Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen

Nürtingen-Geislingen University
School of Landscape Architecture, Environmental and Urban Planning
Department of Landscape Planning, especially Landscape Informatics

The European Water Framework Directive and Landscape Democracy




Jean Monnet Module

“Landscape, Democracy and the European Union”

Prof. Dr. Michael Roth | December 2nd, 2020

Outline

- Water as a basis of life
- Water problems
- The European Water Framework Directive
  - Background
  - Introduction to the Water Framework Directive
  - German implementation
- Project Example: Emscher River
- River Landscape Aesthetics –
  The forgotten dimension of the WFD ?
- Reflection of consequences for landscape architecture

“Water is the basis of life and the blue arteries of the earth! Everything in the non-marine environment depends on freshwater to survive.”

Sandra Postel (2006), director & founder of the Global Water Policy Project

Water as a basis of life

- Without water the Earth would be a dead desert. Water is a pre-requisite for life […]. All organisms contain 50–99% water […]. If water becomes scarce or has poor quality, plants and animals die.
- Man has to drink two liters of water per day. The function of water cannot be substituted by any other substance.
- 94.23% of the whole water on Earth is salty and unsuitable for drinking and irrigation. 1.92% is frozen in glaciers and snow. 3.84% is ground water. Only 0.02% occur as liquid fresh water on the Earth‘s surface and it is distributed very in inhomogeneously. Already today 20% of the world population are suffering from scarcity of water.
- Water will be the most important substance during this century.

Lozán, J.L., Karbe, L. & Neukirch, U. (2011): Wasser als Grundlage des Lebens. In: Lozán, J.L., Graßl, H., Hupfer, P., Karbe, L. & Schönwiese, C.-D. (Eds.): Warnsignal Klima: Genug Wasser für alle? 3. edition. pp. 21-30.

“When the well is dry, we know the worth of water.”

Benjamin Franklin (* 1706, + 1790)

Water problems

- Global (source: United Nations 2016):
  - 844 million people lacked basic drinking water in 2015
  - 2.3 billion people lacked basic sanitation in 2015
  - 80 % of wastewater goes into waterways without treatment
  - The world has lost 70 % of its natural wetlands in the last century
- EU (source: European Environmental Agency 2018):
  - 60 % of EU surface waters are not in a good ecological state
  - > 60 % of EU surface waters are not in a good chemical state
  - > 25 % of EU ground waters is not in good chemical state


“Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.”
EU Water Framework Directive (2000)

Water Framework Directive – Background (Recitals)

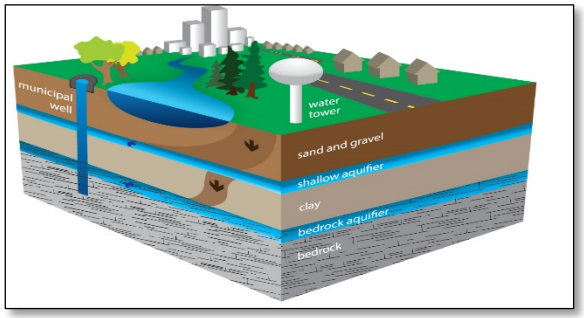
- There is a need for action to protect Community waters in qualitative as well as in quantitative terms.
- It is necessary to develop an integrated Community policy on water.
- As set out in Article 174 of the Treaty, the Community policy on the environment is to contribute to pursuit of the objectives of preserving, protecting and improving the quality of the environment, in prudent and rational utilisation of natural resources, and to be based on the precautionary principle and on the principles that preventive action should be taken, environmental damage should, as a priority, be rectified at source and that the polluter should pay.
- The supply of water is a service of general interest.

Water Framework Directive – Aims (Article 1)

- To establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater.
- To prevent further deterioration and protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems.
- To aim at enhanced protection and improvement of the aquatic environment from pollution.
- To ensure the progressive reduction of pollution of groundwater and prevent its further pollution.
- To contribute to mitigating the effects of floods and droughts.
- To provide sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use.

Water Framework Directive – Definitions (Article 2)

Surface water



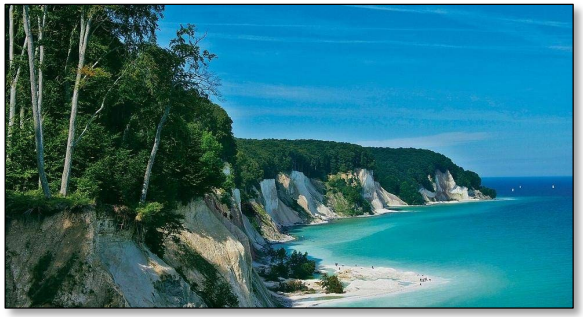
Groundwater

Inland water

River

Lake

Transitional waters

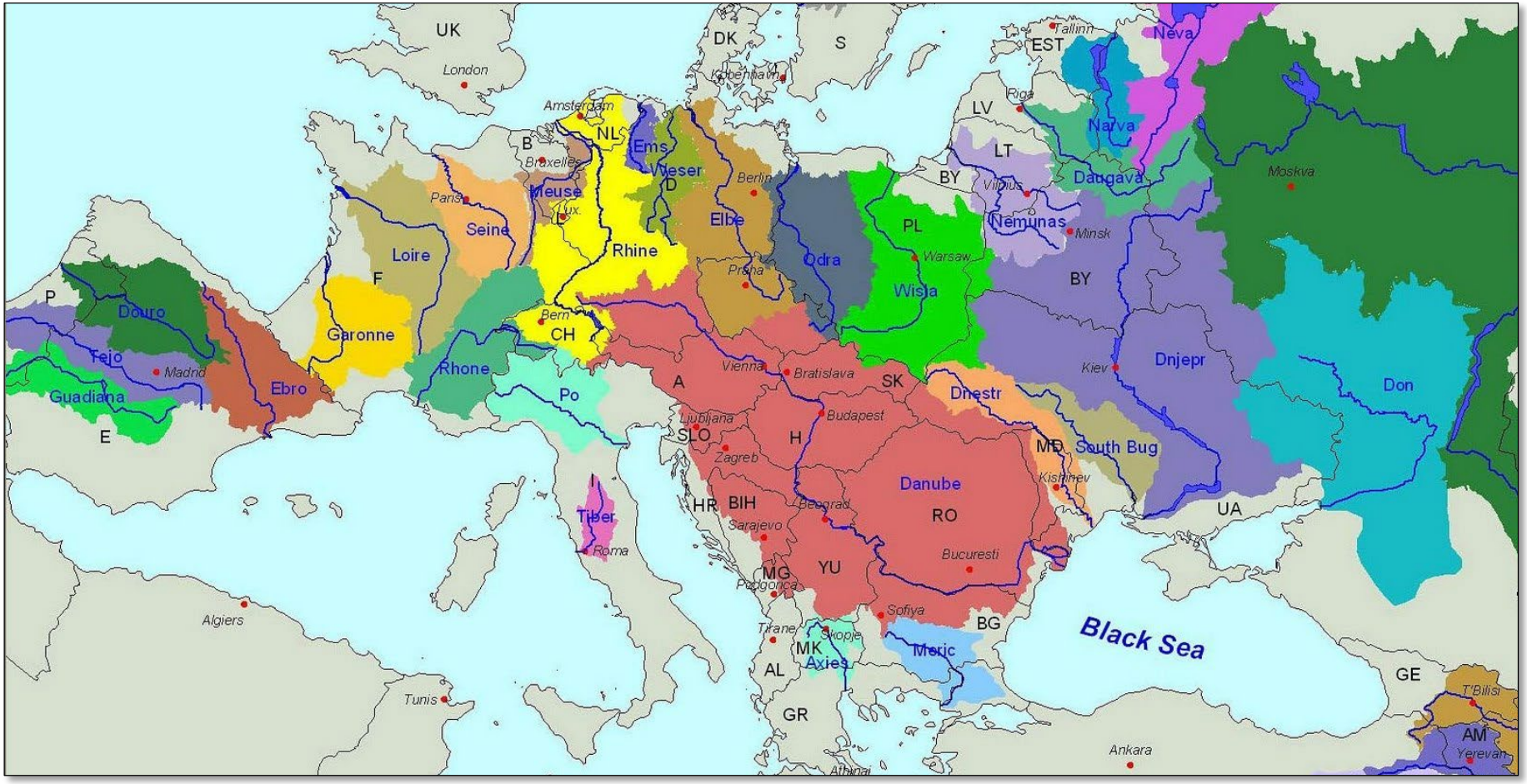


Coastal waters

Artifical water body

Heavily modified water body

WFD– River Basin Approach (Article 3)

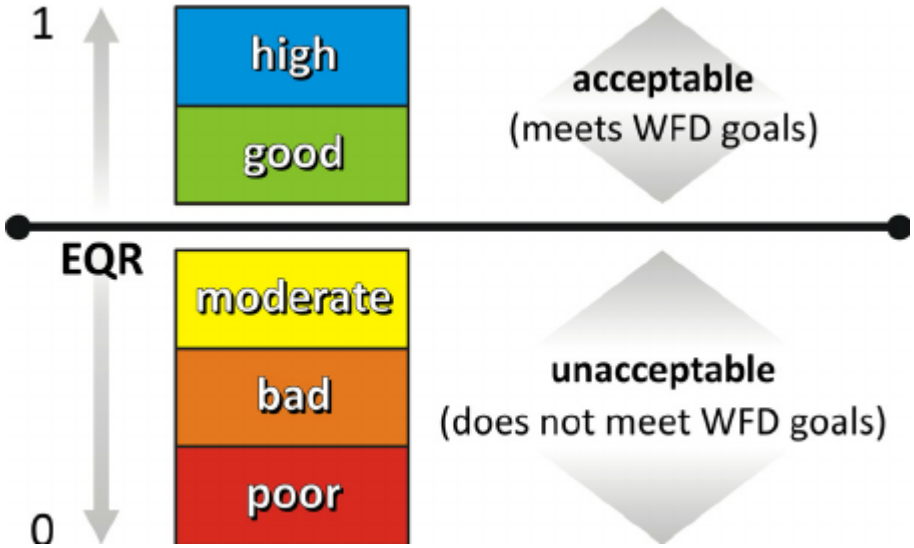


WFD – Environmental Objectives (Article 4)

- Surface waters:
  Prevent deterioration of the status
  of all bodies of surface water.
- Surface water bodies:
  Achieve good surface water status at the latest 15 years after the date of entry into force of this Directive (i.e. 2015)
- Artificial and heavily modified bodies of water:
  Achieve good ecological potential and good surface water chemical status at the latest 15 years from the date of entry into force of this Directive (i.e. 2015)

WFD – Good Surface Water Status

- Ecological status, ecological potential, chemical status



Source: Miccoli et al. 2013

Structure

Fauna & Flora

WFD – Good Surface Water Status

- Passability of rivers for migrating fish

WFD – Environmental Objectives

- Groundwater:
  Prevent or limit the input of pollutants into groundwater and prevent the deterioration of the status of all bodies of groundwater.
- Groundwater
  Protect, enhance and restore all bodies of groundwater, ensure a balance between abstraction and recharge of groundwater, with the aim of achieving good groundwater status at the latest 15 years after the date of entry into force of this Directive (i.e. 2015)

WFD – Analysis of Status Quo (Article 5)

