



INTERNATIONAL
MEUSE
SYMPOSIUM



Addressing micro pollution at the source in relation to industrial emissions



10th of September 2024

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1. Introduction
2. How to prioritise water quality risks
3. Which measures can you take at the source?
4. Examples of successful projects



The Meuse as source of drinking water

HARINGVLIET
 Abstraction: Evides
 Profile: Dune infiltration

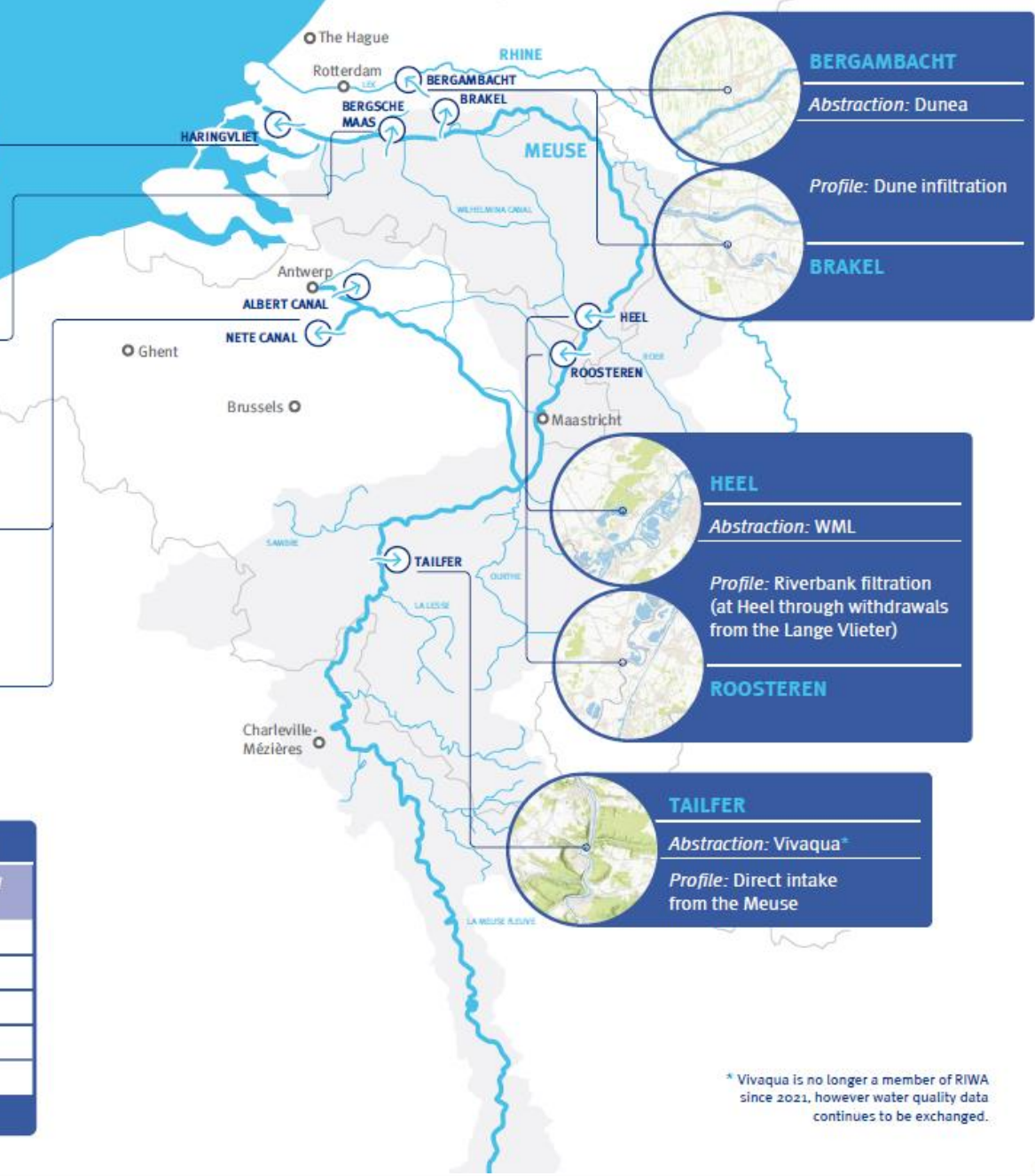
BERGSCHE MAAS
 Abstraction: Evides/WBB
 Profile: Reservoirs in the Biesbosch

ALBERT CANAL
 Abstraction: water-link
 Profile: Supplies 40% of Flanders's drinking water as well as other drinking water utilities (such as Watergroep, Farys and PIDPA)

NETE CANAL

SURFACE WATER AS SOURCE FOR DRINKING WATER

RIWA-Meuse member utilities	Surface water extraction (%)	Surface water extraction (10 ⁶ m ³ /year)	Customers supplied with surface water
Evides (+WBB)	80%	209,8	2,0 million
water-link	100%	153,4	2,5 million
Dunea	100%	75,0	1,5 million
Vivaqua*	30%	34,6	750.000
WML	25%	9,0	280.000
Total		481,8	7,0 million



