

Effects of landscape changes and different
types of land use on the water balance in the
face of claims point
of the EU water framework directive (WFD)

German Delegation

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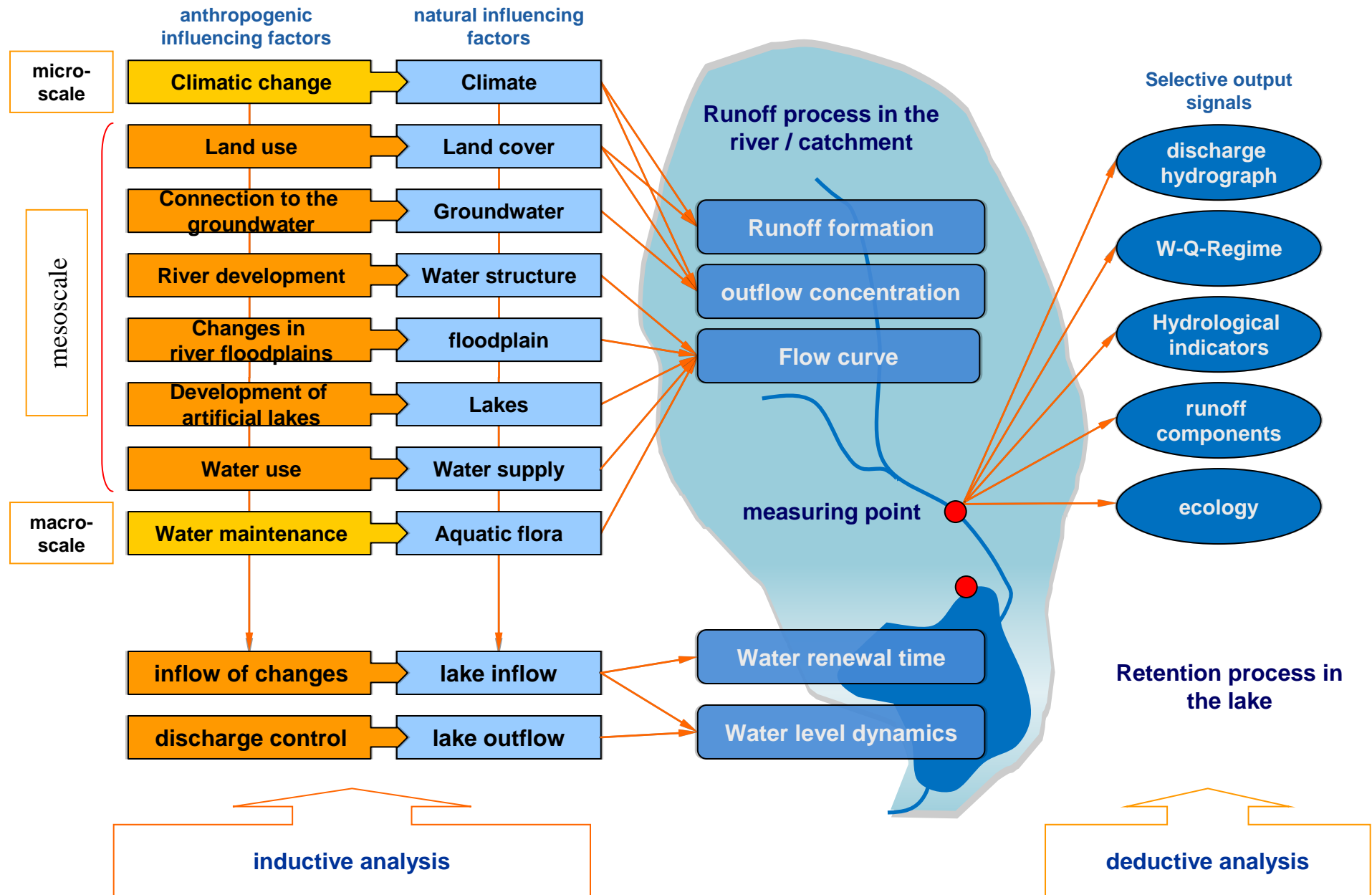
Introduction

- An essential requirement of the european WFD implementation of the ambitious water conservation goals for rivers and lakes is the ecological status assessment.
- The quality elements for classification of ecological status are listed in Annex V of the WFD.
- The parameter "water balance" is one of the three hydro-morphological quality elements, which is evaluated.

