



Rijkswaterstaat  
*Ministerie van Infrastructuur en Milieu*

# Monitoring Water Quality

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## Delta of 4 international rivers

- Rhine
- Meuse
- Scheldt
- Ems

North Sea

Wadden Sea





## Monitoring Networks

- Physical monitoring - since  $\pm$  1800
- Chemical monitoring – since 1952
- Biological monitoring - since 1992
  
- Automated water quality monitoring – since 1978

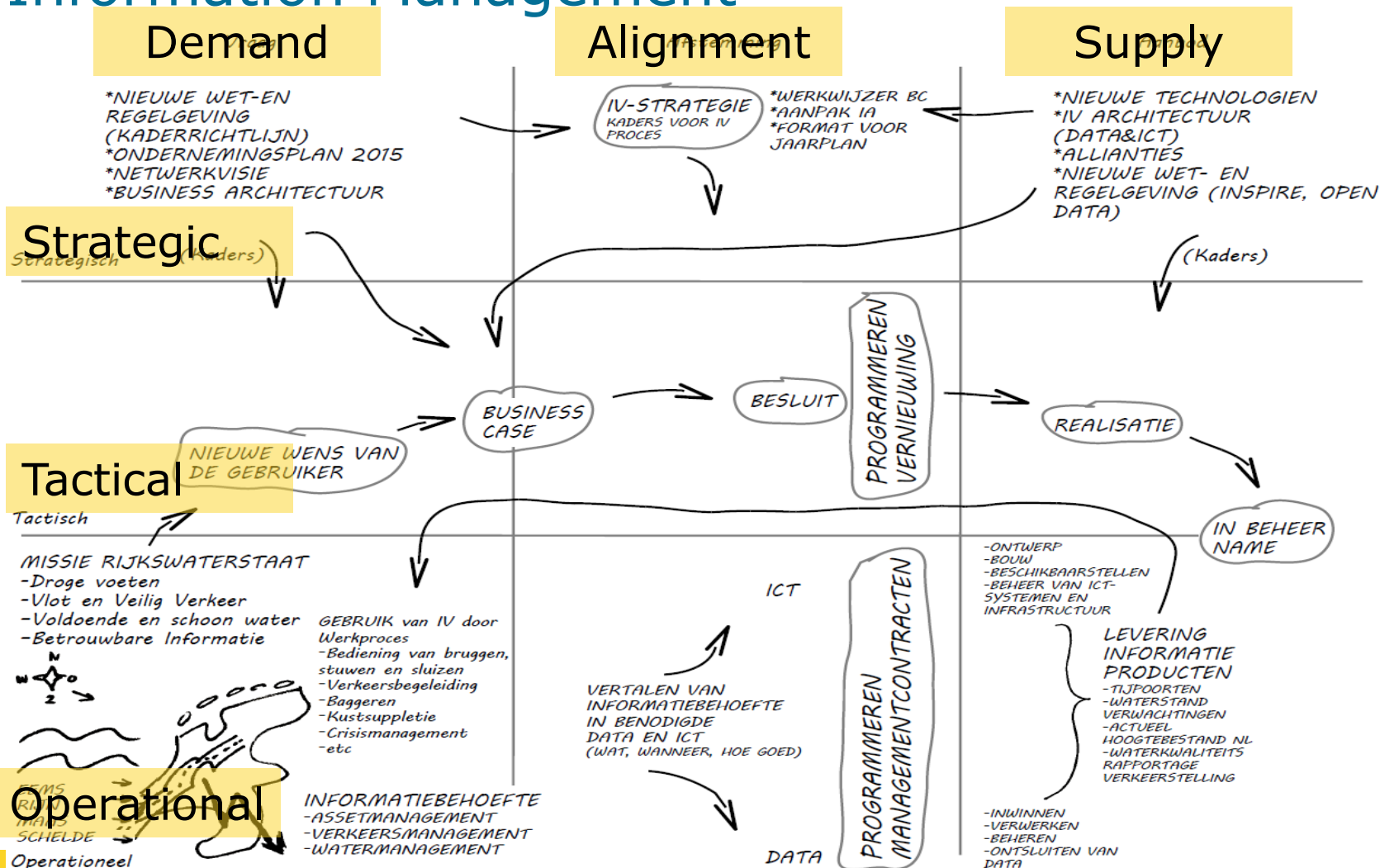




To which extent and how are the monitoring results taken into account in water policy implementation?