BERGAMBACHT
 Abstraction: Dunea
 Profile: Dune infiltration

BRAKEL

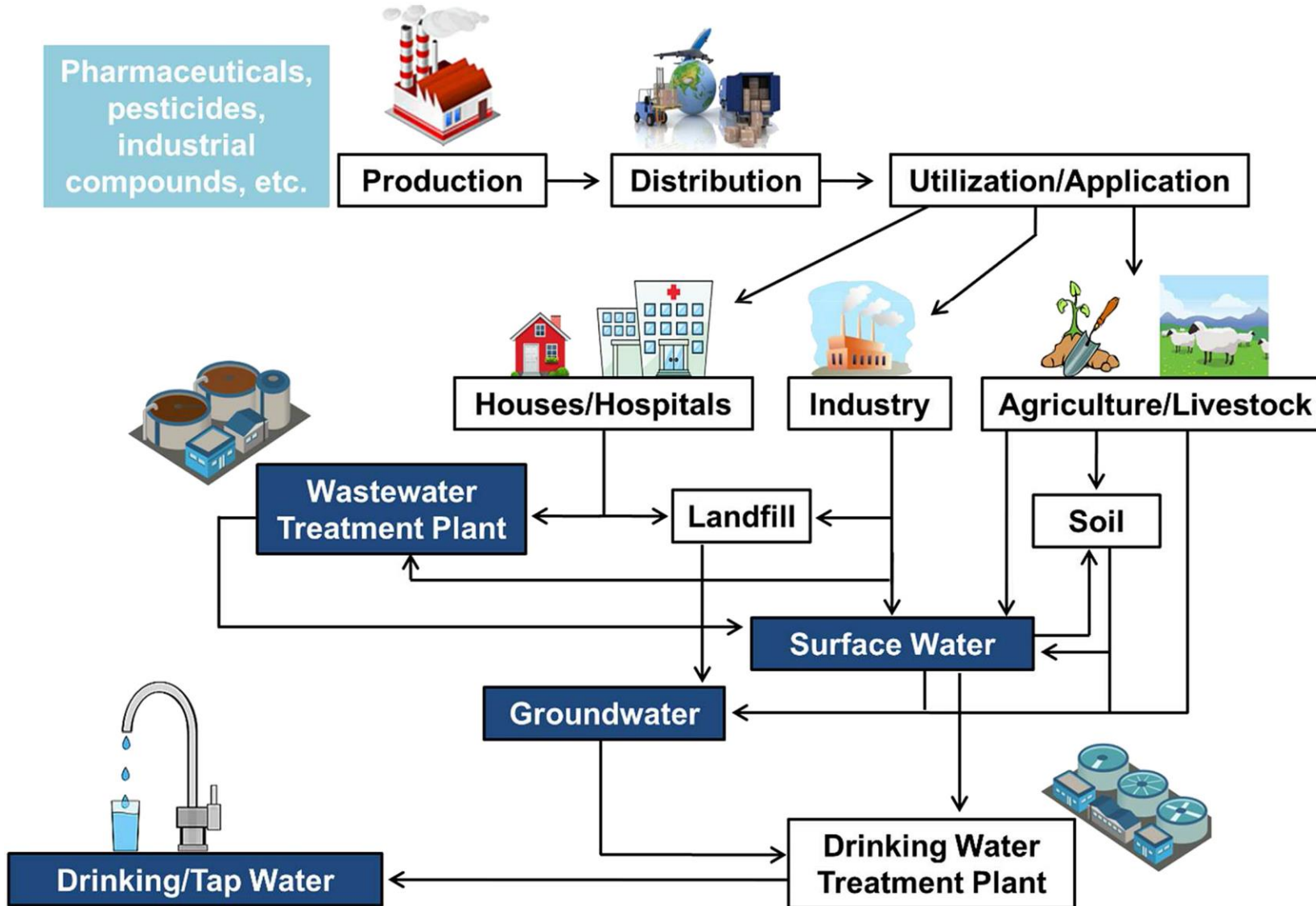
HEEL
 Abstraction: WML
 Profile: Riverbank filtration (at Heel through withdrawals from the Lange Vlieter)

ROOSTEREN

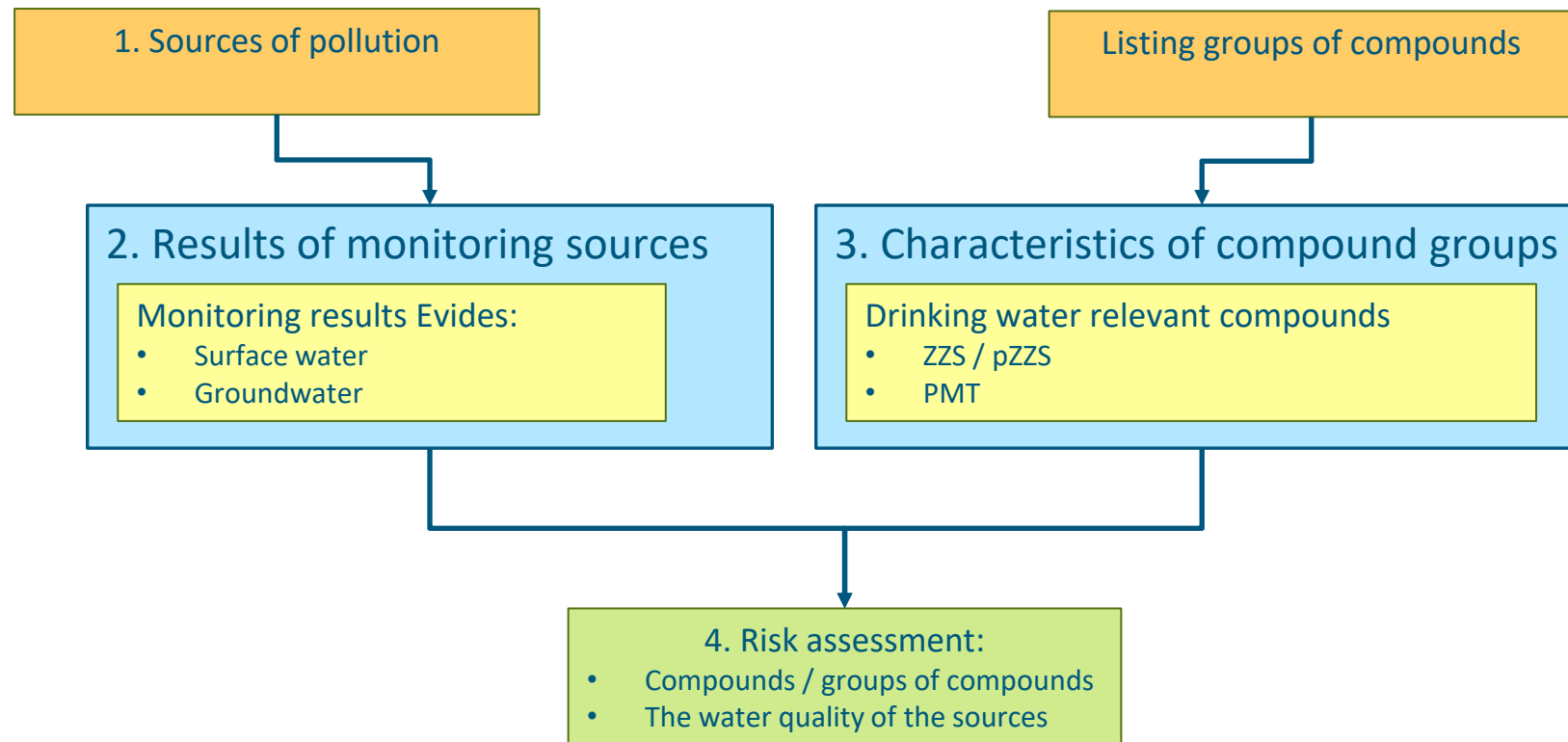
TAILFER
 Abstraction: Vivaqua*
 Profile: Direct intake from the Meuse

* Vivaqua is no longer a member of RIWA since 2021, however water quality data continues to be exchanged.

