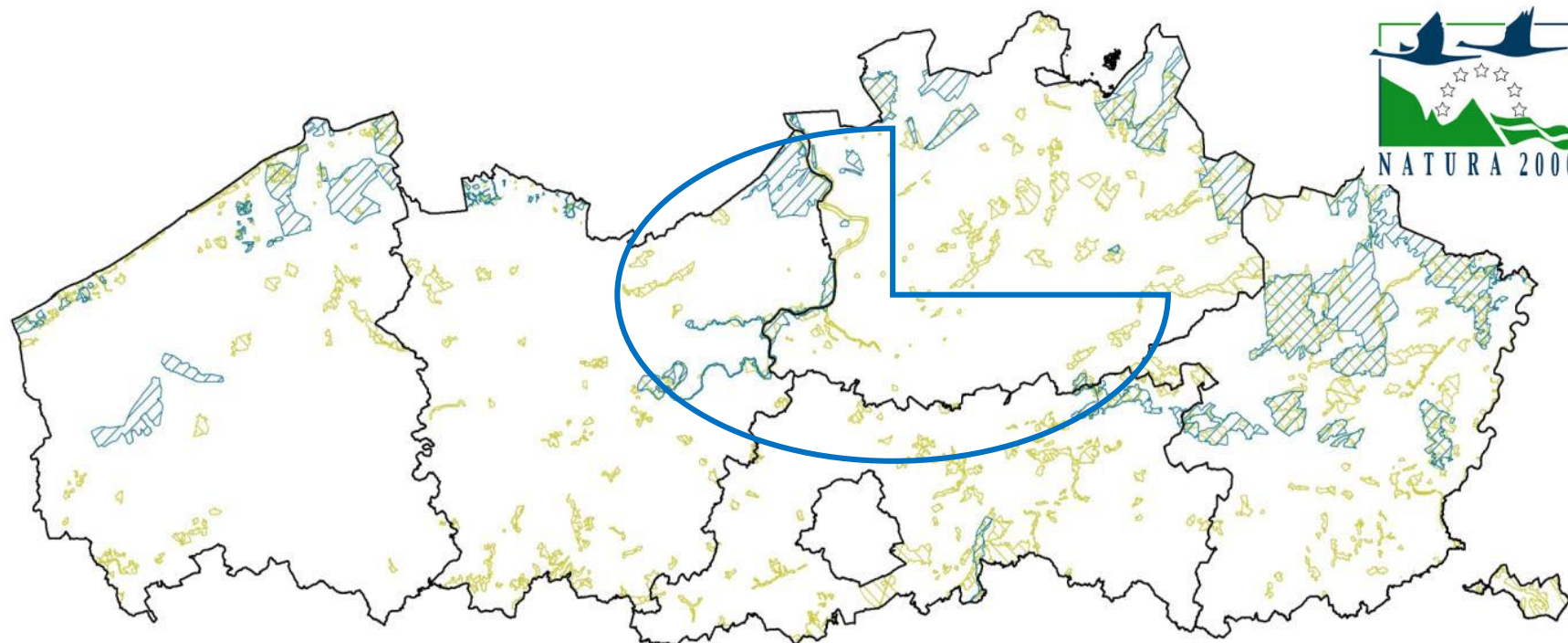
Estimated budget: 1 billion euro




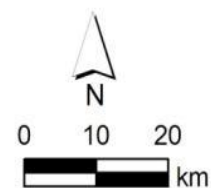
Sigma plan nature – conservation objectives for favourable state



- **69 projects – 5300 ha extra nature**
- **Extra 500 ha mudflats, 1500 ha tidal marshes**
- **500 à 900 ha marsh and reed lands**
 - Minimum areas of subtypes (8-12 ha of 3150)
- **600 - 1200 ha qualitative grassland**
 - Minimum areas of 38 - 69 ha (6430), 232 - 476 ha (6510)...
- **400 ha alluvial forest**
- **Viable populations of breeding species (both 'European' and 'locally' important species)**
 - **extra habitats for species ...**
- **Minimum numbers of overwintering birds**
- **Chemical parameters: oxygen, silicate, ...**
- **...**



