



Ministry of Infrastructure
and Water Management

Dutch chain approach reducing pharmaceutical residues in water

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November 8th 2023



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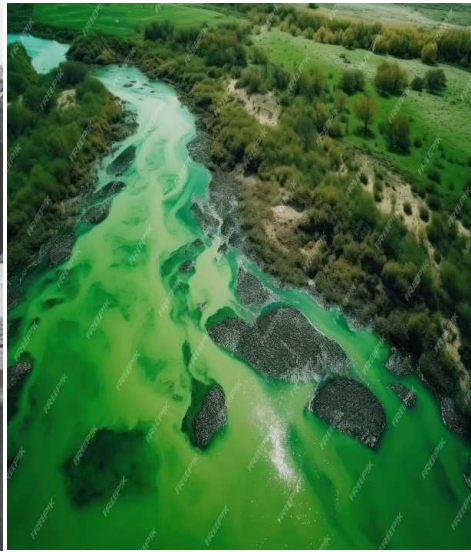


Why?

1960's



1980's



nowadays







- Pharmaceuticals
- Hormones
- Antibiotics
- Fire retardants
- PFAS
- Pesticides

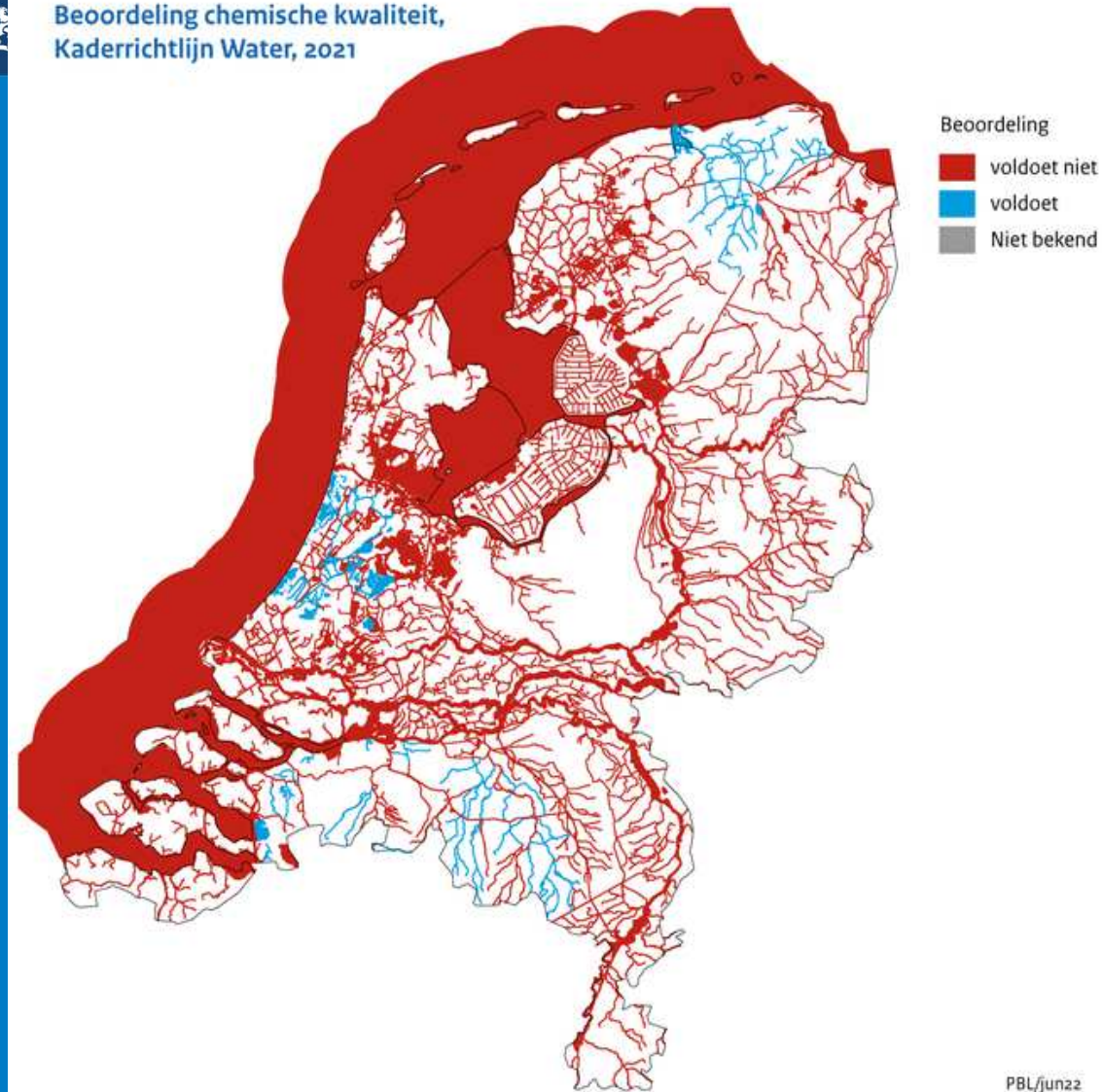
- biocides,
- Cosmetic products,
- Microplastics
- etc.