Sources of micro pollution



How to prioritise water quality risks

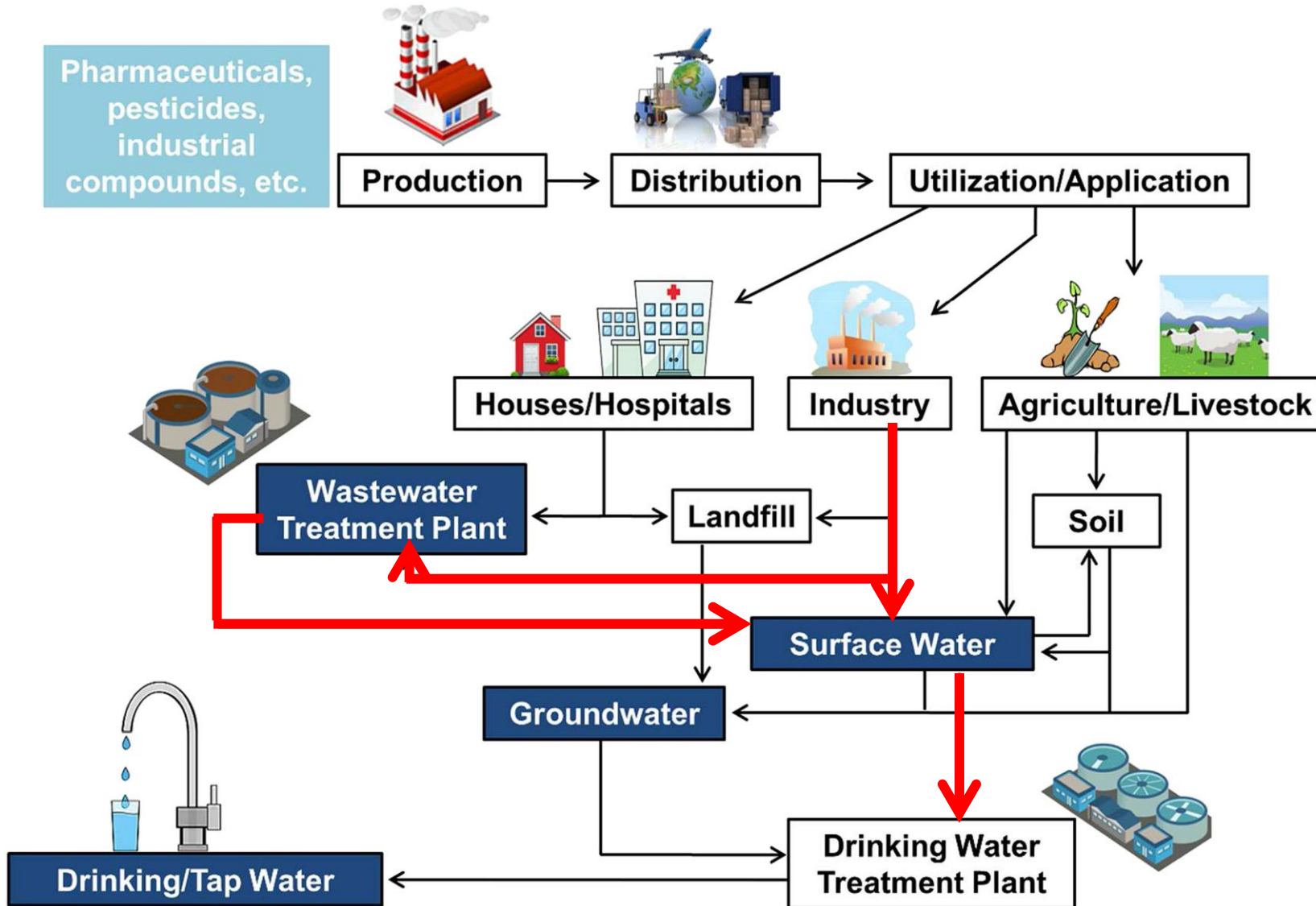


Result of prioritisation

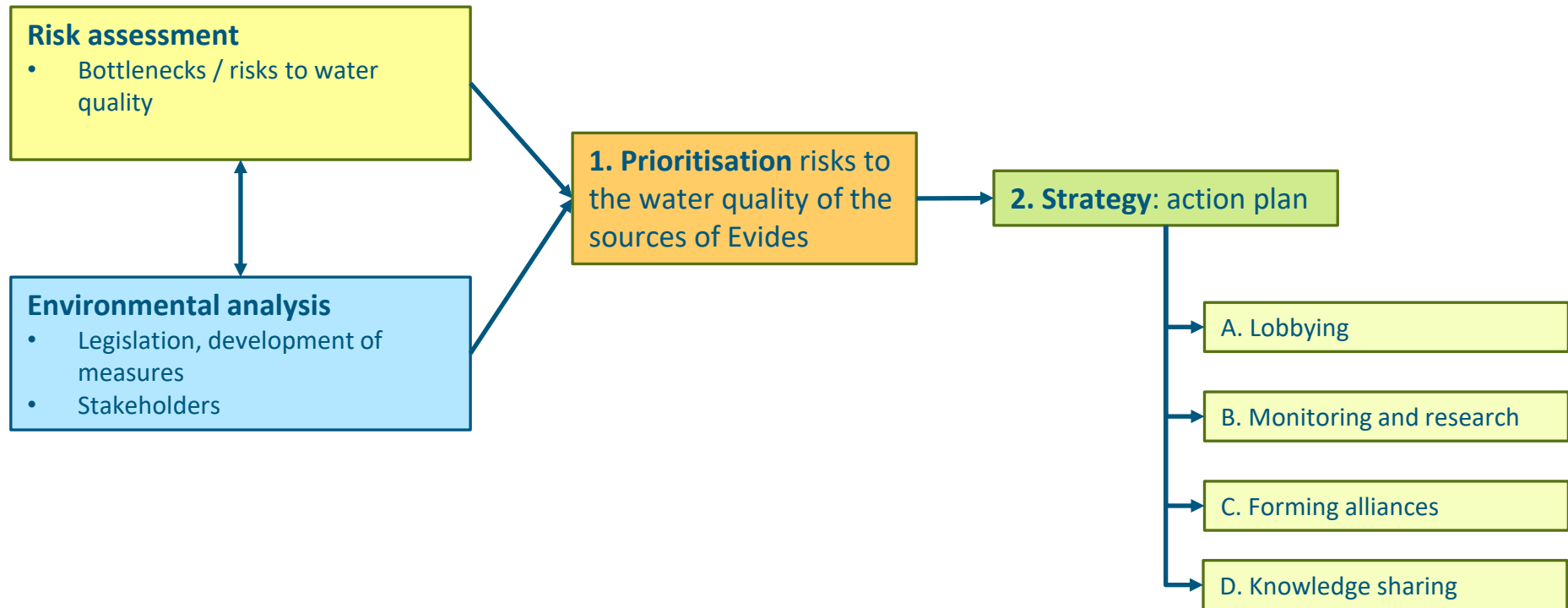
Compound groups	Priority	
	Surface water	Groundwater
Nutrients	Follow	Follow
Heavy Metals	Important	Follow
Pesticides and biocides	Priority	Priority
Ethers and petroladditives	Important	Important
Polycyclic aromatic hydrocarbons (PAH's)	Follow	Follow
Industrial compounds		
- Industrial solvents	Priority	Important
- Industrial compounds with PFAS	Priority	Important
- Industrial compounds (other)	Priority	Important
Consumer products		
- Detergents and complex formers	Follow	Follow
- Disinfectants and disinfection byproducts	Follow	Follow
- Personal care products	Follow	Follow
- coloring, flavors and fragrances	Follow	Follow
Pharmaceuticals		
- Veterinary compounds	Follow	Follow
- X-ray contrast fluids	Follow	Follow
- Cytostatics	Important	Follow
- Antibiotics	Follow	Follow
- Other pharmaceuticals	Follow	Follow
Flame retardants	Follow	Follow
Endocrine disrupting compounds (EDC's)	Important	Follow
plasticisers	Follow	Follow
Microplastics / nanoplastics	Important	Follow
Nanoparticles	Important	Follow
Chlorite/chlorate	Follow	
Bromite/bromate	Important	Follow
Compounds from geothermal energy systems	Follow	Important
Drugs waste	Follow	Important

Priority	Focus point.
Important	Start taking measures.
Follow	Follow recent developments and intervene when needed.

Focus area – industrial compounds



Action plan



Lobbying

- Participation in the Mutual Gains Approach in relation to the discharge permit/licence of the industrial terrain of Chemelot (industrial site with 50 chemical factories).
 1. Identifying compounds most relevant to the drinking water sector such as AMPA, melamine and vanadium.
 2. Supporting the setup of a comprehensive monitoring programme including various screening methods.
 3. Promoting result obligation in the discharge licence as opposed to a best effort obligation.