-  Vogelrichtlijngebieden (Vogelrichtlijn)
-  Habitatrichtlijngebieden (Habitatrichtlijn)
-  Provincie





2015



2019

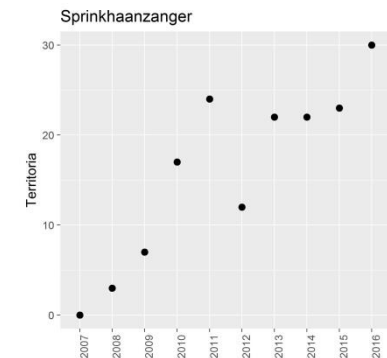
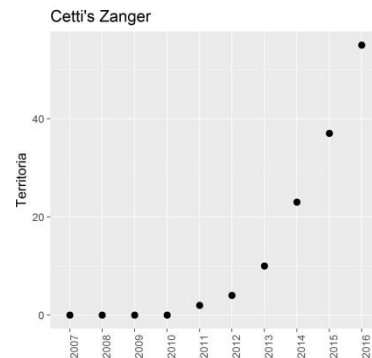
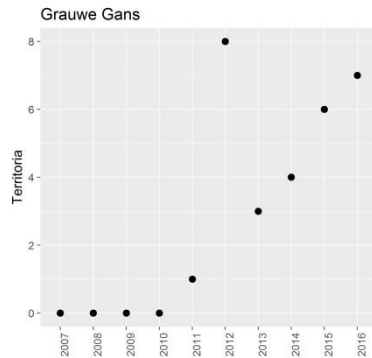
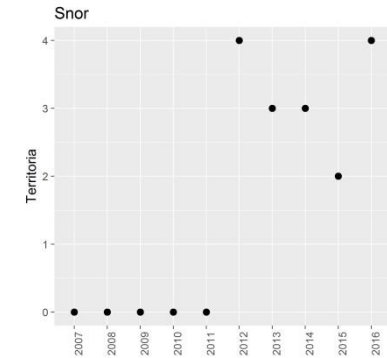
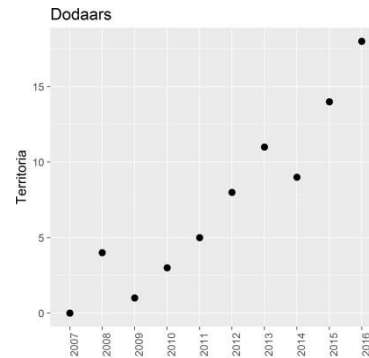
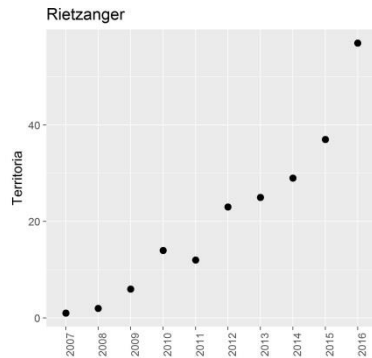
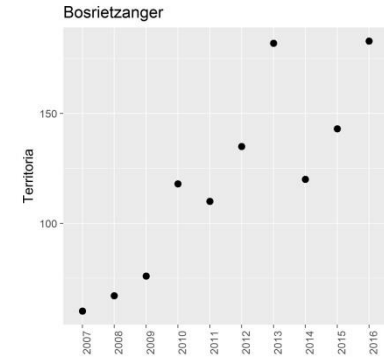
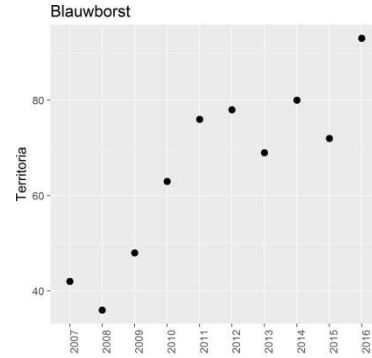
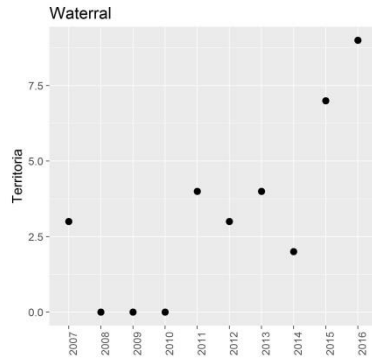
Wijmeers - depoldering



