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Social science for hydrologists: considerations when doing fieldwork with human participants

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Water is at the core of many current and future global challenges, which involve hydrological, technical and social processes. Therefore, successful interdisciplinary research on how water-related issues interact with human activities, actions and responses is increasingly important. Qualitative data and diverse perspectives provide much-needed information to improve our understanding and management of water-related issues. To collect this information, hydrologists are increasingly conducting fieldwork with human participants (e.g. individuals, policy-makers, community leaders, government representatives, etc.) themselves, and collaboratively with others. Although collaboration between hydrologists and social scientists in interdisciplinary projects is becoming more common, several barriers, including lack of understanding and experience, can result in hydrologists and social scientists remaining somewhat separate during research, leading to suboptimal research outcomes. Hydrologists who are planning and undertaking fieldwork involving human participants may be underprepared because they are unfamiliar with key social science approaches and concepts. Therefore, here, we help guide hydrologists to better understand some important issues to consider when working with human participants, to facilitate more collaborative research.

As a group of social, natural, and interdisciplinary scientists, we discuss a number of important elements of fieldwork involving human participants that hydrologists might be unfamiliar with, or might have different approaches to than social scientists. These elements include good ethical

practice, research question frameworks, power dynamics, communication of science (e.g. participatory mapping, photovoice, videography, and interactive graphs), and post-fieldwork reflections. There are also issues to consider when working collaboratively with social scientists, such as vocabulary differences and different methodologies and data collection approaches (e.g. interviews, focus groups, questionnaires, workshops, ethnography).

We believe that by introducing hydrologists (and natural scientists in general) to some of the key considerations when working with human participants in the field, more holistic, ethical, and successful research outcomes can be achieved. We also want to stress that collaboration with social scientists stays important and research ethics, design, participant involvement, and results, may be compromised without the input and experience of social scientists themselves. Facilitating these collaborations between the natural and social sciences will improve interdisciplinary water research, resulting in a better understanding of the interactions between water and society.