 4. Participating in bimonthly meetings regarding obstacles and progress.

= The discharge permit of Chemelot is one of the most comprehensive and advanced of the Netherlands including approximately 630 chemical compounds to be monitored and controlled.

= Concentrations of AMPA at drinking water abstraction points no longer above the legal limits.

Forming alliances and sharing knowledge



SCHONE **MAAS**
WATERKETEN

Discharge of industrial compounds through WWTPs

Case study drinking water companies:

Goal: Prioritisation of relevant categories of industry and linked WWTPs in relation to drinking water

More insight into companies discharging drinking water relevant industrial compounds:

1. Which categories of industry are relevant for drinking water quality
2. Which WWTPs are relevant for the drinking water abstraction point Bergsche Maas



Drinking water and environmental risk score

Compound group	Risk DW	Risk env.	Branche
EDCs	90	90	Chemical industry (plastics, thermic paper), pharmaceutical industry (anticonception pill)
Industrial chemicals with PFAS	90	90?	Chemical industry, waste and recycling industry, paper, carton and clothes production
Heavy metals	60	80/70	Metal products, waste and recycling industry, car industry
Flame retardants	80	80	clothes production, electric appliances.
Plasticisers	80	80	Plastic production.
Pesticides	80	90	Pesticide production, parking lots etc.
Industrial solvents	70	60	Chemical industry, clothes production
Industrial chemicals (other) (lithium)	70	80	Industry.
Ethers and petroladditives	60	50	Car industry, auto repair
Desinfectants and disinfection byproducts and other biocides	50	70	Food production
Colorants (not food)	40	50	paper, carton and clothes production.
Detergents and complex formers	40	40	paper, carton and clothes production, chemical industry.
Mineral oils	30	30	Car wash.
Coloring, flavors and fragrances (food)	30	30	Food production, dairy production.
Polycyclic aromatic hydrocarbons (PAH's)	30	70	Waste and recycling.