GOG Polders van Kruibeke



Results breeding(target) birds Kruibeke





**GOG-GGG Bergenmeersen
(Cluster Kalkense Meersen)**



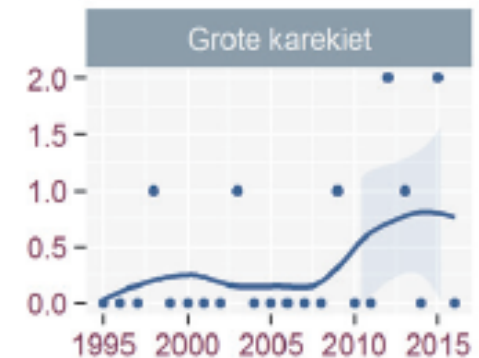
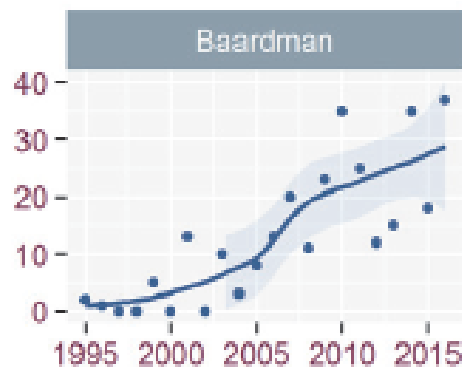
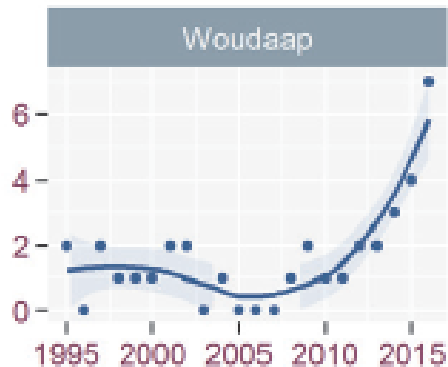