# Information Management







# Information Needs

Water quality monitoring necessary for:

➤ **National water management**

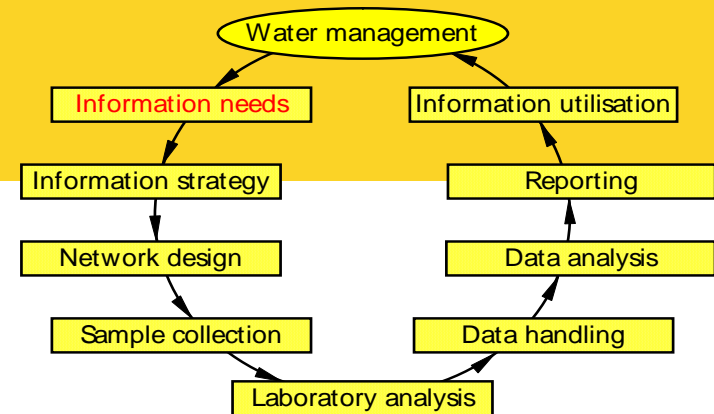
- policy evaluation
- determination of measures and assessment of their effectiveness
- status and trends in concentrations and in loads
- compliance testing

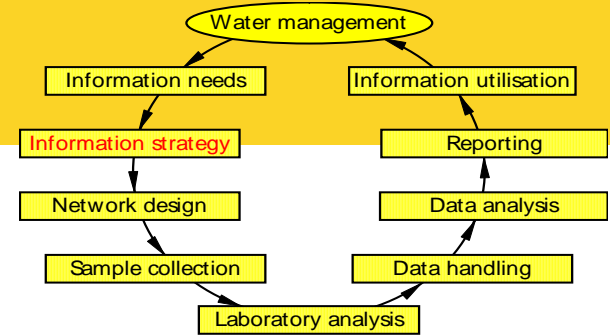
➤ **International agreements / obligations**

- OSPAR
- TMAP
- International River Commissions

➤ **EU (European Union) obligations**

- Water Framework Directive (WFD)
- Marine Strategy Framework Directive (MSFD)
- Nitrate Directive
- Natura 2000

