REACHER: a Decision Support Tool to Evaluate Scenarios of Measures for the Reduction of Pollution fluxes

J. van der Kwast
UNESCO-IHE Institute for Water Education, j.vanderkwast@unesco-ihe.org

S. Yalew
UNESCO-IHE Institute for Water Education

S. Broekx
VITO NV, Ghent University

P. J. Haest
VITO NV

P. Seuntjens
VITO NV, Ghent University, University of Antwerp

See next page for additional authors

Follow this and additional works at: https://scholarsarchive.byu.edu/openwater

BYU ScholarsArchive Citation
Available at: https://scholarsarchive.byu.edu/openwater/vol2/iss1/26

This Article is brought to you for free and open access by the All Journals at BYU ScholarsArchive. It has been accepted for inclusion in Open Water Journal by an authorized editor of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen_amatangelo@byu.edu.
REACHER: a Decision Support Tool to Evaluate Scenarios of Measures for the Reduction of Pollution fluxes

Authors

This article is available in Open Water Journal: https://scholarsarchive.byu.edu/openwater/vol2/iss1/26
REACHER: a Decision Support Tool to Evaluate Scenarios of Measures for the Reduction of Pollution fluxes

van der Kwast J.1, Yalew S.1, Broekx S.2,3, Haest P.J.2, Seuntjens P.2,3,4, Jesenska S5, Carpentier C.6, Blaha L.5, Boucard J.7, Slobodnik J.6, Bastiaens L2, and A. Van Griensven 1,8

Decision makers need tools for assessing the impacts of their management practices on the water quality. The complicated nature of simulation models and the large computation time they need hamper the use of these tools in the decision making process. Furthermore, decision makers often lack the detailed domain knowledge to judge processes included in the models. They need decision support tools with an intuitive user interface design simplifying the interaction with models and the visualization of the produced results. REACHER is a generic river basin management tool that assesses the ecological and economic impact of rehabilitation technologies at the river basin scale. The graphical user interface, geographic visualisation and database of the web-based tool have been developed using open source software. REACHER has been developed based on scenario runs with watershed fate models in which rehabilitation measures and associated costs are included. It allows visualisation of the actual chemical, ecological and ecotoxicological status of a river basin and the change in groundwater and surface water status due to the application of a rehabilitation measure or a combination of measures. The scenarios are visualised in REACHER using a Bayesian Belief Network that is trained by multiple runs with the watershed models. A prototype of REACHER is developed and evaluated for two pilot cases, the Odense river (Denmark) and the Scheldt river (France-Belgium). The REACHER tool will be demonstrated during the interactive poster session.

This study is being performed as part of the European Union Project AQUAREHAB (FP7 – grant agreement Nr. 226565).

poster presentation