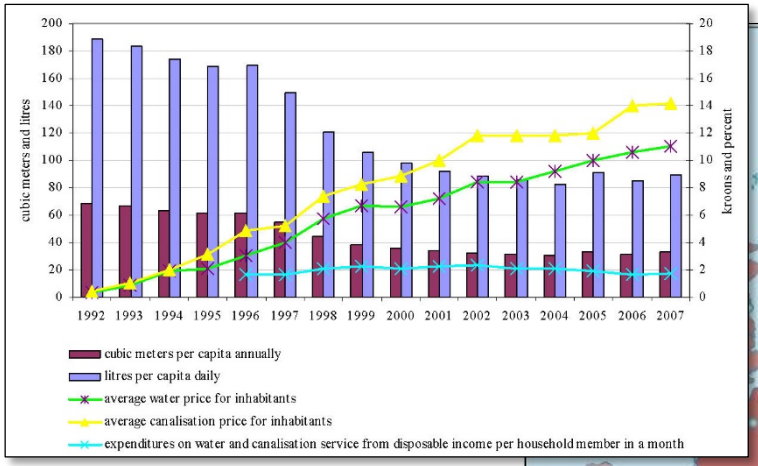
- For all river basin districts:
  - Characteristics of the river basin district,
  - Review of the environmental impact of human activity and
  - Economic analysis of water use
- Initial analysis completed at the latest four years after the date of entry into force of this Directive (i.e. 2004)
- Repeated Analysis: Review, and if necessary update at the latest 13 years after the date of entry into force of this Directive and every six years thereafter
- Technical specification in annexes II and III of the Directive

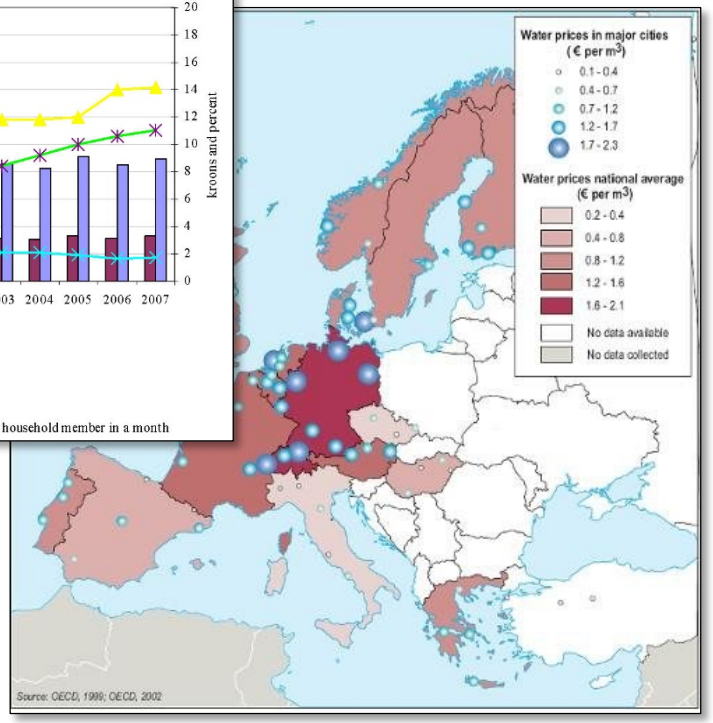
WFD – Monitoring (Article 8)

- Establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview
- For surface waters:
  - the volume and level or rate of flow to the extent relevant for ecological and chemical status and ecological potential, and
  - the ecological and chemical status and ecological potential;
- For groundwaters:
  - chemical and
  - quantitative status

WFD – Recovery of Costs for Water Services (Article 9)

- Recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted, and in accordance in particular with the polluter pays principle.





WFD – Programme of measures (Article 11)

- Each Member State shall ensure the establishment for each river basin district, or for the part of an international river basin district within its territory, of a programme of measures, taking account of the results of the analyses required (Art. 5), in order to achieve the objectives established (Art. 4).
- The programmes of measures shall be established at the latest nine years after the date of entry into force of this Directive and all the measures shall be made operational at the latest 12 years after that date.
- The programmes of measures shall be reviewed, and if necessary updated at the latest 15 years after the date of entry into force of this Directive and every 6 years thereafter.

WFD – River basin management plans (Article 13)

- Member States shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory.
- In the case of an international river basin district falling entirely within the Community, Member States shall ensure coordination with the aim of producing a single international river basin management plan.
- In the case of an international river basin district extending beyond the boundaries of the Community, Member States shall endeavour to produce a single river basin management plan.

WFD – Public Information and Consultation (Article 14)

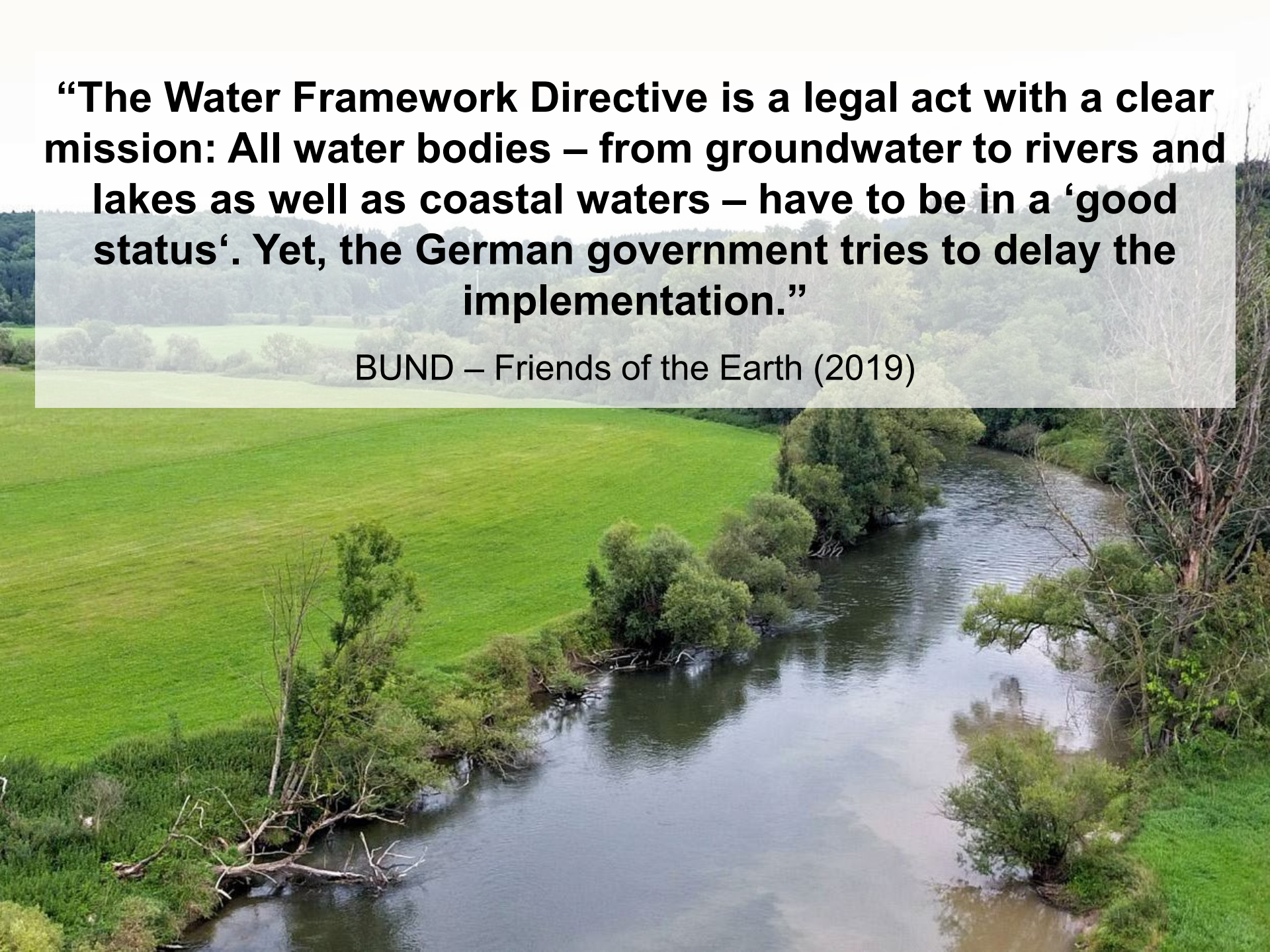
- Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans, regarding:
  - a timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers;
  - an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers;
  - draft copies of the river basin management plan, at least one year before the beginning of the period to which the plan refers.

WFD – Public Information and Consultation II (Article 14)

- On request, access shall be given to background documents and information used for the development of the draft river basin management plan.
- Member States shall allow at least six months to comment in writing on those documents in order to allow active involvement and consultation.
- This shall apply equally to updated river basin management plans.

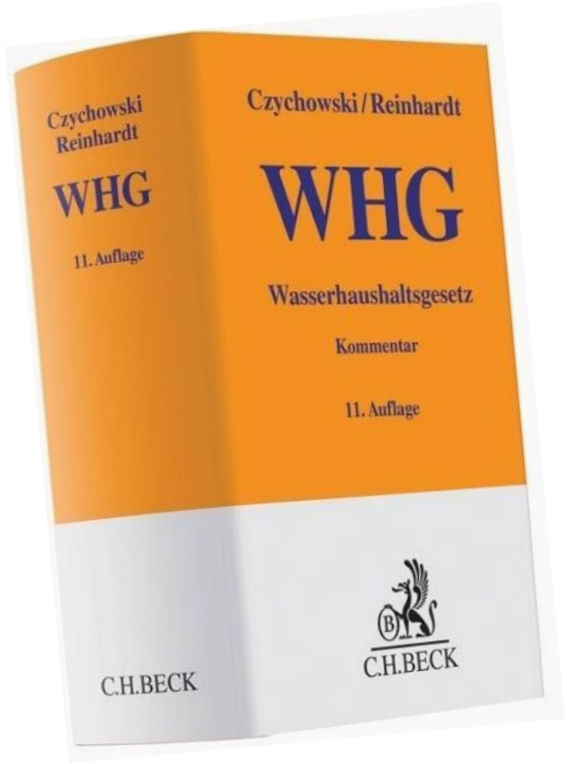
“The Water Framework Directive is a legal act with a clear mission: All water bodies – from groundwater to rivers and lakes as well as coastal waters – have to be in a ‘good status‘. Yet, the German government tries to delay the implementation.”