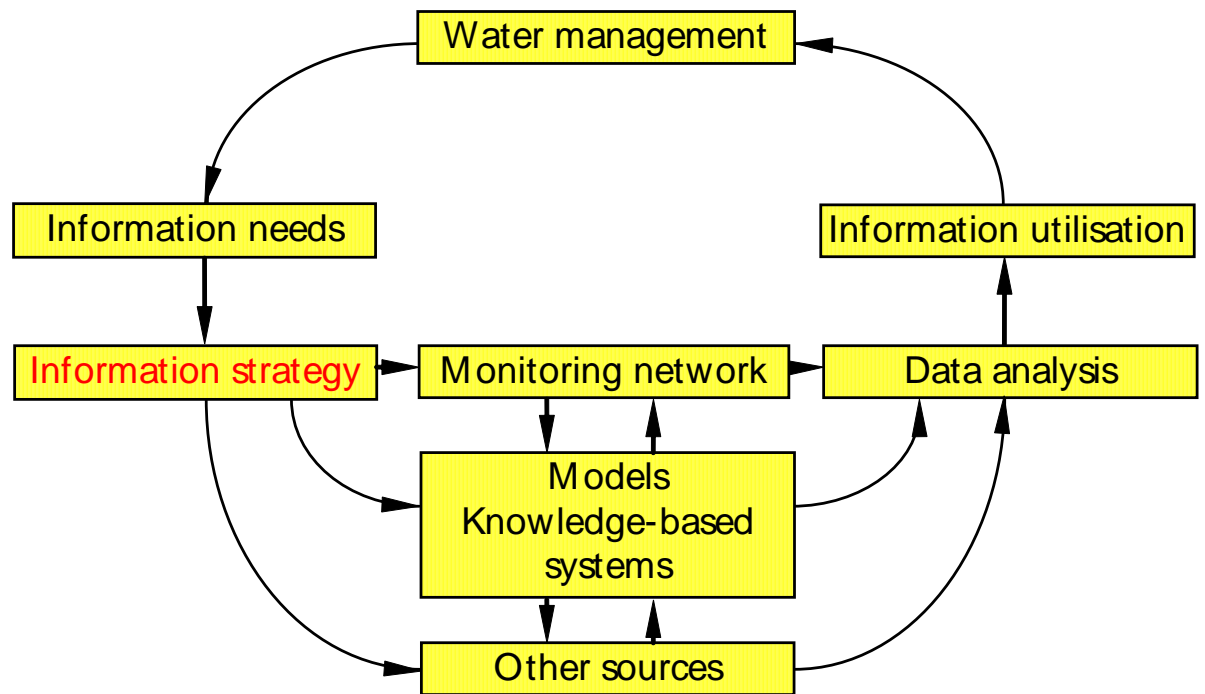




# Information Strategy

## Sources of Information

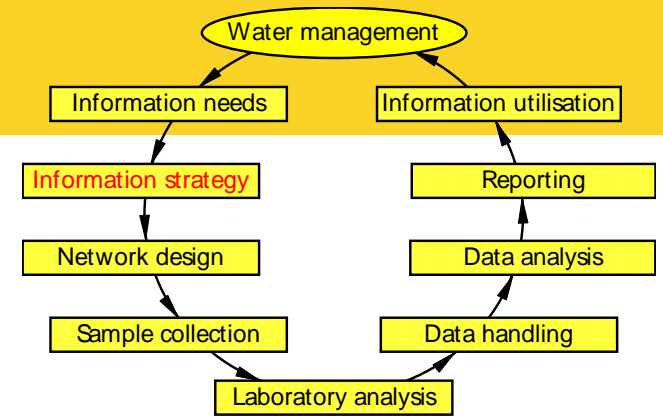
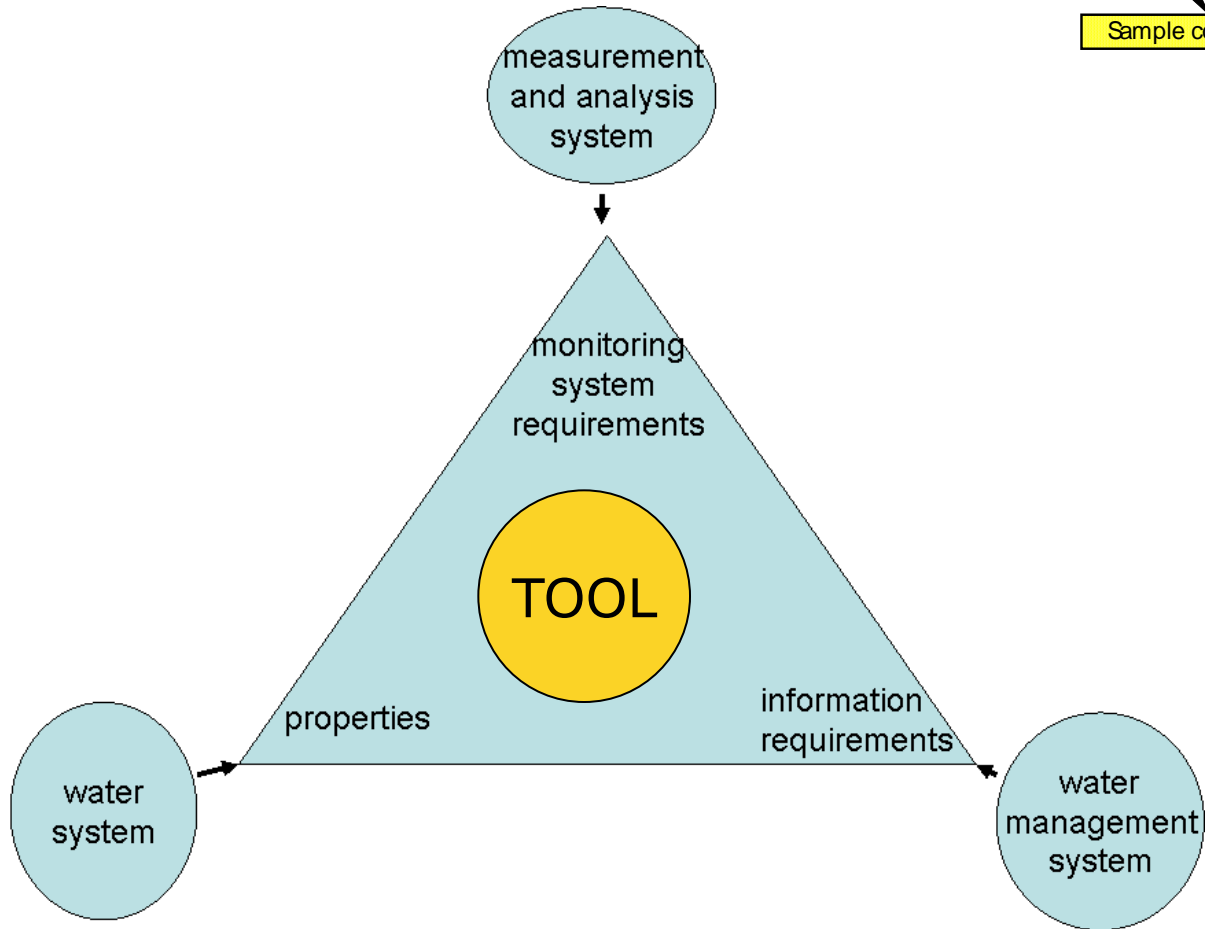
- Monitoring is not the only source
- Models, knowledge based systems
- Other sources