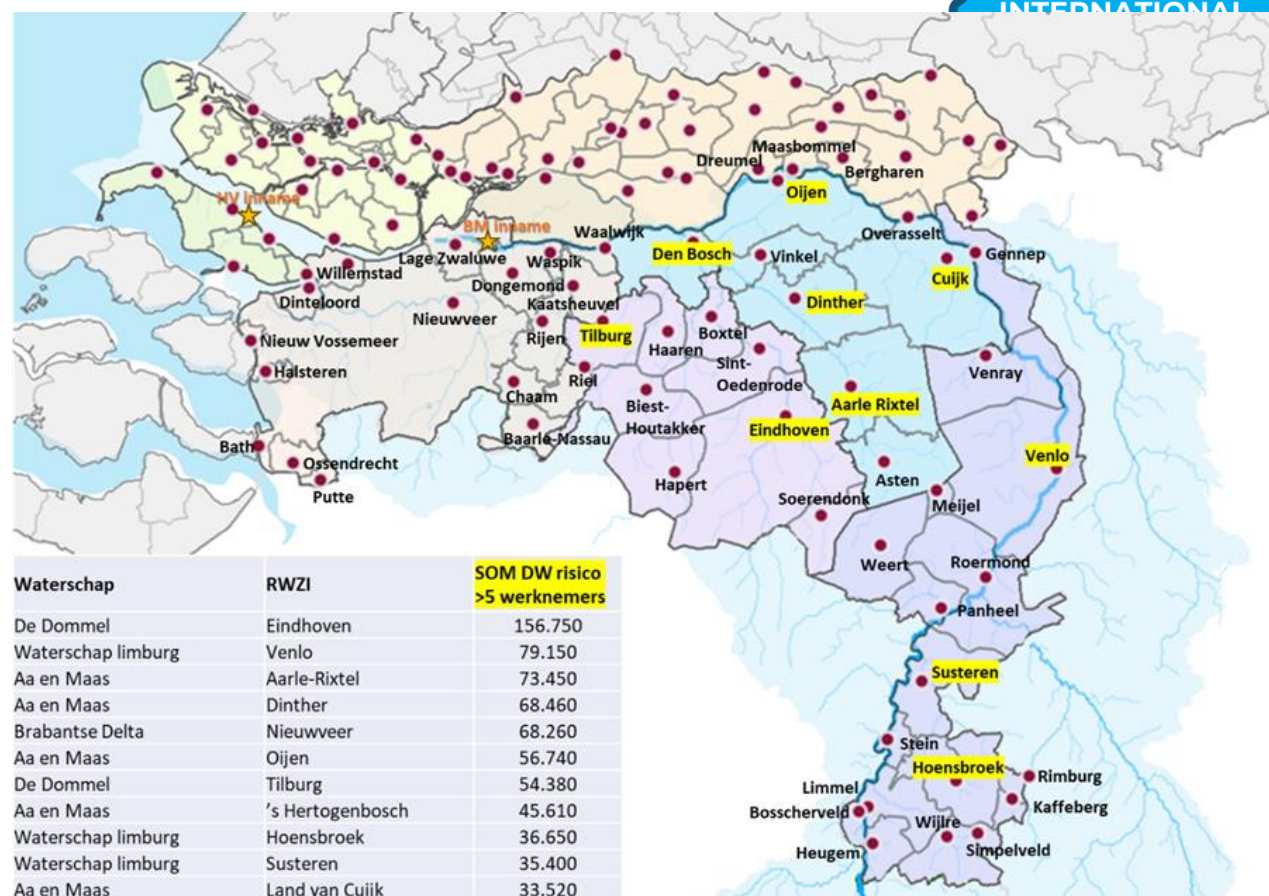
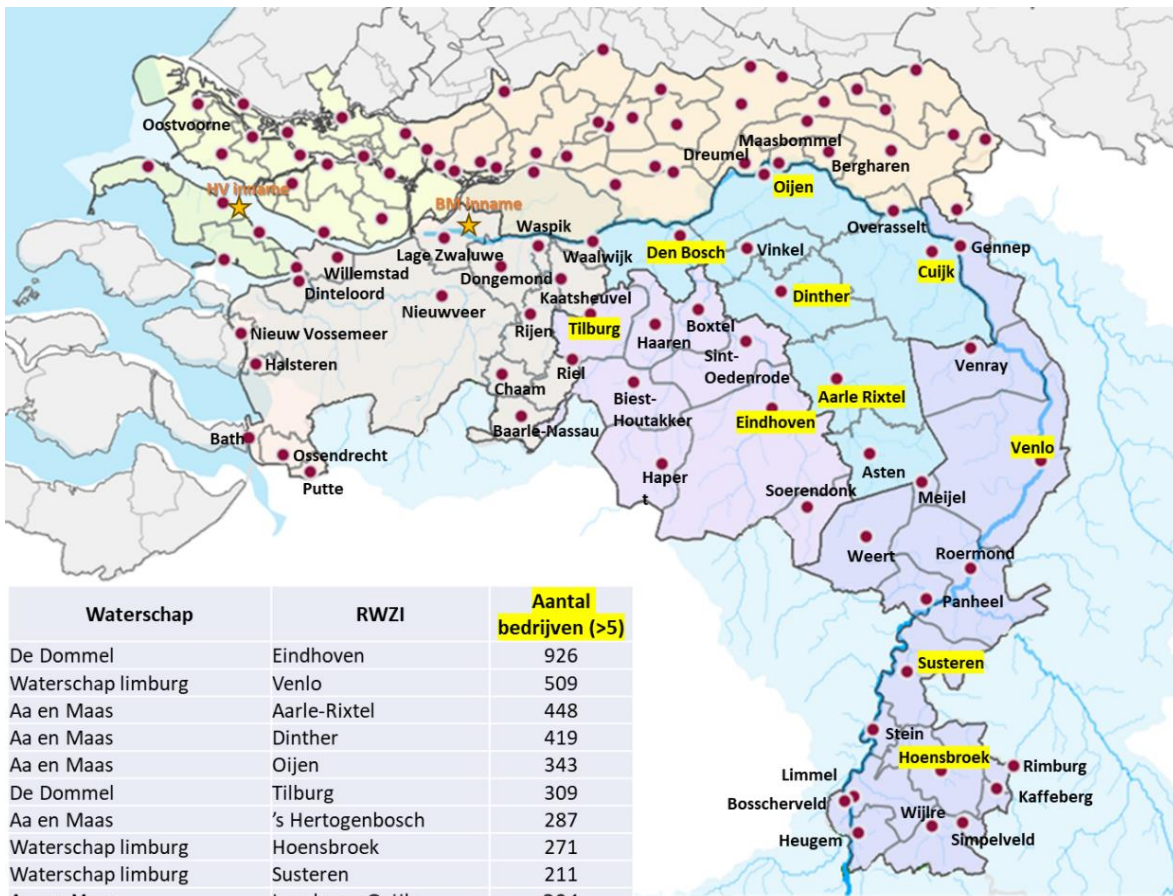
Waste treatment