Introduction

- How does the rating for the water balance and secondary parameters is to be made, is not clearly described in the WFD. In Germany there was no readily applicable methods for this aspect of the state assessment.
- The State Office for Flood Protection and Water Management of Saxony-Anhalt (LHW) engaged therefore the following project
"Development of an evaluation methodology to assess the natural state of water balance of surface water bodies (rivers and lakes) according to WFD in the Land of Saxony-Anhalt"

Methodology



Methodology - Used data

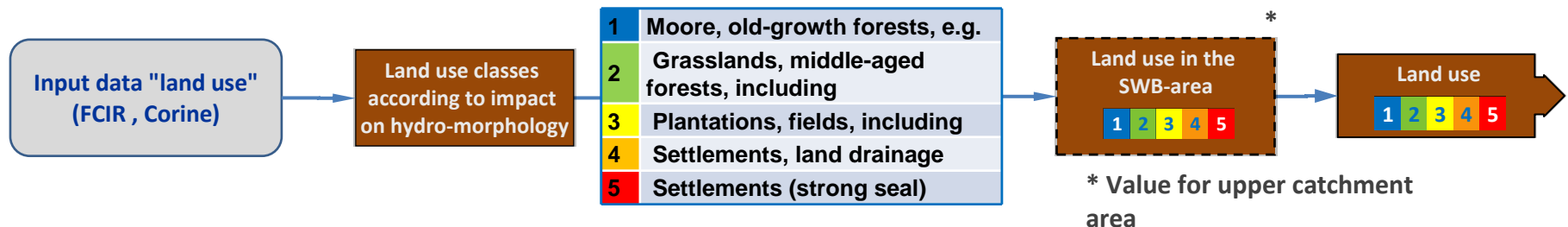
used data on the level of Saxony-Anhalt:

- hydrography and catchment
- measuring-point data, Data on water use and Dam data
- hydrogeology, land use and height information
- flood plains and designated flood area
- groundwaterbodies and surface water bodies
- Water structure mapping for the on-site method of LAWA
- regionalization of runoff and runoff components

Results

Assessment component "Land Use"