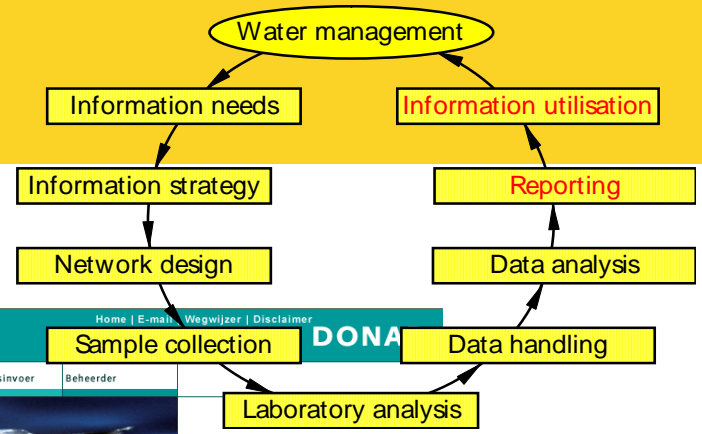


# Information Strategy



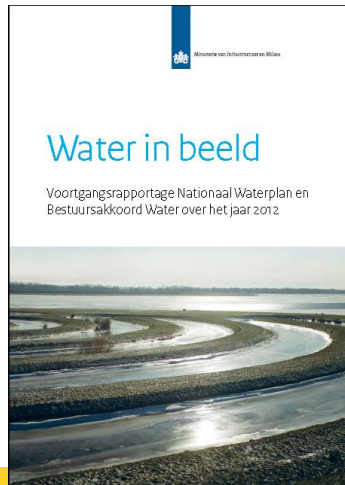


To whom are the results of the exploitation of the data and in what form?



