

***Interactive comment on “Development of an Open-GIS decision aid system for ecological and economical management of surface and groundwater resources in the Bistrita River Basin (Romania)” by M. C. Trifu et al.***

**Anonymous Referee #1**

Received and published: 22 August 2007

The authors present an integrated decision support system (DSS) that is useable within a Web-GIS environment. The presented approach requires a large effort of coupling all models within one DSS. The aim of the study is to develop a DSS supporting the implementation of the Water Framework Directive (WFD), in particular the generation of the Programme of Measures. The DSS has been developed in the Diminish project, the study area being the Bistrita river basin in Romania. The study fits within the scope of HESS because it follows an integrative modelling approach. Nevertheless, a few questions arise when reading the manuscript that should be answered in the revised

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

manuscript. Further, the language of the paper needs to be improved.

In the abstract as well as in the following paragraphs it does not become clear who is supposed to be the end-user of the DSS and what reasons caused the project's decision in favour of a fully linked system which users can access via the Internet. Thus, the assumption was made that the users are able and willing to use a Web-GIS. Reference should be given for this assumption. No reference is made in the article if the DSS was successfully applied by the end-users in practice. The GIS data base is described in detail, the data base is sound even though it is not clear why it was necessary to update cartographic documents which are out of date by several satellite images instead of just using the new information. On page 2042, line 17f. it is mentioned that the DSS should "provide the right decisions at both short and long term." In general, the application of a DSS serves the purpose of providing information for a decision-making process. The DSS itself is not supposed to provide the decision, this has to be made by the decision-makers involved in the process themselves (cf. e. g. Matthies et al. (2007)). In section 4.2 and 4.3, an explanatory statement should be added why the models Riverstrahler, MODSUR, MODCOU and NEWSAM were chosen and what their advantages are compared to other state of the art models. In section 4.4, it remains unclear how the measures computed by the Diminish DSS were selected. Furthermore, it seems that the DSS does not capture the effects of measures on farm level (e. g. transformation of field into grassland can only be realized, if the farm can make use of this grassland, and even more severe: replacing corn by potatoes may change the farm type from animal husbandry to market gardening). In the results section, it is not elaborated on how the cost-effectiveness of measures relates to the feasibility to implement them. Other factors have to be considered as well when planning measures, e. g. the effects of measures mentioned above.

Matthies, M., C. Giupponi and B. Ostendorf (2007). Preface - Environmental decision support systems: Current issues, methods and tools. *Environmental Modelling & Software* 22(2), 123-127.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Technical corrections Title: The term “decision support system” (DSS) is more common than “decision aid system”. I guess, “economical” refers to the economic analysis of the WFD - here, the authors should stick to the WFD terms (the use of “economical” is misleading in the whole paper). P. 2037, L. 2: make whole sentence out of list in brackets for better readability. L. 6: project reference in footnote? L. 15: The two basins being 1) Bistrita and 2) ? L. 26: Reference to global studies? P. 2038, L. 6: add ... under the EC Nitrates Directive? L. 10: ..., to be able to ... L. 14: public participation/involvement of the public? L. 23: information over a long period P. 2039, L. 10: a population of L. 12: better: nutrient balancing? L. 13: originating L. 14: municipality (replace in whole document) L. 16f. Sentence is not clear. L. 21: recreational services? P. 2040, L. 12: explain abbreviation (DEM) - true for all abbreviations in the document and also in the figures! L. 15: Figure only shows selected layers. Coloured map for better visualisation? L. 20: out of date P. 2041, L. 1 in Bacau L. 2: in Bucharest L. 4f. sentence is not clear (percentage?) L. 18: related L. 20: At... Sentence is not clear. L. 21 Internet Web-based? L. 23: What is the disadvantage of the classical approach? L. 26: three-step? P. 2042, L. 5: downloaded L. 17: right decision L. 19: delete “core” P. 2043, L. 17: unicity?? L. 25 The stagnant... Sentence is not clear. P. 2044, L. 13: delete “the specialists from” L. 25ff: The limits (borders?)... Sentence is not clear L. 27f. Sentence is not clear P. 2045, L. 3f: make whole sentence out of list in brackets for better readability L. 10: The input data for the groundwater model were L. 11: potential evaporation L. 12: withdrawals? L. 28: input data P. 2046, L. 4: Approach to determining environmental costs L. 7: WATECO L. 13.: to environmental costs L. 14: until reaching L. 22: Cite in reference list L. 26: Cite in reference list L. 27 explain abbreviation (ISPA) P. 2047, L. 3: composting? L. 11: computing the difference L. 16: rap(p)ort?? L. 19: nutrients’ L. 22: prior to? L. 25 input/output what? P. 2048, L. 1 kilometre L. 8: show L. 10: nutrients L. 12f.: Sentence is not clear L. 20 deteriorate P. 2050, L. 3: inhabitants equivalent (replace also in the following sentences) P. 2050, L. 16: CORINE P. 2052, L. 2 EC WFD L. 8: simulated L.19f.: source nitrates concentration? P. 2053, L. 7: pressure change? P. 2057, L. 1: Development of inhabitants

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)

equivalents P. 2058 3rd column: Unitary costs P. 2066: Total nitrogen (TN) and phosphorous (TP) ... P. 2071: nitrate concentration within the aquifer under potato crops  
Figures: References are missing in figure titles in most cases. Fig. 7: observations are mapped too small Fig. 10: Coloured map for better visualisation? Fig. 11: Contains no more information than Fig. 9 Fig. 12/13: Legend is mapped too small

---

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 2035, 2007.

**HESSD**

4, S805–S808, 2007

---

Interactive  
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper