Institutional aspects of monitoring

Maarten Hofstra

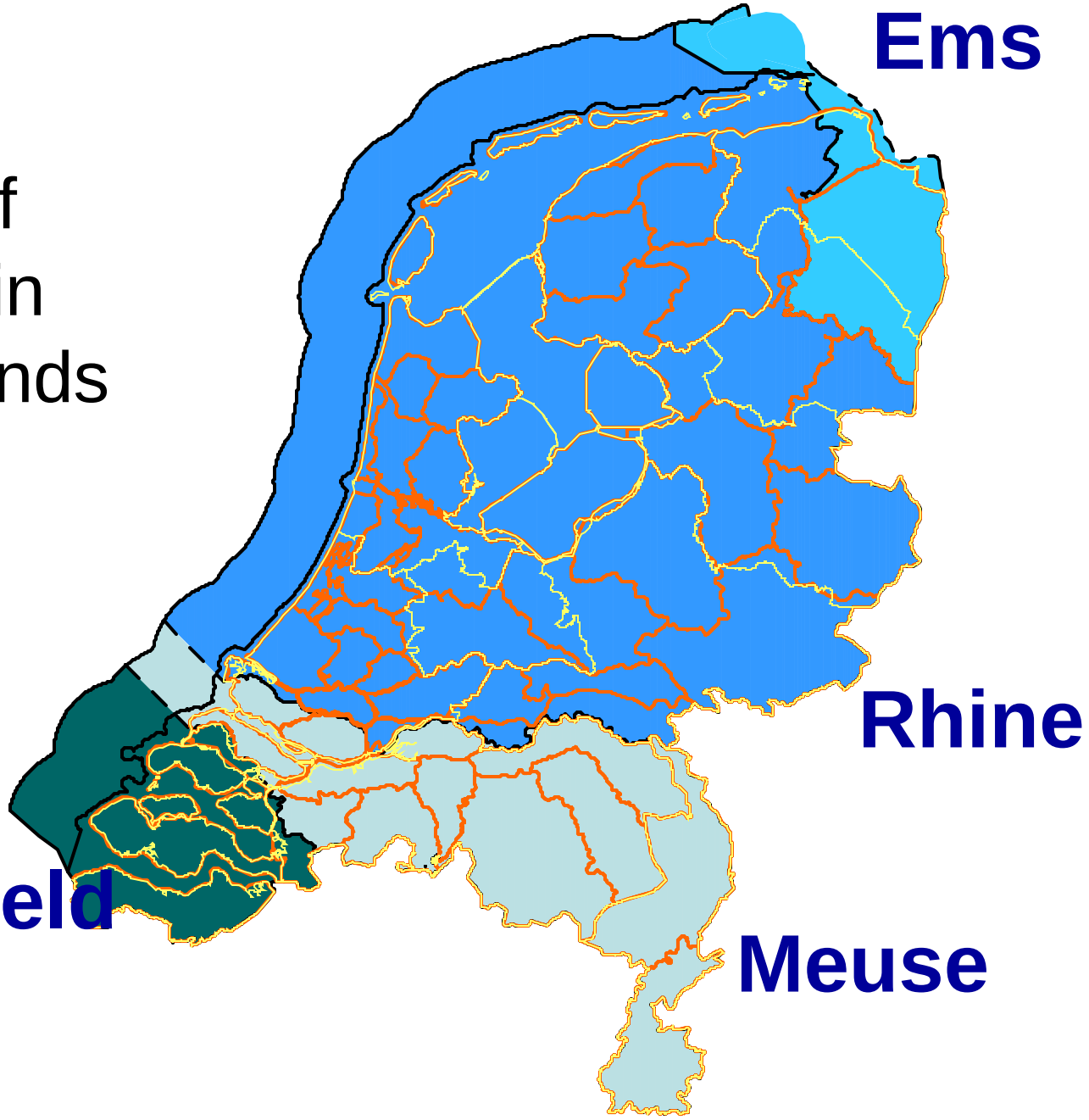
Rijkswaterstaat

Unesco-IHE

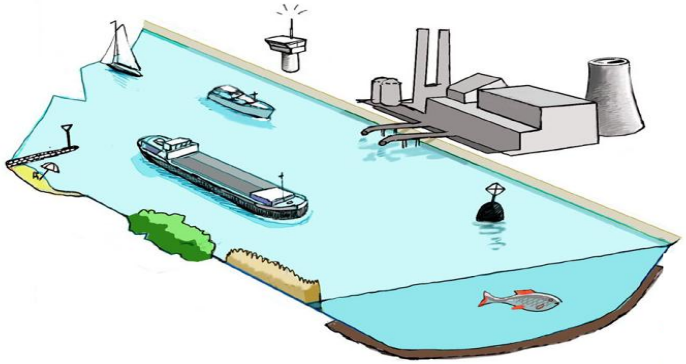
Water Govenance Centre NL

The public and scientists

Monitoring of river basins in the Netherlands

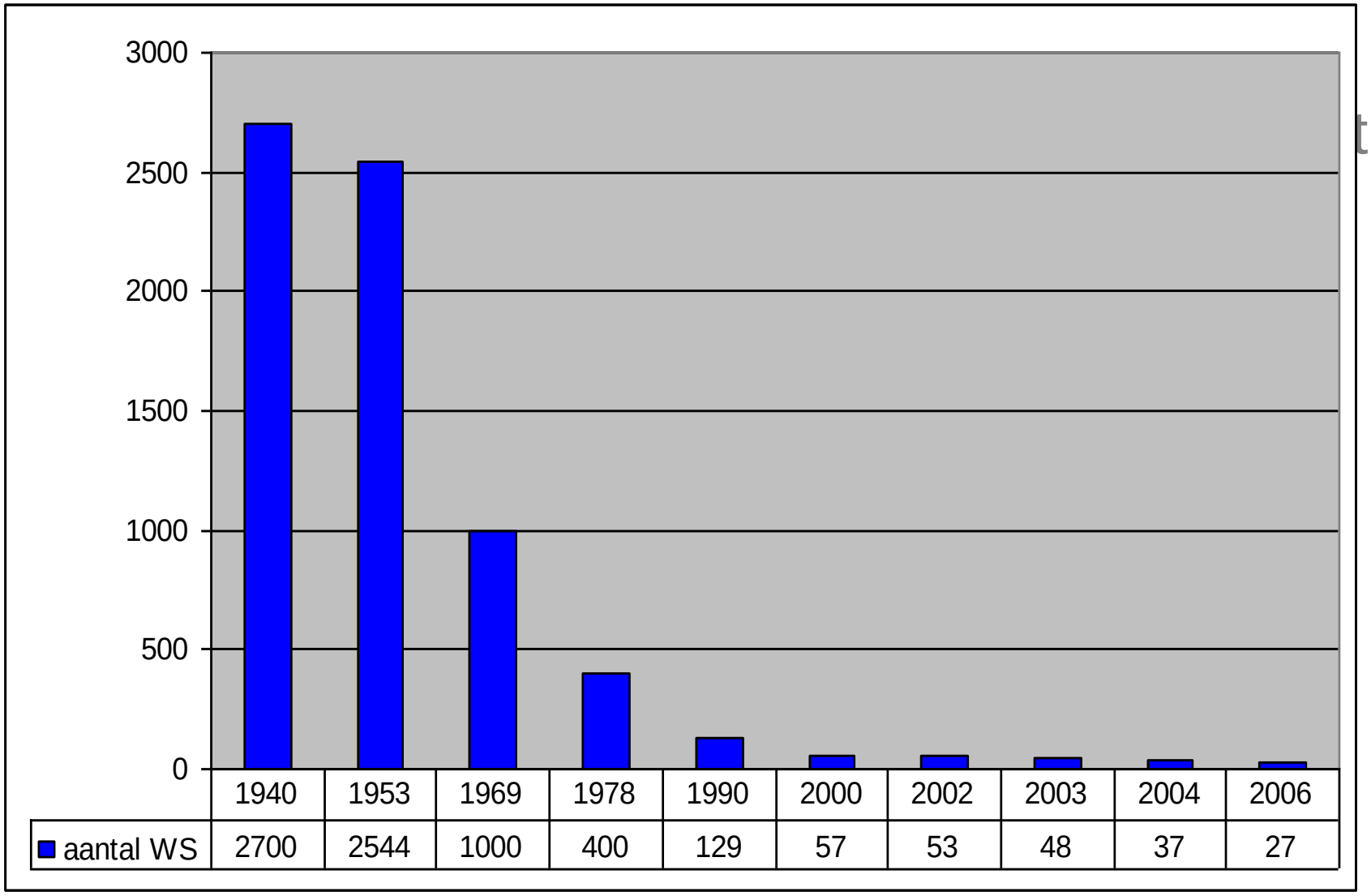


Water management



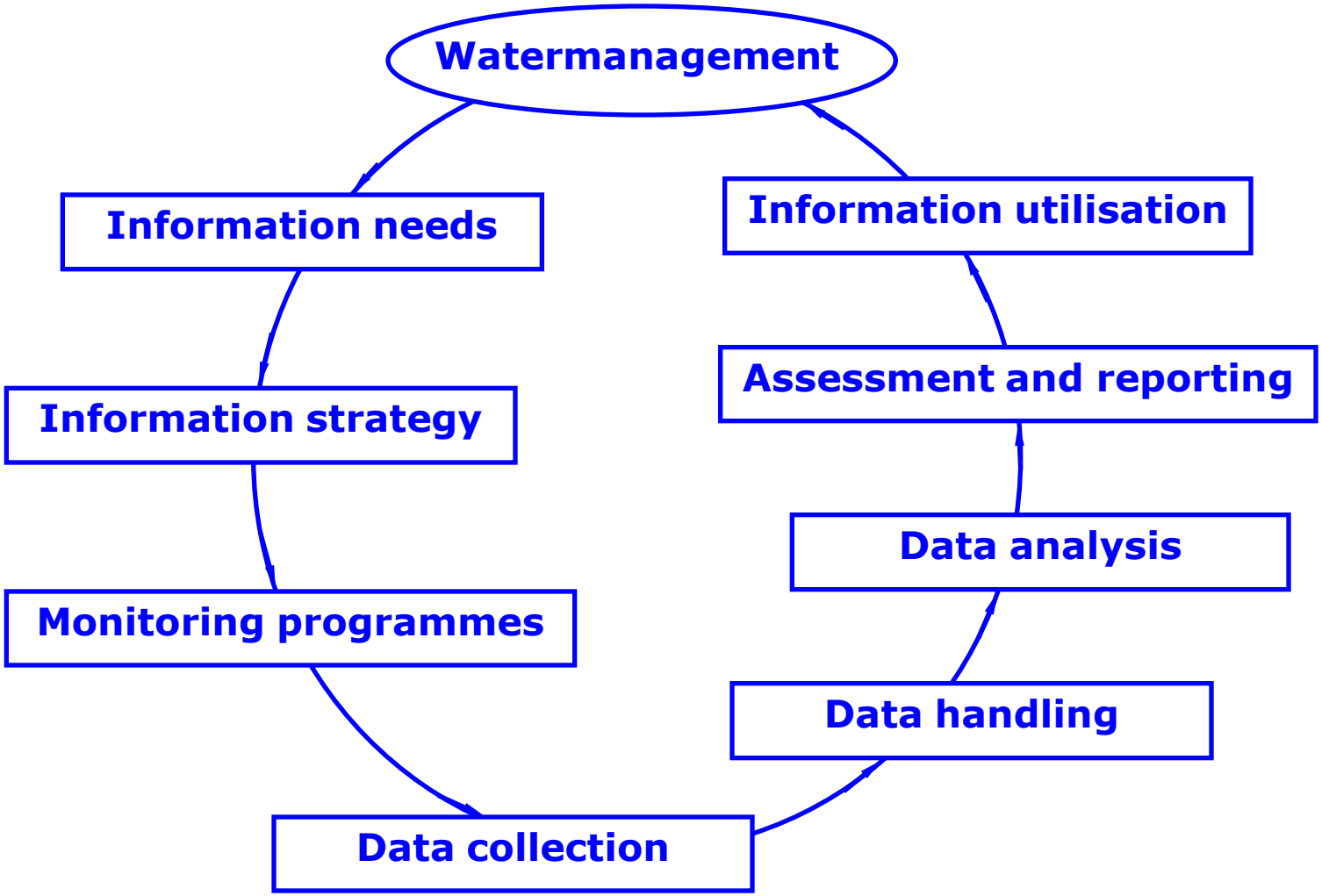
Main rivers, big canals, large lakes and the sea managed by de (deconcentrated) State organization

Waterschappen (25)



	1940	1953	1969	1978	1990	2000	2002	2003	2004	2006
aantal WS	2700	2544	1000	400	129	57	53	48	37	27

Monitoring cycle

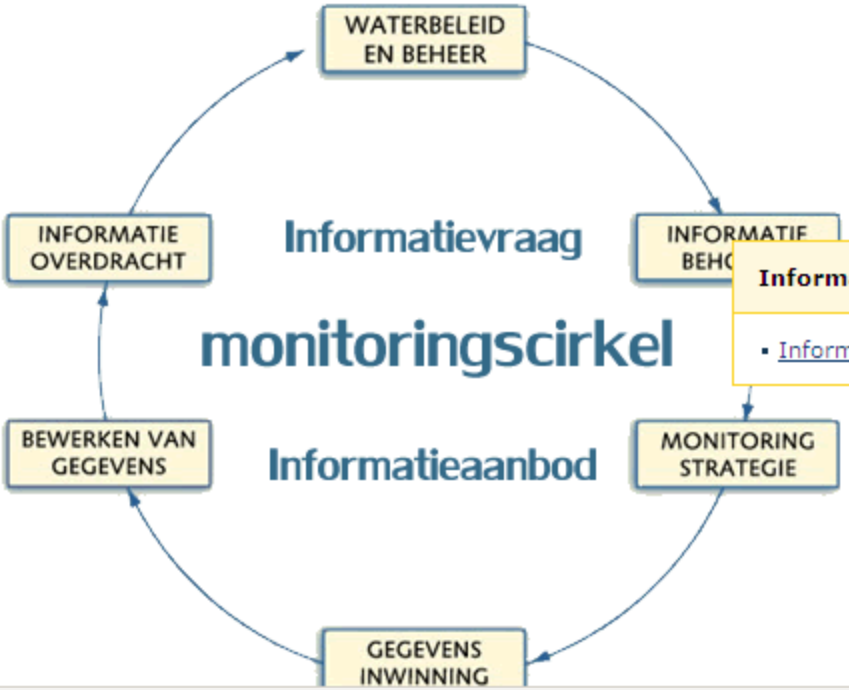


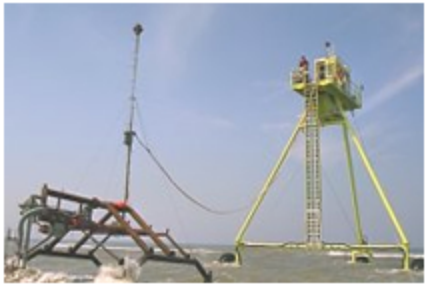
Helpdesk Water

Homepage > Onderwerpen > Monitoring > Leidraad monitoring > Monitoringscyclus

Monitoringscyclus

Door op de procesvakken in onderstaand figuur te klikken komt u gelijk bij de juiste informatie.





stel ons een vraag

Documenten

Informatiebehoefte

- Informatiebehoefte

Eindrapport Leidraad Monitoring Gewasbeschermingsmiddelen [Pdf-bestand] (1 mb)

Handboek voor de provinciale en landelijke meetnetten bodem- en grondkwaliteit [Pdf-bestand] (4 mb)

Developing monitoring networks

- Physics network – since ± 1800
- Chemical monitoring network – since 1952
- Automated water quality monitoring network - early warning – since 1978
- Biological monitoring network – since 1992

During the years: Many evaluations and redesigns

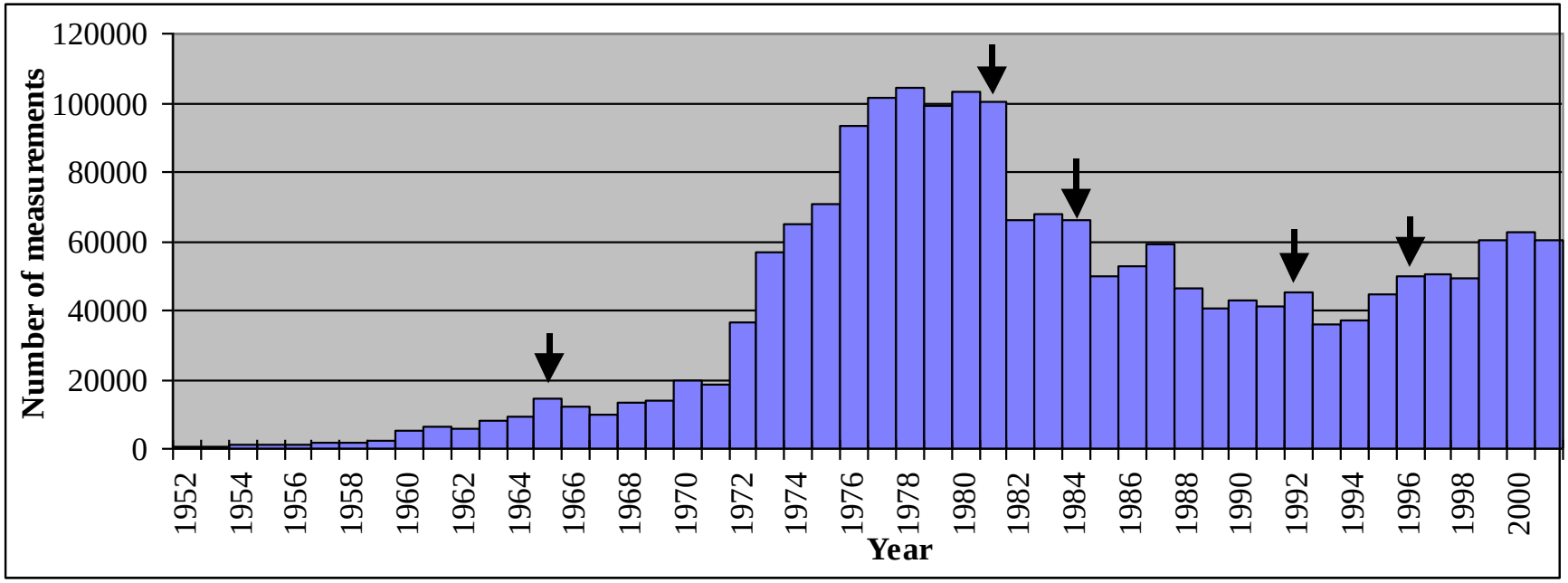
Water quality monitoring: optimisation studies

Year	Description
1965	Statistical analysis: • Subsequent monitoring locations in rivers highly correlated • A sampling frequency set to once per two weeks
1978 - 1981	Statistical analysis: • A monitoring network with few locations and a high sampling frequency would yield more information than a network with much locations and a low frequency
1984	Attuning to new water quality plans, changed legislation and a new water management policy document
1991 - 1992	Information needs and statistical analysis • Low sampling frequencies not suitable for detection of significant trends • Large reduction in monitoring locations and a radical change in choice of parameters
1996	The study has led to some changes in the choice of parameters.

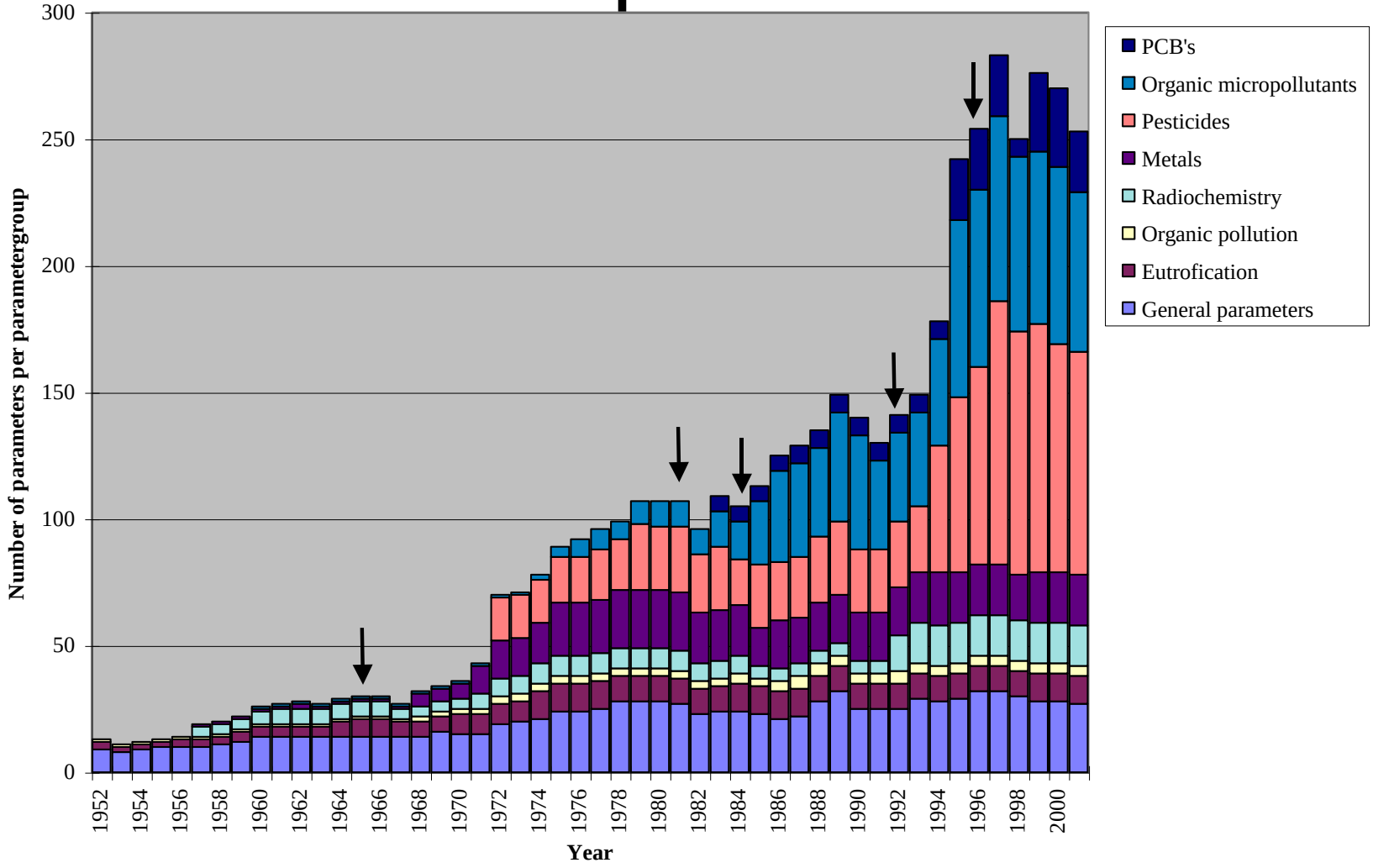
Monitoring locations in the Netherlands

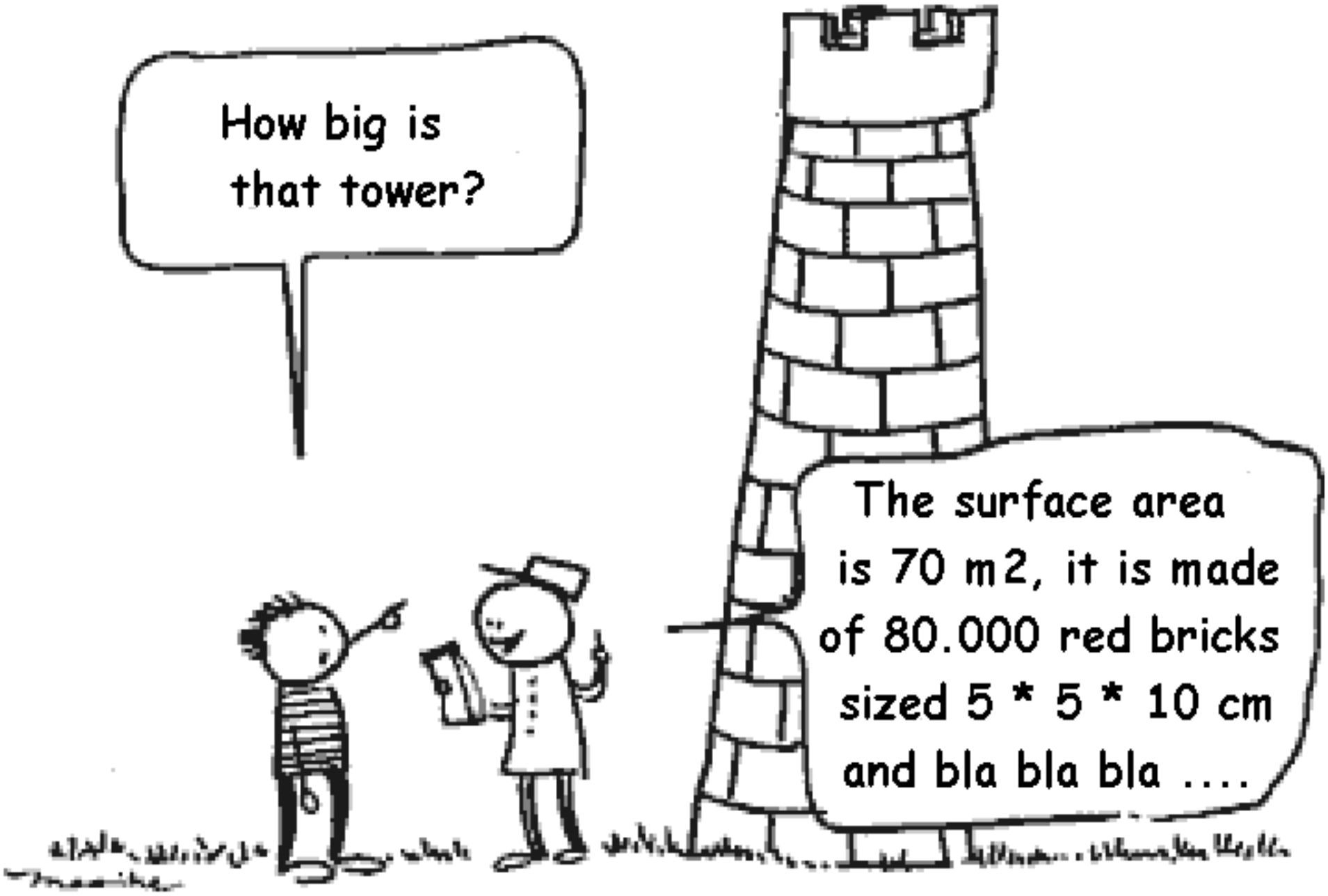
National Water Quality Monitoring network

Number of measurements



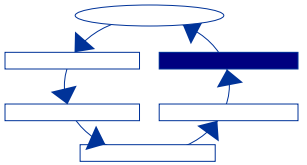
Number of parameters





What kind of information do you really want?

The specialist



Index or indicator

Incentives

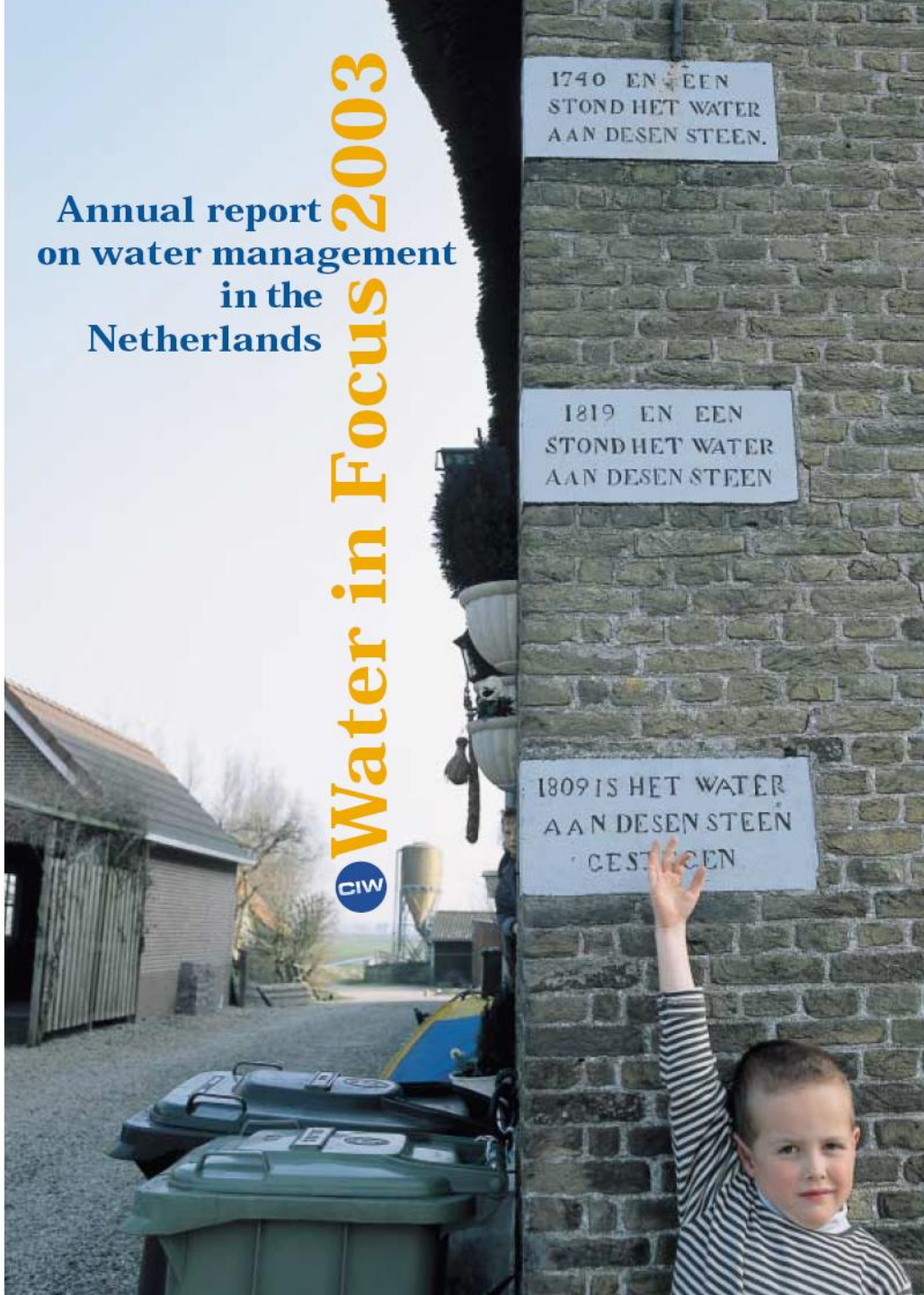
- Nothing goes without an incentive

Products

- Obligations by law
  - Report to the national parliament
  - Policy making and evaluation
- International obligations and cooperation's
  - Rapports for river committees, OSPAR, EU (WFD)
- national appointments:
  - RIWA (drinking water) rapports Meuse en Rhine
- Water system rapports (integral view of the state and trends of water systems)
- Rapports from projects: search and signaling new substances

  e.g. Pollution of the Meuse by Glyfosate (a herbicide)

Annual reporting to parliament



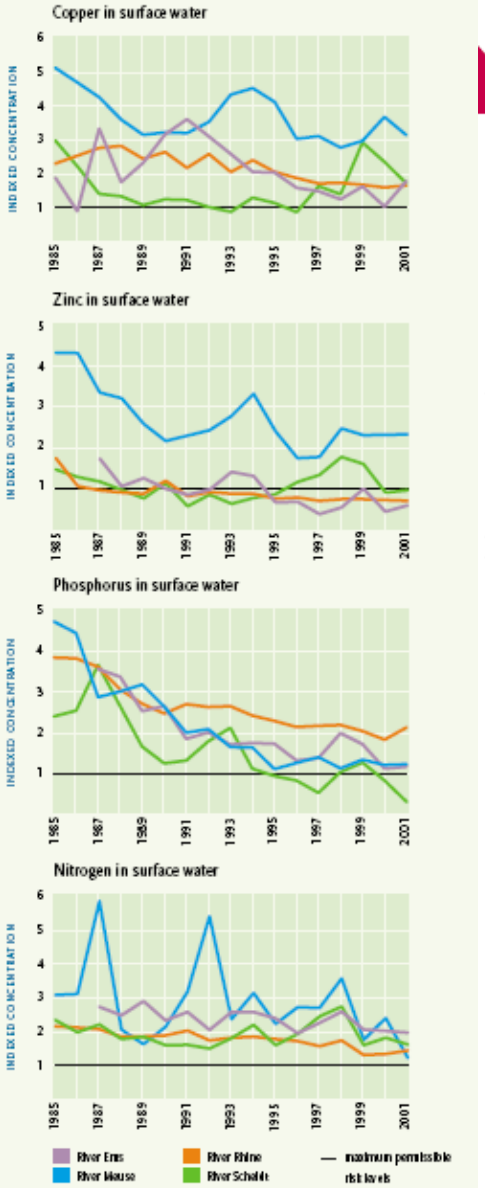
Other chemical substances, the concentrations of which greatly exceed the target values, include polychlorinated biphenyls (PCBs) and pesticides, the most important of which is triphenyltin (TPT). In some saltwaters, TPT concentrations were 100 times higher than the maximum permissible risk level. Frequently used in potato growing. TPT is not easily degradable. The concentrations of tributyltin (TBT), a chemical substance used in anti-fouling paint on ships longer than 25 metres, exceed the maximum permissible risk levels by more than 300 times. To solve this problem, the *International Maritime Organisation* (IMO) reached an agreement regarding a ban on the use of TPT on ships starting in 2003. The concentrations of the pesticides diuron, simazine and metolachlor exceed the target values in the coastal waters and the saltwater delta. In recent years, the concentrations of most of the chemical substances have not decreased at all or only slightly. Accordingly, the target values are not expected to be met by 2015.

Water quality trends in the catchment areas
The figures present the concentrations, expressed as a factor indicating the extent to which the standard (indexed concentration) is exceeded. This clearly shows the degree to which the recorded concentrations exceed or fall below the standard. The information is presented according to international catchment area as outlined in the *Water Framework Directive* and indicates, according to catchment area, the averages of data collected in regional and national waters.

In general, copper, zinc, phosphorus and nitrogen concentrations reveal a stagnating trend with regard to water quality improvements. During the last decade, phosphorus loads reaching surface waters have decreased by 58%, while nitrogen loads have only fallen by 16%. Closer investigation of the sources of these nutrients within the Netherlands revealed that agriculture is a primary source of nutrients from fertilisers (total nitrogen concentrations and total phosphorus concentrations), metals that leach from agricultural areas (copper and zinc) and pesticides. In addition to sources in the Dutch water systems, each year the River Rhine, River Meuse and River Scheldt transports substantial amounts of nutrients from abroad. These have not been significantly reduced in the last fifteen years.

Pesticides
For the first time in years, a slight improvement in water quality has been noted with regard to pesticides. The percentage of sites monitored that exceed the short-term target – maximum permissible risk levels – for one or more pesticides has fallen slightly, despite the fact that a larger number of locations were monitored.
This improvement has been attributed to the effects of the pesticides authorisation policy, which forbids or substantially restricts the use of the majority of environmentally harmful pesticides.
Withdrawal of these pesticides from the market, however, has created problems for a variety of crops. The Dutch government has addressed this by giving form to and implementing the motion submitted by members of parliament Feenstra and

2.3 Water quality trends – nutrients and metals



Source: CIW survey and Directorate-General for Public Works and Water Management, 20

6 Financial and economic consequences

Strategic objective

To gain insight into the financial and economic consequences of water management in order to facilitate effective decision-making to meet the targets of integrated water policy.

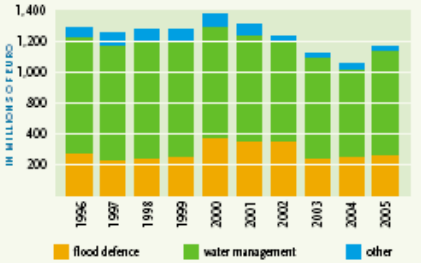
6.1 Costs and revenues of the Directorate-General for Public Works and Water Management, water boards, municipal authorities and individuals

Cost trends of the Directorate-General for Public Works and Water Management
The expenditures of the Directorate-General for Public Works and Water Management total approximately EUR 1 billion a year. The money is used for the preparation and implementation of policy, as well as the management and maintenance of the main water system, waterways, harbours and flood defence structures. In 2003, expenditures for water management will fall substantially – more sharply than in the previous two years – largely due to the completion of the *Delta Plan for the Major Rivers* project. As from 2006, expenditures will increase due to the implementation of projects – up to the year 2020– that have been agreed upon within the framework of the Water Policy for the 21st Century project. The budgets for flood defence and flood protection will structurally increase by 2.8% above standard inflation correction. The *Fourth National Policy Document on Water Management* had already announced the downward trend in Directorate-General for Public Works and Water Management expenditures, although the decrease is larger than predicted. This trend is expected to continue up to 2004. All of the amounts presented in the table are expressed in constant prices, based on 2002 price levels. Of the expenditures for actual implementation, 25% goes towards the flood defence infrastructure and 75% towards management of the water infrastructure. The expenditures of the Directorate-General for Public Works and Water Management are financed using funds raised through general income tax (i.e. financed by individual taxpayers).

Cost and revenue trends of the water boards
Of a water board's revenues, 97% is generated through charges imposed on households and companies within the water board's management area. Each household pays approximately EUR 200 a year to cover the costs the water board incurs for fulfilling its role, i.e. flood defence and water, land and waterway management. These involve total apportioned payments, including the revenues from charges imposed on companies. In reality, these charges are paid by households, as the costs are incorporated into product prices.

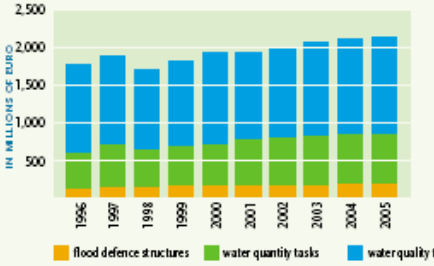
The charges comprise apportionment charges (quantity management) and pollution levies (quality management). Of the charges, two-thirds involve quality management costs,

6.1 Cost trends of the Ministry of Transport, Public Works and Water Management according to task (2002 price levels)



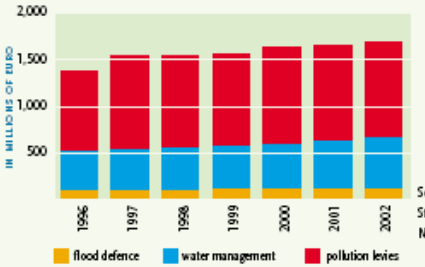
Source: 2003 Ministry of Transport, Public Works and Water Management budget

6.2 Cost trends of water boards according to task (2002 price levels)



Source: Association of Water Boards

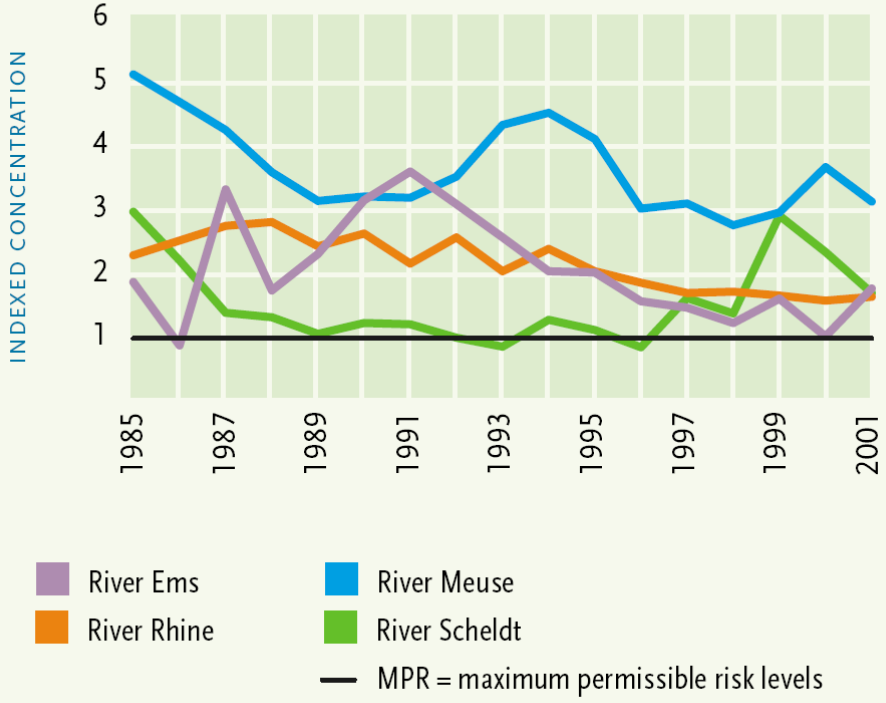
6.3 Revenue trends of water boards (2002 price levels)

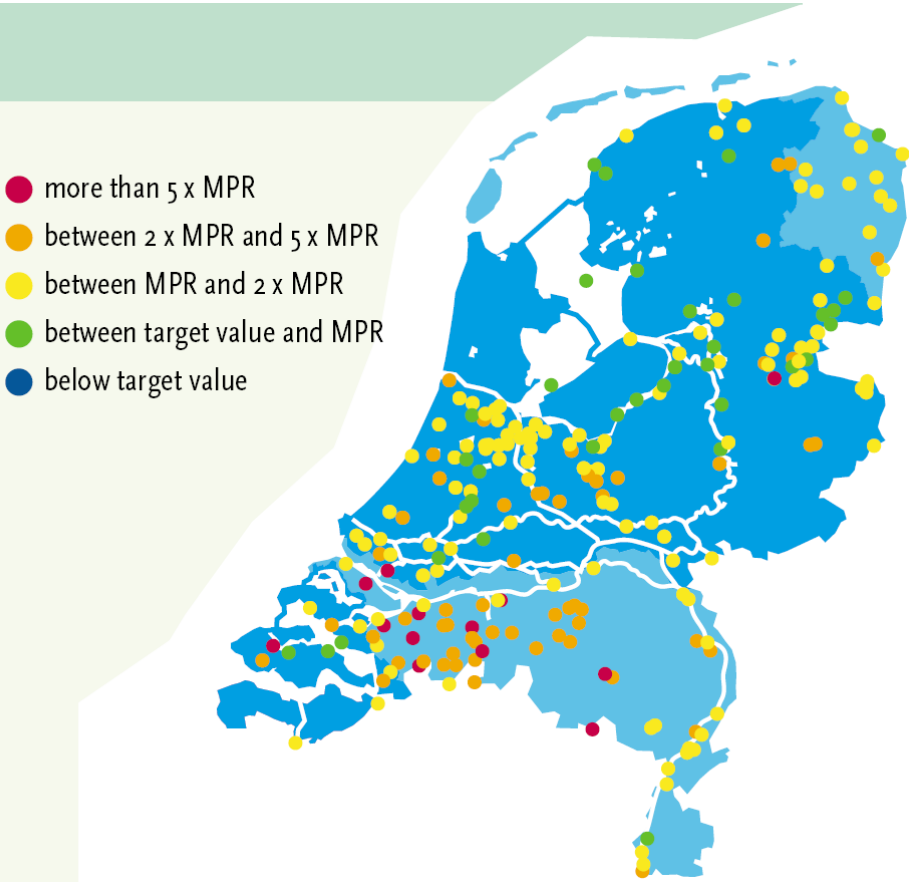


Source: Statistics Netherlands

Water in data

2.1.4 Copper in surface water





Ministerie van Verkeer en Waterstaat

WaterBase

reactie info & help DONAR RIKZ RIZA Watermarkt WATERSTAT disclaimer

HOMEPAGE

Activiteit van cobalt 60 in Bq/kg drooggewicht in zwevende stof

Topografische achtergrond (c)2000 Topografische Dienst Nederland

Locaties

GA VERDER

Internet

Postvak IN - Microsoft Outl... WaterBase - Microsoft Inte...

The role of the Water Framework Directive (WFD)

- The WFD is meant to improve the ecological quality of water bodies in the European river basins

But

- The WFD works as well as a strong incentive to optimise monitoring and information process

A Water Framework Directive Portal

To download the necessary information to make the River Basin Mangemenet Plans

A website partly open for everyone to get the necessary information on:

- Water bodies
- Swimming water
- Natura 2000 areas
- Etc.

Combining forces and uniting information

otool/waterhoogte_tov_nap.aspx?cookieload=true

waterstanden

Help

fema Are You Ready | DNP » PortalWeb » Evento ... | Richtsnoeren voor het schrij... | nieuw VUnet - Studenten - ... | The Columbia Heart Beat PU...

Pagina | Beve

n onderstaand keuzemenu wordt automatisch uitgevoerd.

egorie: Water

Selecteer kaart: Waterstand ten opzichte van NAP

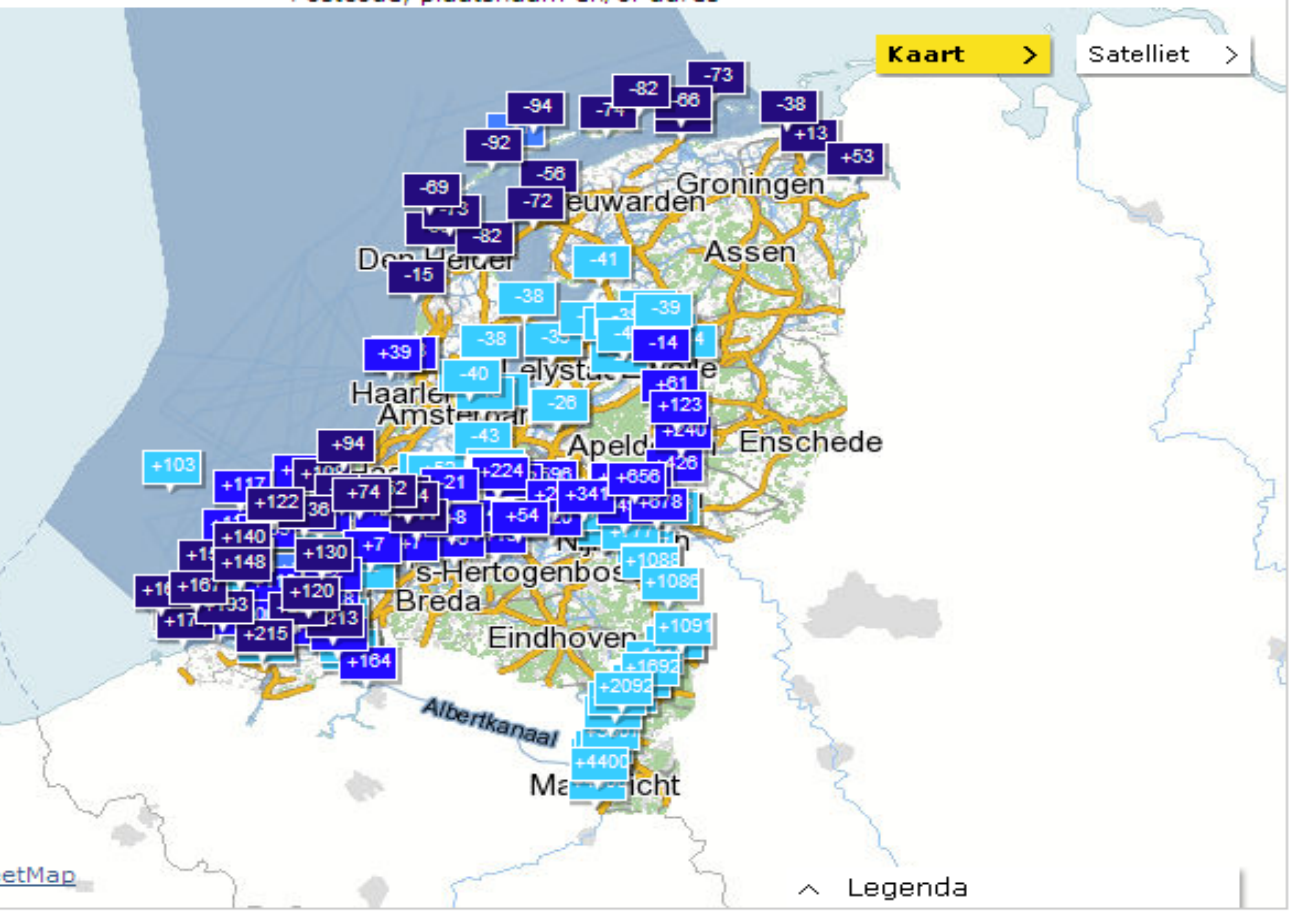
e: Adressen

Griffioenlaan 2 Utrecht

Zoek >

Link

Postcode, plaatsnaam en/of adres



Print | Stuur door

Handleiding

Bekijk de Handleiding Kaarten.pdf (178 Kb)

Weergave

Tabelweergave

Gerelateerde informatie

- Actuele waterdata
- Monitoring en meetsystemen
- Getijvoorspellingen
- Hydro- en meteoverwachtingen

Referentiewaarden waterstanden.pdf (1,2 Mb)

TAW en NAP

Het Belgische referentievlak TAW (Tweede Algemene Waterpassing) ligt 2,33 meter lager dan het NAP (Normaal Amsterdams Peil): TAW = NAP - 2,33 meter. Waterstanden weergegeven ten opzichte van TAW zijn dus juist 2,33 meter hoger dan dezelfde standen ten opzichte van NAP.

Vragen?

Uw selectie in onderstaand keuzemenu wordt automatisch uitgevoerd.

Andere categorie: Water **Selecteer kaart:** Waterstand ten opzichte van NAP

Zoek locatie: Adressen Griffioenlaan 2 Utrecht **Zoek >** **Link**

Postcode, plaatsnaam en/of adres

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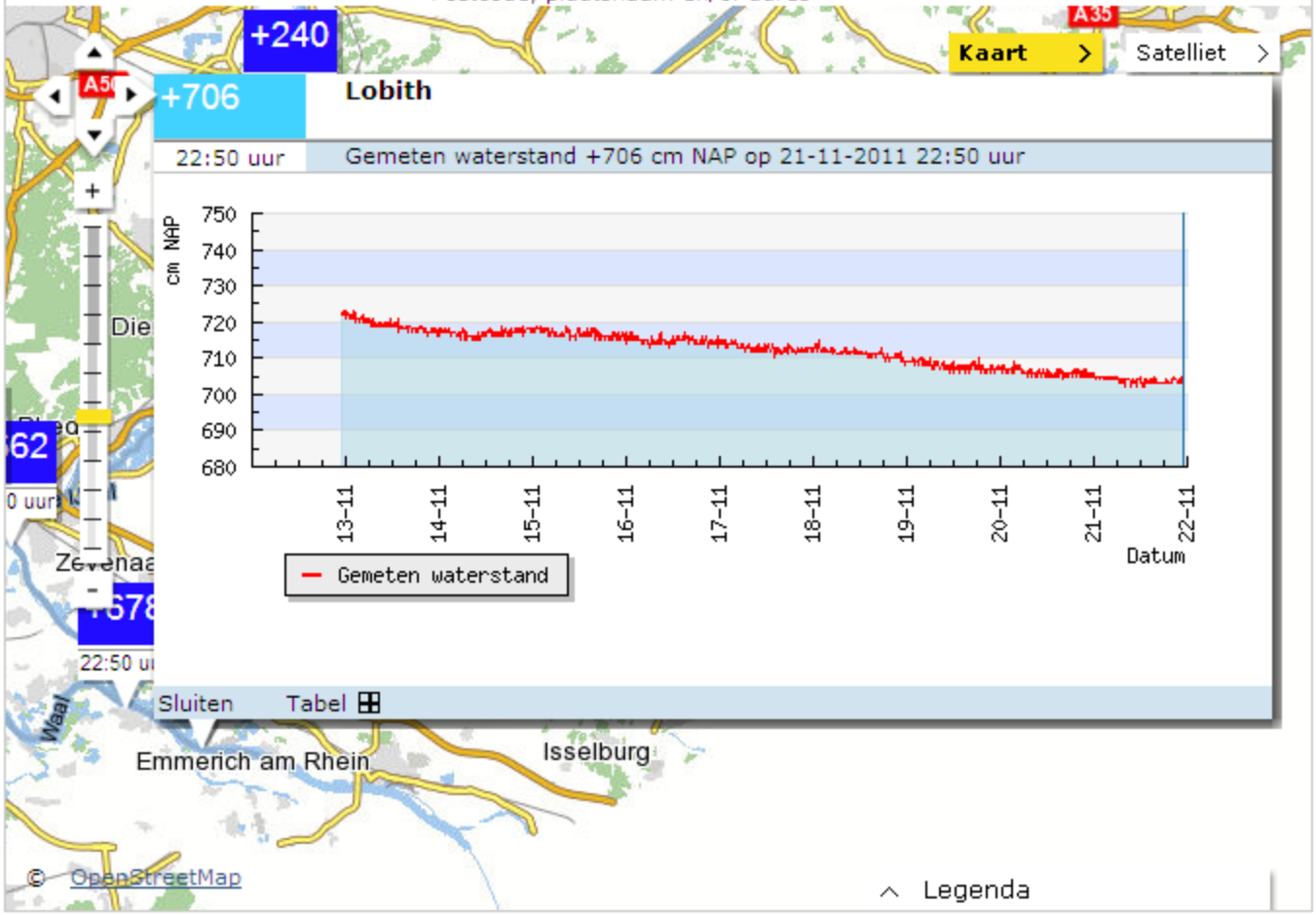

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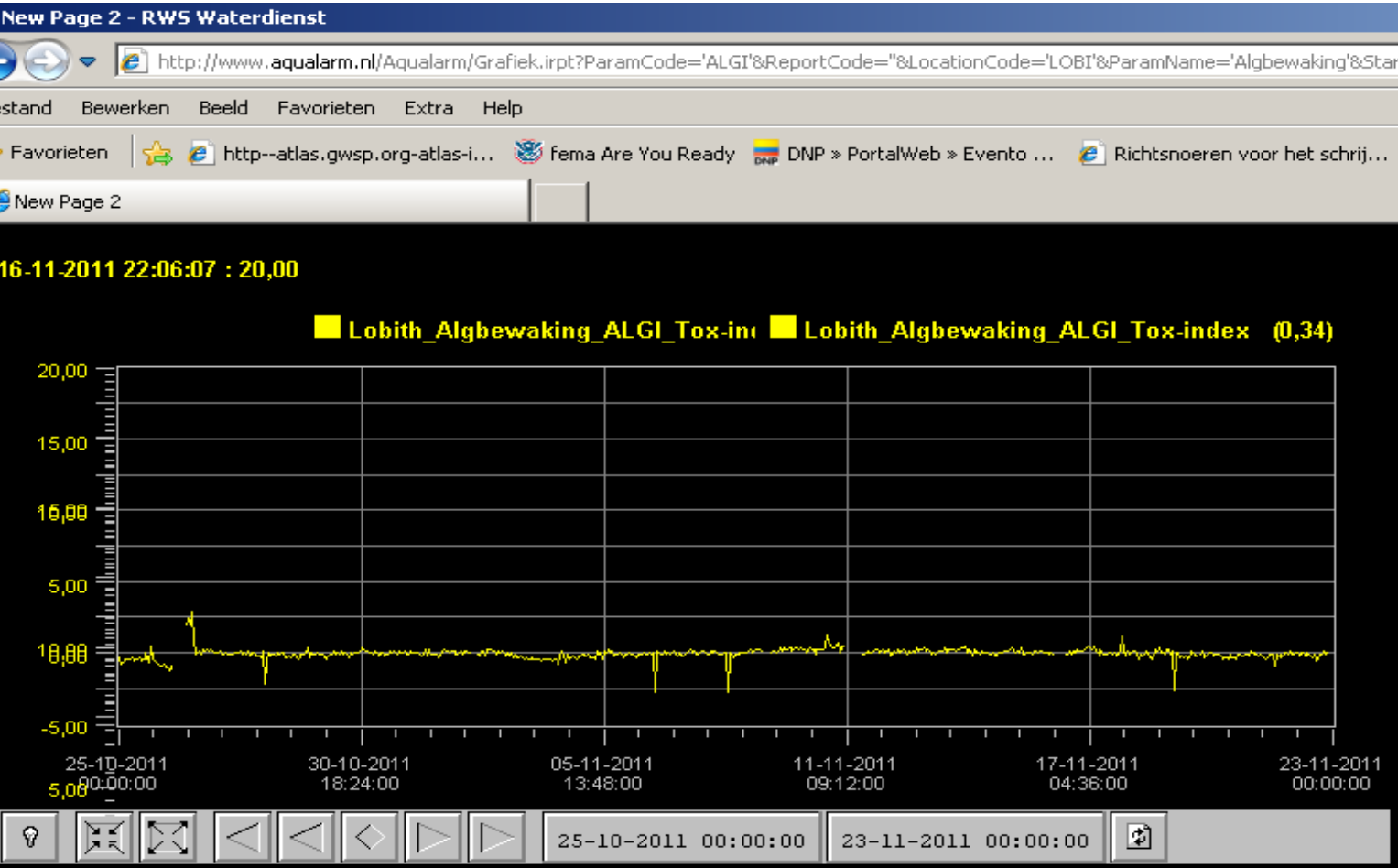
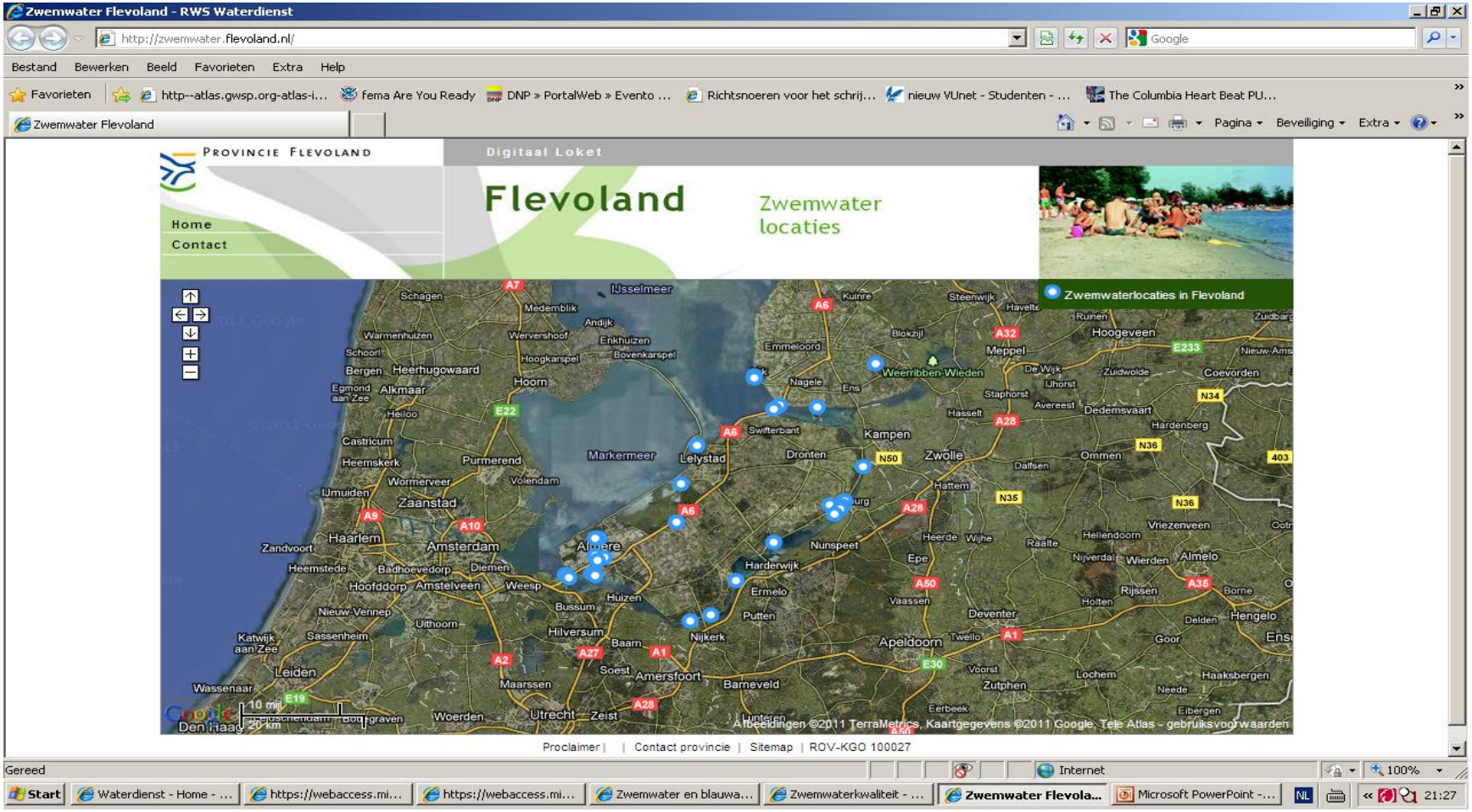
Vragen?