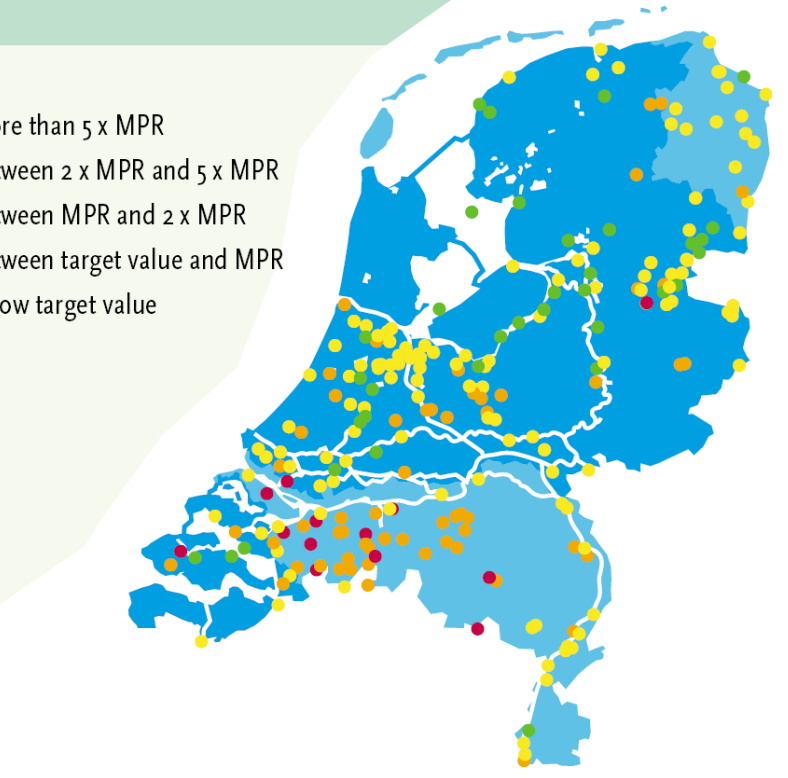
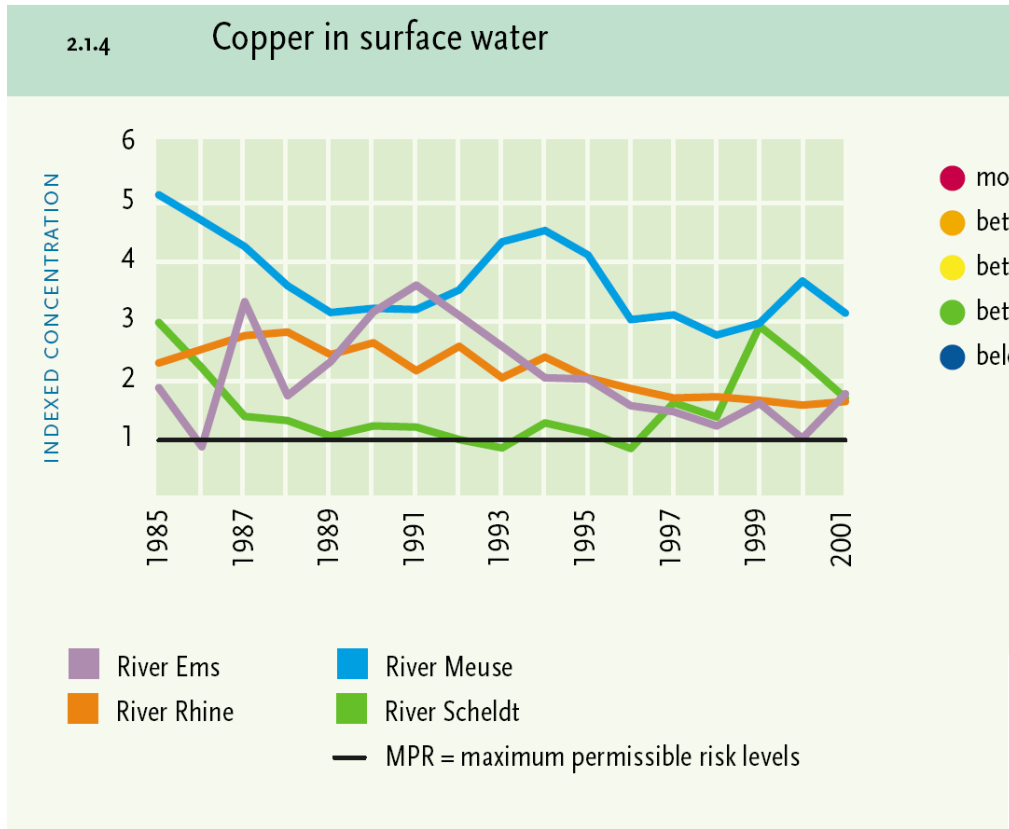
# Information Use and Products

- Central database
- International Reporting
- Primary Reports
- Water system Reports
- Thematic reports
- Operational Plans
- Products of Others






# Reports to national parliament EU-reports Reports for international commissions





# Water Framework Directive Portal Surveillance & Operational Monitoring

- Internet based database
- Interactive
- <http://krwportaal.nl/portaal>
- <http://www.informatiehuiswater.nl>
- <http://www.helpdeskwater.nl>