BUND – Friends of the Earth (2019)



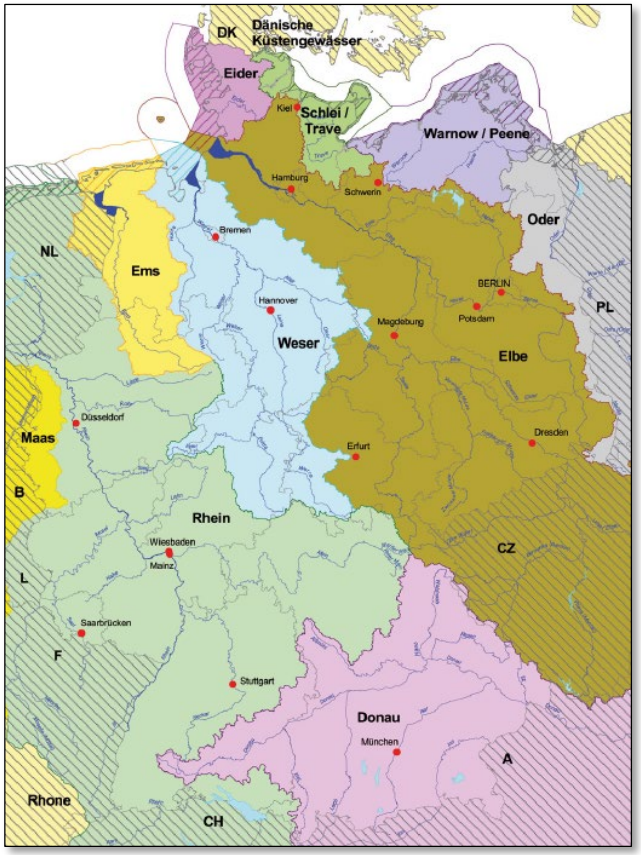
WFD – German Implementation

- Implemented in the Federal Water Act

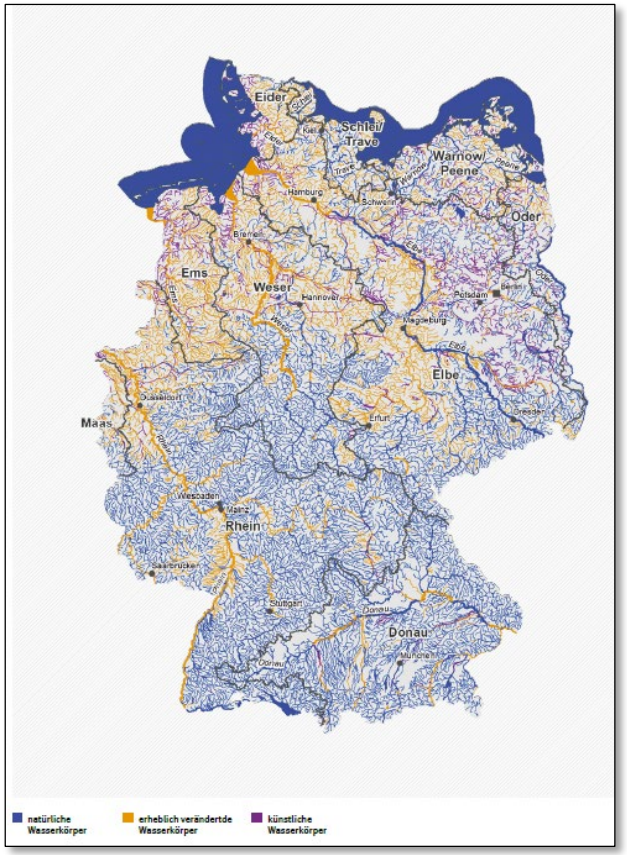


WFD – Status and Procedure in Germany

- Ten river basin districts

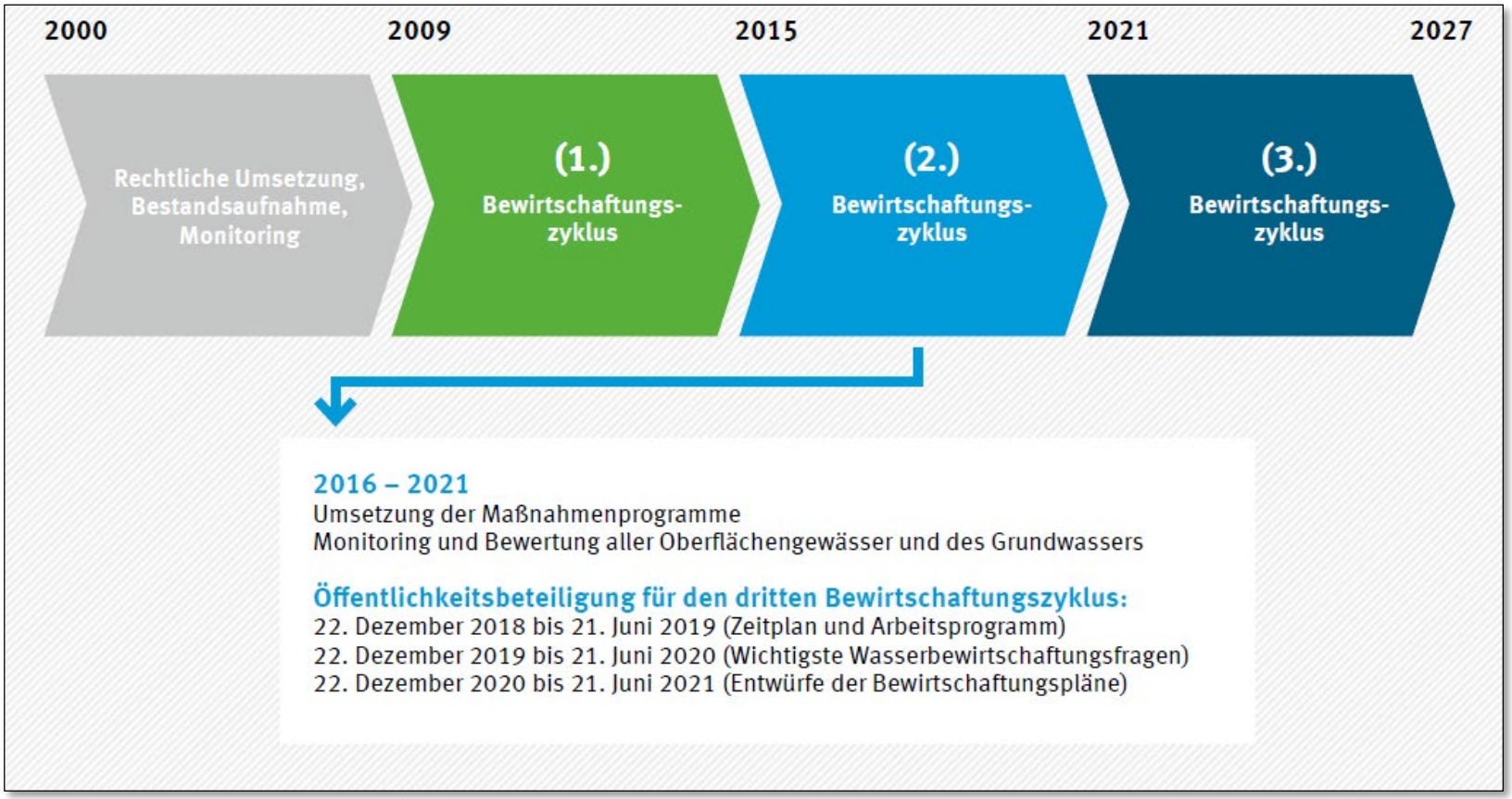


- Classification of water bodies



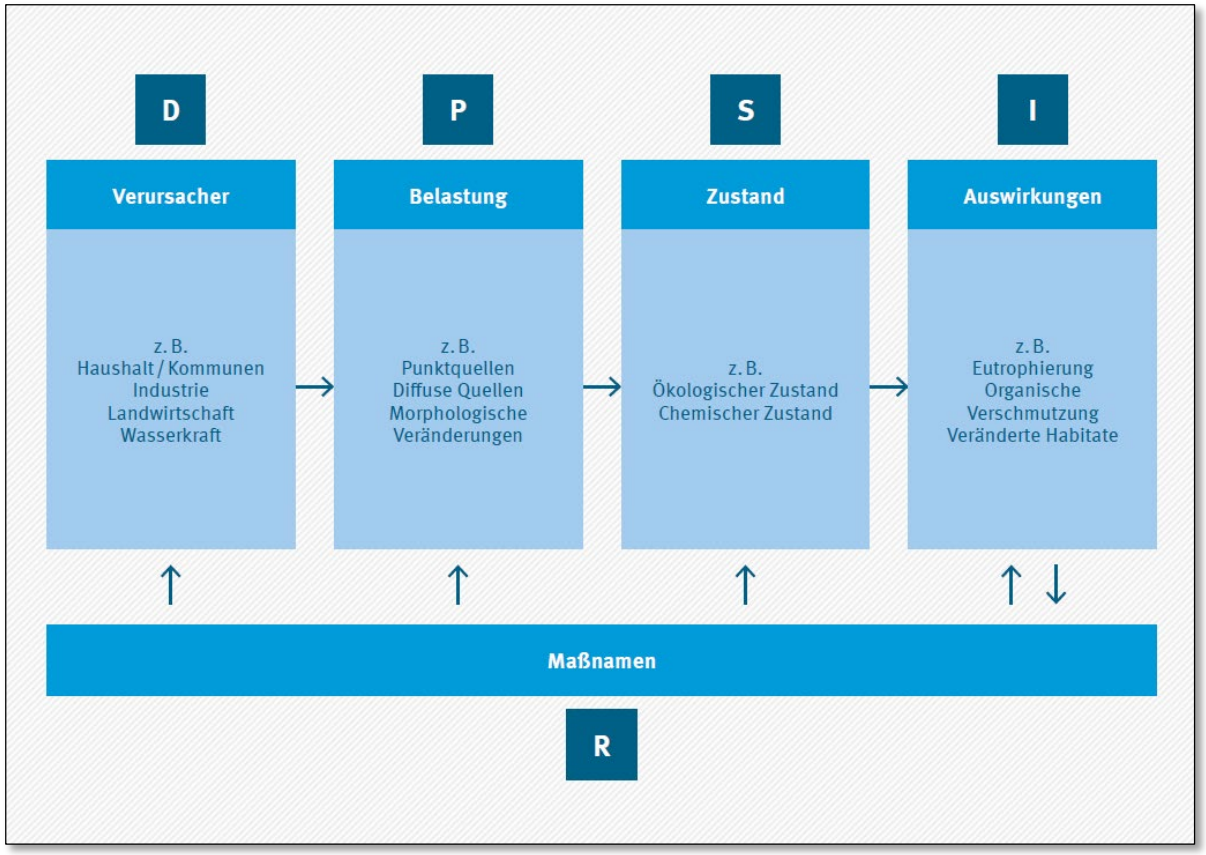
WFD – Status and Procedure in Germany

- Three management cycles



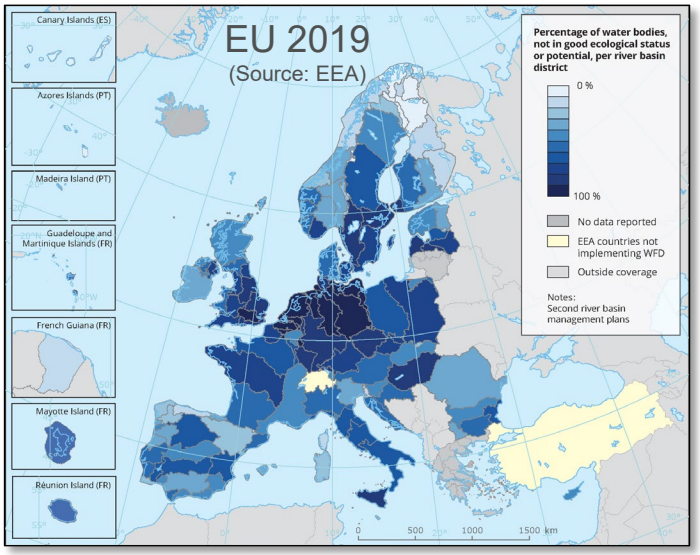
WFD – Status and Procedure in Germany

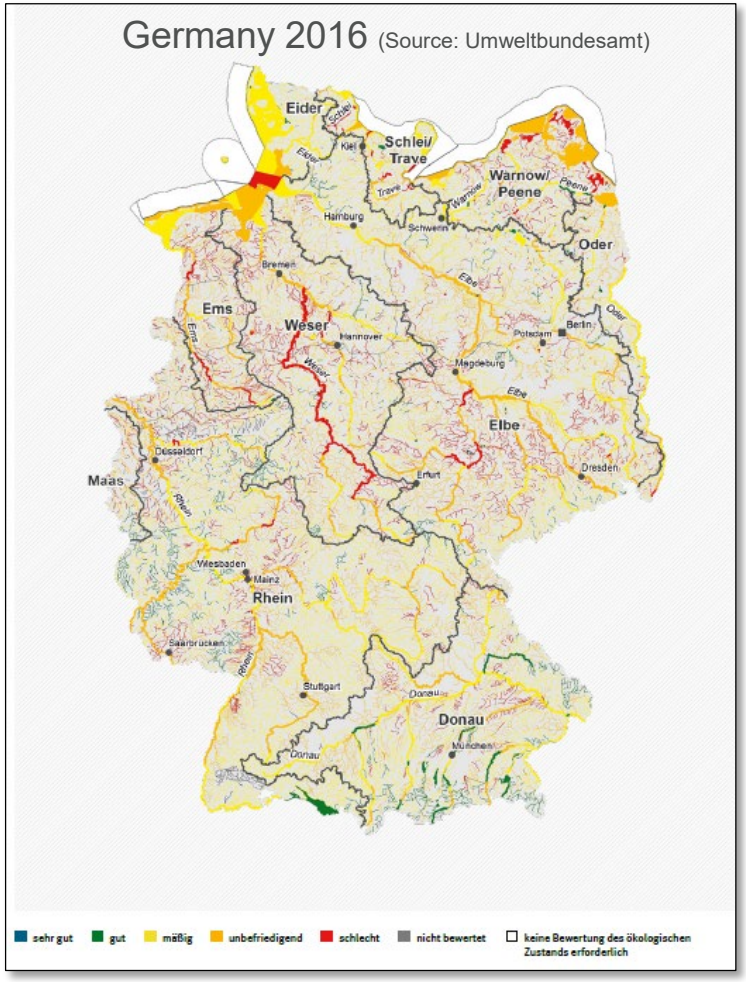