SBI code	Description SBI	Compound group	Risk score DW (sum)	PMT score sum	ADDITIONAL SUM
37.00	Wastewater treatment and collection	<ul style="list-style-type: none"> Industrial chemicals with PFAS Heavy metals Pesticides Industrial solvents Industrial chemicals (other) Detergents and chelating agents Coloring, flavors and fragrances 	440	68,39	
38.11	Collection of non-hazardous waste	<ul style="list-style-type: none"> Industrial chemicals with PFAS 	290	0	
38.12	Collection of hazardous waste	<ul style="list-style-type: none"> Heavy metals Industrial solvents Industrial chemicals (other) 	290	17,03	
38.21	Treatment of non-hazardous waste	<ul style="list-style-type: none"> Industrial chemicals with PFAS 	320	9,63	
38.22	Treatment of hazardous waste	<ul style="list-style-type: none"> Heavy metals 	320	65,18	
38.31	Demolition of ships, household appliances, computers etc	<ul style="list-style-type: none"> Industrial solvents Industrial chemicals (other) 	320	1,44	
38.32	Prepare separated material for recycling	<ul style="list-style-type: none"> PAH's 	320	0	
39.00	Remediation and other waste treatments		320	1,1	

Prioritisation of WWTP's

1. Distance to the intake point of Bergsche Maas
2. Hydraulic treatment capacity and volume of treated wastewater
3. Organic treatment capacity and the treated amount of pollution units
4. Number of companies in the area of the WWTP with a high PMT and drinking water risk score

Top 10 WWTP



Prioritisation of drinking water relevant industry categories

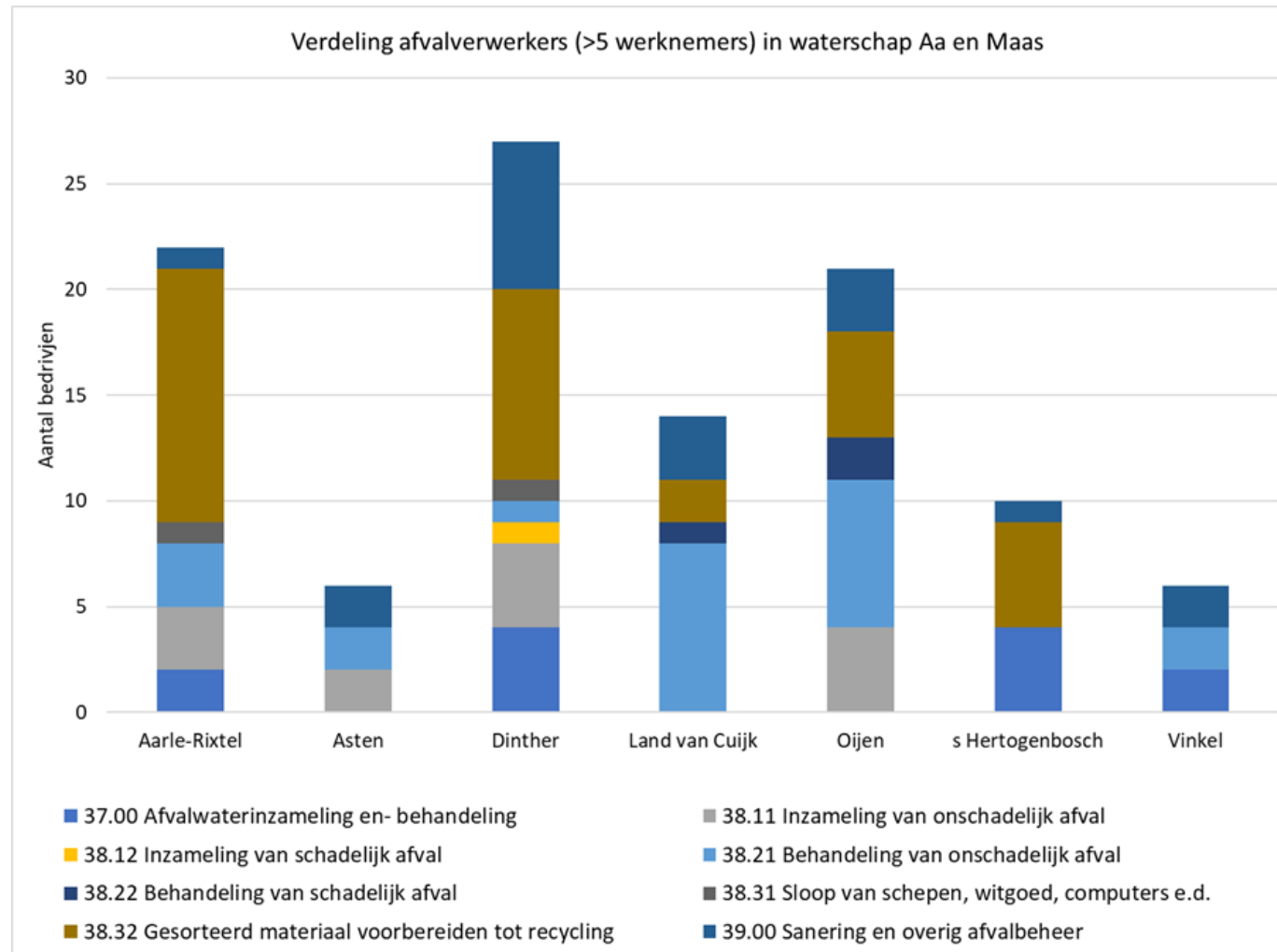
Selection of industry categories in database with:

- Sum of risk score for drinking water >250
- PMT score >70

Industry categories fulfilling both criteria:

- 13. Clothes production
- 17. Production of paper and carton
- 18. Printing and media reproduction
- 19. Petroleum industry
- 20. Chemical industry (PMT 110, DW 540)
- 22. Plastic and rubber industry
- 37. and 38. waste and recycling industry (no PMT score)

Distribution of industry categories in WWTPs



WWTPs

- Most companies in category 20 (chemical industry) at WWTP Stein (14)
- Priority WWTPs (characteristics and risk score)
 - WWTP Dinther (98) and WWTP Oijen (119)
 - WWTP Tilburg (54) and WWTP Den Bosch (50)
 - WWTP Eindhoven (111)
- Unclear whether all companies do discharge to the sewer system



Questions?







