

## ***Interactive comment on “HESS Opinions “Urgent water challenges are not sufficiently researched”” by P. van der Zaag et al.***

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Received and published: 20 April 2009

We thank Murugesu Sivapalan for reviewing our paper and for his valuable and perceptive observations and suggestions. Here we respond to all specific issues raised. In a separate response we try to give a more coherent response addressing the major comments of all referees, taking advantage of observations made by other contributors, and drawing some conclusions.

- Siva rightfully poses the ‘why’ question. And we are very happy and obliged that he ventures into answering it. This is exactly what we would like to stimulate: we water scientists have to do some more self-searching. We need to become more self-conscious about our research practice, and we would benefit from a bit more reflection. We do not want to leave this to political scientists only..., do we? This point we have

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also elaborated in our general response (see separate document).

- Fragmentation of the water science field: This is probably related to (and a consequence of?) the ever increasing stock of knowledge and information on water processes at different scales and dimensions, which nearly automatically leads to specialisation. So it becomes ever more difficult to keep an overview of the linkages and interplays between the sub-disciplines. The science system itself may contribute to this: it puts a premium on innovations (and ignores or belittles applied science), and it is not always easy to get interdisciplinary papers published. (See also the interesting comment by Wouter Buytaert of 11 April 2009.) A key question thus is: how to specialise without losing ourselves in fragmentation. The World Water Forum does bring together many actors who address many different dimensions, but we are less optimistic about the positive “integrating” impact of such global gatherings. These tend to be huge dovecotes where all the different sub-communities in the water field are busy reinforcing the pigeonholes they have created for themselves, where possible at the expense of their neighbours... Institutions such as UNESCO-IHP may play a much greater role in linking the various sub-disciplines.

- Lack of research funds and capacity in the global South: Apparently governments in developing countries are not fully convinced that investing in research yields sufficient (immediate) returns. But a country needs a certain level of critical mass of research capacity before a positive development impact emerges (Van der Zaag, 2009); if only to have the capability to scan, access, test and apply knowledge and technologies that have been developed elsewhere. This poses a real dilemma for many developing countries: they would have to devote relatively much more funds (as a % of GDP) to research and development than developed countries.

- In our general response we make a few observations about possible reasons why the biased research agenda exists, which were triggered by the comments received. These we will incorporate in the revised paper.

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Reference (not cited in the original paper):

Van der Zaag, P.: Sharing knowledge for water sharing, *Irrigation and Drainage*, 58, 177-187, 2009.

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Interactive comment on *Hydrol. Earth Syst. Sci. Discuss.*, 6, 1411, 2009.

**HESD**

6, C355–C357, 2009

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