



National Institute for Public Health  
and the Environment  
*Ministry of Health, Welfare and Sport*

## An ecological perspective on a river's rights: a recipe for increased effectiveness?

Susanne Wuijts (RIVM),  
Jappe Beekman (RIVM),  
Bas van der Wal (Stowa),  
Cathy Suykens (UU),  
Peter Driesssen (UU),  
Marleen van Rijswick (UU)



## Central questions

1. What does a river need to be healthy from an *ecological perspective*,
2. How do these needs relate to the conditions for effective water quality governance in both the planning and the implementation phase,
3. How would the transfer of rights serve the needs of a healthy river from an *ecological perspective*.



# Approach from the European context (1/2)

## Ambitions

- SDG 6:
  - By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- Water Framework Directive (2000/60/EC):
  - By ultimately 2027, achieve good ecological and chemical status for Europe's waters (surface water, groundwater, coastal water)



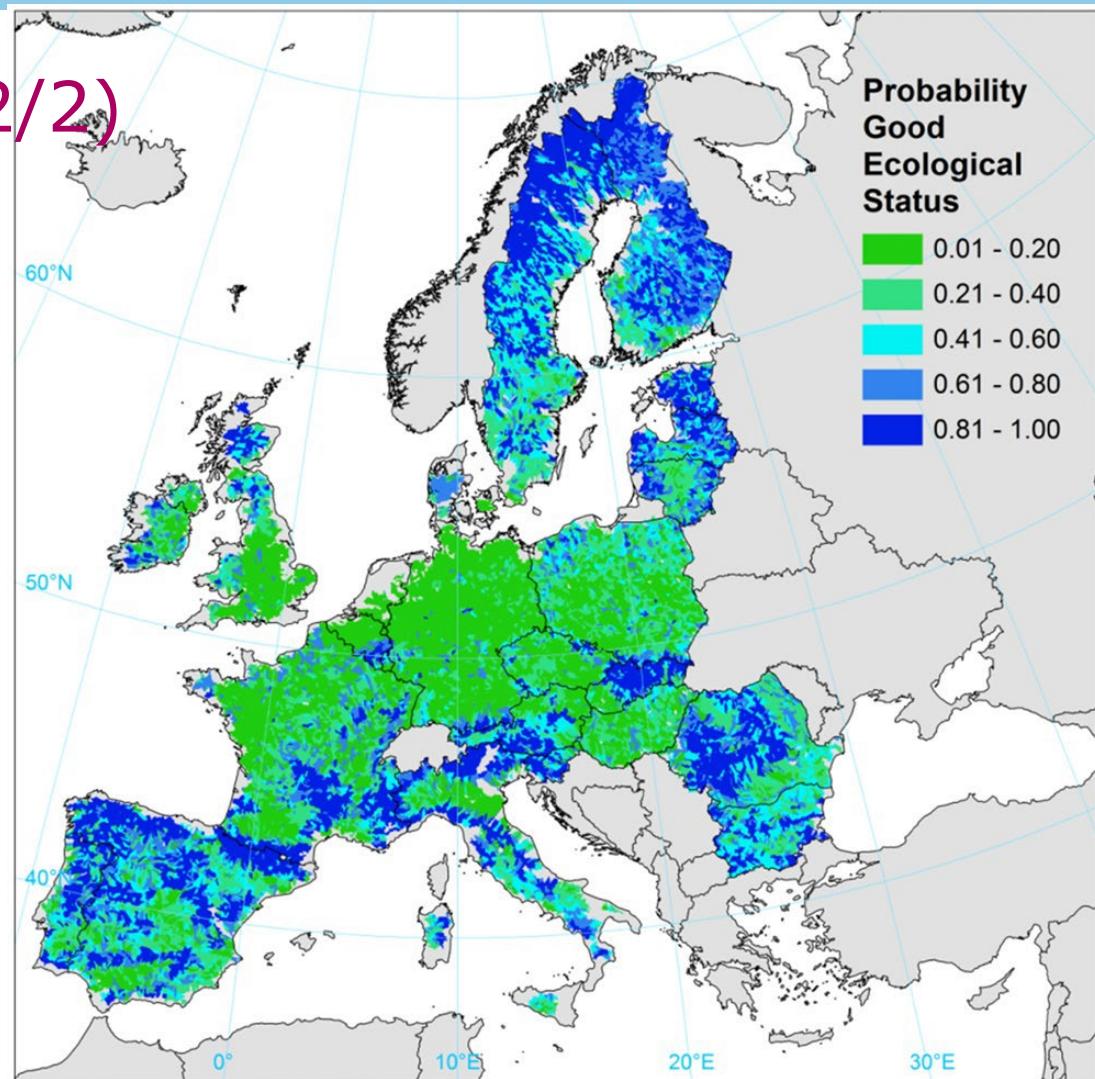
## European context (2/2)