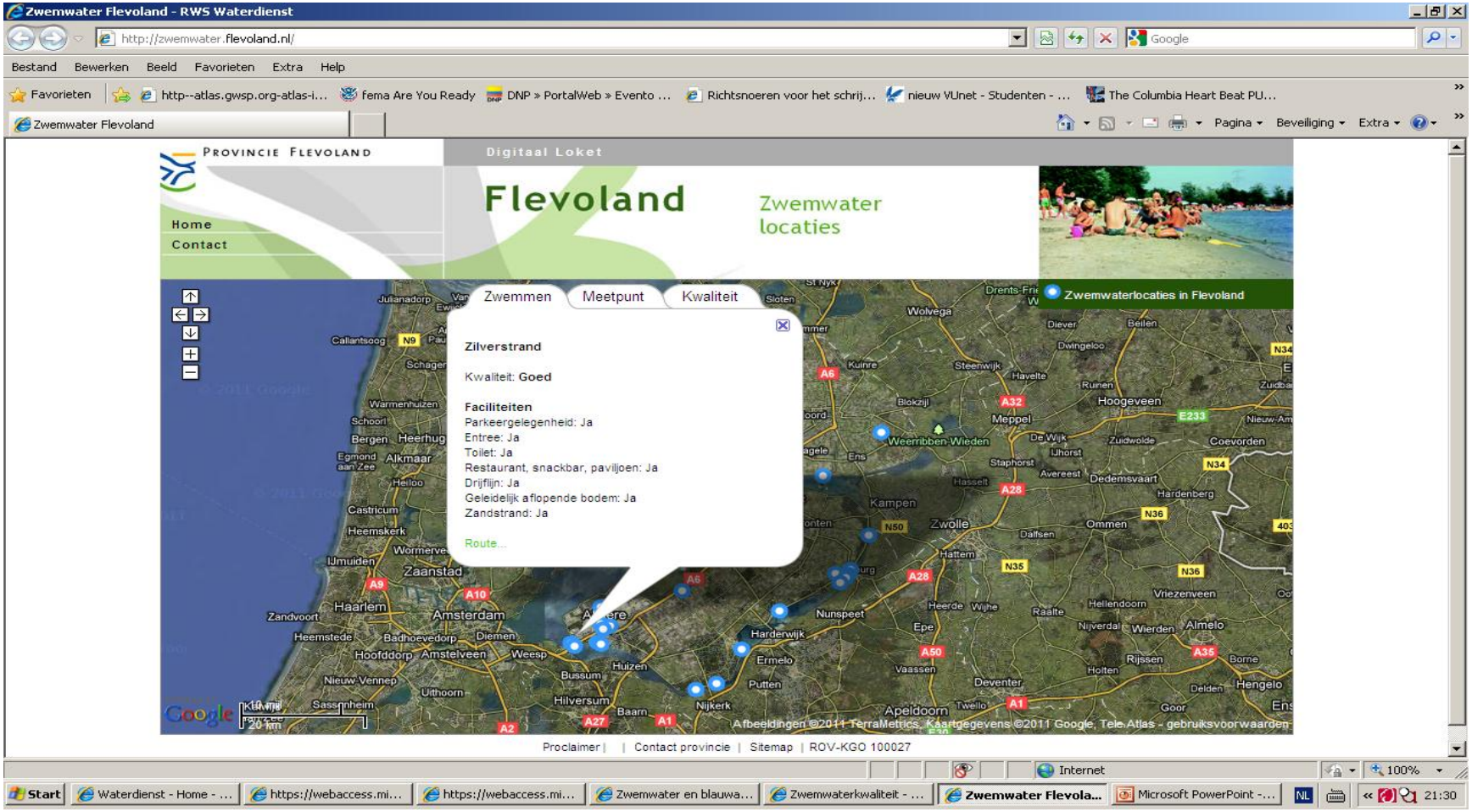
Algea-toxicity of Rhine water



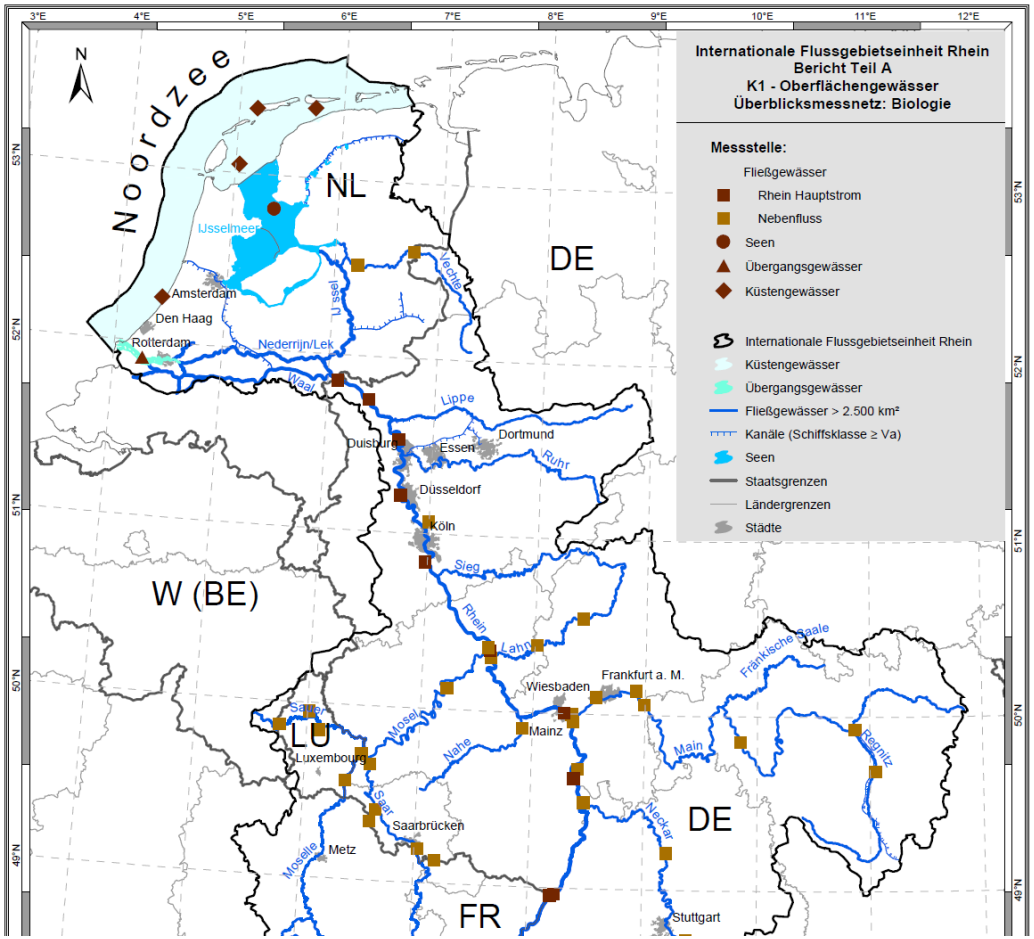
Bathing water quality in province of Flevoland



Actual situation on a specific point



River Rhine: Main monitoring network biology



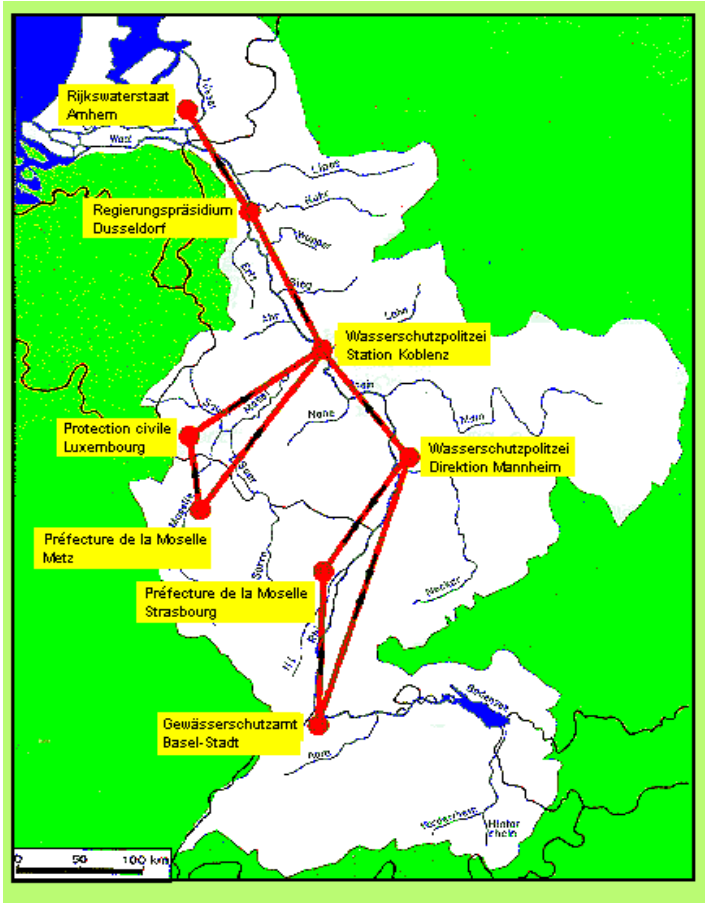
Warning- and alarmplan Rijn

Appointments about:

- Informing/warning
- Who and when
- 7 Main Warning Centres

- Format voor communication
- Minimum informatiom
- Ask for searching source
- Evaluation en rapporting

- Jearly report
- Regelar exercise/workshop
- 3e level



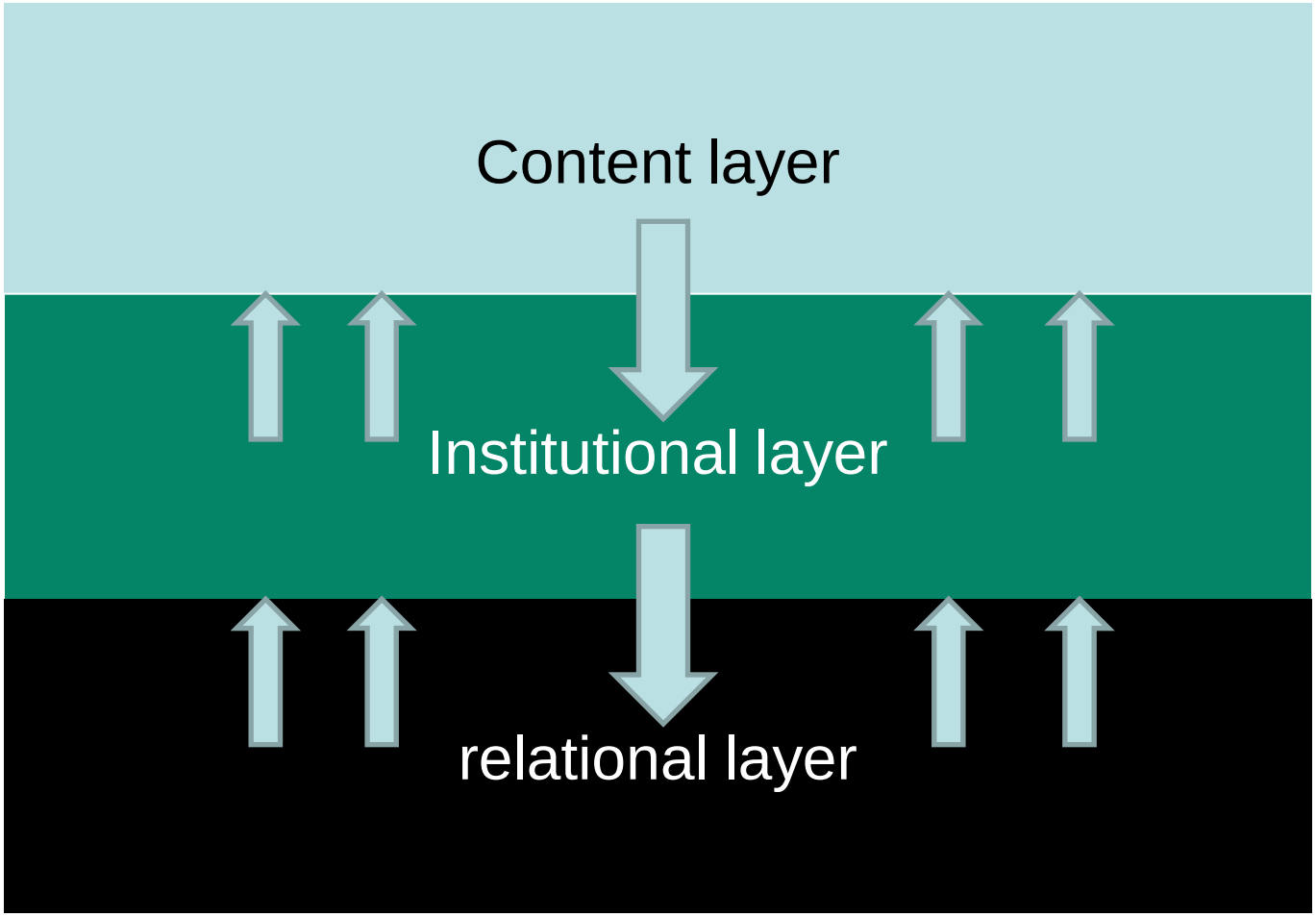
Alarm Monitoring Rhine

- **Reasons for Releasing Warning and Alarm Service Rhine:**
  - information by discharger
  - observations at site (e. g. fish kills)
  - measurements at monitoring sites

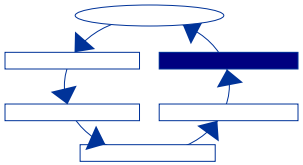
- **Evaluation of Relevance:**
  - authority supported by agencies with their experts (e.g. state offices)
  - means: flow time model, data bases for hazardous substances, alarm thresholds for concentrations

- **Warning/Information and End of Alarm:**
  - authority is responsible for decision
  - IMWC is responsible for information transfer

Success depends for a big part on good working relations based on trust



Impact-of-information chain



produced information

- data
- statistics
- maps
- graphics
- reports
- books
- web pages

is communicated through

- shops
- libraries
- the Internet
- mass media
- NGOs
- schools
- analysts

to form awareness, opinions and attitudes among

- law-makers
- rule-makers
- money-makers
- choice-makers
- future-makers

for catalysing environment-friendly

- laws
- policies
- organisations
- investments
- production
- consumption
- values

causing

- lower pressure on the environment and therefore its better quality

(Denisov and Christoffersen 2000)


Thank you for your kind attention