- DPSIR method used as a management scheme



WFD – Status and Procedure in Germany

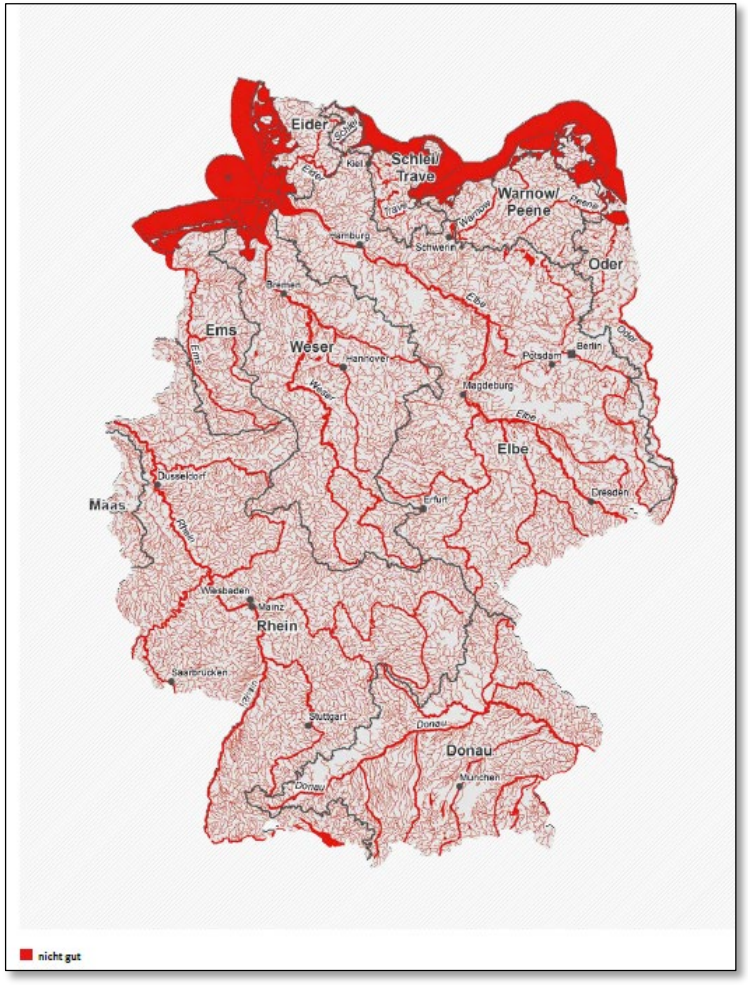
- Ecological status of water bodies
  - 8.2 % very good or good
  - 36.1 % moderate
  - 33.8 % unsatisfactory
  - 19.2 % bad





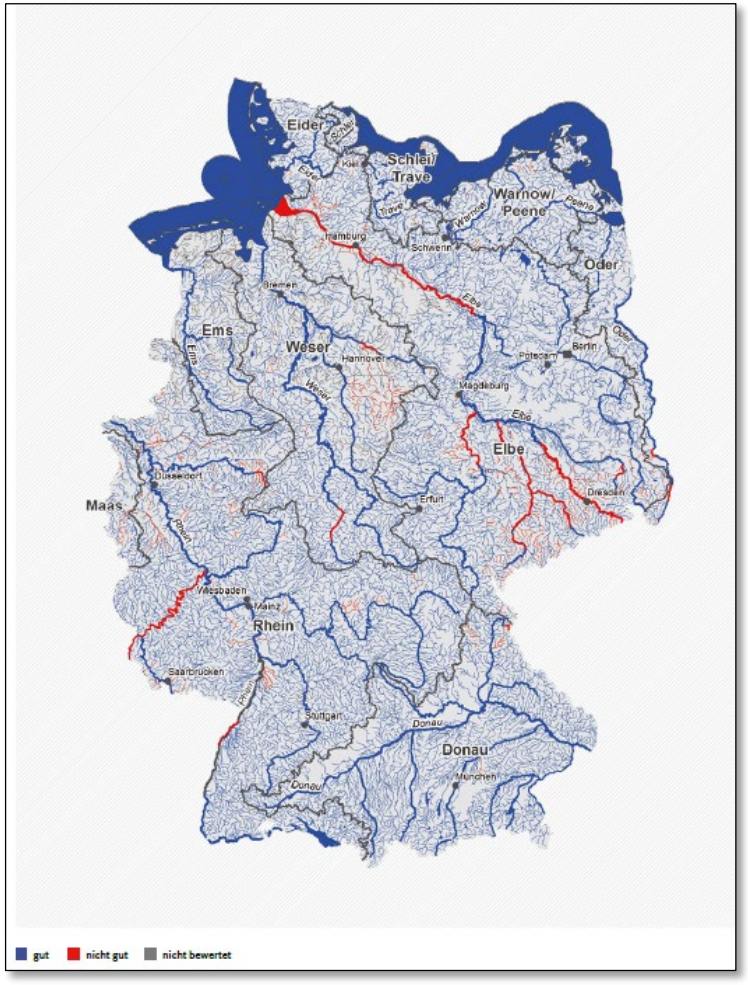
WFD – Status and Procedure in Germany

- Chemical status of water bodies
  - 100 % not good



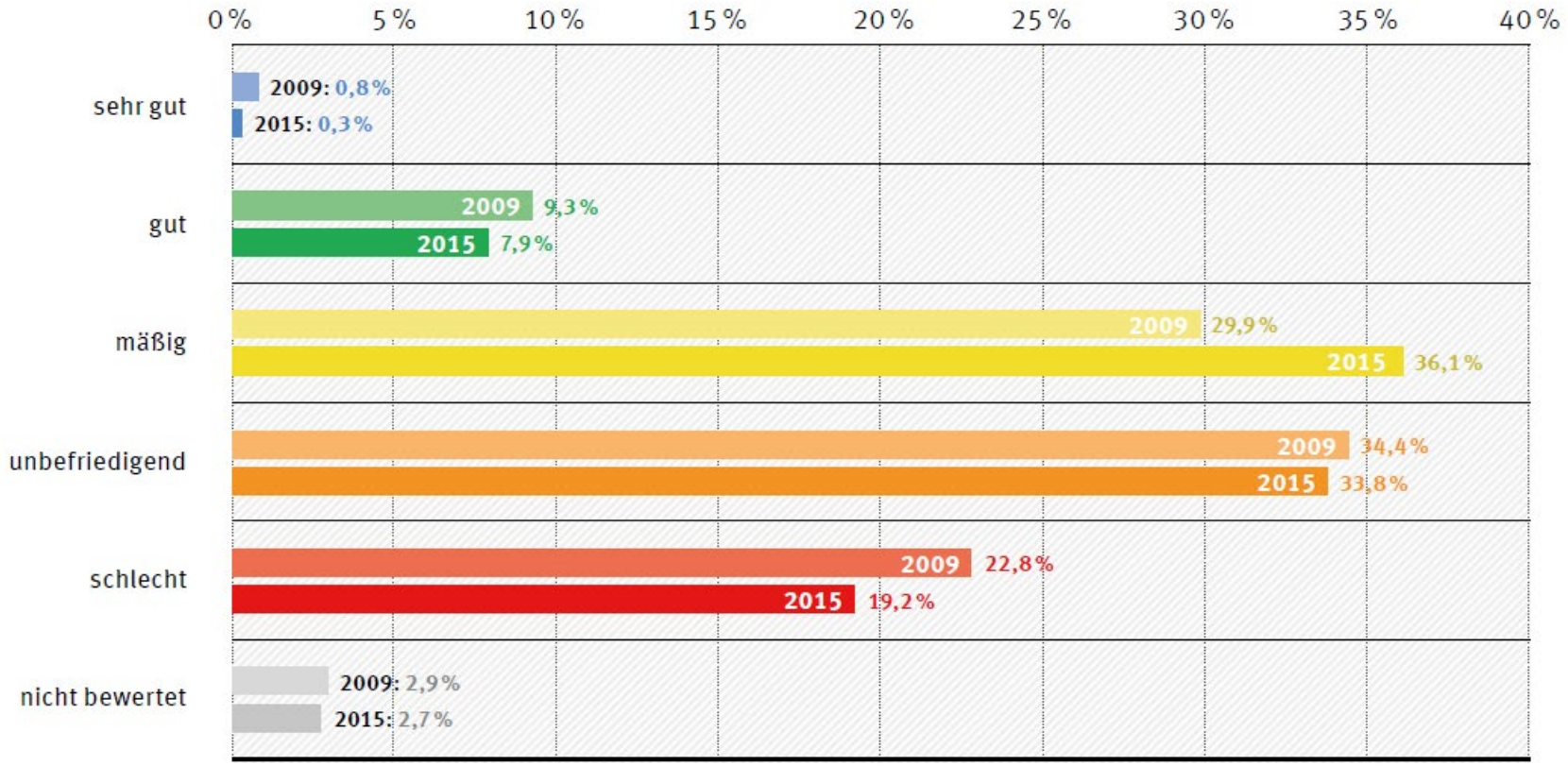
WFD – Status and Procedure in Germany

- Chemical status of water bodies
  - 84 % good if ubiquitous substances are neglected, e.g. mercury
  - 16 % not good



