

Specific issues and challenges regarding the development of RBMP's in the EU:

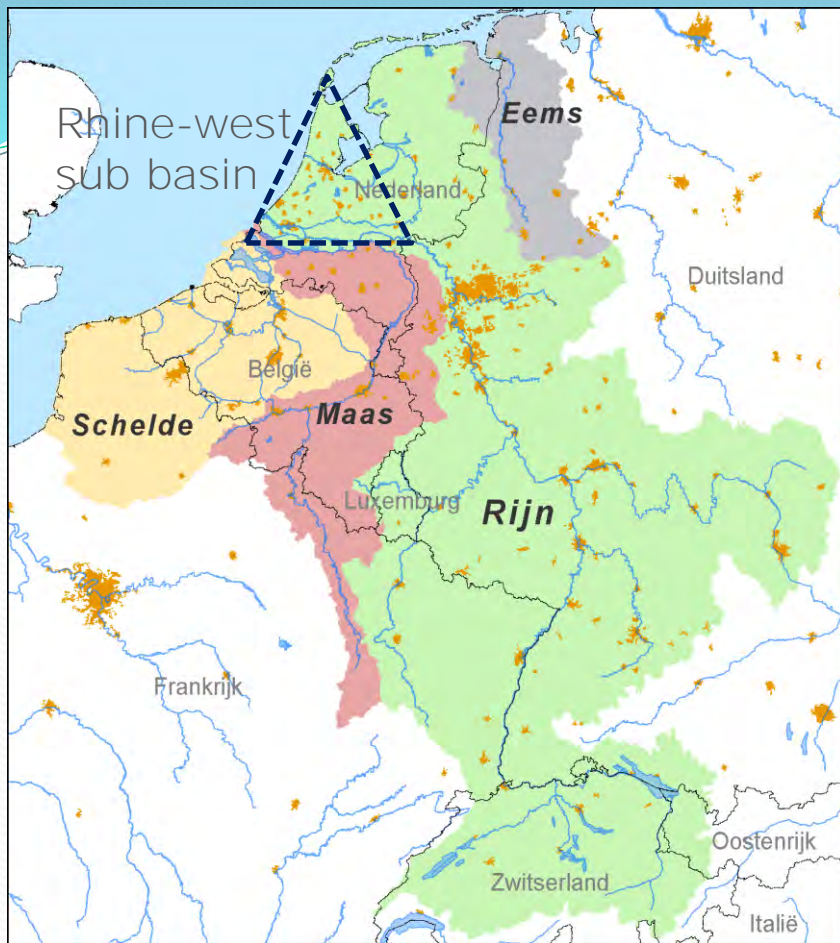
Example from the Netherlands

Steven Visser, M.Sc.
VISSER water management

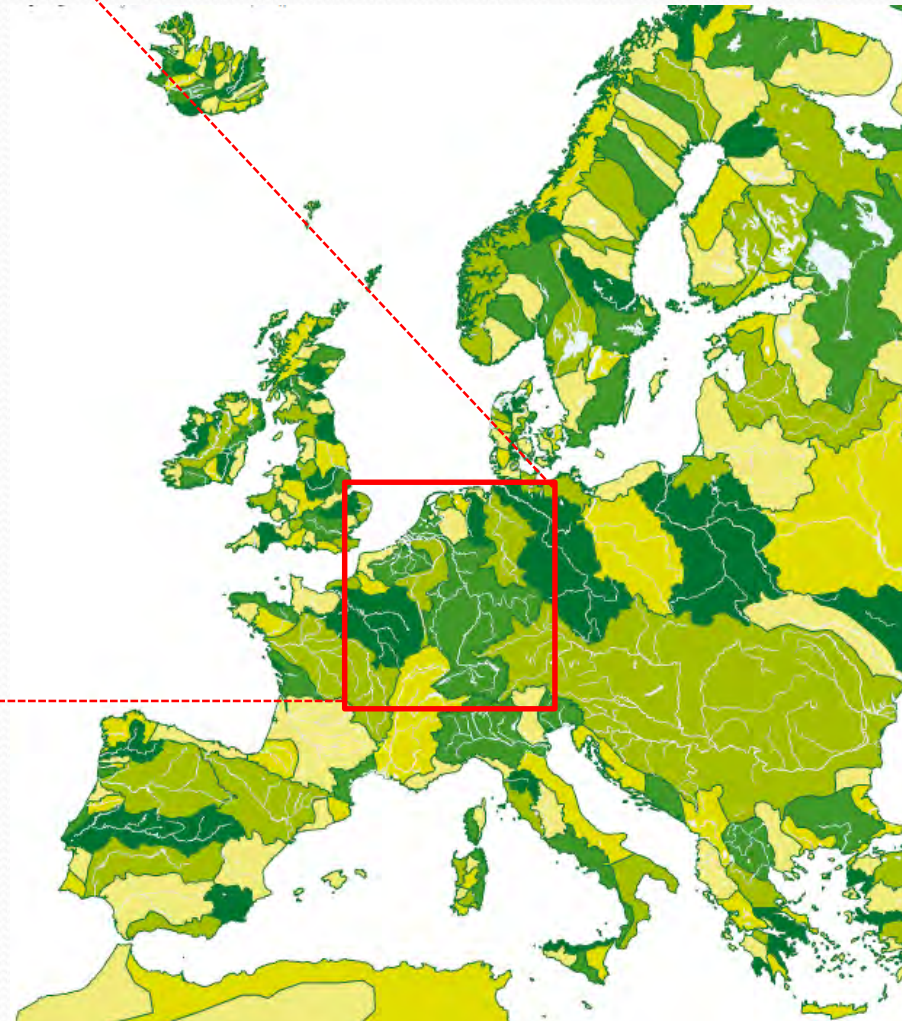
Programme Manager WFD
Rhine-West sub basin
The Netherlands

New Delhi, June 14, 2016





River basins in Europe



Outline

- Water management in the Netherlands
- 15 years of experience with the Water Framework Directive
- The Rhine-West sub basin
- Conclusions and personal experiences and observations
- Parallel between the WFD in Europe and the situation in India



Outline

- **Organization of water management in the Netherlands**
- 10 years of experience with the Water Framework Directive
- The Rhine-West sub basin
- Conclusions and personal experiences and observations
- Parallel between the WFD in Europe and the situation in India



Basic Facts of The Netherlands

Total area 41.600 km²

Highest 321 m above sea level

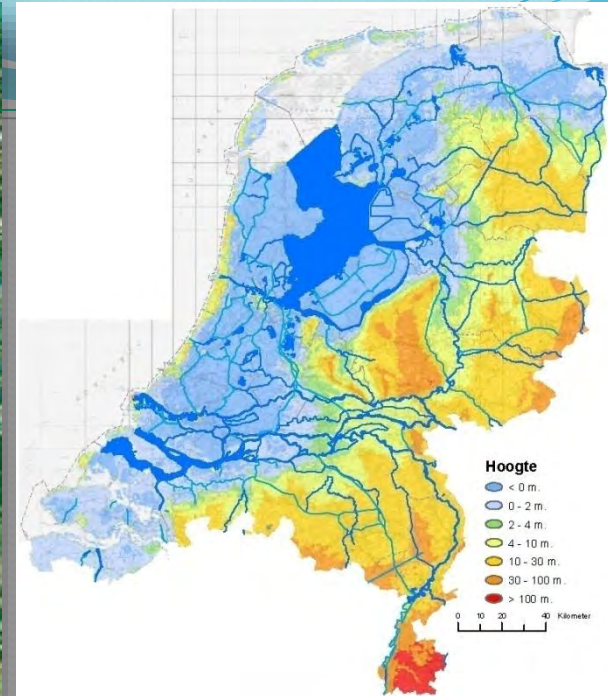
Lowest 6,7 m below sea level

Population 16 million people

Density 495 persons per km²

Rainfall 750 mm per year

Rhine-west
sub basin

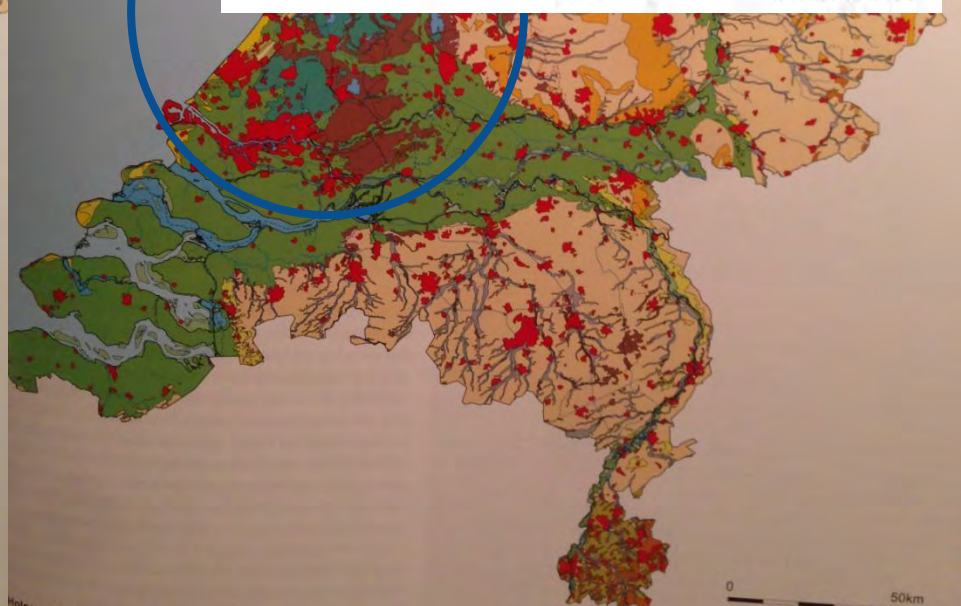
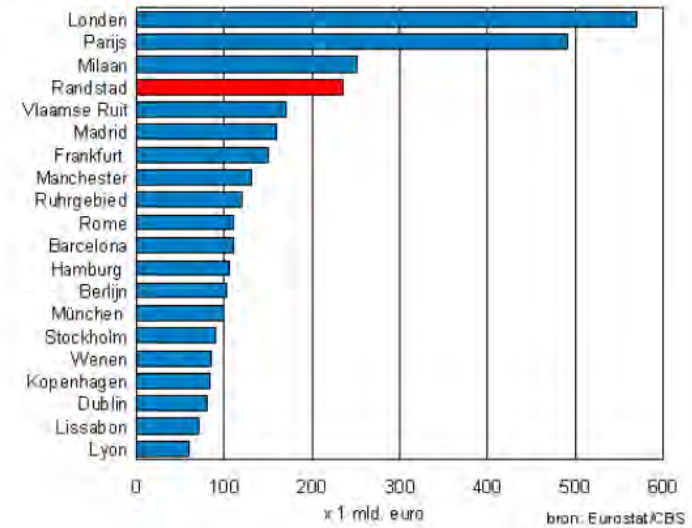


5500 v.Chr.