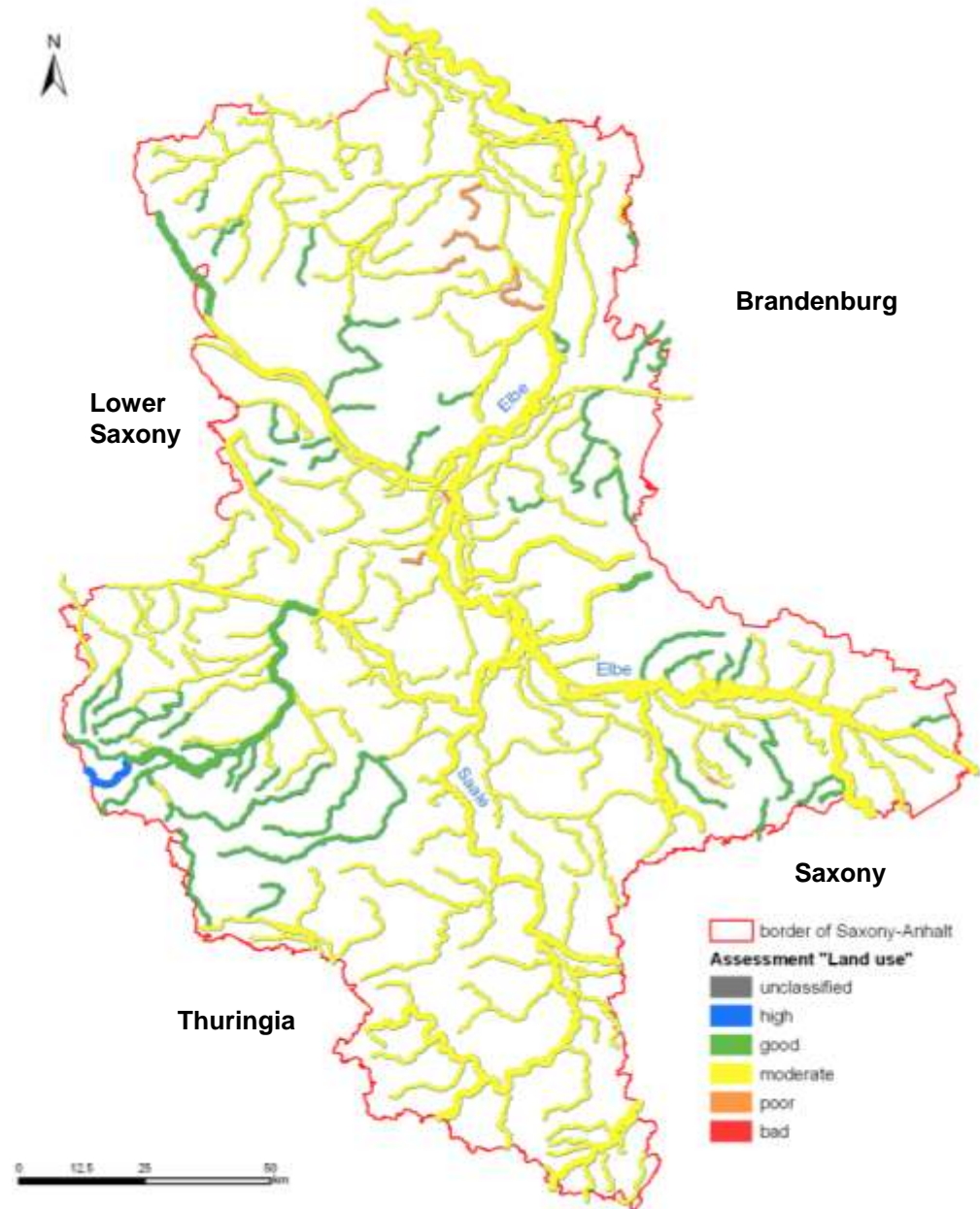
- The type of land use in catchment area of a river has a direct influence on the processes of runoff generation and concentration
- This applies in principle: The more natural the land uses in a catchment area is, the closer to nature is the water balance.
- Basis of the evaluation component is
 - the assessment of land use and habitat types in terms of their effect on the landscape water balance and
 - and the aggregation of individual assessments of surface water body.



Results

- The evaluation component “land use” is mainly characterized by the frequent land use classes and their associated valuation.
- In the central mountain region „Harz“ dominate „high“ or „good“ forest land use classes.
- The majority of surface water bodies in the rest of Saxony-Anhalt is arable land (rating 3) or combined arable grassland management (2-3), supplemented with rural and urban settlements and industrial areas (3.5-5) marked.
- In most cases, the verdict in the evaluation result is “moderate”.

Results of the assessment "land use" in Saxony-Anhalt



Results

- It is noted that the uncertainties of HYDREG process can be assessed as acceptable.
- Thus, the results of the assessment regime for the localization of problem spots and problem areas associated with dynamism and quantity are available at the level of the water body.
- One big advantage is given to the development of individual assessments of the potential problem areas. Because it is a sophisticated statement regarding the possible water damage.
- One foreseeable application of these studies are feasibility studies and rough plans for improving the overall health of the waters, as demanded by the WFD.
- With available data, the equivalent HYDREG process in other countries to assess the water balance can be adapted and used.

Problems and obstacles

- The method was developed for assessment of water balance at the level of surface water bodies. Detailed observations and questions are so limited.
- Based on the results can set priorities and measures are developed

Thank you for your attention!