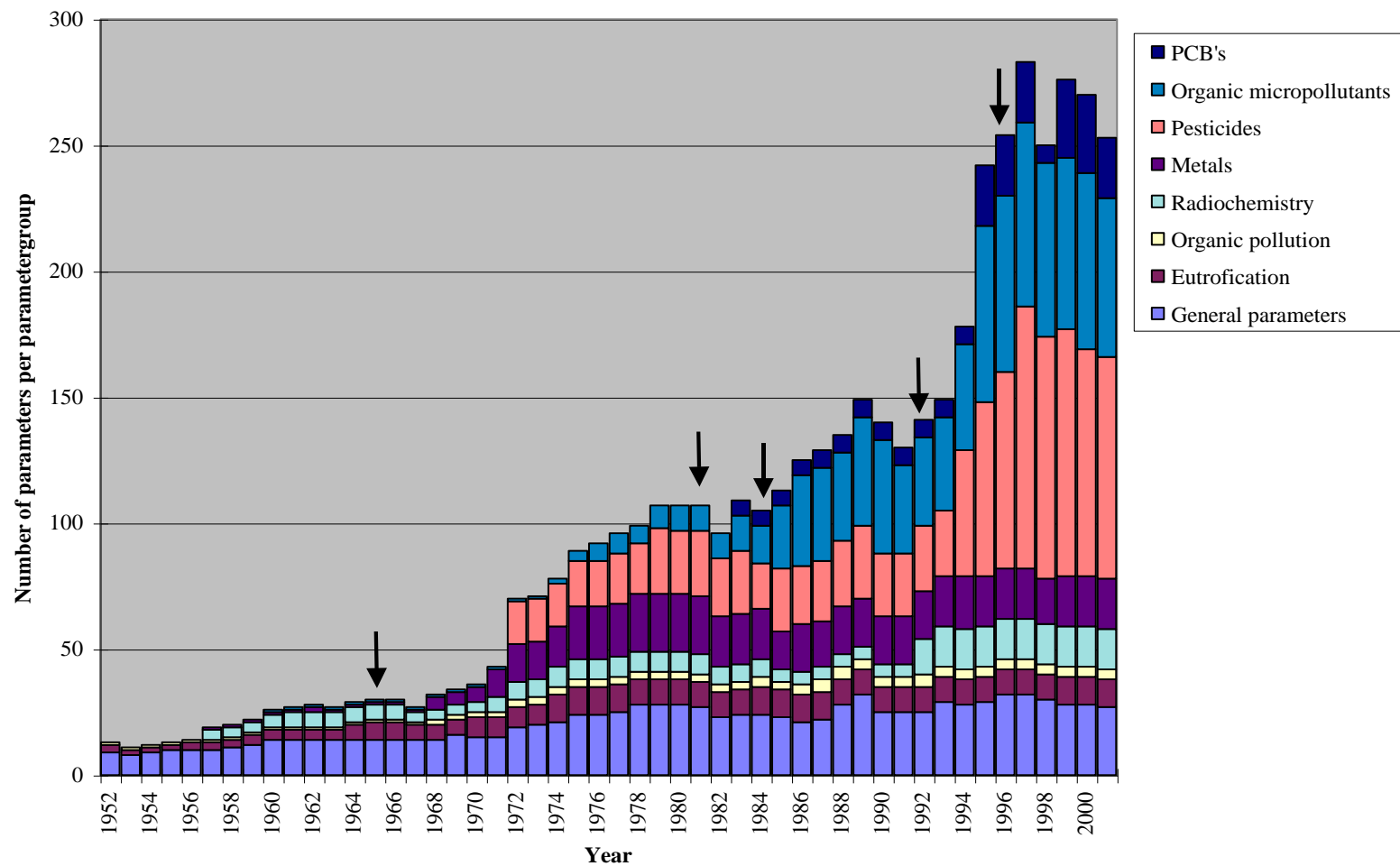
The screenshot displays the 'Kaderrichtlijn Water Portaal' interface. At the top, there's a navigation bar with tabs for 'Algemeen', 'Kaart', 'Downloaden', 'Uploaden', 'Voortgang', 'Admin', and 'Stats'. The main content area features a map of the Netherlands with numerous blue dots representing monitoring points. To the right of the map, there are options for 'Kaartlagen' and 'Legenda', and a 'Thema's' dropdown menu set to 'Monitoringsprogramma's'. Below this, there are radio buttons for 'Toestand en trend monitoring', 'Locaties operationele monitoring', and 'Toestand en trend, en operationele monitoring'. The bottom part of the screenshot shows the 'Helpdesk Water' section, which includes a search bar, a list of links, and a section titled 'English summary European Water Framework Directive'.