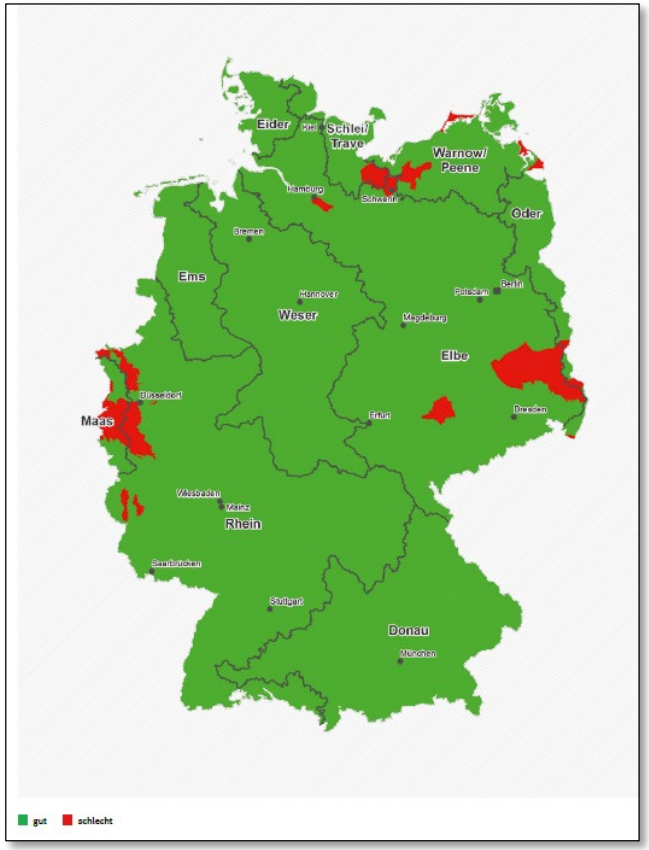
WFD – Status and Procedure in Germany

- Development of ecological status 2009 - 2015

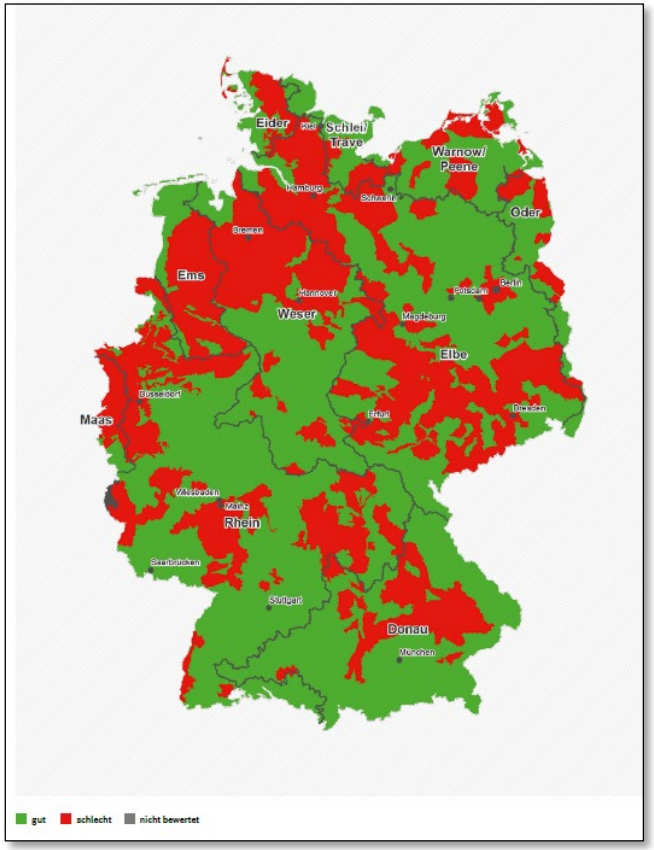


WFD – Status and Procedure in Germany

- Groundwater - quantitative



- Groundwater - qualitative



WFD – Status and Procedure in Germany

- Examples of measures from programmes

1

Neubau der Kläranlage Westerburg in Rheinland-Pfalz

2

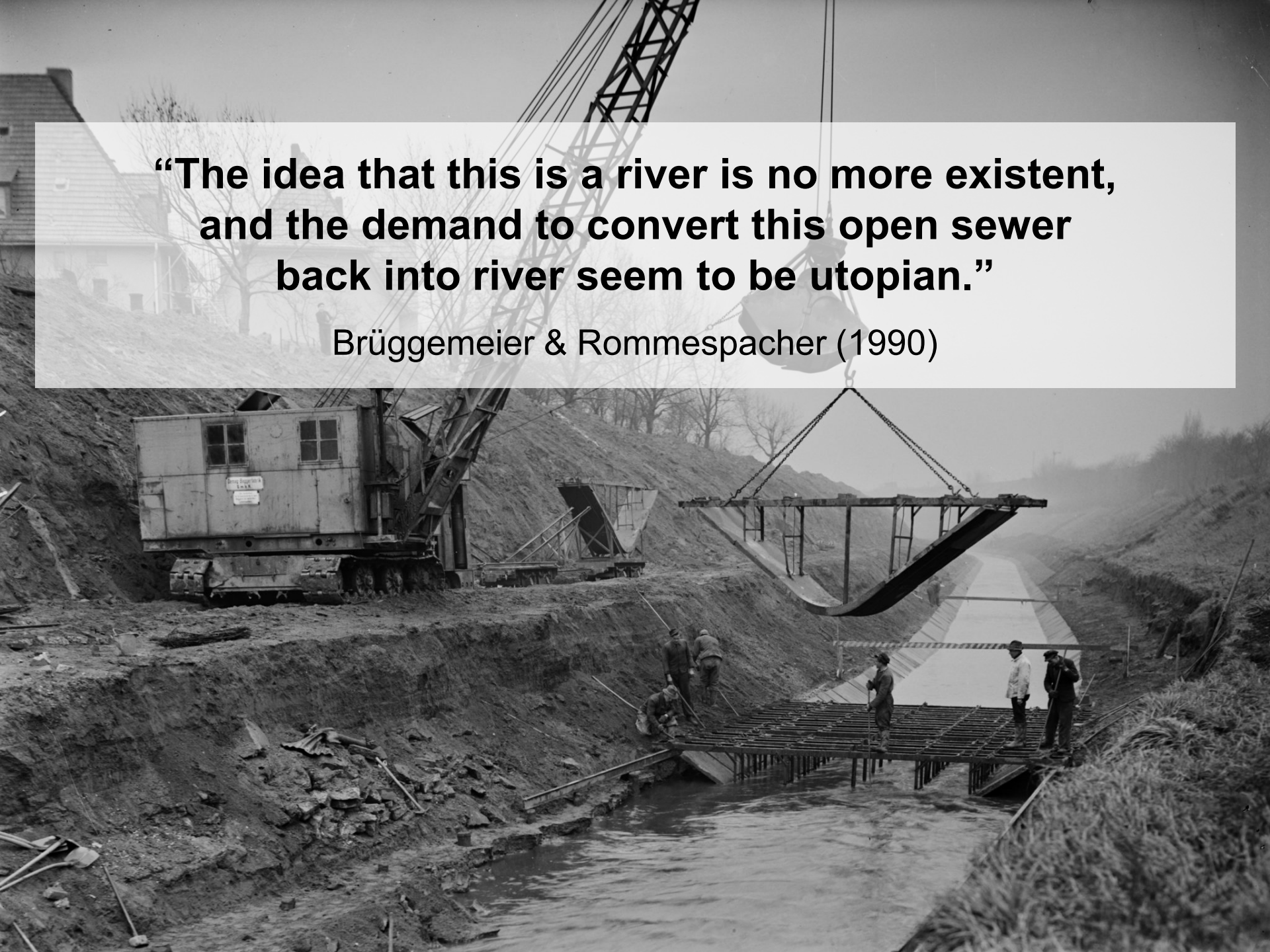
Neckarbiotop Zugwiesen

3

Weiterentwicklung des Bodenpflege- und Stickstoffmanagements für den Weinbau in Südbaden

4

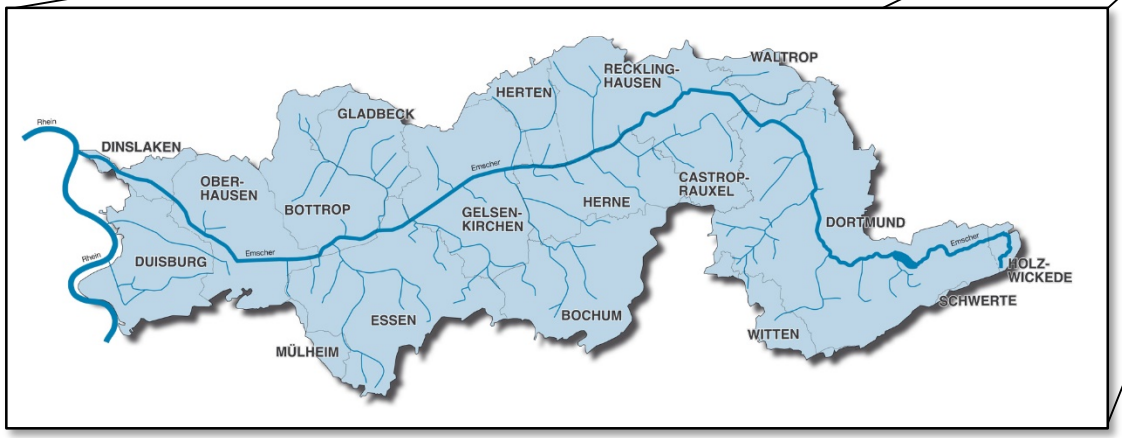
Mäanderfischpass Fuhlsbüttler Schleuse



“The idea that this is a river is no more existent, and the demand to convert this open sewer back into river seem to be utopian.”