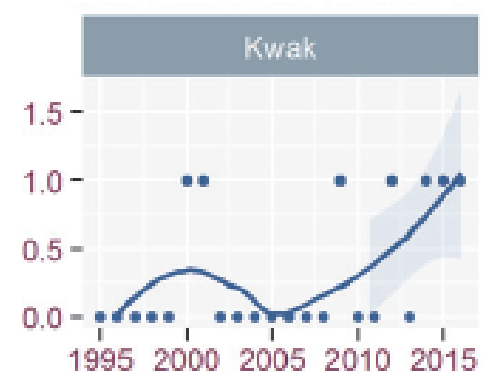
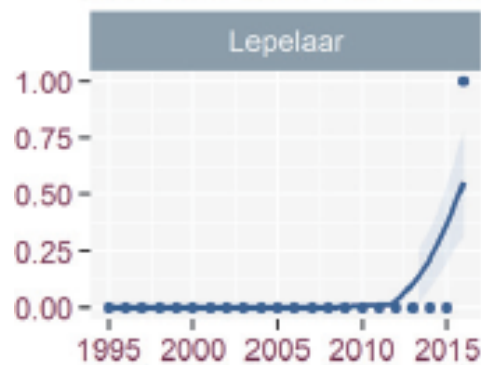
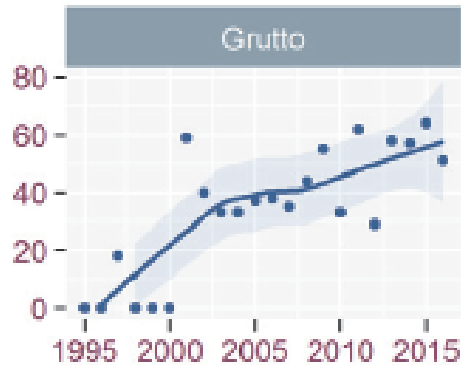
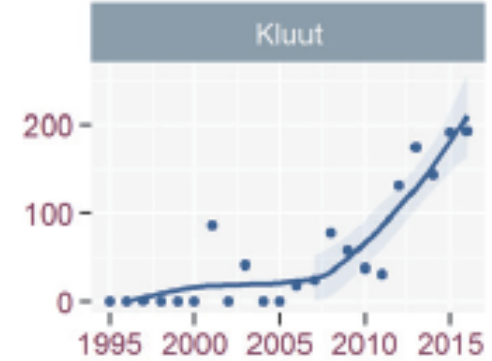
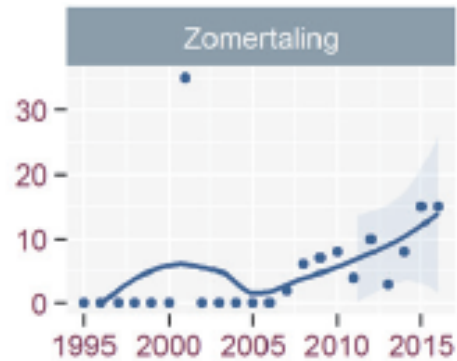
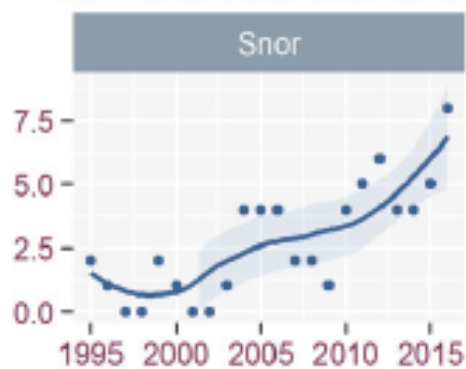
Results