What indicators are used in view  
of supporting decision making  
process?



# Monitoring Strategy - number of parameters





# Priorities in Information Management 2014

*Vraag*

*\*NIEUWE WET-EN REGELGEVING (KADERRICHTLIJN)*  
*\*ONDERNEMINGSPLAN 2015*  
*\*NETWERKVISIE*  
*\*BUSINESS ARCHITECTUUR*

*Strategisch (Kaders)*

*Tactisch*

*MISSIE RIJKSWATERSTAAT*  
 -Droge voeten  
 -Vlot en Veilig Verkeer  
 -Voldoende en schoon water  
 -Betrouwbare Informatie

*GEBRUIK van IV door Werkproces*  
 -Bediening van bruggen, stuwen en sluizen  
 -Verkeersbegeleiding  
 -Baggeren  
 -Kustsuppletie  
 -Crisismanagement  
 -etc

*EEMS RIJN MAAS SCHELDE*

*INFORMATIEBEHOEF*  
 -ASSETMANAGEMENT  
 -VERKEERSMANAGEMENT  
 -WATERMANAGEMENT

*BU CA*

*NIEUWE WENS VAN DE GEBRUIKER*

Prioritering vernieuwing en vervangingsprojecten WM-WVL

project	Prio	basisfuncties				SLA principes HWS				Bestuurlijke ambities					
		afmaken voor nieuw	hoogwaterveiligheid	voldoende water	schoon ecologisch gezond	scheepvaart	overige gebruik	veiligheid, calamiteitenzorg en crisisbeheersing	wettelijke taken basisfuncties	onderhoud behoud functionaliteit	allianties/afspraken	data autoriteit	imago schade	innovatie/onderzoek	efficiency
Afronding centralisatie LMW uitbesteding B&O/achterstallig onderhoud	1	xx	xx	x		x									x
Bestuurlijke afspraken nieuwe inbeheernames OLO, AGNL, ICAWEB	1	x		x	x						xx		x		x
Caribisch Nederland	1	x			x			xx							
Havik II	1	xx		x	x						xx				x
Hoogwaardige afvoermetingen bij Sint Pieter	1		xx	x				x		x			x		
I&M meetnet incl LMW2 (NWCL project)	1	x	xx	x		x		xx		xx					x
Modelaanpassingen Eems-Dollard	1	x				x		x		x			xx		
Next Generation Hydrosoftware	1	xx	xx	x							x			x	
Verbetering IV waterberichtgeving	1	x	xx					xx							
Vernieuwing IV zeehaven Maasmond	1	x				x		x			x		xx		
WaterDataNet incl opslag mariene projecten	1	xx									x		x	x	
Waterportaal	1	xx									x				
Betere debietmeting waterverdeling bij hoge afvoeren	2		xx	x						x				x	
Digitale Delta	2	x									xx			x	
Herziening KRW dochterrichtlijn prioritaire stoffen	2				x				xx						
IV Deltaprogramma	2		x	x							xx			x	
Oplevering en inbeheername Maaswerken	2		xx	x	x	x	x			x					
Peilbeheer IWP: landelijke uitrol	2	x		x											
Vervanging stofverspreidingsmodellen crisismanagement	2				x			xx							
Water aan- en afvoerfunctie van kanalen Zuid-Nederland	2			x						x	x				
Grondwaterstanden-vervanging informatiesysteem	3									x					
Microplastics	3				x									x	
Samenwerking waterschappen rond meetnetten-laboratoria	3										x				
Temperatuurverwachting bij dreigende ijsvorming	3			x		x				x					x





# Management Area of Main Water Systems

- 90,278 km<sup>2</sup> of surface water
- 35 kilometres of dunes
- 214 kilometres of dikes and dams
- 10 weirs
- Afsluitdijk and Houtribdijk (two dikes)
- 4 storm surge barriers





Thank you