Brüggemeier & Rommespacher (1990)

- **Project Example: Emscher River**
  - Tributary to the Rhine
  - 83 km long
  - Heavily modified water body



Project Example: Emscher River

- Underground hard coal mining (up to 700 m depth)
- Subsidences caused by mining (up to 20 m)

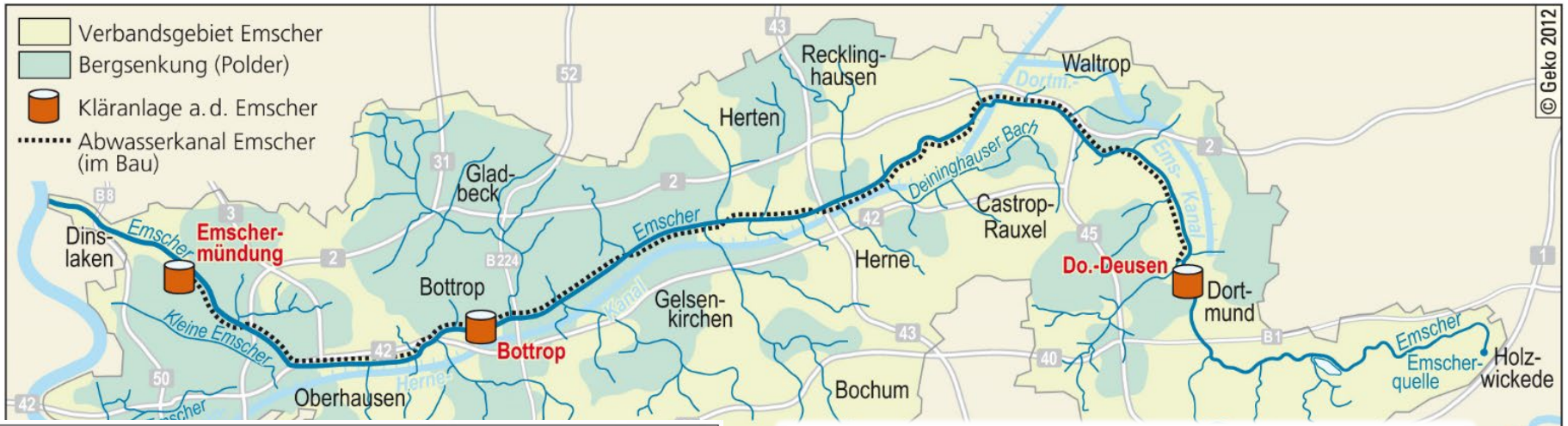
→ no natural water system possible

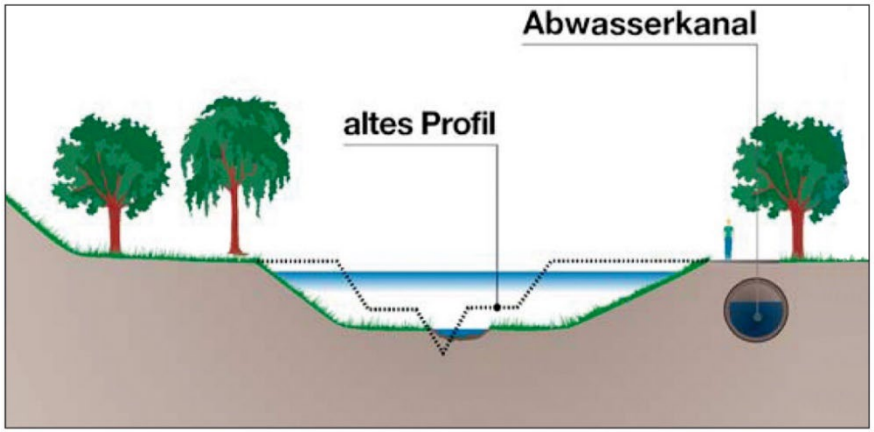
→ no underground sewage system possible

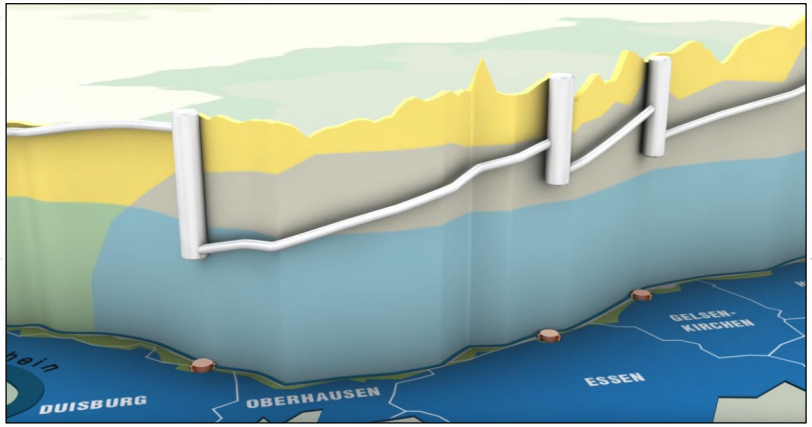


Emscher River Restoration Approach

- Separation of sewage water from river







Emscher River Restoration Approach

- The new underground sewage canal
- 4.5 billion Euro project

Emscher River Restoration Approach

- River restoration

Emscher River Restoration Approach

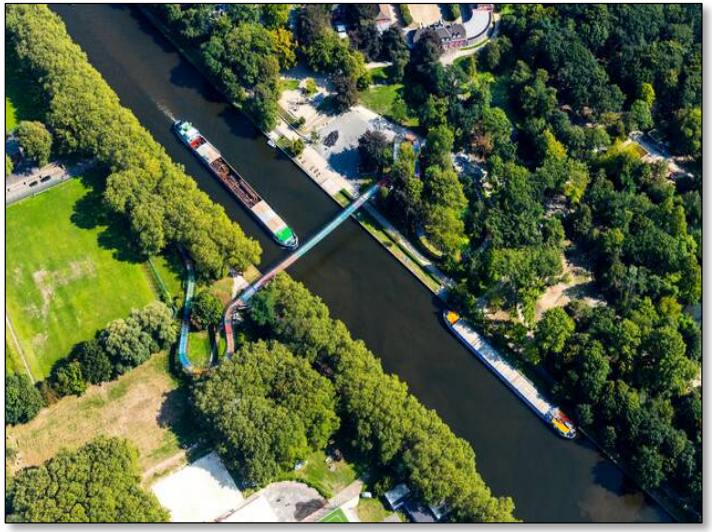
- River landscape revalorization
- Bernepark (former sewage treatment plant)

Emscher River Restoration Approach

- River landscape revalorization
- Wating for the river (inhabitable bridge)

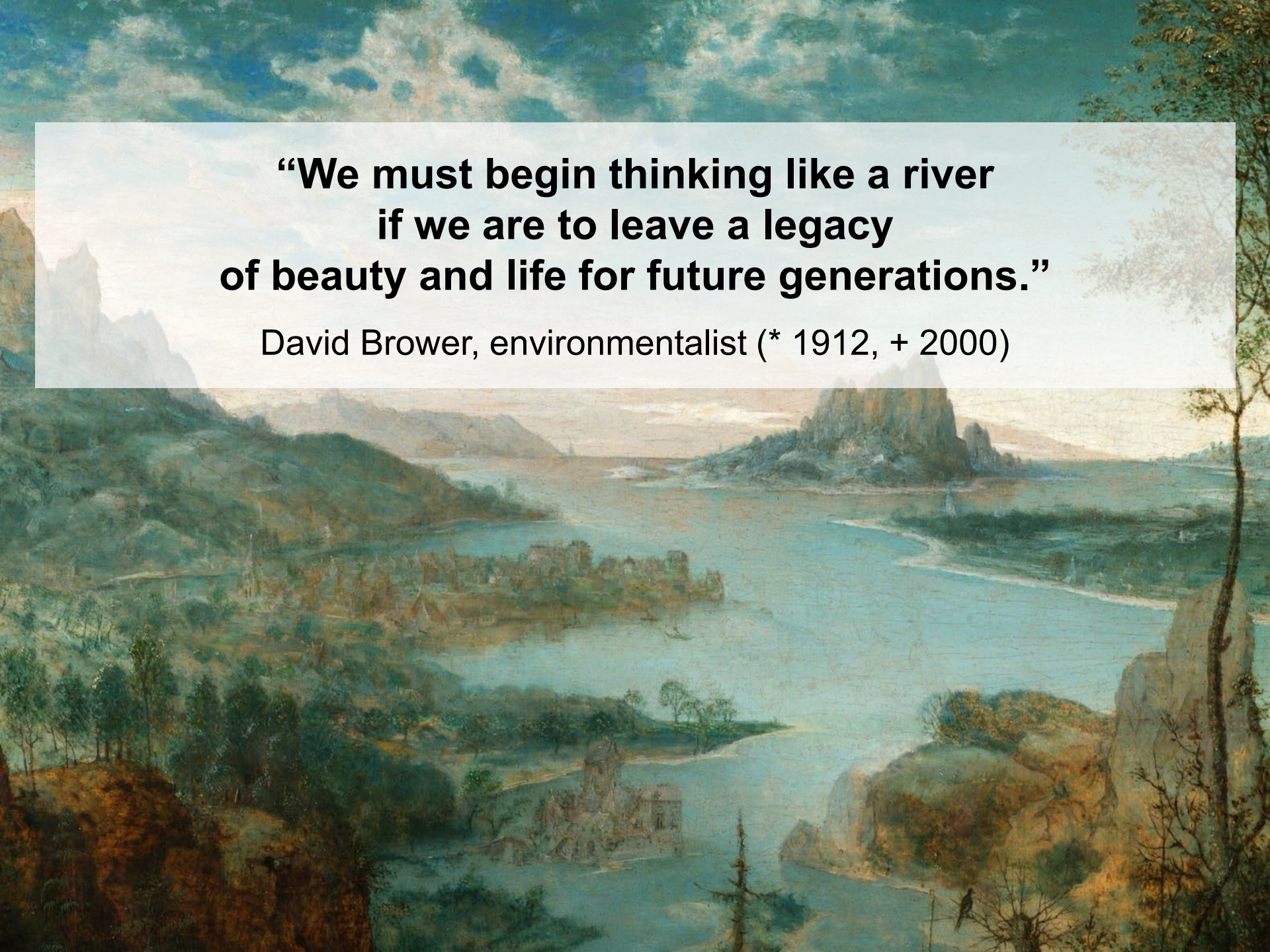
Emscher River Restoration Approach

- River landscape revalorization
- Slinky springs to fame (access bridge)



Emscher River Restoration Approach

- Education, awareness raising
- Between the waters (water treatment)