### Projections WFD (2027)

European Environmental Agency

Grizetti et al. (2016)

DOI:10.1038/s41598-017-00324-3





# Possible explanation

- Water issues: complex issues:
  - Multi levels,
  - Multi scales,
  - Multi-disciplines
- Different scholars and actors hold different perspectives on effectiveness
- Legal strand: transfer of rights to the river to increase effectiveness



# Approach

- Identify a river's needs from literature
- Specify needs into specific objectives
- Identify governance conditions for those objectives
- Reflect impacts of the transfer of rights on realisation of objectives



# River's needs

Related to:

- Hydrology
- Morphology
- Physical-chemical requirements

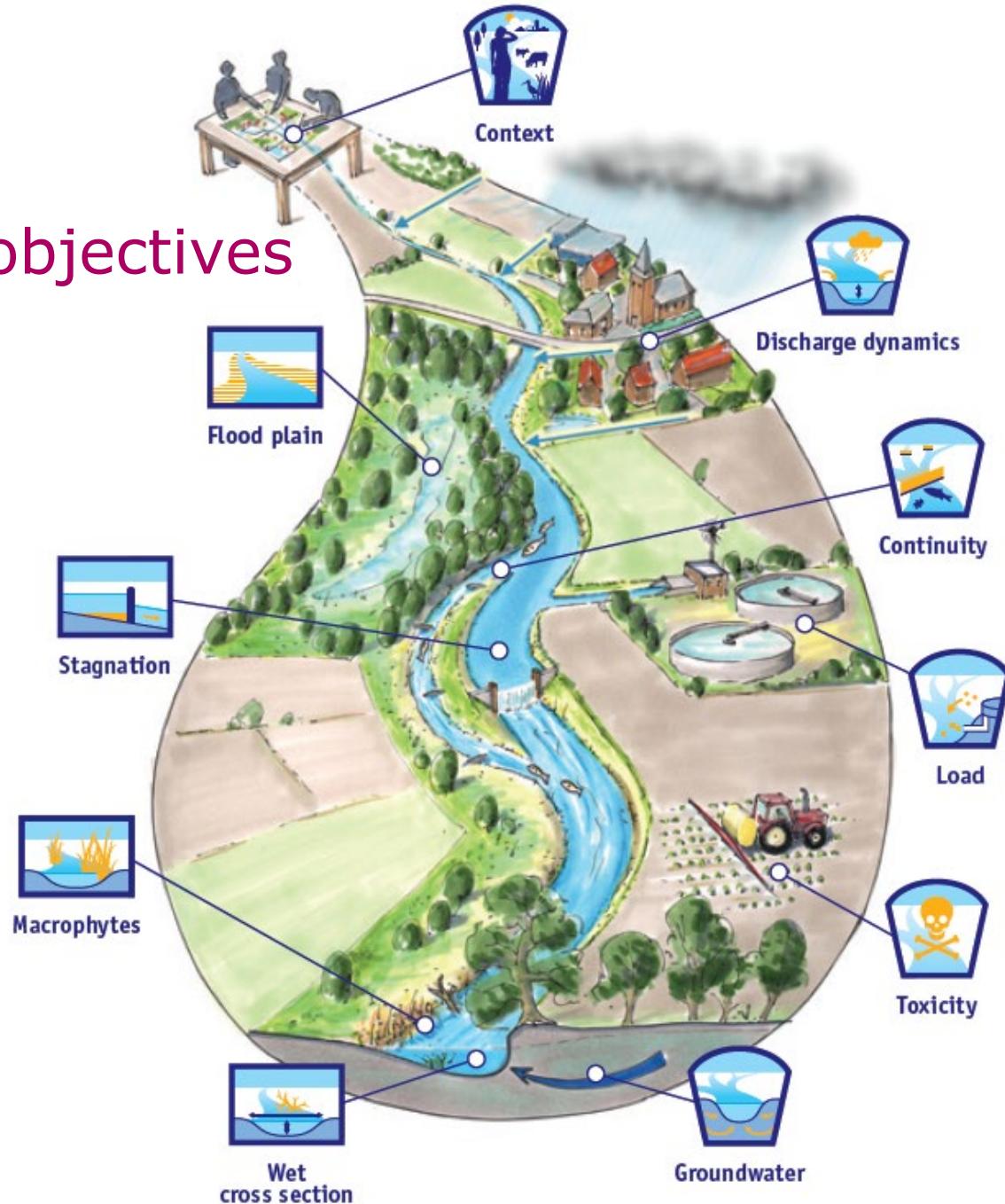
Pictures from:

Mellor et al. 2018



# River's needs into objectives

- More specific than general objectives WFD
- Annex II, WFD
- Dutch setting: running waters





# Governance conditions

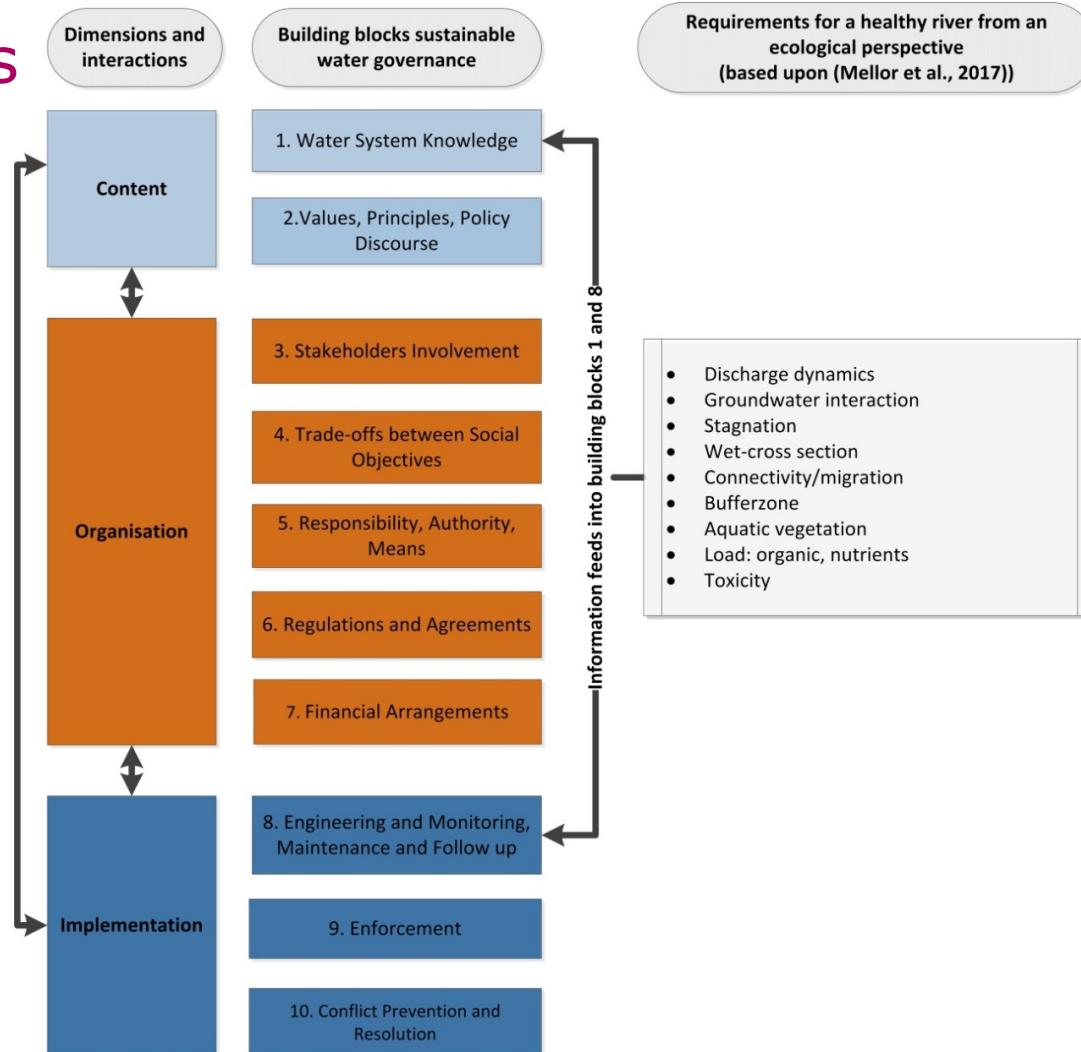
- Analytical framework for sustainable water governance