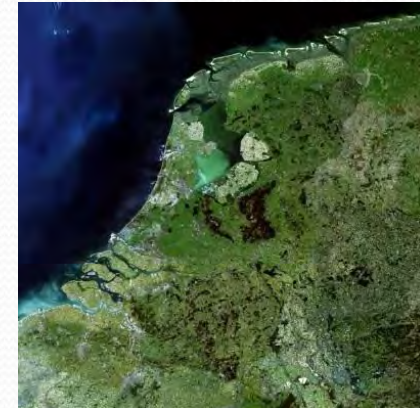
2000 n.Chr.

BBP in stedelijke regio's van EU, 2005



The Netherlands: a living delta ...

- 26% of its territory below sea level
 - 55% of its territory prone to sever flooding from sea and rivers
 - 60% of its population below sea level
 - 65% of GNP earned below sea level]
-
- 3600 km of flood defences
 - hundreds of sluices, storm surge barriers and pumping stations





@ www.deltaworks.com



Brouwers dam
Bron: RIKZ

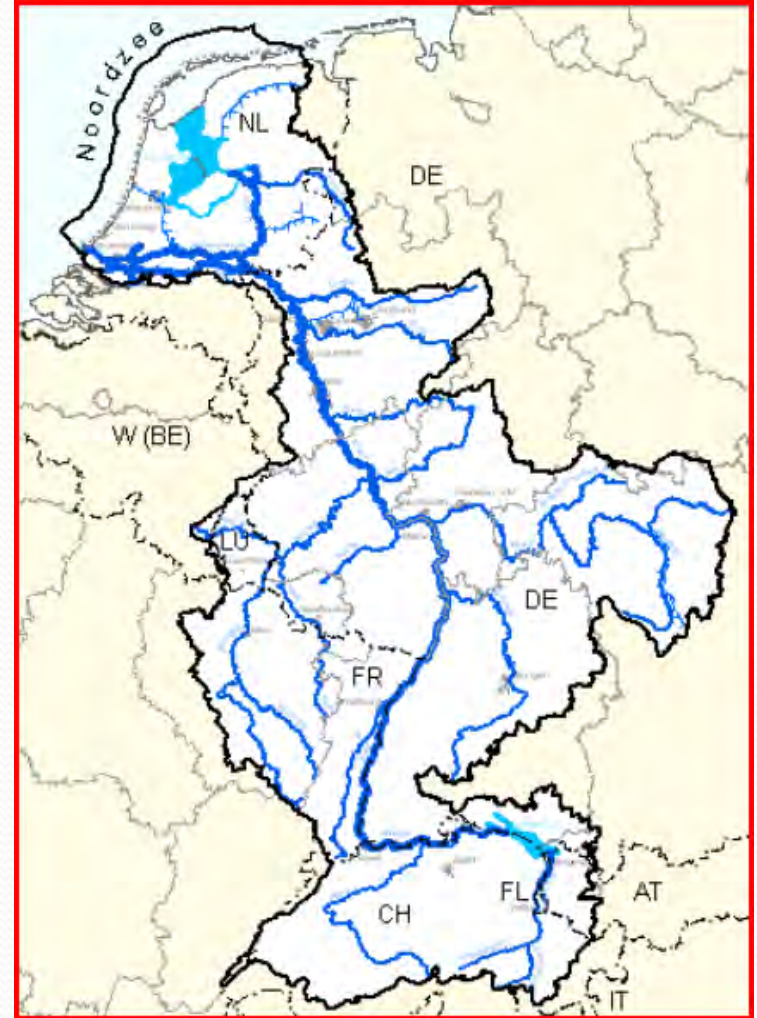


International Commission for the Protection of the Rhine (the ICPR)



Nine states and regions in the Rhine watershed closely co-operate in order to harmonize the many interests of use and protection in the Rhine area.

Water quality does not respect borders !



Outline

- Organization of water management in the Netherlands
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Clean water is essential for economic and social interests

Living environment



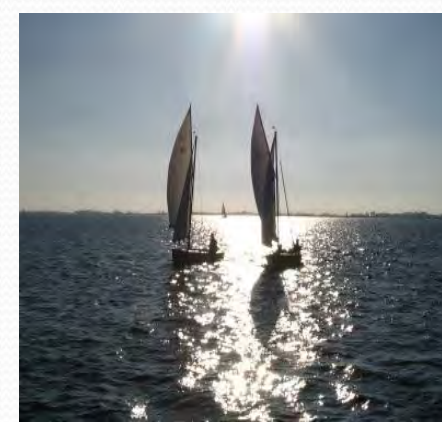
Water quality



Agriculture



Drinking water



Nature conservation

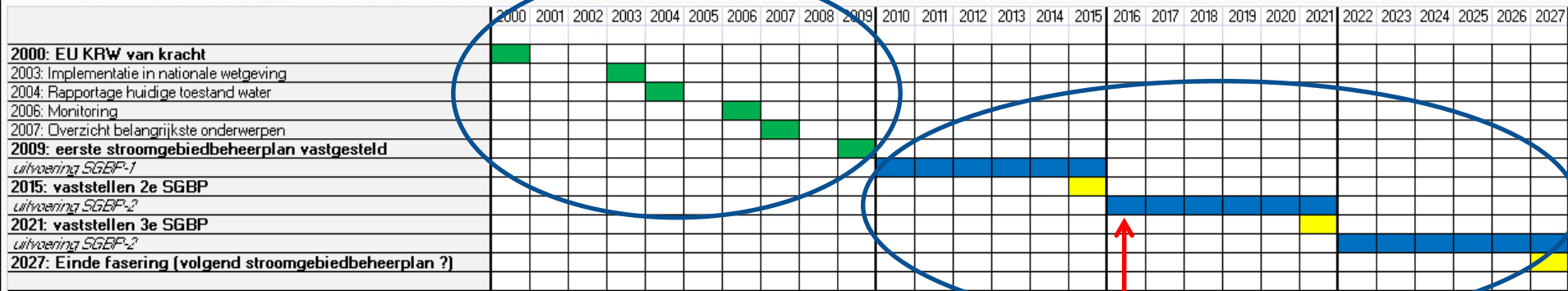
Recreation

Industry



WFD lifecycle and implementation schedule

1^e RBMP 2^e RBMP 3^e RBMP





Rhine-west sub basin

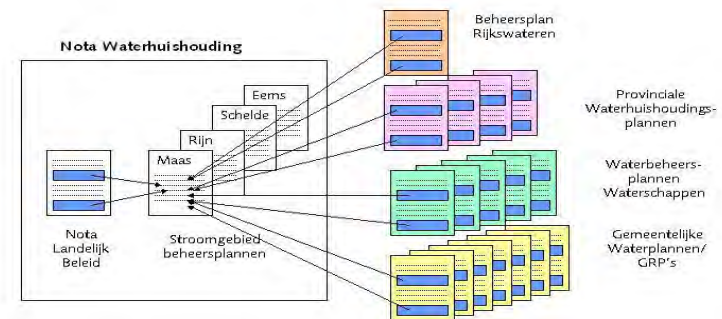
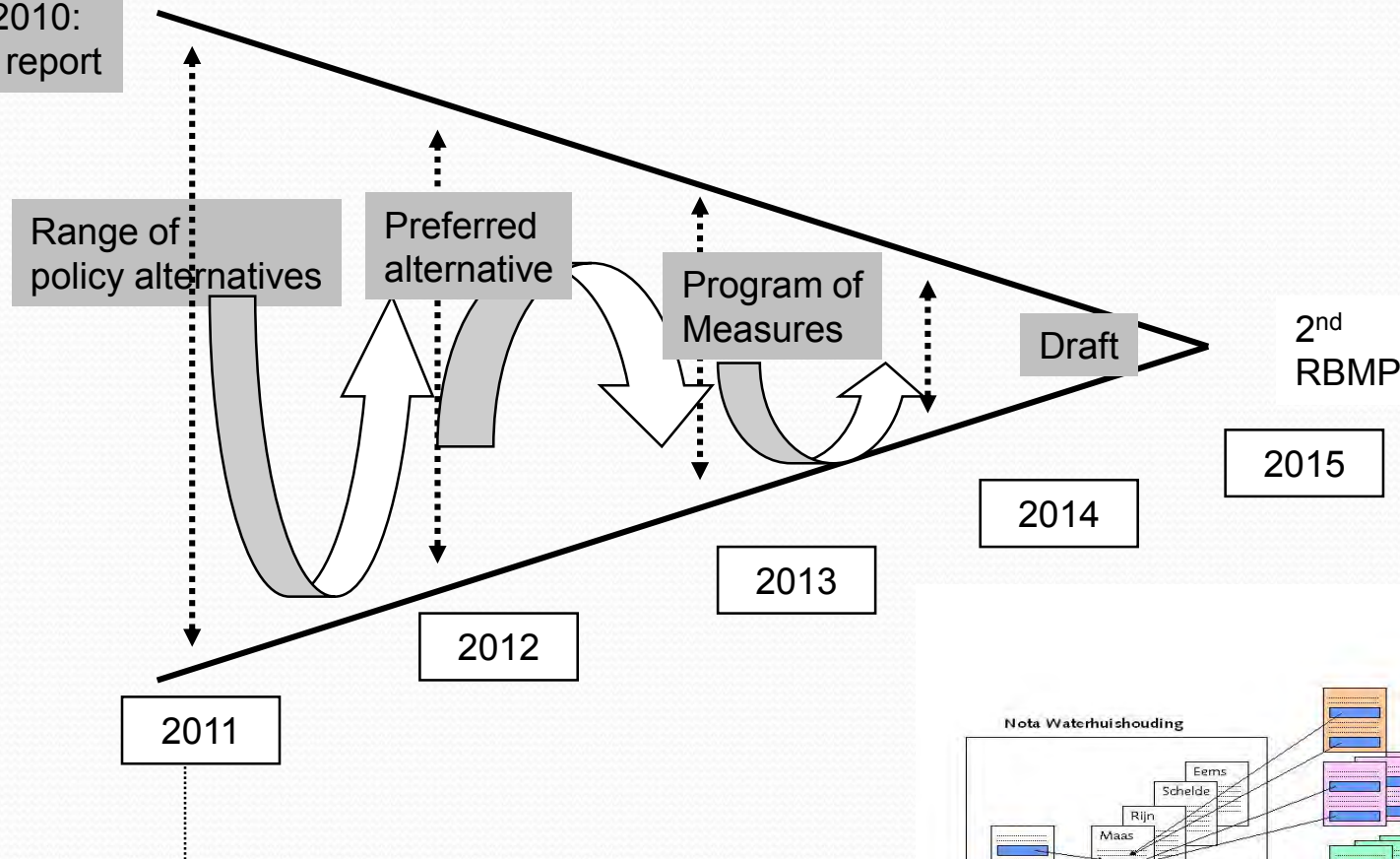


A L P E N A L P E N

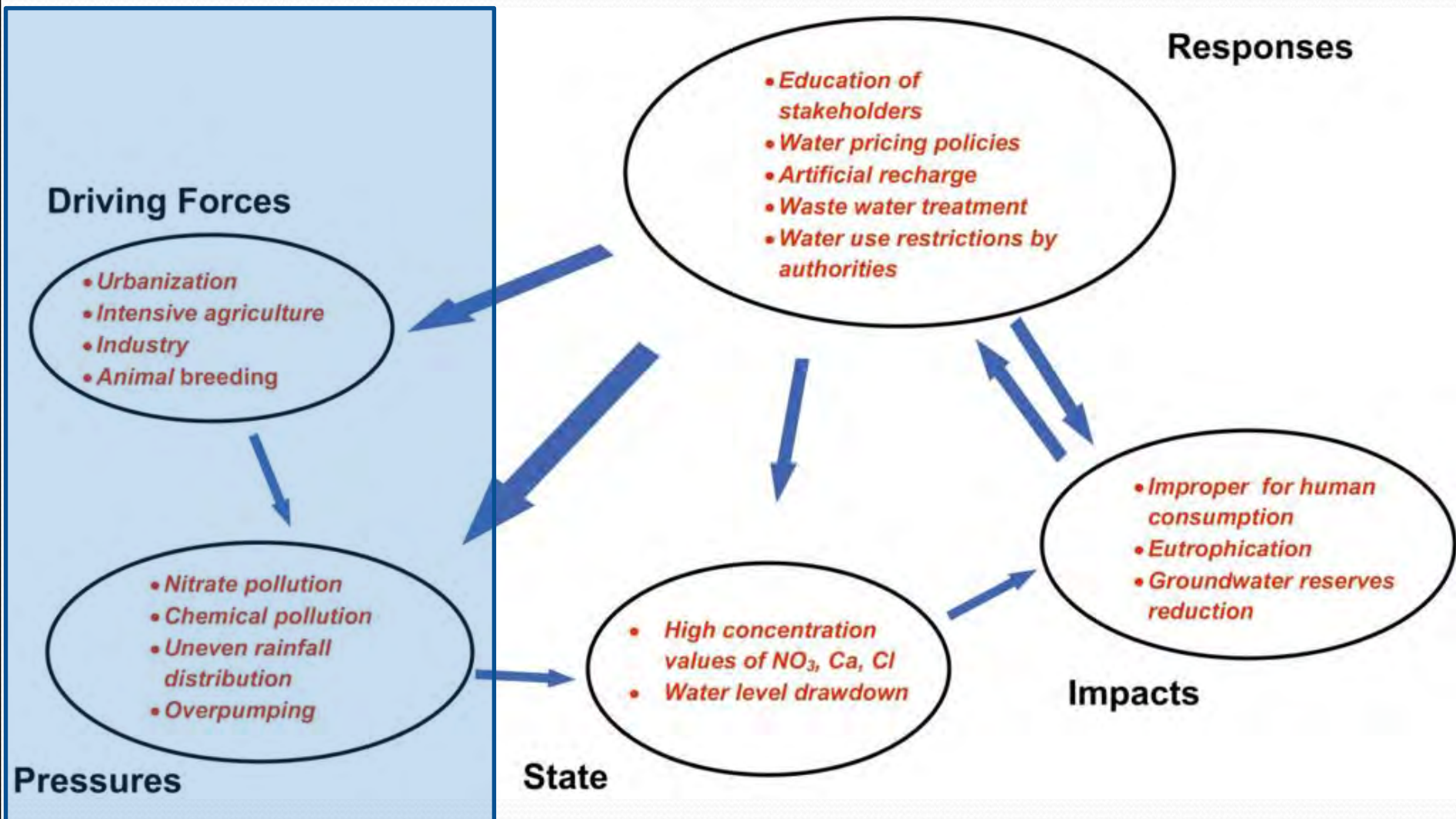


Process of implementation ...

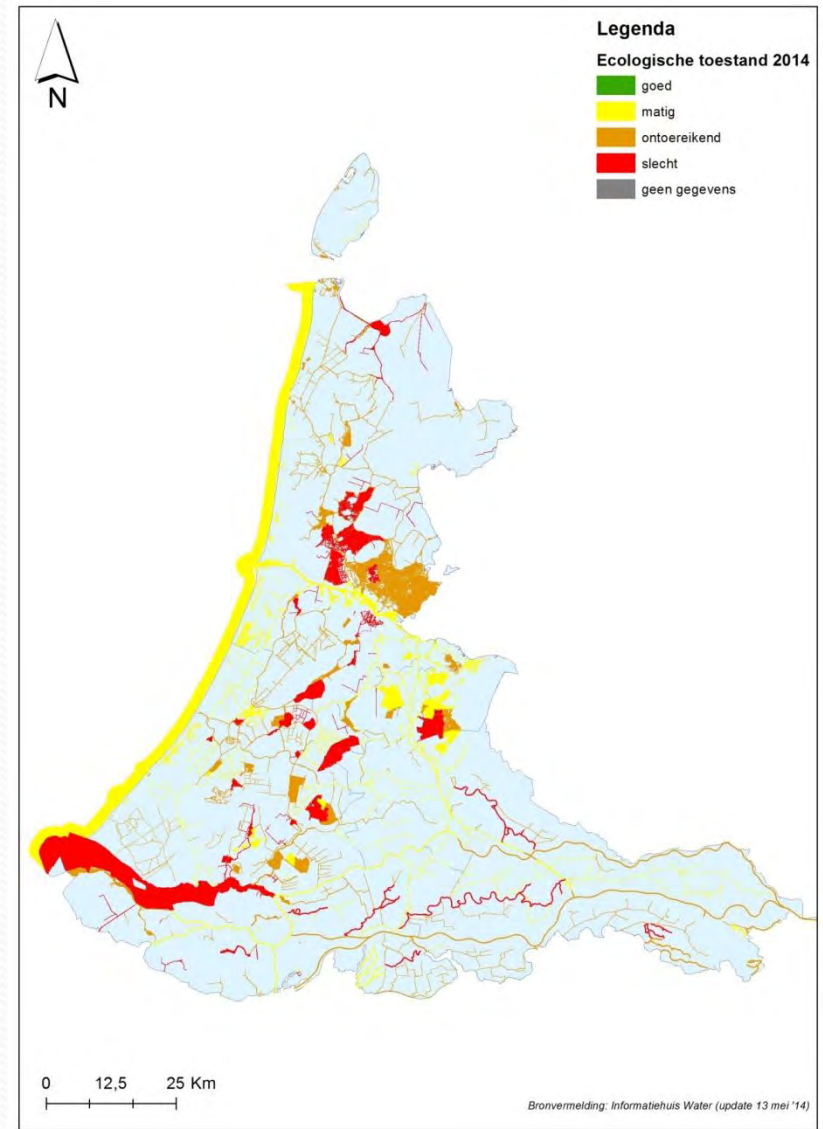
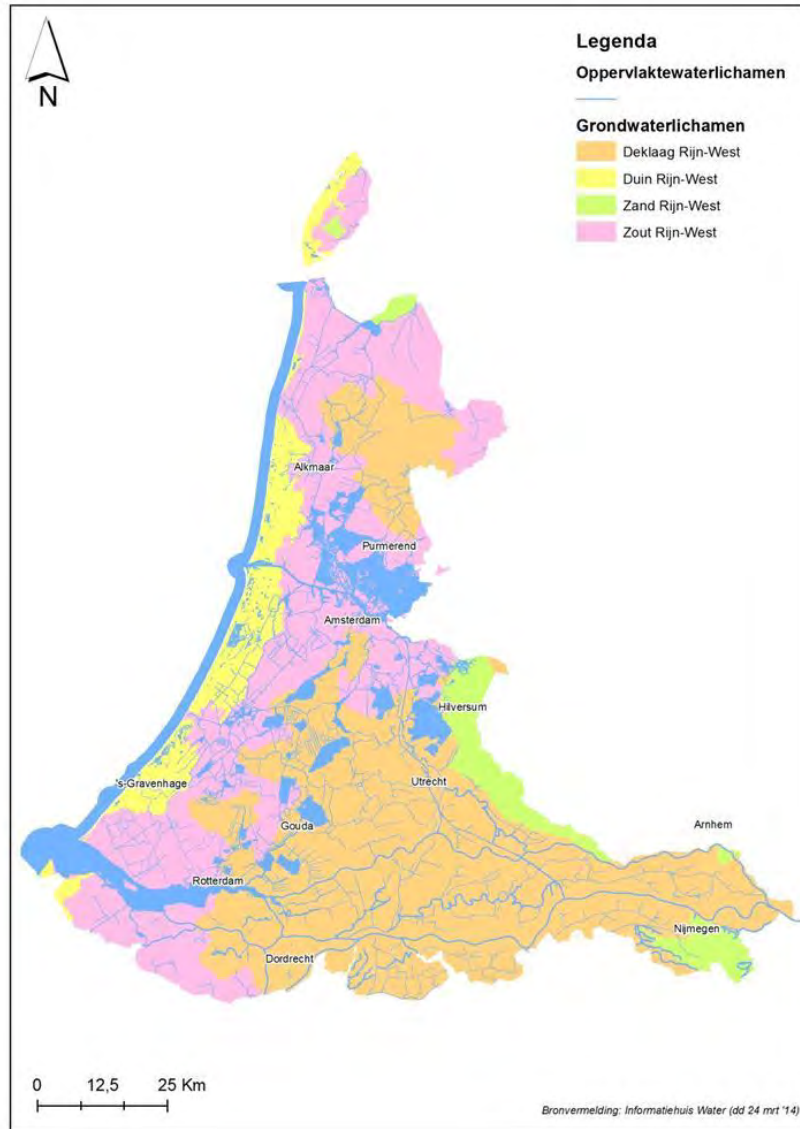
2005 & 2010:
Article 5 report