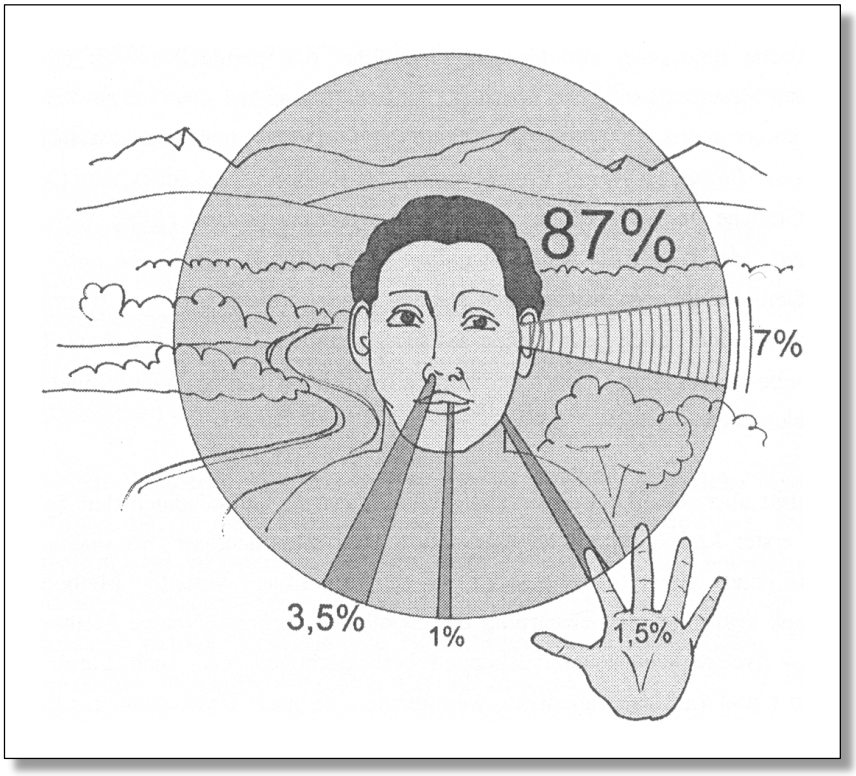


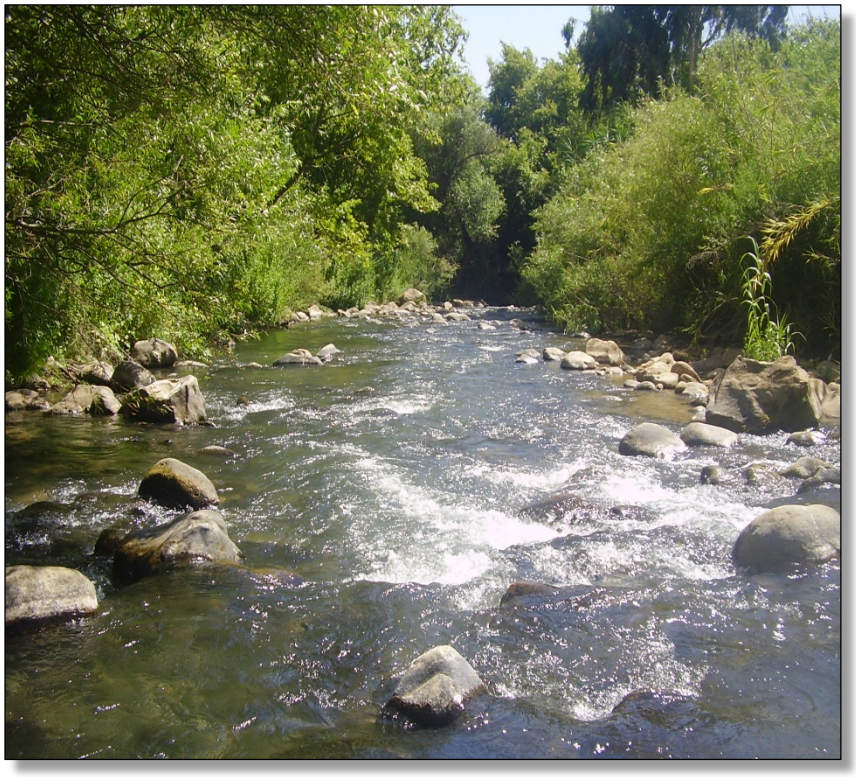
“We must begin thinking like a river
if we are to leave a legacy
of beauty and life for future generations.”

David Brower, environmentalist (* 1912, + 2000)

River Landscape Aesthetics – Sensory Perception

- greek *aísthesis* = „perception“



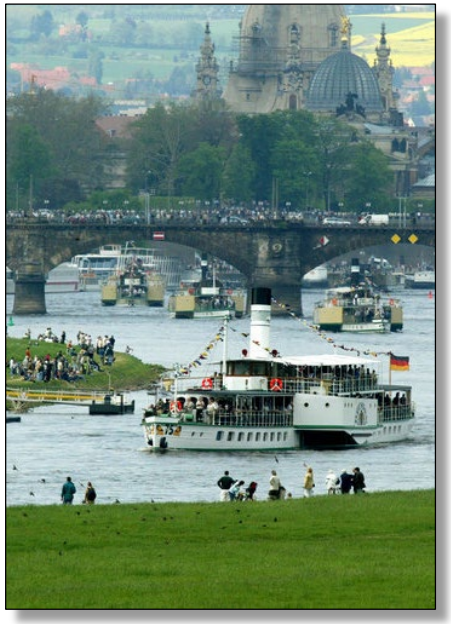


Perception of river landscapes – direct and indirect

- Reading landscapes
- Reception and reflection in art

Perception at / on / in the river

- Accessibility as a basis for perception
- Changing perspectives: View on the river vs. view from the river
- Perception and activity: River dynamics, temperature
- Guidance of aesthetic perception

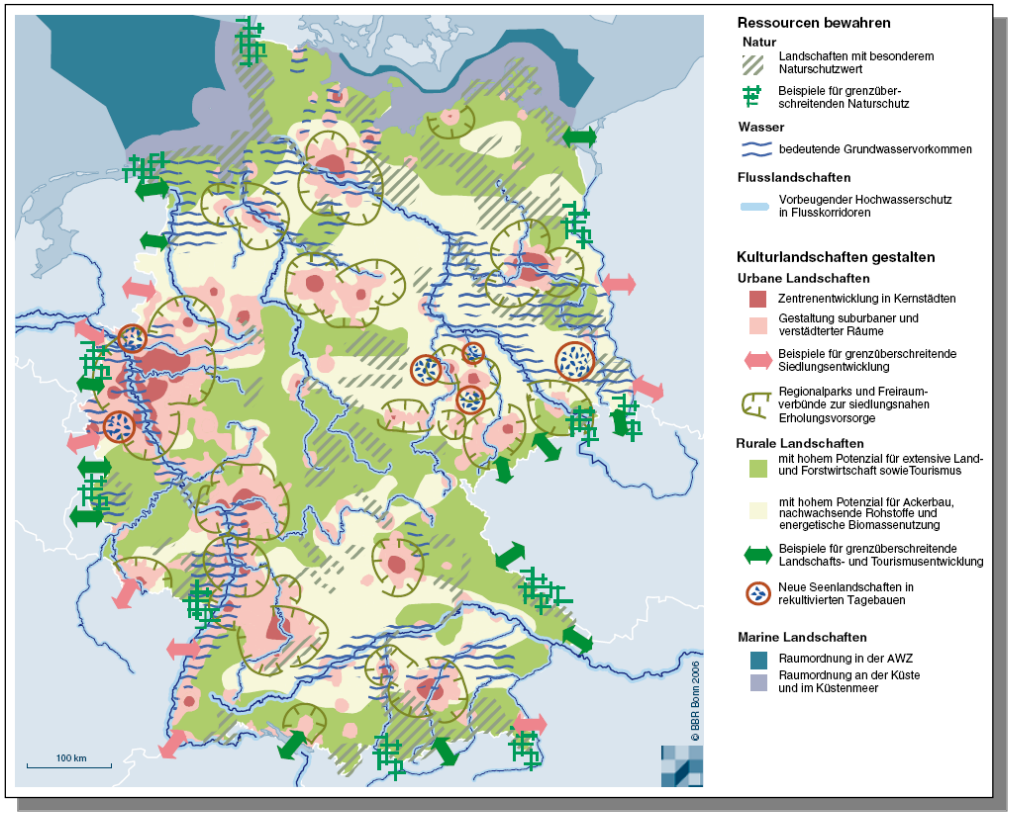


River landscapes in flow

- Spatio-temporal dynamics
- Course of the day - lighting
- Course of the year – Seasons, water levels
- Decades, centuries – Transformation of river landscapes

Aesthetic template role models for river landscapes

- River landscapes as scenario for spatial planning (BBR/BMVBS 2006, MKRO 2006)
- Planers‘ visions
  - The romantic river
  - The renaturalised river
  - The urban river
  - The wild river



The romantic river – still up to date ?

The renaturalised river – back to the roots ?

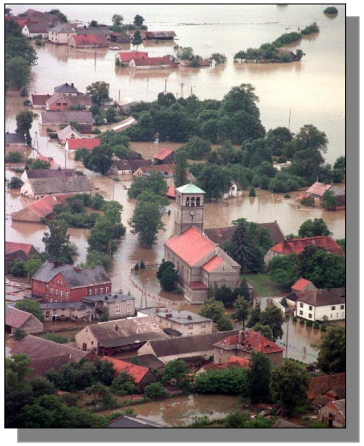
The urban river – more than a backdrop ?

The wild river – how wild can we accept it ?

1893

2011

Oder 1997



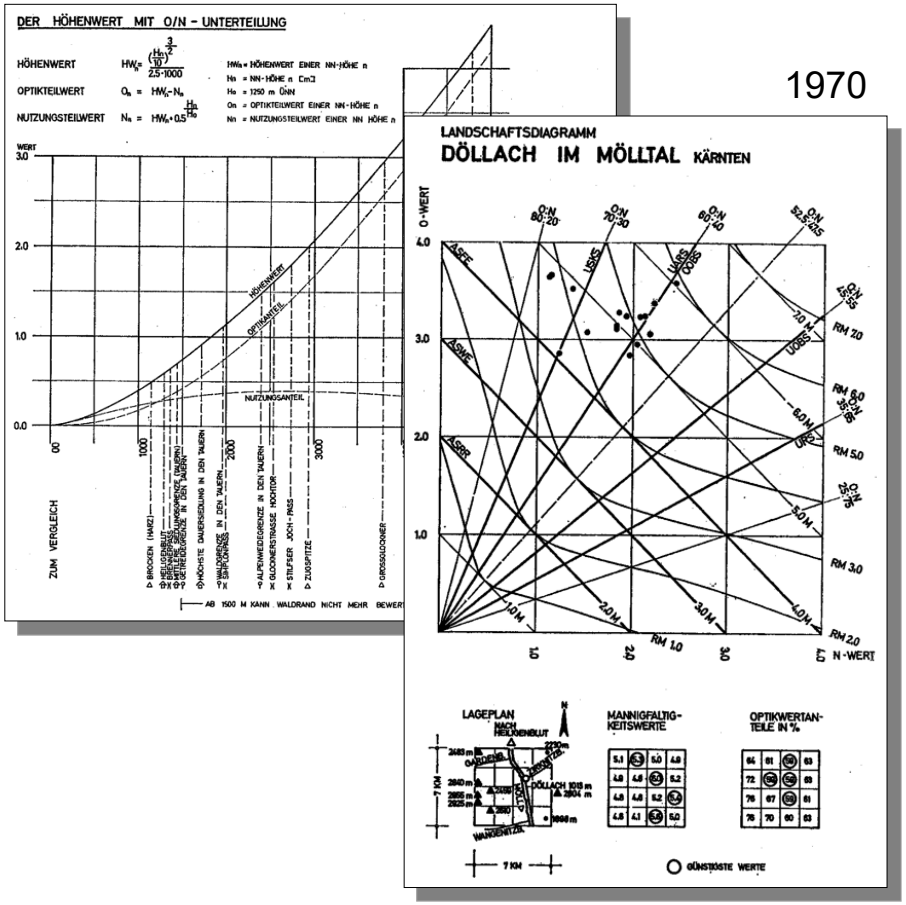
Elbe 2002

Rhein 2003

RiverLandScapePlaning – By whom, for whom?