European Water Framework Directive

Good chemical status?

Beoordeling chemische kwaliteit,
Kaderrichtlijn Water, 2021



Bron: IHW (waterschappen, RWS); bewerkt door PBL

PBL/jun22
www.clo.nl/nh56605



Research outcome

- > Three reports from the National Institute for Public Health and the Environment:
- > At least 190 tonnes pharmaceutical residues emitted into water
- > Effects:
 - Tissue damage
 - Endocrine disruption
 - Behavioural impacts“enough data for decision making”
- > Routing: 95% via normal use and excretion by patients
- > 10% emitted at hospitals and care centres, 90% emitted at home



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Geneesmiddelen en waterkwaliteit

RIVM Briefrapport 2016-0111
C.T.A. Moermond et al.



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Geneesmiddelen en waterkwaliteit

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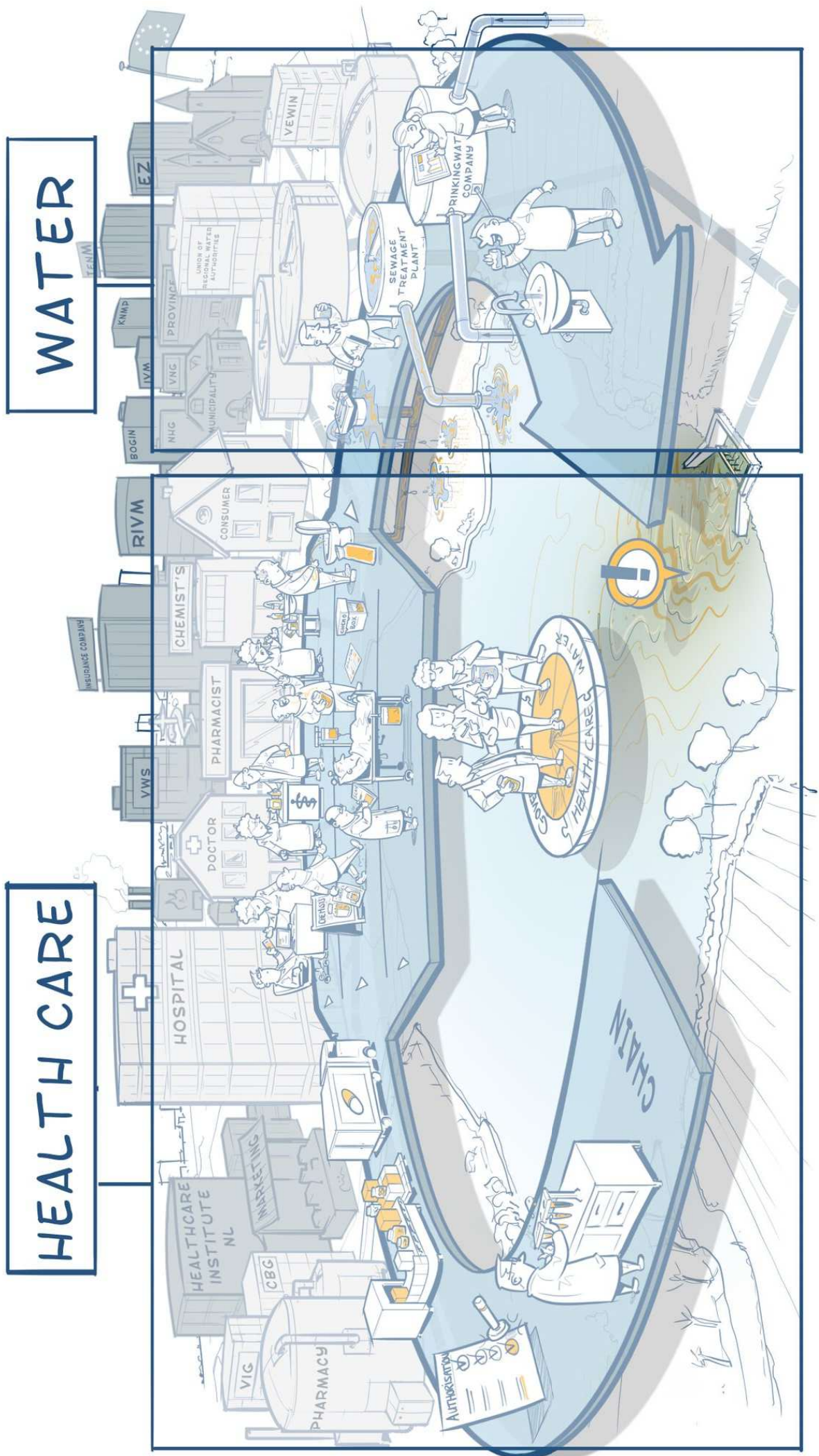
Medicijnresten en waterkwaliteit: een update

RIVM-briefrapport 2020-0088
C.T.A. Moermond et al.