Bergenmeersen



		2008	2014	2016
Watervogels	Bergeend		2	8
	Grauwe Gans			1
	Krakeend		2	23
	Slobeend		2	2
	Zomertaling			1
Riet- en moerasvogels	Blauwborst	1	2	9
	Kleine karekiet	12	3	39
	Rietgors	1	1	7
	Rietzanger			5
	Snor			2
	Sprinkhaanzanger			3
	Waterral			1
Akker- en weidevogels	Grutto	1	4	1
	Kievit	6	6	
	Patrijs	1		
	Tureluur		2	
Struweel- en ruigtelvogels	Bosrietzanger	5	4	22
Exoot	Canadese gans		1	
Overige	Koekoek	1	1	1
	Doelsoorten: territoria	2	10	20
	Doelsoorten: soorten	2	4	6

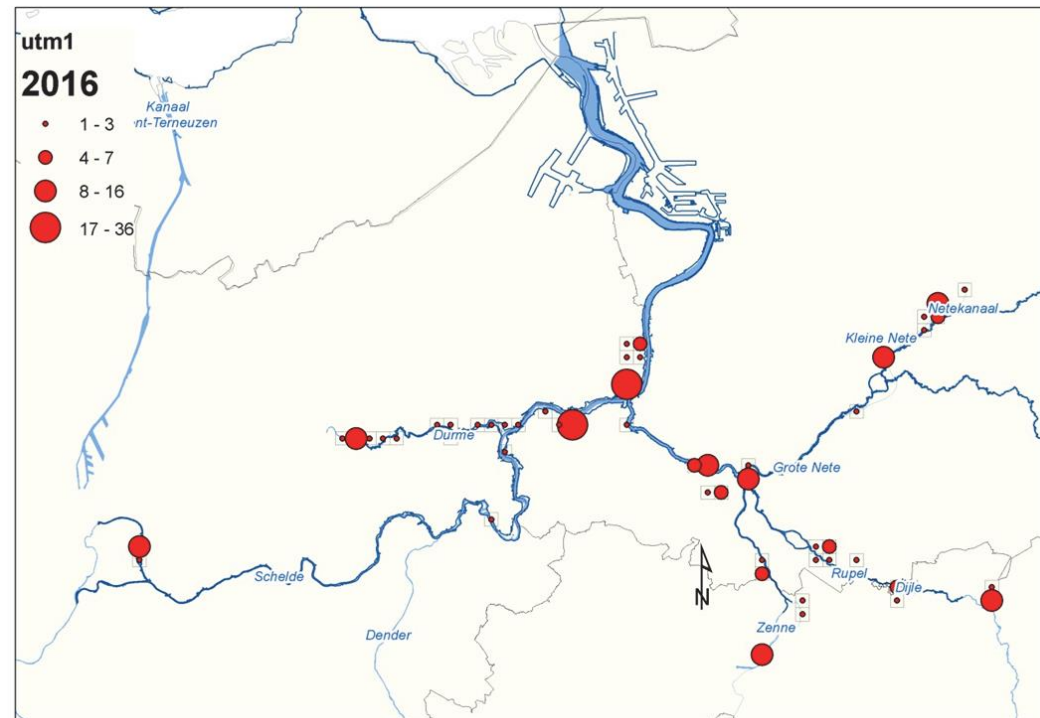
Overall results (target) breeding birds





Results mammals

year	European beaver	Common seal
2010	12	8
2011	32	24
2012	32	23
2013	100	20
2014	212	32
2015	167	47
2016	248	58



Keys to success 1

Long term scope (2005-2030)

Integrated approach

- Higher priority
- More combined know-how
- Higher support from other authorities

Sound ecosystem approach
restoring resilience

Selection of the project areas based
on broad and flexible
social discussion



Specific keys to success 2

Broad set of instruments for the mitigation of the impact on agriculture and other land use

Investments in tourism and branding of regions (enhance local economical development)

Governance based on co-operation



Agriculture - tailor made solutions

Consultation of agricultural organisations

Excluding critical zones
Individual impact studies (LER)

Mitigation – basket full of measures

Working in phases, trading ground, farm displacement, financial stimuli, farm reconversion, compensation for loss of crops

Co-operative management

Farmers do some nature management



Solutions for former (recreational) landuse

**Creation of new fish ponds outside the
inundation zones**

Hunting as a part of nature management

Weekendresidences
Partly closing, partly regulize



Tourism and region branding

Creation of Landschape Park(s)