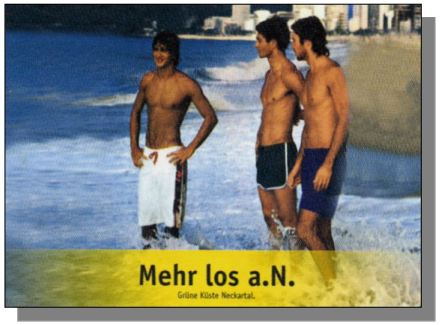
- By experts, for and with the users

1970



2005

Rivers as trademarks

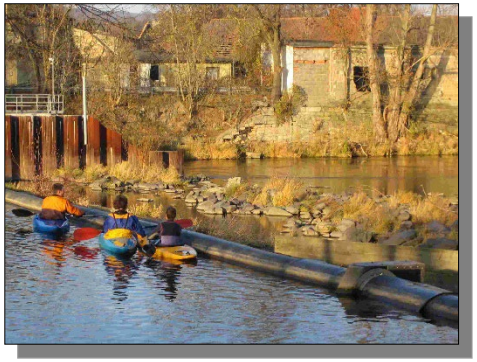


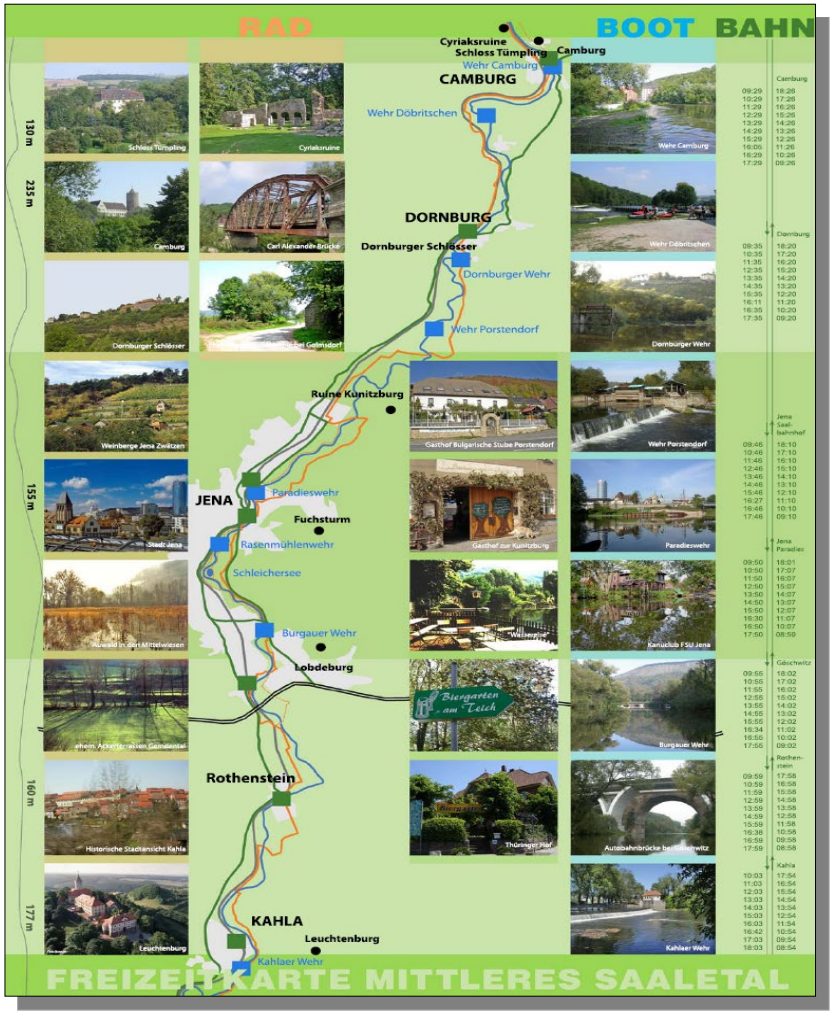
Marks on rivers

Project example “Lower Saale Valey”- Delimitation

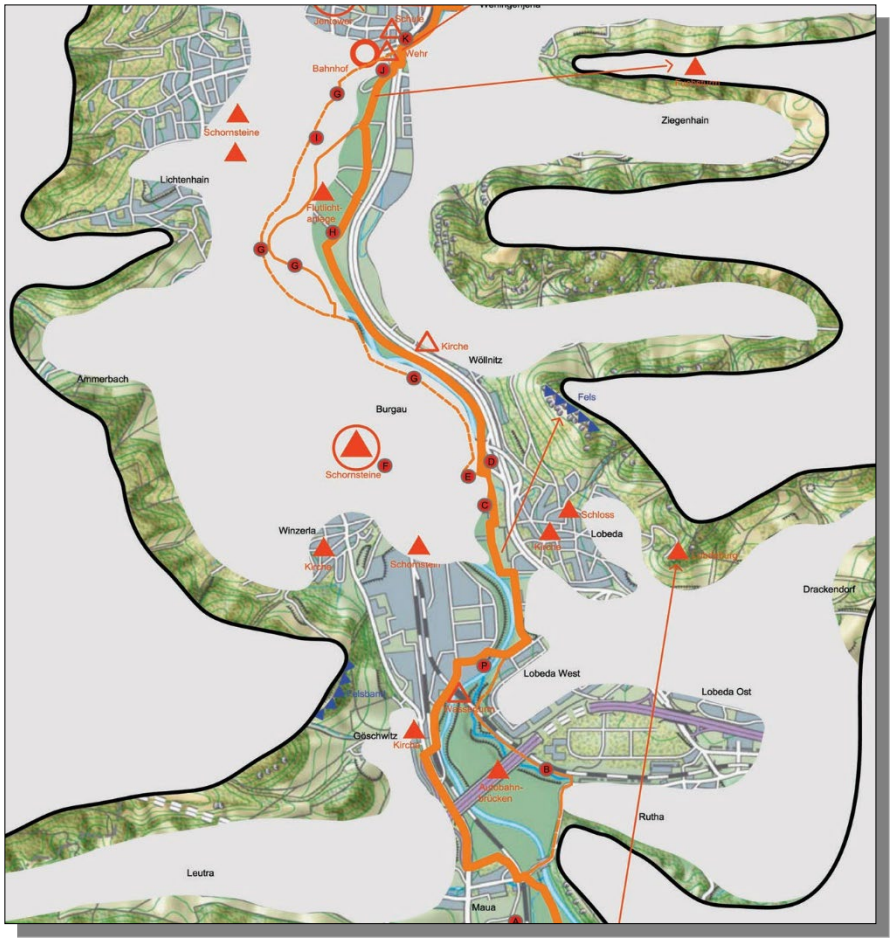
Project example “Lower Saale Valey”- Perception lines

- Activity-related perception
- Different perspectives
- Different speeds

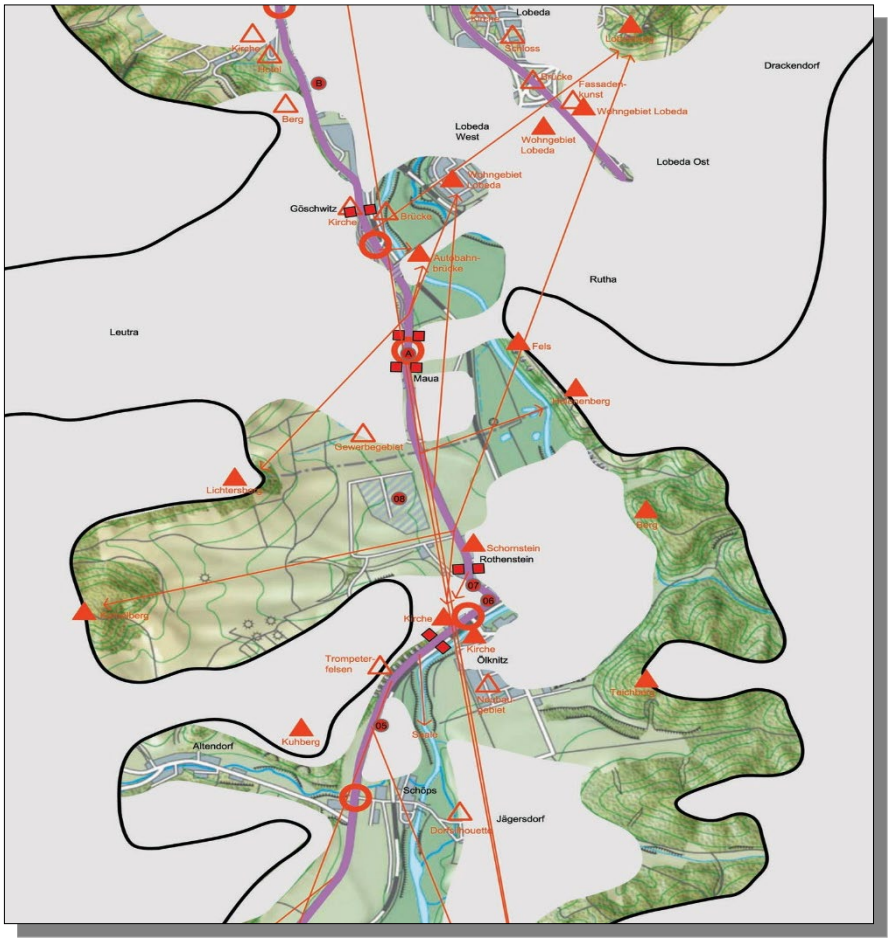




Project example “Lower Saale Valey”- Perception spaces



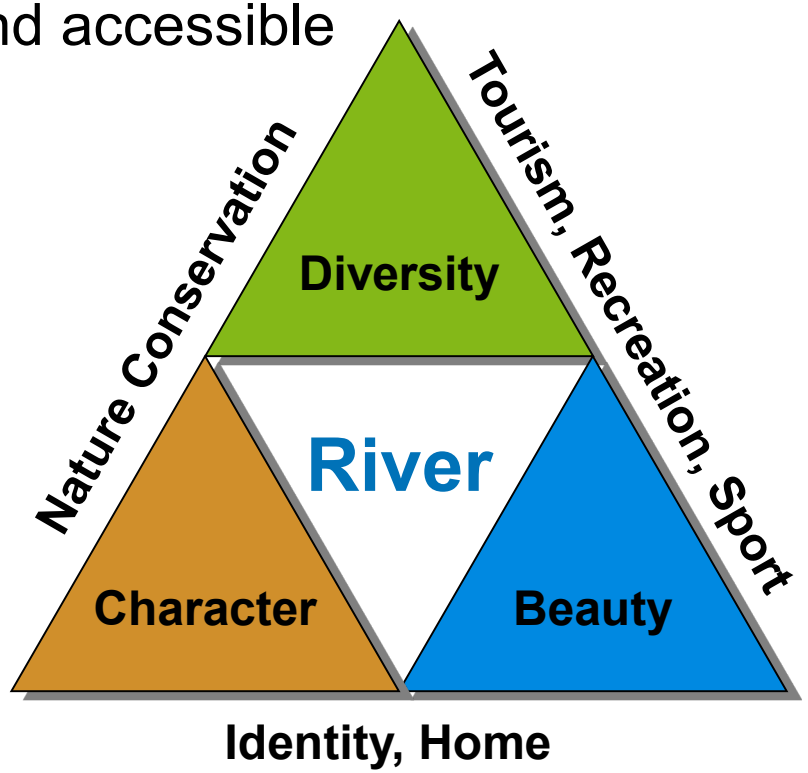
Saale cycling route around Jena



Car, B 88 south of Jena

~~Conclusions~~ Statements

- Riverscapes are ideal areas for landscape perception
  - „Inherent“ preferences for water landscapes
  - Touching all senses
- Riverscapes have to be continous and accessible not only for fish ;-)
- Riverscapes = Action arenas not only for the WFD ;-)
- Riverscapes = Identity spaces
- Riverscapes and their perception depend on way of movement
- RiverLandScapePlanning is a negioable matter → partizipation



And what do lay people understand in terms of river landscape aesthetics?

Thank you for your attention!

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