WATER

HEALTH CARE



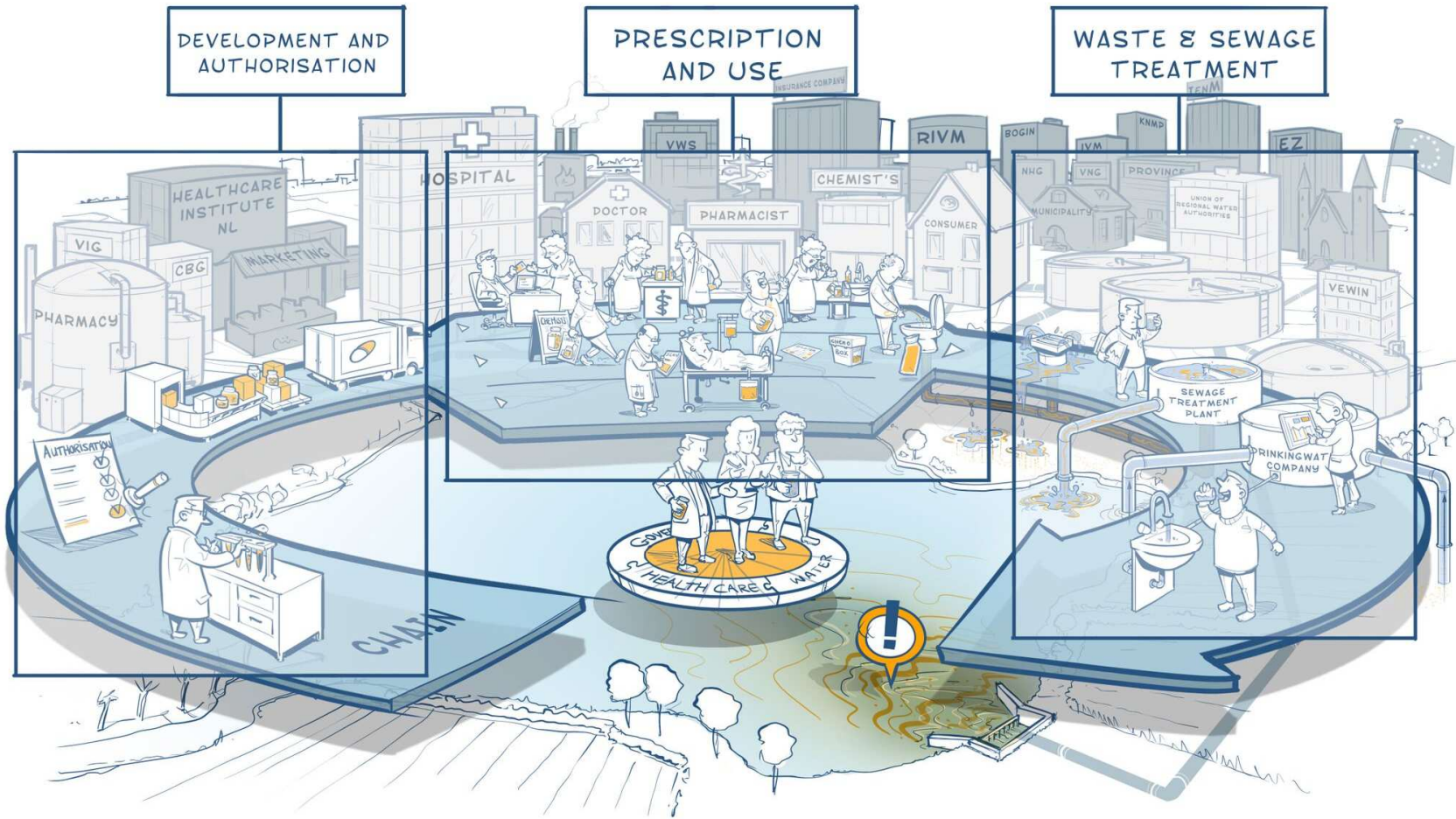


Ground rules

- > Patients must have access to the medicines they need
- > All actions should be pragmatic and solve problems
- > All stakeholders act where they can and don't wait for others
- > Learning by doing!



Inventory of possible actions





Important measures from the Dutch government

- Facilitating and supporting the chain approach for reducing Pharmaceutical residues in water
- A learning by doing programme (€ 60 million) for co-funding quaternary treatment for the removal of organic micropollutants at wwtps
- Funding an Innovation programme (€ 5 million) 'treatment of Micropollutants in urban wastewater' (IPMV)



Ozonation and activated carbon (powder or granular)





Proposal for a EU directive concerning urban wastewater treatment

- > quaternary treatment of urban wastewater before 2045.
 - >200 000 p.e.
 - >10.000 p.e. risk assessment
- > Extended producer responsibility



Thank you for your attention!

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stowa

Tackling Micropollutants in Wastewater
Results of the Dutch Innovation and Implementation Program

November 8 and 9 2023
Aquatech Amsterdam



*Ministry of Infrastructure
and Water Management*