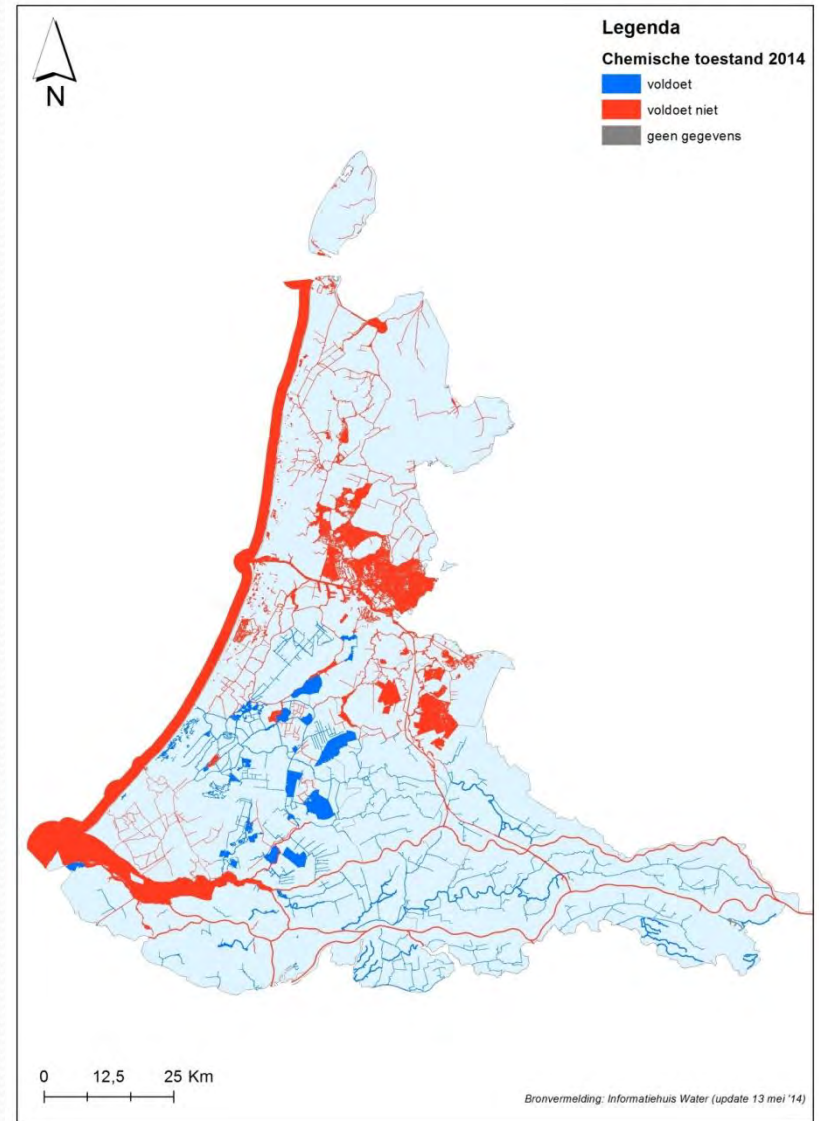
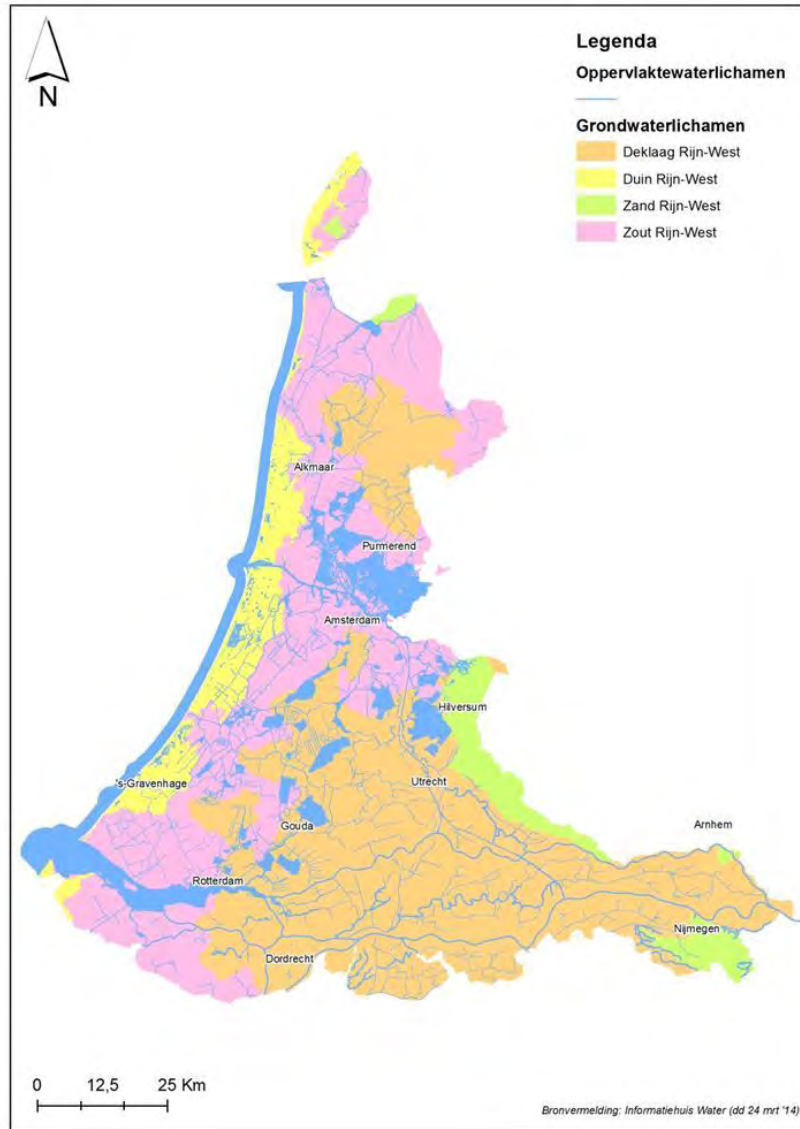
WFD approach – DPSIR



