

Document Control Sheet

1. ISBN or ISSN	2. type of document (e.g. report, publication) report
3. title Global Change Impacts on the Water Cycle in the Elbe River Basin - Results and Consequences (1) „Water availability modelling in the Elbe river basin and the effects of global change for the German part“; Subproject 7 (2) „Effects of global change on water availability in the Czech Elbe region“; Subproject 7	
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	6. publication date
	7. form of publication
8. performing organization(s) (name, address) Brandenburg University of Technology Cottbus Chair for Hydrology and Water Resources Management P.O. Box 101344 D-03013 Cottbus	9. originator's report no.
	10. reference no. 01 LW 0312
	11. no. of pages (1) 26; (2) 16
13. sponsoring agency (name, address) Bundesministerium für Bildung und Forschung (BMBF) D-53170 Bonn	12. no. of references (1) 18; (2) 15
	14. no. of tables (1) 5; (2) 4
	15. no. of figures (1) 12; (2) 11
16. supplementary notes	
17. presented at (title, place, date)	
18. abstract (1) Models for the simulation of long-term water resources management can be used to analyse water availability problems in large river basins. Water availability and water demand can change due to changing climate conditions, population and economic development, or changes in environmental policy. In the project GLOWA-Elbe a water resources management model is used to analyse the effects of global change in the river Elbe catchment. Scenarios of socio-economic development and alternatives of actions for water resources management are analysed. The models and indicators used are explained. A moderate to strong intensification of water availability conflicts must be expected. The aggregation of indicators shows, which economic sectors and which sub-catchments are considerably affected. (2) Global change scenarios, including climate and socio-economic change, are analysed regarding water availability in the Czech part of the river Elbe catchment. Different storylines for global development up to the year 2050 are regionalised in terms of climate and socio-economic changes. These data are used in a water resources management model developed for the whole river Elbe catchment. The assumed temperature rise leads to a shift in the annual runoff cycle and a general decline in natural water availability. Mean discharges as well as discharges during dry periods are declining significantly. This trend is considerably pronounced for the inflows from the Czech republic to Germany. The socio-economic development, especially in the energy sector and connected development of mining activities and cooling water losses from power stations, has only local effects on the discharges. Deficits for water users occur mostly on small tributaries, while minimum discharges downstream of reservoirs can be maintained with high reliability.	
19. keywords global change, water resources management, water use conflicts, modelling, river Elbe catchment, scenario analysis, WBalMo	
20. publisher	21. price