Dutch impuls program on substances

Wim van der Hulst
Waterboard Aa en Maas

Representative Meuse in working groep on substan
In the Netherlands



Ample progress in reaching WFD goals:

Biology

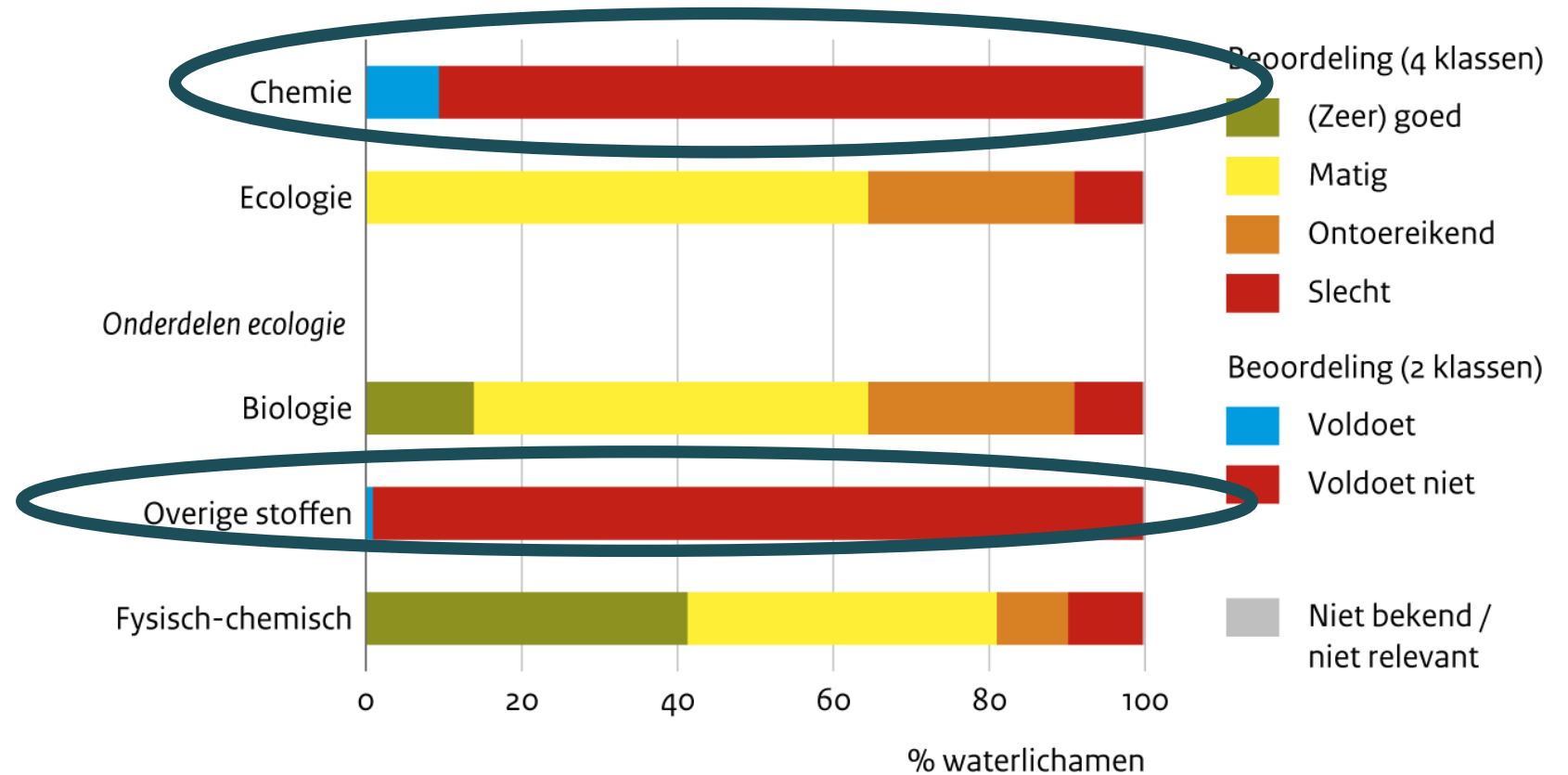
Sufficient water in wet nature

Nutrients

hydromorfology

Chemical status

Beoordeling kwaliteit oppervlaktewater volgens Kaderrichtlijn Water, 2021



Impuls program

7 working groups, one on Substances.
(others on nutrients, gouvernance/juridical, ...)

Reporting to stream committee, national gouvernance group (chair Minister of environment and water (I&W))

“stoffen” = priority list WFD

National list relevant substances (Netherlands 78 subst.)

Speed up! Action

Do whatever is possible (and more)

Motivation 2027 why later / not

Which substances?