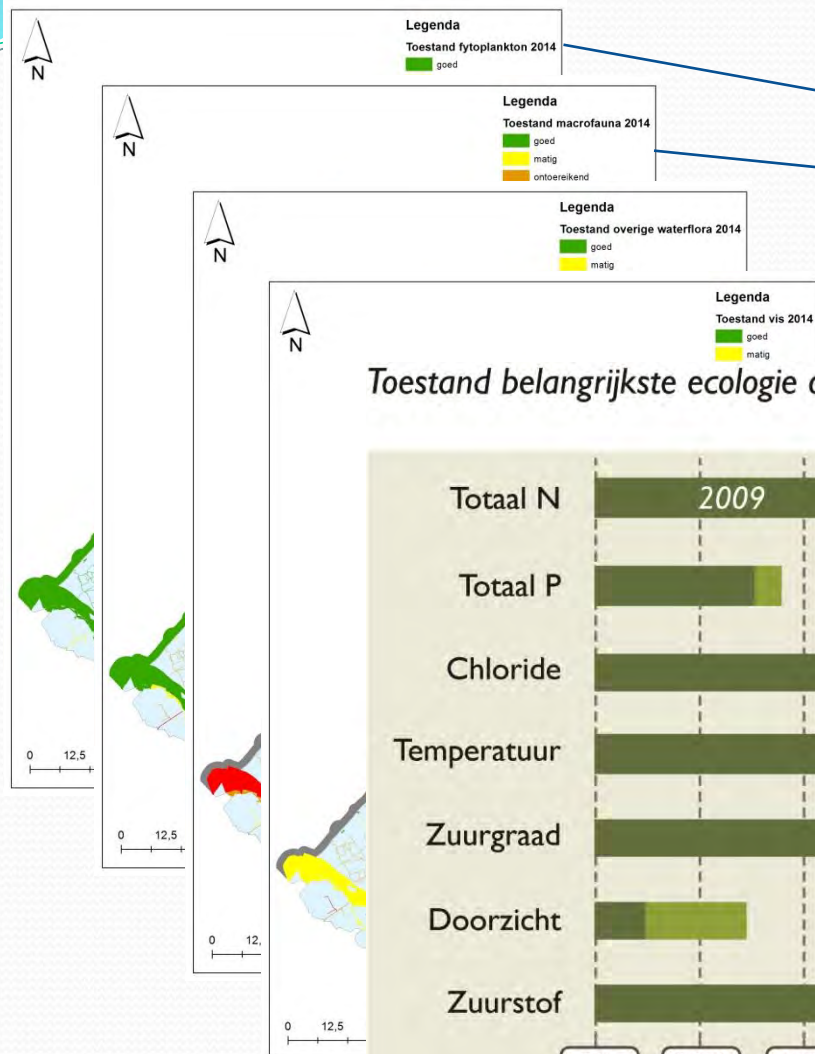
WFD approach – Ecological Status



WFD approach – Chemical status

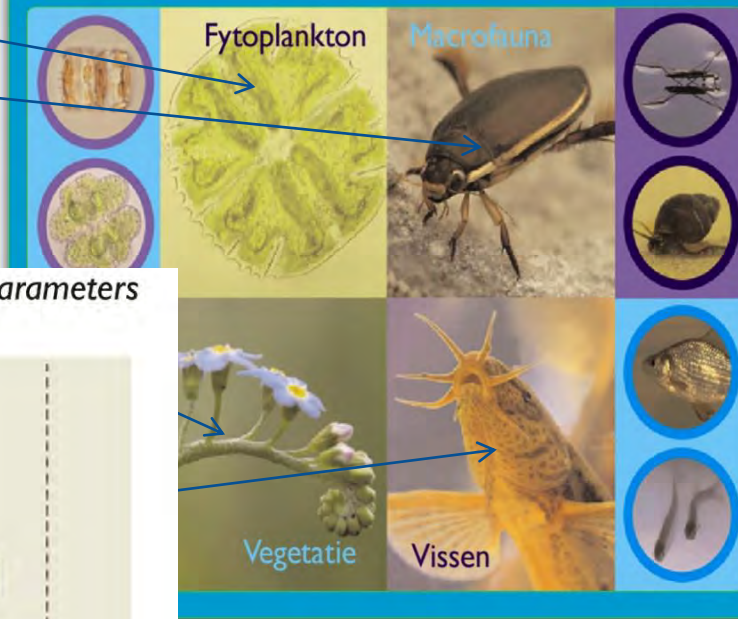


Quality parameters

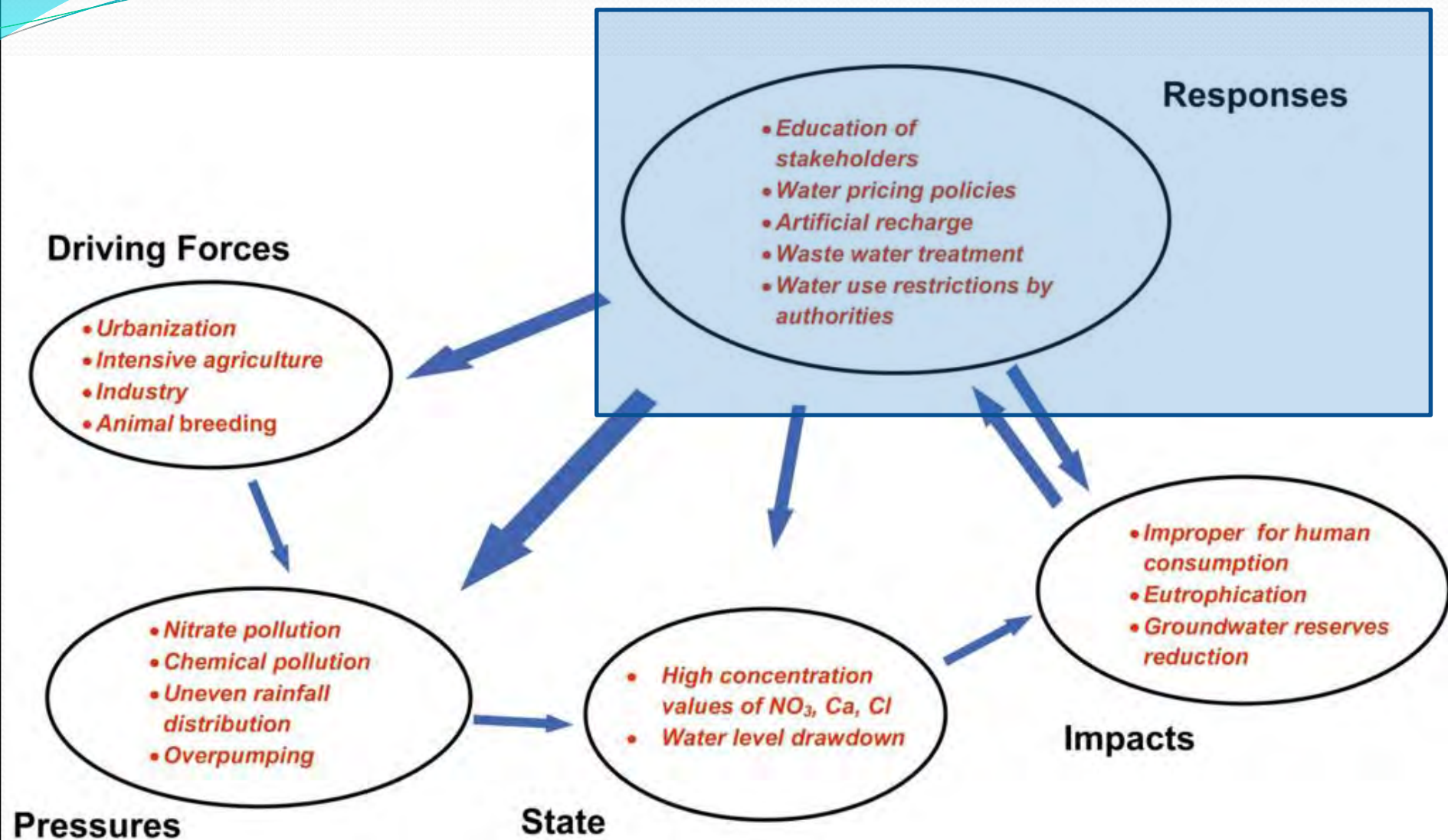


* % van aantal waterlichamen dat aan norm voldoet
N= 252

Biologische kwaliteitselementen



WFD approach – DPSIR



Top 10 WFD measures



Biologisch/ecologisch beheer:
€ 21 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. Agricultural measures
4. Hydrological measures
5. Dredging
6. Prevention drying out of **nature area's**
7. Fish measures (fish passes)
8. Reduction of untreated discharge
9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Aanpassen RVZI / AWZI: € 40 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
Agricultural measures
3. Hydrological measures
4. Dredging
5. Prevention drying out of **nature area's**
6. Fish measures (fish passes)
7. Reduction of untreated discharge
8. **Improvement of waste water treatment plants**
9. Ecological management



Top 10 WFD measures



Opheffen ongezuiverde lozingen:
€ 51 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. Agricultural measures
4. Hydrological measures
5. Dredging
6. Prevention drying out of nature area's
7. Fish measures (fish passes)
8. Reduction of untreated discharge
9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Visstandbeheer: € 63 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. Agricultural measures
4. Hydrological measures
5. Dredging
6. Prevention drying out of nature area's
7. Fish measures (fish passes)
8. Reduction of untreated discharge
9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Bestrijden verdroging: € 75 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. Agricultural measures
4. Hydrological measures
5. Dredging
6. Prevention drying out of nature area's
7. Fish measures (fish passes)
8. Reduction of untreated discharge
9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Baggeren: € 150 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. Agricultural measures
4. Hydrological measures
5. **Dredging**
6. Prevention drying out of **nature area's**
7. Fish measures (fish passes)
8. Reduction of untreated discharge
9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Hydrologische maatregelen: € 164 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. Agricultural measures
4. **Hydrological measures**
5. Dredging
6. Prevention drying out of **nature area's**
7. Fish measures (fish passes)
8. Reduction of untreated discharge
9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Landbouw (functiewijziging): € 168 miljoen

Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
3. **Agricultural measures**
4. Hydrological measures
5. Dredging
6. Prevention drying out of **nature area's**
7. Fish measures (fish passes)
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9. Improvement of waste water treatment plants
10. Ecological management



Top 10 WFD measures



Saneren waterbodems: € 350 miljoen

Top 10 WFD measures:

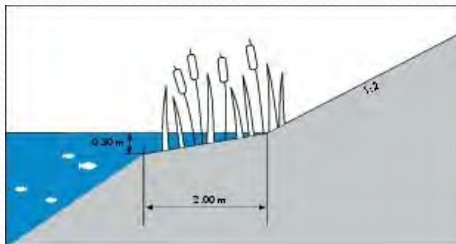
1. Restore natural profile of canals
2. **Riverbed remediation**
Agricultural measures
3. Hydrological measures
4. Dredging
5. Prevention drying out of **nature area's**
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Top 10 WFD measures



Herinrichten watergangen €451 miljoen



Top 10 WFD measures:

