



Sixth Framework Programme



Development of a regional model for integrated management of water resources

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Objectives

The project "RIVERTWIN" aims in supporting the goals of the Global Water Initiative by adjusting, testing and implementing the integrated regional model **MOSDEW** for the strategic planning of water resources management in twinned river basins. MOSDEW (Model for sustainable development of water resources) assists river basin authorities to assess the impacts of economic and technological development and the effects of global climate and land use changes on the longterm availability and quality of water bodies. The selected river basins are located in different climatic regions with differing water management problems (Figure 1).

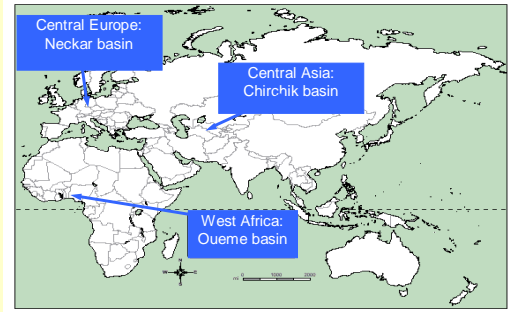


Figure 1: Target basins in RIVERTWIN

Results

- Adoption and use of decision making tools requires the involvement of stakeholders in model development and definition of key indicators
- In an intensive participatory process, the model structure has been adjusted to the stakeholder requirements in the individual basins (Figure 2).
- In particular the heavily modified water bodies in Central Asia need the adoption of specific submodels that respond to the tasks of complex water distribution networks and to the optimal allocation of scarce water resources.
- Scenario runs for the Neckar basin suggest that projected changing agricultural land use due to the common agricultural policy will reduce nitrate emissions by 9% (Figure 3).
- More at mapserver.ilpoe.uni-stuttgart.de/rivertwin/index.php

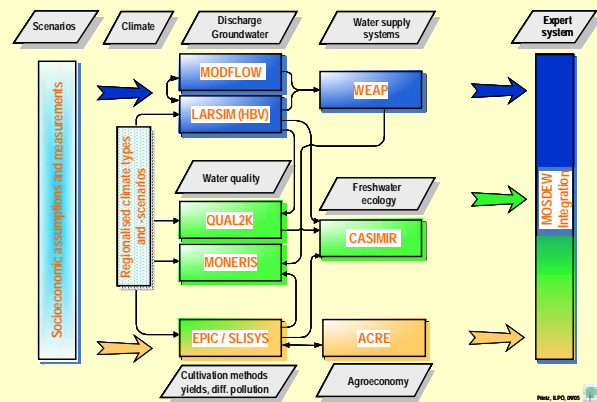


Figure 2: Model structure of the MOSDEW regional model in humid and subhumid regions

Conclusions

The results have shown that stakeholder involvement in model development is crucial for capturing specific additional modelling necessities in each basin. The participation process and model adjustments are time consuming, but it promotes an understanding of interactions between the different sectors that are affected by water management and creates the notion of own property in the respective basin authorities. Human capacity building in the application of GIS based modelling approaches must be intensified in developing countries in order to make adequate use of decision making tools at the basin scale.

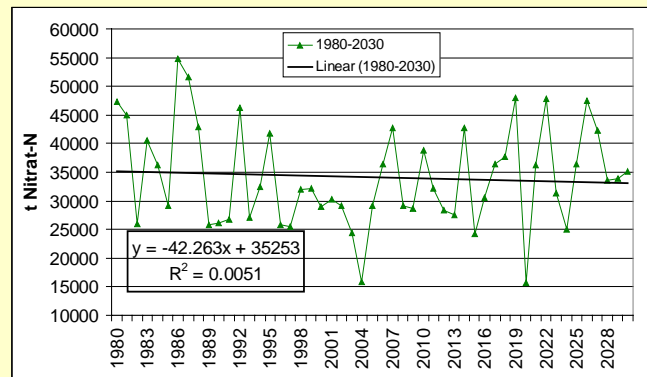


Figure 4: Nitrate loads to the ground water over the Neckar basin in the past and in the climate scenario A2 (downscaled ECHAM4 output for SRES scenario A2)

Consortium

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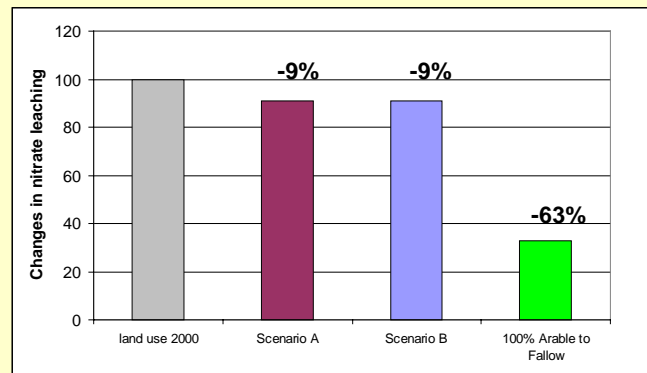


Figure 3: Changes in nitrate leaching over the entire basin due to land use changes

<http://www.rivertwin.org>

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