Van Rijswick et al., 2014  
doi:10.1080/02508060.2014.951828

- EKFs running waters NL

Mellor et al., 2017

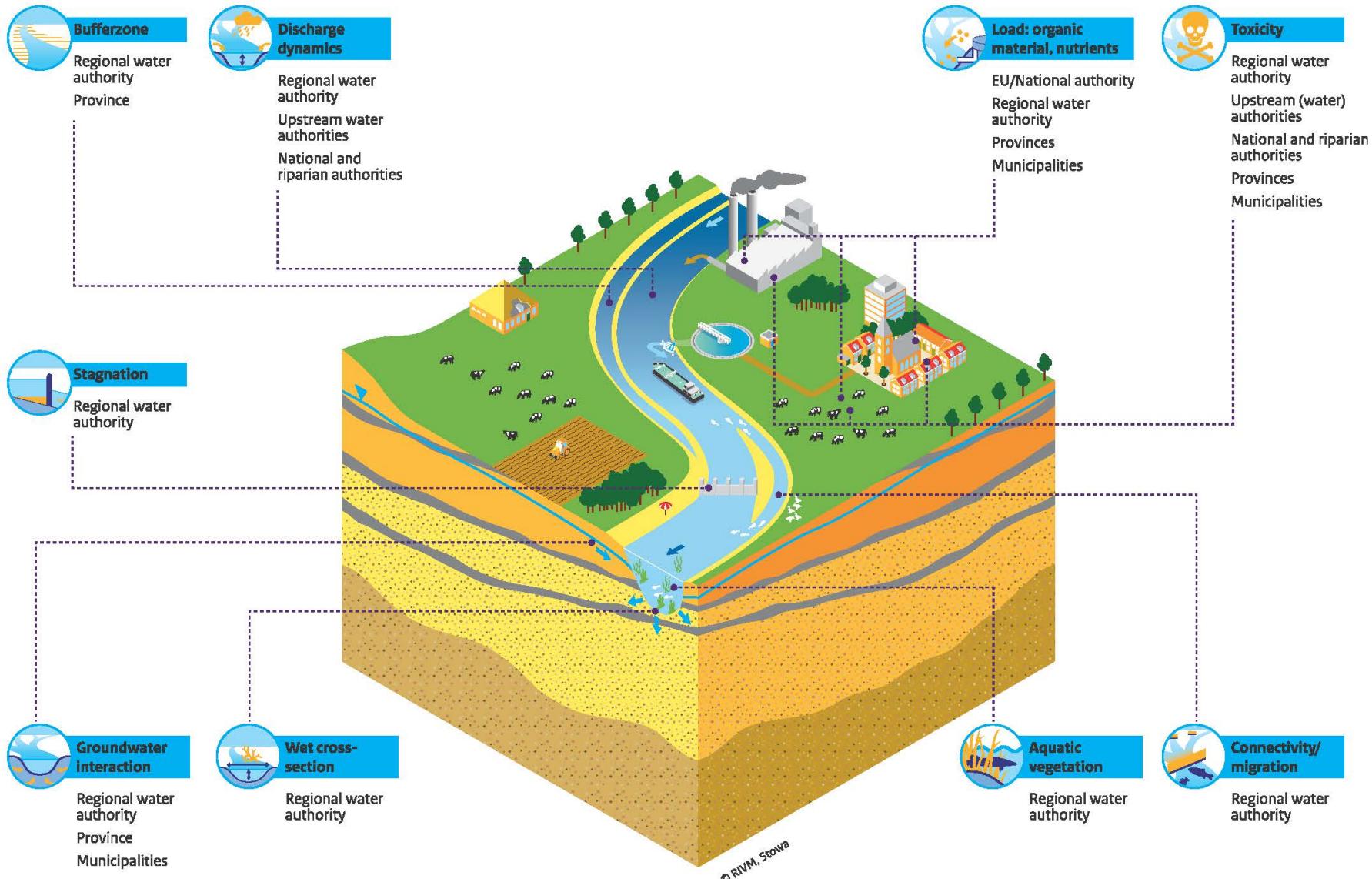
<https://www.stowa.nl/publicaties/ecological-key-factors-method-setting-realistic-goals-and-implementing-cost-effective>