1. Restore natural profile of canals
2. Riverbed remediation
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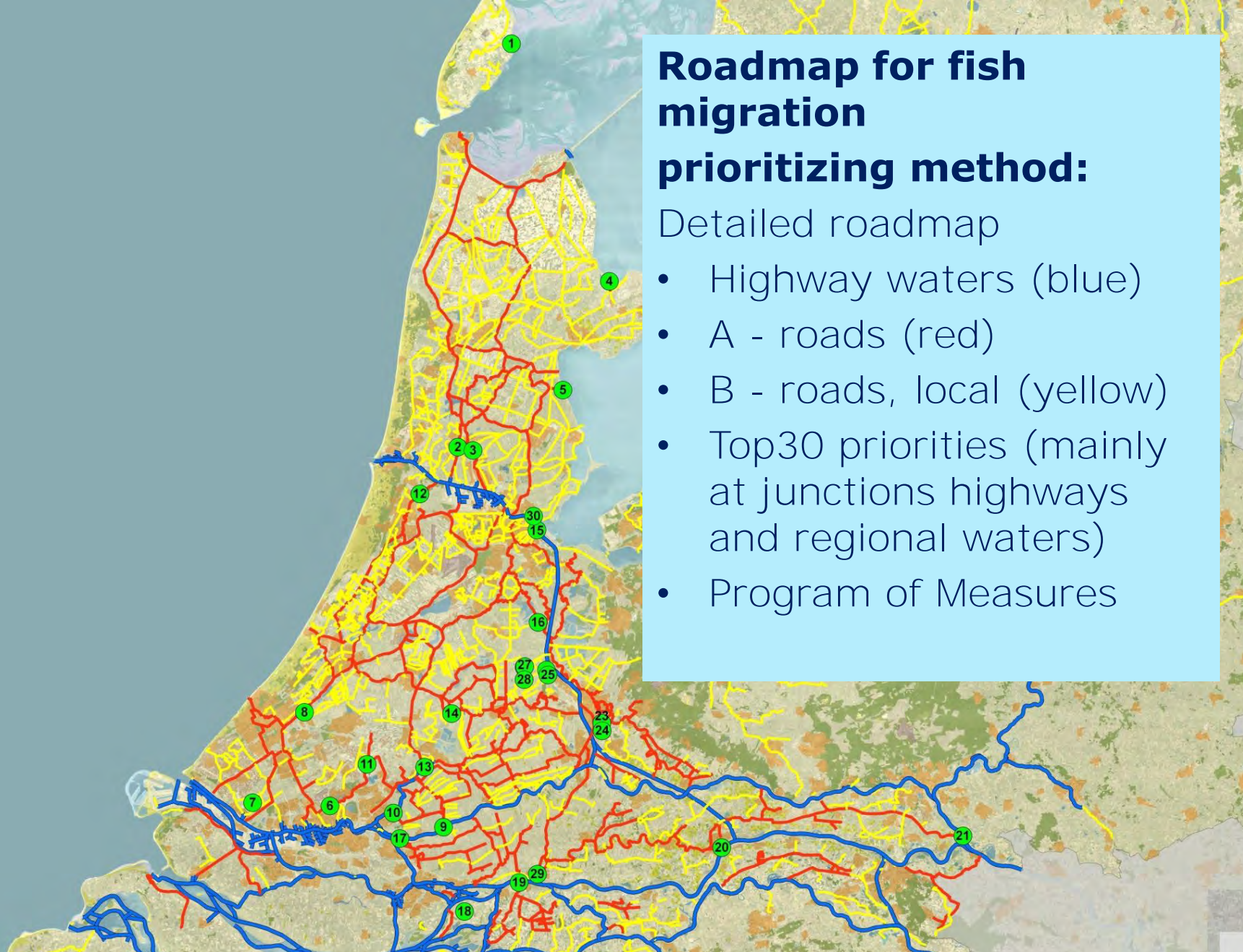


Roadmap for fish migration

prioritizing method:

Detailed roadmap

- Highway waters (blue)
- A - roads (red)
- B - roads, local (yellow)
- Top30 priorities (mainly at junctions highways and regional waters)
- Program of Measures



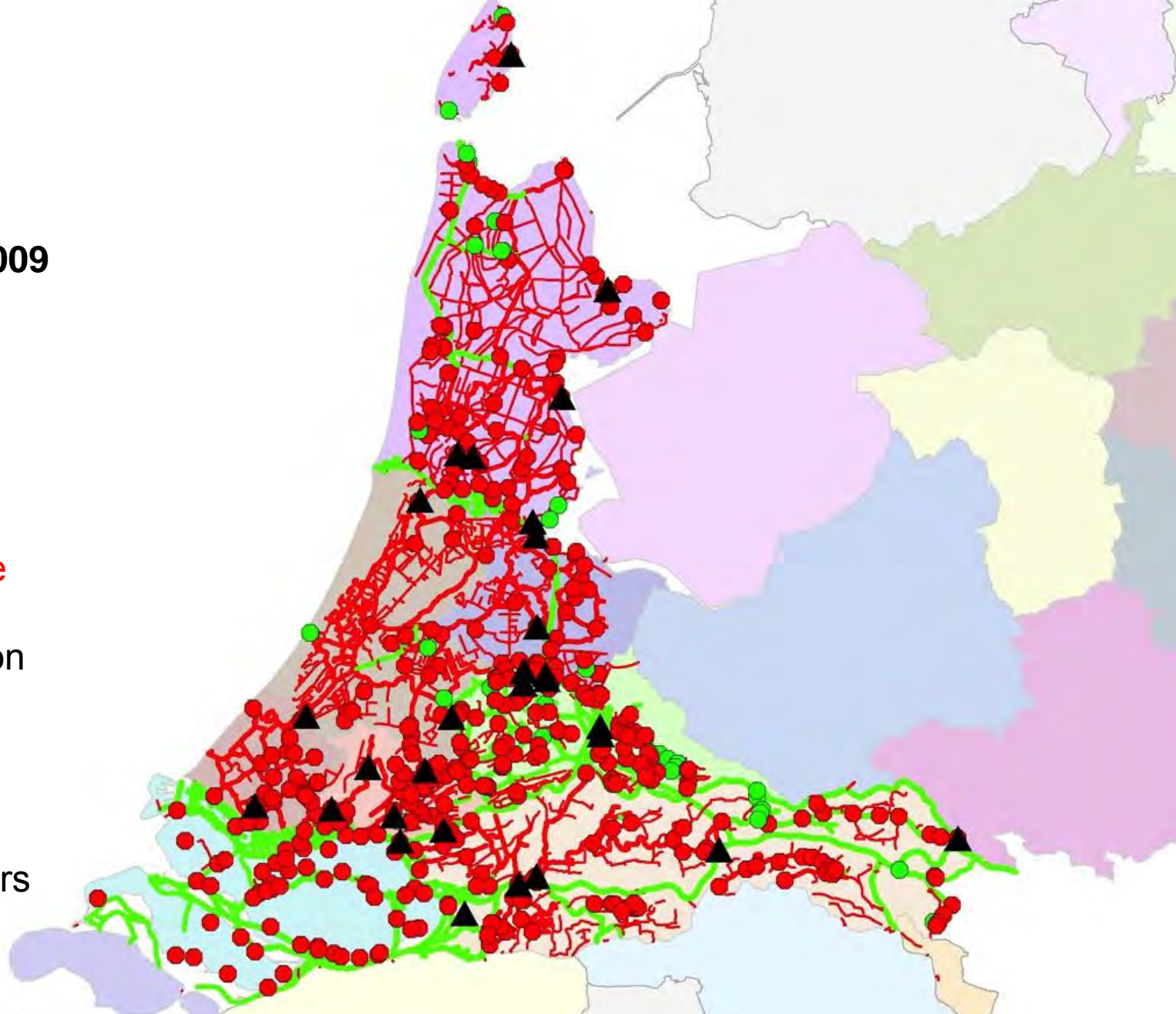
RESULTS 2009

(start WFD1)

Accessible:

Highways

- not accesible
- accessible
- no connection to
- local waters
- good connection to local waters

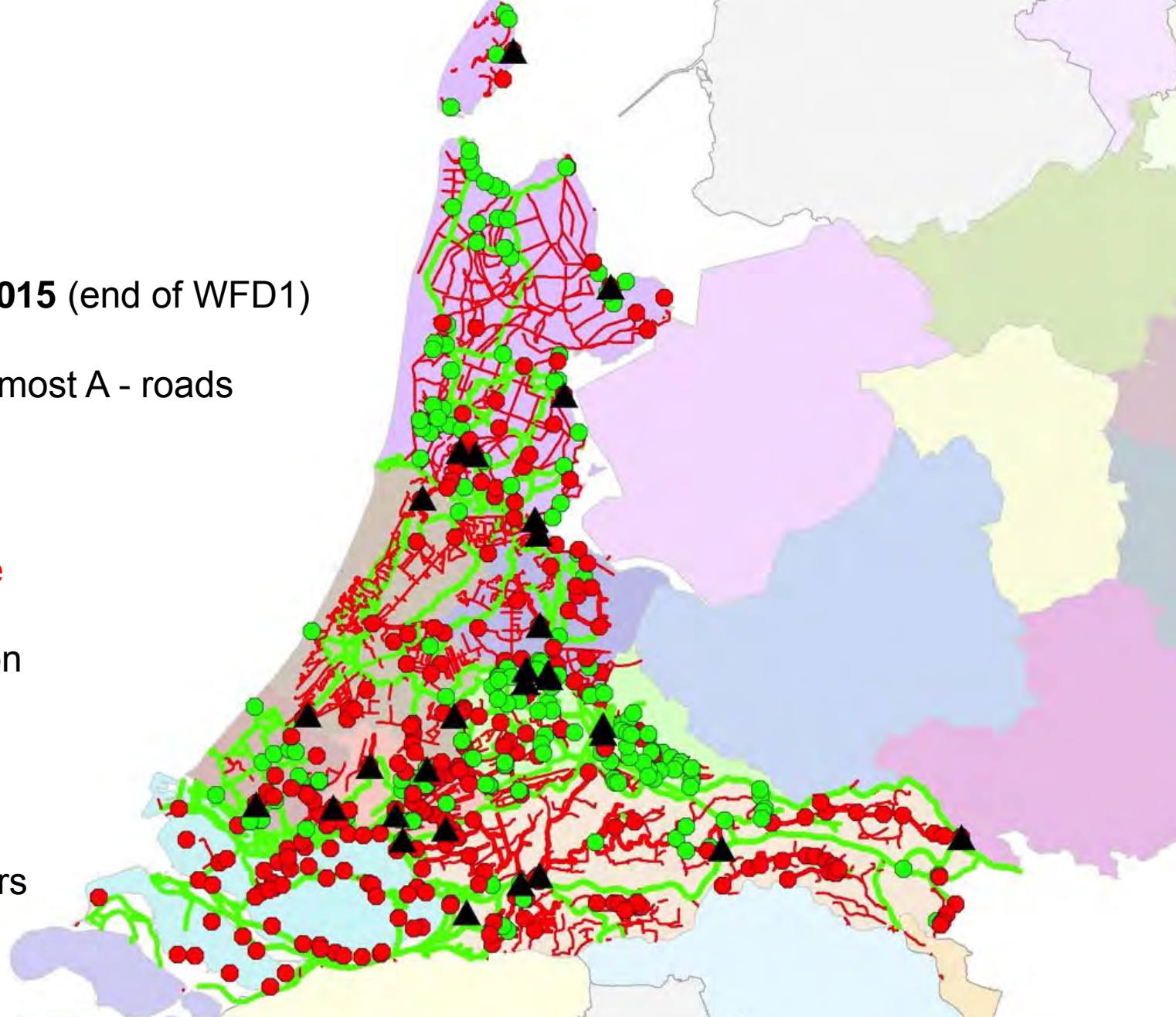


RESULTS 2015 (end of WFD1)

