



What role for social sciences in socio-hydrology? Results from an online survey among hydrologists

Roman Seidl (1), Roland Barthel (2), Michael Stauffacher (1,3)

(1) Natural and Social Science Interface, ETH Zurich, Switzerland (roman.seidl@env.ethz.ch), (2) Department of Earth Sciences, University of Gothenburg, Sweden (roland.barthel@gvc.gu.se), (3) Department of Environmental Systems Science, Transdisciplinarity Lab, ETH Zurich, Switzerland (michael.stauffacher@env.ethz.ch)

The necessity of a more integrated approach in hydrological research has been highlighted by the IAHS scientific decade 2013-2022 “Panta Rhei”, dedicated to foster multi-disciplinary research activities on changes in hydrology and society (Montanari, Young et al. 2013). On a similar note, the concept of Socio-Hydrology (Sivapalan, Savenije et al. 2012) suggests a much deeper involvement of hydrologists in socio-economic questions. Despite this general consensus, it remains unclear how such interdisciplinary approaches should be carried out and, in particular, which roles hydrological sciences (HS) and social sciences and the humanities (SSH) should assume.

In order to evaluate the opinion of HS on the mutual contributions of HS and SSH to the process of integration, an online survey was prepared by the authors and announced through the newsletters of the International Association of Hydrogeologists (IAH) and the International Association of Hydrological Sciences (IAHS). Two sets of questions offered a choice of potential contributions to interdisciplinary processes of HS and SSH respectively. A third group of questions asked for the status of integration of HS and SSH and if improvements are needed. Finally, participants were asked to rank different options to foster or improve cooperation between natural and social scientists.

141 questionnaires could be used for further analysis. As expected the background of most participants is hydrology, but many also mention more than one discipline. Most participants have their main place of work in Europe. The answers were analysed using Factor and Cluster analysis to reveal potential patterns in the data.

The main results from the survey can be summarized like this: The majority of respondents agrees that SSH is not well integrated into hydrological research as yet and most participants see a need for better cooperation. Expectations from hydrologists who should do what in integrative work, reveal that some roles are perceived similarly for both SSH and HS: Facilitate resource management, Exchange knowledge, Communicate the results, Reflect about the normative aspects, Secure public acceptance. However, hydrologists assume it is clearly more the role of SSH to study socio-economic aspects and the impact of human decisions on the environment, for instance.

Higher status and acknowledgment by other colleagues does not seem to be a major incentive for integrative work, ranking lowest of all offered statements. However, the statement Hydrologists themselves should consider and integrate socio-economic aspects in their own work, was rated most often as most preferable. One can speculate that hydrologists (at least many in our sample) would like to learn from SSH but then apply that knowledge themselves; that is, “integrate” social science tasks into their field, or rather into a new discipline, socio-hydrology but not collaborate at eye-level with social scientists.

We conclude that researchers interested in the integration of disciplines should explicitly specify how they would like to achieve this, what mutual expectations they have. In the case of the Panta Rhei initiative or Social Hydrology, this seems neither evident nor explicitly done.

References:

- Montanari, A., et al. (2013). ““Panta Rhei—Everything Flows””: Change in hydrology and society—The IAHS Scientific Decade 2013–2022.” *Hydrological Sciences Journal*: 1-20.
- Sivapalan, M., et al. (2012). “Socio-hydrology: A new science of people and water.” *Hydrological Processes* 26(8): 1270-1276.