Recreational infrastructure

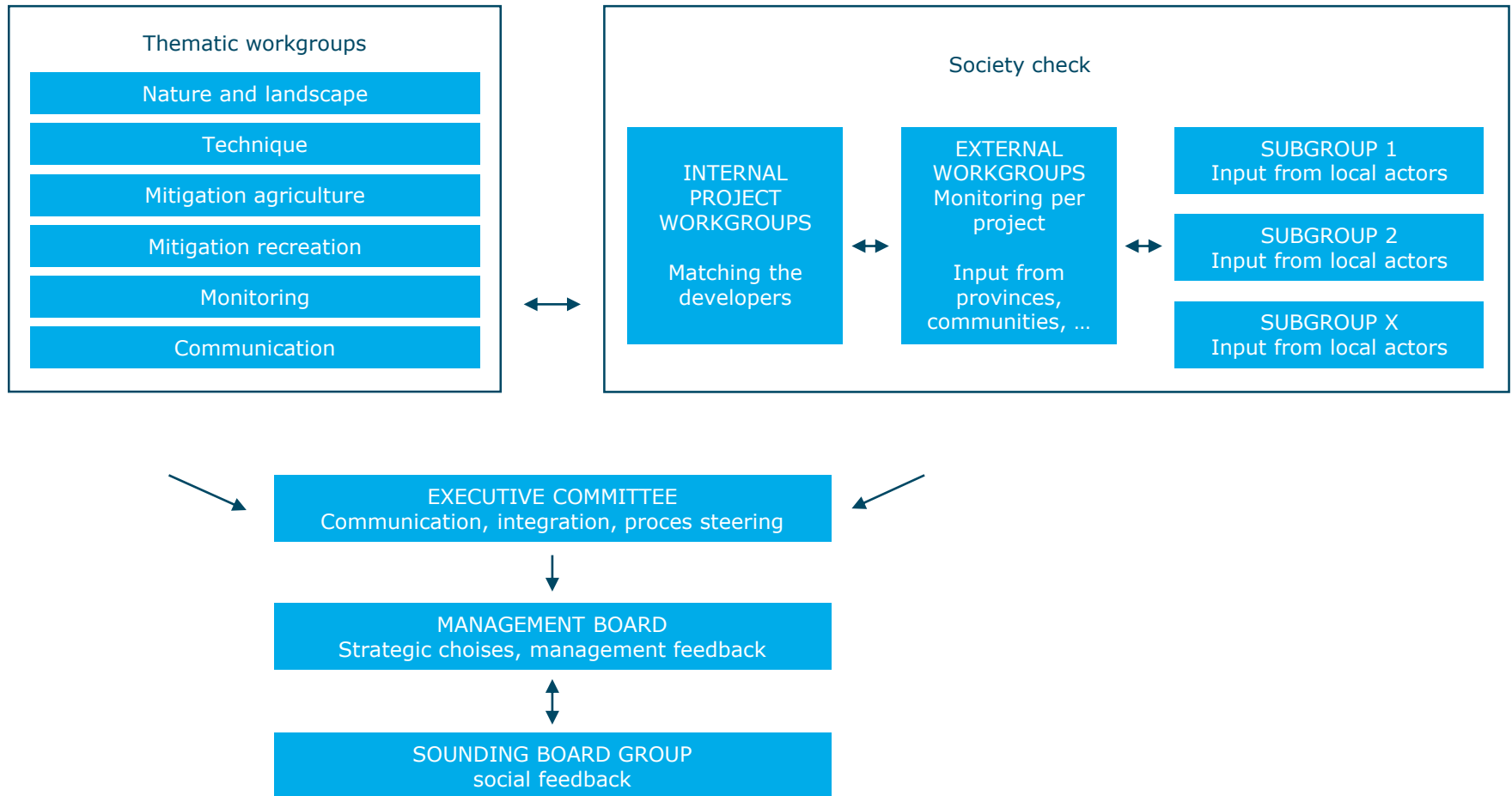
Land art

Corporate design



≡ Governance based on co-operation

gouvernemental – ngo's



local co-ownership

1. Invest in communication and focus on showing the final result
2. Visit similar sites to exchange knowledge and concerns
3. Support bottom-up actions and go for quick results
4. Obtain external appreciation
5. Supply experiences in the field
6. Train local ambassadors
7. Invest in youth
8. Incorporate the expectations of the users
9. Use clear rules and invest in control on the field
10. Give your area an unique identity





European co-operation

SPARC

Space for Adapting the River Scheldt
to Climate change

USAR

Using Sediment As a Resource

Grenspark Groot-Saeftinghe

Interreg-project

Scalluvia

Life-project

Belini

Life-project

Smart Sediment

Interreg-project

STEP-project

Sustainable Tourism in Estuary Parks

PRISMA

Promoting Integrated Sediment
Management

FLOODCOM (HPP)

Interreg-project

Forten en Linies in Grensbreed
Perspectief

PRO-TIDE

Getijdenenergie

FRaME

Flood Risk Management in Estuaries

ComCoast

Combined functions in coastal
defence zones

EGIPUS

Expert group of the integrated plan
of the upper sea scheldt

≡ Thanks for the co-operation



**Sigmaplan for the people,
Sigmaplan by the people**