Accessible:

Highways + most A - roads

- not accesible
- accessible
- no connection to
- local waters
- good connection to local waters



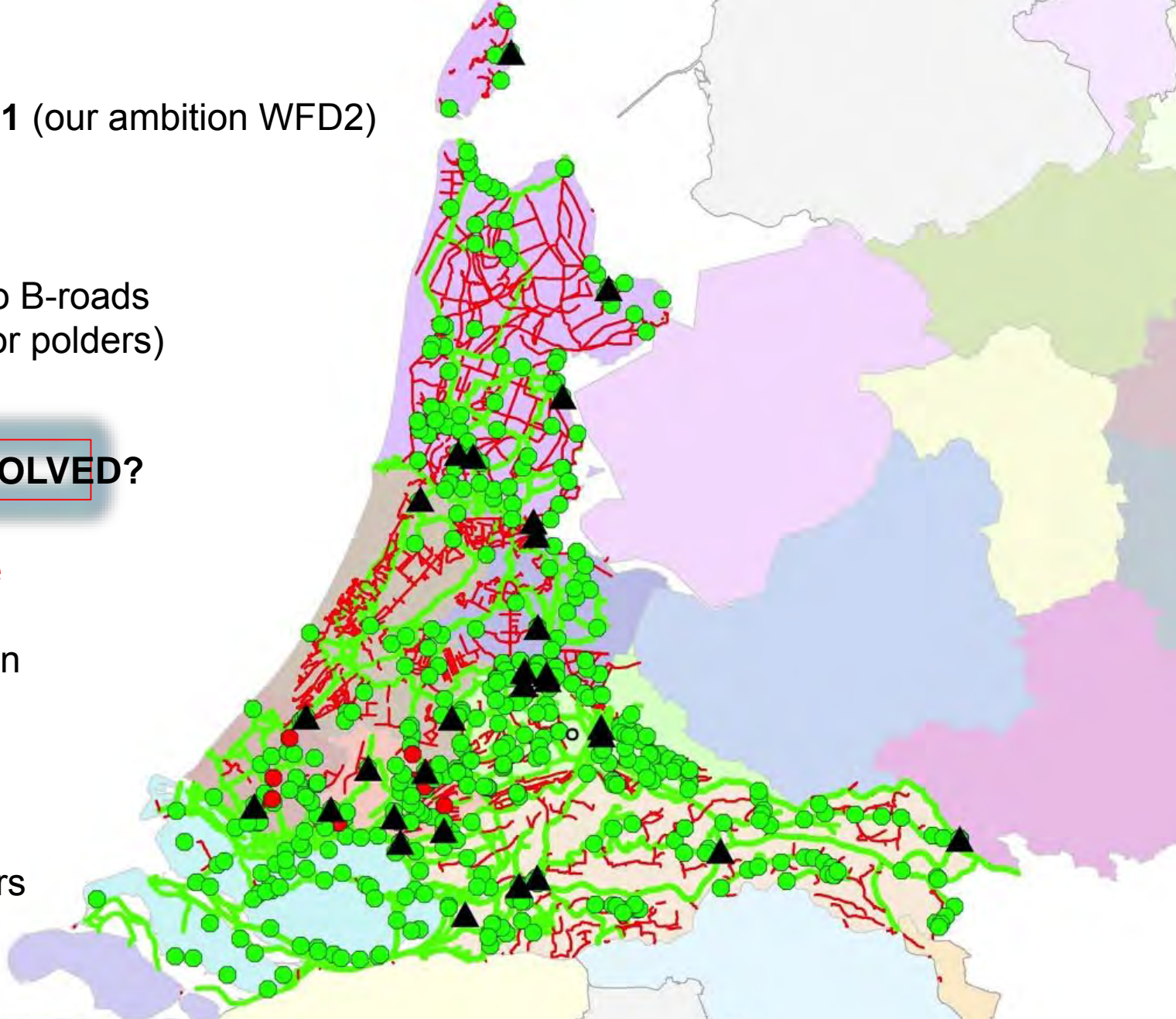
RESULTS 2021 (our ambition WFD2)

Accessible:

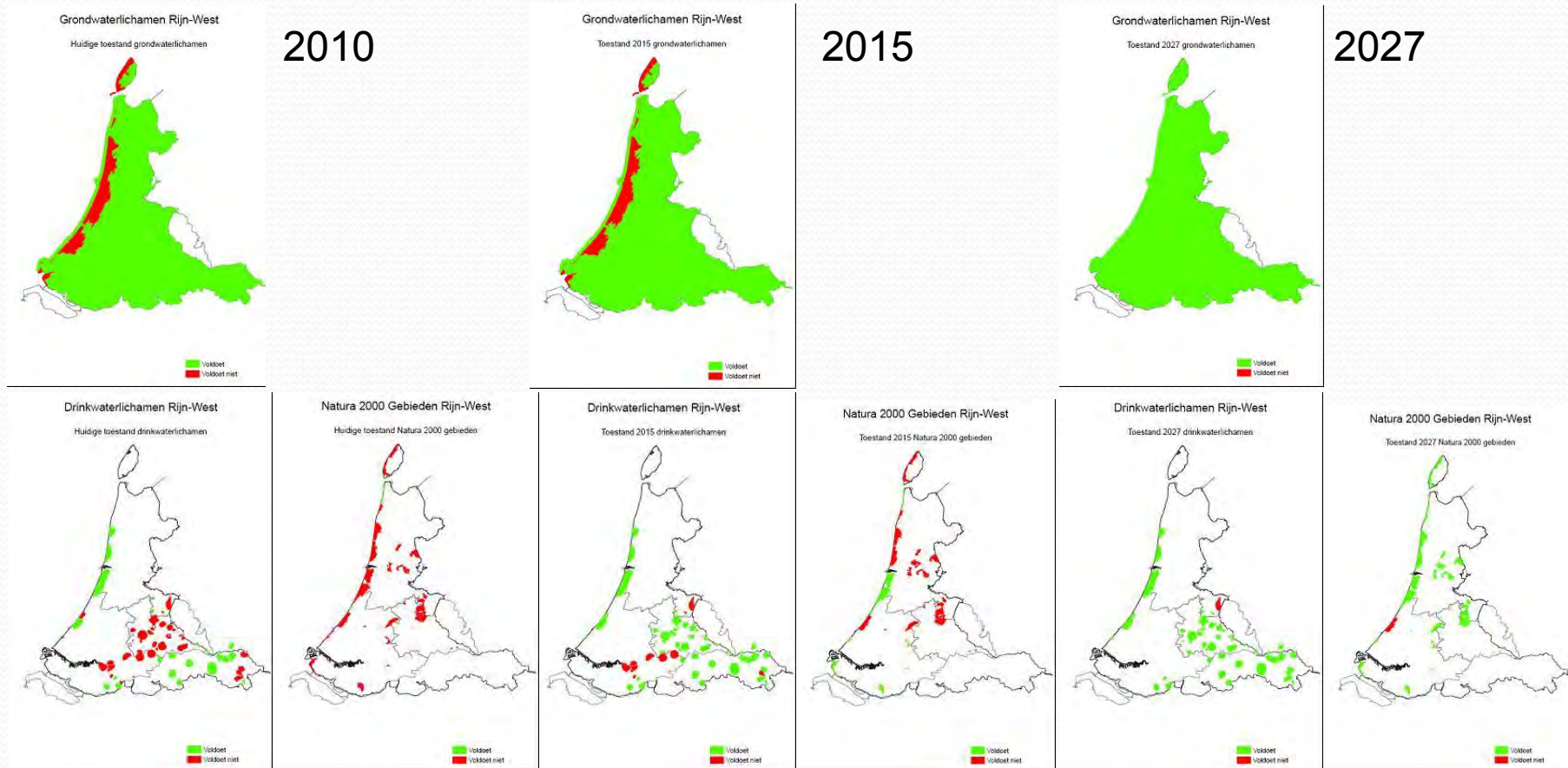
- Highways
- A-roads
- Connection to B-roads
(local waters or polders)

PROBLEM SOLVED?