# Results

	 Connectivity	 Load (organic, nutrients, salt)
<b>Contribution to the ecosystem</b>	Ability of sediment, organic matter and organisms to move in waterbody	<ul style="list-style-type: none"><li>• Eutrophication leads to imbalanced oxygen concentrations</li><li>• Oxygen depletion due degradation of organic matter</li><li>• Algae blooms, excessive growth of aquatic vegetation, fish mortality</li></ul>
<b>Anchoring of river's needs in WFD (2000/60/EC)</b>	<u>Ecological status</u> (morphology) Article 4 Annex 5.1	<u>Ecological status</u> Articles 4, 10, 11, Annex 5.1 <u>Other EU directives:</u> <ul style="list-style-type: none"><li>• Nitrate (91/676/EEC)</li><li>• Urban waste water (91/271/EEC and 98/15/EC)</li></ul>
<b>Other functions with potential impact on river's needs</b>	<ul style="list-style-type: none"><li>• Shipping</li><li>• Energy supply</li></ul>	<ul style="list-style-type: none"><li>• Agriculture</li><li>• Human waste water effluent emission, run-off and overflows</li><li>• Industrial waste water effluent emission</li></ul>
<b>Actors that could influence this impact</b>	<ul style="list-style-type: none"><li>• Regional water authority</li><li>• Federation of skippers</li><li>• Federation of agriculture</li></ul>	<ul style="list-style-type: none"><li>• Different EC Directorates and national Ministries</li><li>• Regional water authority</li><li>• Provinces</li><li>• Municipalities</li><li>• Federation of agriculture</li><li>• Regional farmers and agricultural contractors</li><li>• Industries</li></ul>
<b>Administrative instruments in the Netherlands to protect river's needs</b>	<ul style="list-style-type: none"><li>• Regional water plans</li><li>• Project-related decision making or licensing</li></ul>	<ul style="list-style-type: none"><li>• National general regulations on use of manure (e.g. buffer zones)</li><li>• Provincial site specific conditions</li><li>• Additional requirements by water authorities or local municipalities</li><li>• Enforcement</li></ul>
<b>Policy interventions</b>	Trade-offs to other regional riparian functions: agriculture shipping, fishing, energy supply, flood management	<ul style="list-style-type: none"><li>• Voluntary instruments (win/win)</li><li>• Financial incentives/grants</li><li>• Sustainable arrangements for agriculture(CAP)</li><li>• Information and advice to actors</li><li>• Capacity building for enforcement</li></ul>
<b>Physical interventions (examples)</b>	<ul style="list-style-type: none"><li>• Remove weirs</li><li>• By-passes</li><li>• Fish passages</li></ul>	<ul style="list-style-type: none"><li>• Reduce emissions agriculture</li><li>• Upgrade waste water treatment plants, including stormwater overflow</li><li>• Reduce industrial waste water emission</li></ul>





## Conclusions/reflections

- Different river's needs have different needs towards conditions of governance
- Transfer of rights: potential better raised voice, however:
  - Balance with other interests: priority setting not solved by transfer
  - Issue of scale and custodian