Surface water problems

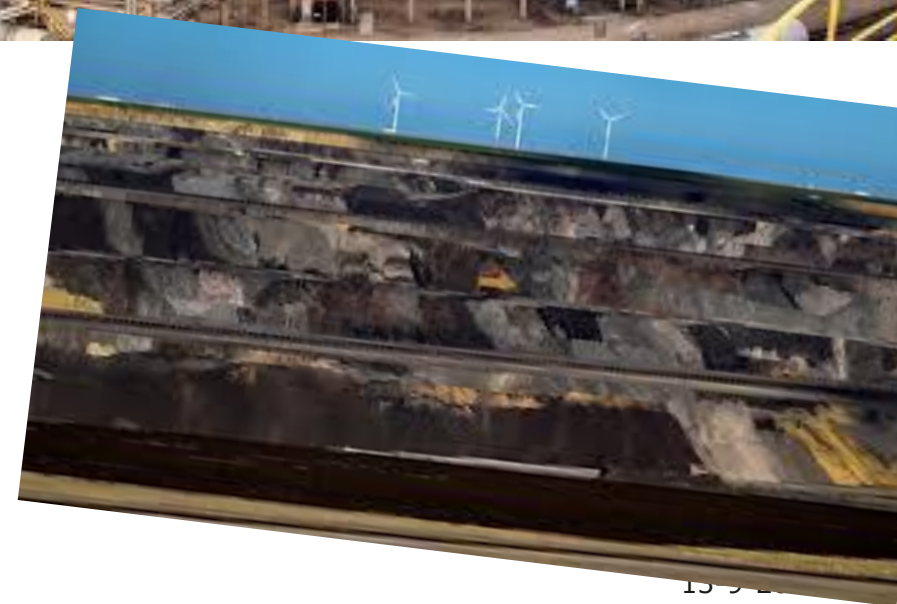
38 in one or more surface water bodies of Meuse-part

- Biocides / plant protection products
- Metals
- “rest group” PFAS, PAHs, PBDE,s
- ammonia

Only indirect attention to:

- Watchlist
- Toxicity / effect
- Groundwater
- Drinkwater from groundwater

Where does the substance come from?



Contribution from upstream

For many substances the inland sources are bigger than what comes from you

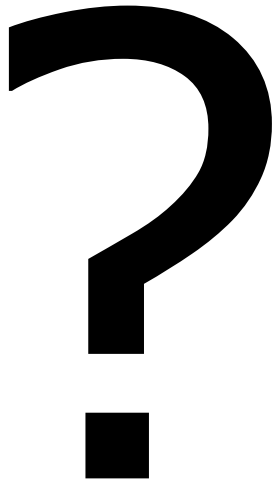
Can we address problems with substances on Dutch list?

Cobalt, zinc, thallium, esfenvalerate, imidacloprid, carbendazim, benzo(a)pyrene, fluoranthene, ...

Wfd priority substances – same goals everywhere in Europe



Where does the substance come from?



Groundwater?

Little industry, f.i. automotive?

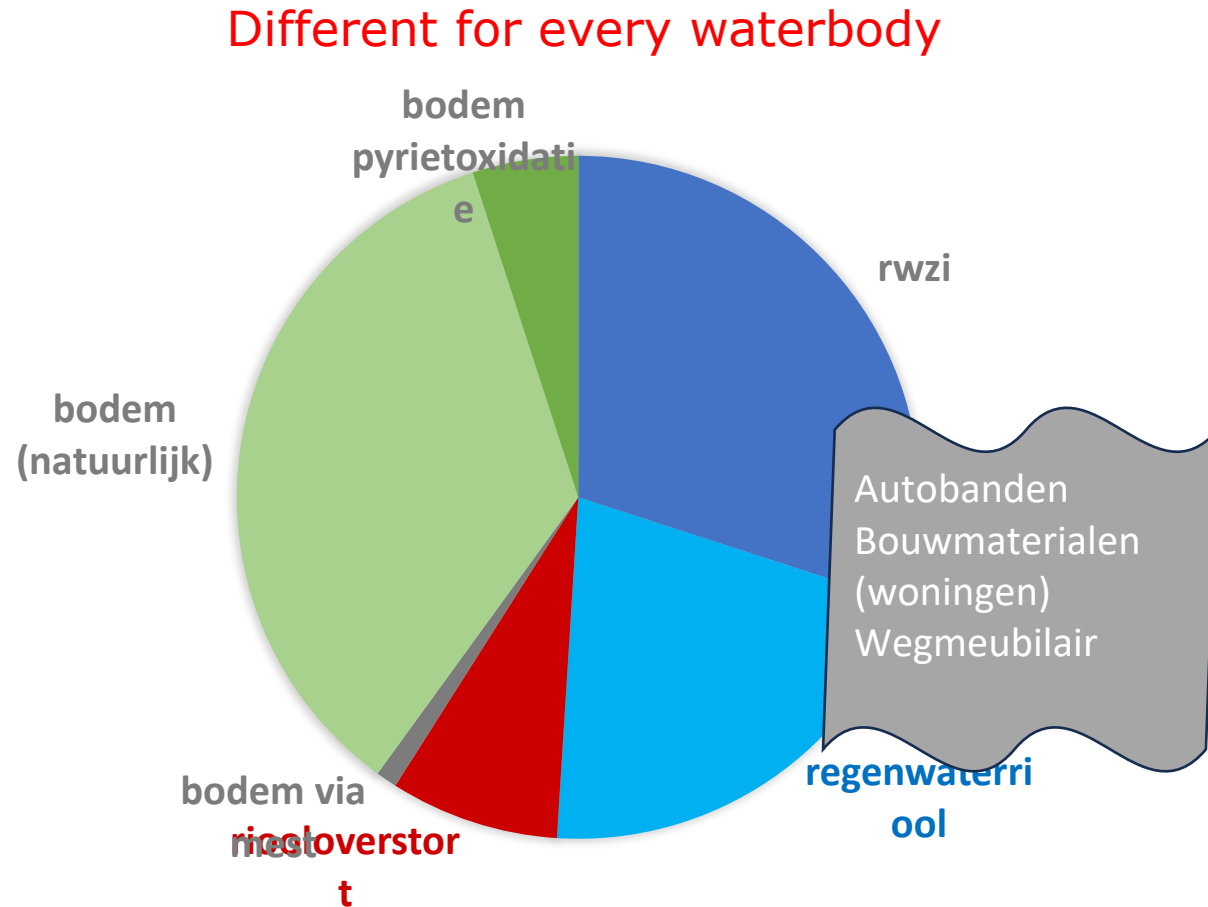
Households?

Rainwater


Historic pollution?

....

Tools Possible pollutors per substance ?



Actions:

- Communicate about problem substances, measure who discards
- voluntary action
- Enforcement of present rules
- Add rules in permits and
- Add rules in general law
- Forbid use of substances (problem plant protection products  FAS, ...)

Not new, but at present sloppy



Purify
Clean-u



Thank you for the
attention

Questions and discussion