- not accesible
- accessible
- no connection
to
- local waters
good
connection
to local waters

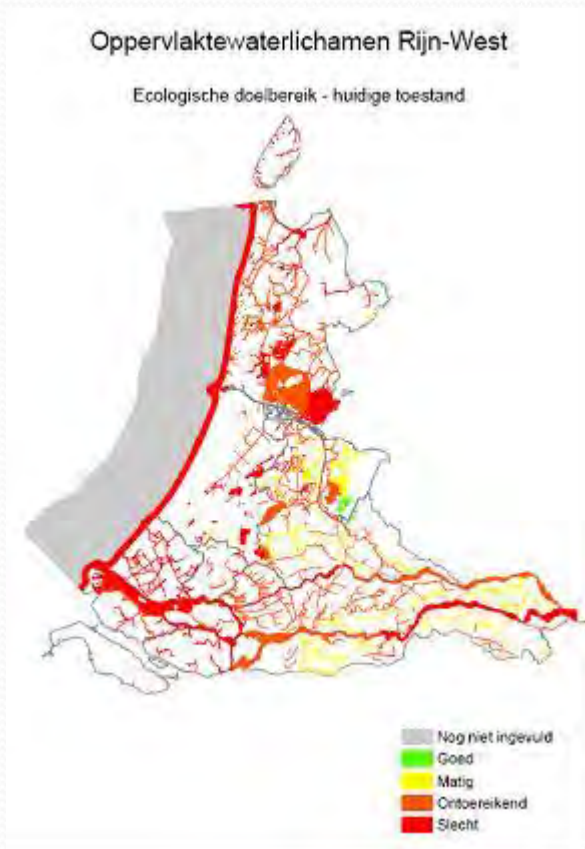


Improvements in ground water

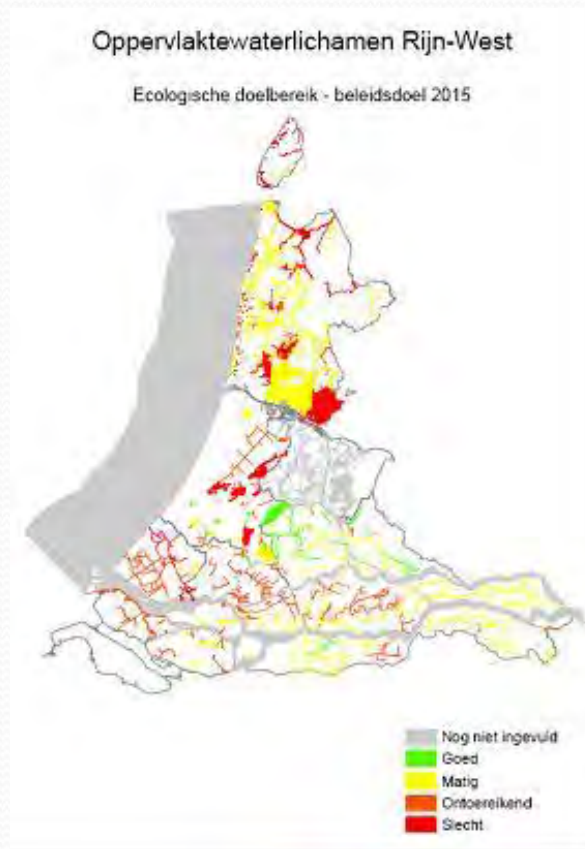


Improvements in surface water

2010



2015



2027



Investment in water management

Water safety & water supply – 737 million € / year
Water quality – 1,472 million € / year

Water quality

Operations & maintenance
Waste water treatment plants - 630 million € / year

Operations & maintenance
sewer system - 777 million € / year

Additional WFD measures
(2016 – 2021) - 65 million / year

Expected increase in water
service fee's

- 1 % (municipalities)
- 1,5 % (waterboards)



Regional Administrative Consultations

In the Rhine-West sub basin, two ministries, four provinces, eight water boards and representatives of one hundred and eighty municipalities work together in the Regional Administrative Consultation.



| Provinciegrens | Waterdistrict Rijkswaterstaat |
|-----------------------------|---------------------------------------|
| Waterschap | Regionale dienst Noordzee |
| Deffland | Waterdistrict Boven-Rijn en Waal |
| Hollands Noorderkwartier | Waterdistrict Haringvliet |
| Hollands Delta | Waterdistrict IJsselmeergebied |
| Rijndam | Waterdistrict Merwede en Maas |
| Rivierland | Waterdistrict Nieuwe Waterweg |
| Schieland en Krimpenerwaard | Waterdistrict Nijmegen-Maas |
| Stichtse Rijnlanden | Waterdistrict Noord-Holland |
| Watermet | Waterdistrict Rijn en Lek |
| | Waterdistrict Twentekanaal-Liseldelta |
| | Waterdistrict Utrecht |
| | Waterdistrict Waddenzee |



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- **Conclusions and personal experiences and observations**
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Conclusions (1) – How do we keep governments committed ?

1. **Transparency is vital for river basin management**: transparent objectives and targets, result-oriented agreements, transparency in process and pre-defined monitoring are vital conditions for RBM.
2. **Top down and bottom-up**: the WFD sets the outline of the water objectives and targets (top down), but the details are defined at the regional level (for each water body).
3. **Work on realistic ambitions**: by phasing the implementation, the ambition becomes more realistic and the parties in question remain motivated and involved.
4. **Top down 'pressure' (the result obligation)**: the implementation of the measures to obtain the targets is subject to a result obligation, with a European Court of Justice penalty as the ultimate deterrent.



Conclusions (2) – How do we keep governments committed ?

5. **River basin approach is a necessity for water quality**: water quality does not respect official administrative borders between countries or provinces.
6. **Cooperation at the river basin yields results**: even in a large sub basins such as Rhine-West, it has proved possible to reach effective agreements regarding a complex subject.

Important factors that ensure the success of collaboration include also working on a joint PoM (part of the RBMP) and a clearly defined RBM governance.

7. **Awareness of the values of clean and healthy water**: it is now broadly recognized that a healthy water system is essential for economic and social development.

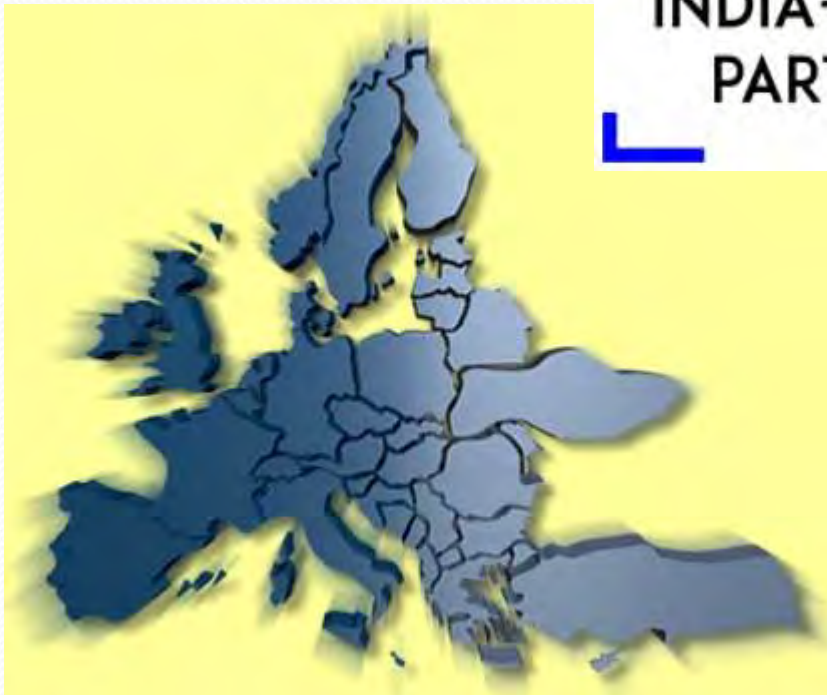


Conclusions (3) – incentives for non-governmental sectors ?

8. **Proper water quality legislation**: important incentive for different sectors is of course proper legislation in which the WFD objectives and targets are incorporated.
9. **Cooperation at the river basin level yields results**: the understanding of the importance of a sound water system is a major incentive for sectors to work on water quality management.
10. **Participation boosted communication on water quality**: the need to communicate about the WFD activities and products has boosted communication about water quality. This strengthens the support for implementing the measures.



The WFD has resulted in successful water policy in Europe and presents an opportunity for India ...



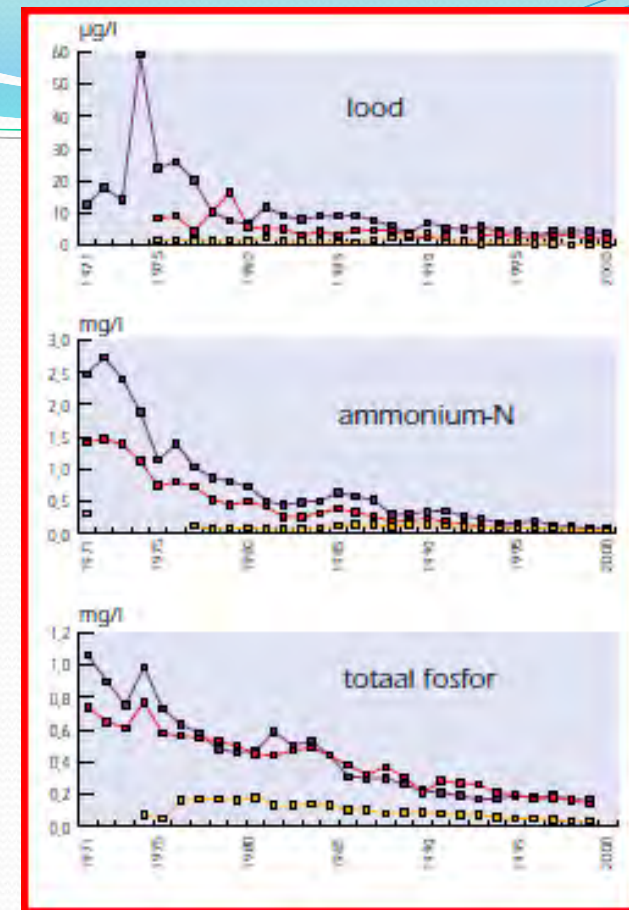
**Thank you for your
attention and I wish
you a very interesting
seminar ...**





Major problems in the Rhine basin

- Eutrophication, heavy metals, **PAH's** and (other) priority substances
- Groundwater: nitrates are the main problem for groundwater quality
- 95% of the waterbodies are **"at risk"** of not achieving Good Ecological Status in 2015



Water Governance: who is responsible & pays

National

National Policy

Main Water System (**tax**)

Provincial

Drinking water (protection)

(12)

Regional spatial planning

Groundwater levee

Waterboard

Regional water management

(24)

Urban waste water treatment

Water system & treatment levee

Municipalities

Sewerage system

(>400)

Spatial planning at local level

Sewerage levee

Drinking water companies (10): 1.5 €/m³

Consultations must be conducted in such a way that these result in an effective implementation of the measures.



That is the challenge ...



Stakeholder Consultations

- Drinkwater companies
- Representatives from farmer organizations
- Chamber of Commerce
- **Environmental NGO's**
- Representatives of industry
- Representatives of the Fishery sector
- Port of Rotterdam

The Stakeholder Consultations consists of representatives of civil-society organizations and the business community. The Stakeholder Consultation is led by an independent chair, who is also an advisory member of the RAC.

