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Discussions

Interactive comment on "The use of semi-structured interviews for the characterisation of farmer irrigation practices" *by* J. O'Keeffe et al.

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The authors have generated an interesting paper that aims to demonstrate the value of semi-structured interviews in water resource management research. In many ways this is a methods paper - that describes in detail how semi-structured interviews can be utilised by natural scientists or engineers researching water management issues. This is a very worthy cause, as many different research methods and approaches have specific value and raising the awareness in the research community of the diversity of approaches is essential. The authors attempt to illustrate their arguments for the value of semi-structured interviews with a very interesting case study from India on irrigation practices.

My concern with the paper is that the authors do not provide particularly convincing arguments from their case study for the advantages/benefits/strengths of semi-structured

interviews compared to other traditionally social science approaches more commonly used by natural scientists working in water management such as surveys and questionnaires. The data presented in the paper is focussed around quantities of water used, sources of water, crop yields and pricing of water (for which semi-structured interviews are unlikely to be the optimal data collection approach). This quantitative data is traditionally obtained highly efficiently and accurately using surveys. The benefits of surveys for such data collection include being that multiple researchers can conduct the fieldwork (if done in person) with less concern that differences in the data set collected will result. In other settings, remote methods such as telephone interviews and online surveying can highly efficiently collect this information. The authors rightly note that the strengths of semi-structured interviews are in the rich diversity of information that is provided to the researcher by the interviewees, which enables the researcher to identify factors that would not have been revealed through a structured interview/survey. To support this argument I would expect the authors to present data showing what topics/items/issues they discovered that they did not already know when they went into the field. This is most likely to be based on qualitative data, that explores the underlying factors (such as beliefs, strategies and constraints) driving irrigation practices. This is alluded to in the paper but not substantiated with data. For example, why is there such diversity in price paid for water between different users of canal water in the same area? How does this affect a farmer's decision to use tubewell water? How reliable is water at certain critical times of the year and how does this affect farmer's decision making on water use and source? What factors appear to be most critical for farmer decision making on water use and crop scheduling - is economics and water pricing the dominant factor or do other issues such as water rights and institutional support play a role?

It would also be very interesting if the authors could expand on how this information can be translated into research recommendations for scientists concerned with modelling water resource management, policy makers planning water supply, and farmers attempting to manage their available resources. The economics, geography, anthropol-

ogy and sociology literature has made attempts to address these types of questions in water management settings and this paper should tap into this body of work in its analysis of the (undoubtedly) rich data that has been collected by the authors. By bringing in more qualitative data the authors will be able to more convincingly argue the value and worth of semi-structured interviews to the research community - and particularly natural scientists/engineers who rarely consider the critical need for such research approaches. At the same time, the authors should ensure that they fully address some of the concerns and challenges that researchers often have with data derived from semi-structured interviews. Several are touched upon (e.g. translators, representation and reliability). But there is considerable scope for more comprehensively discussing these concerns, again using the wealth of social science literature from human geography, development studies and anthropology. For example, data quality concerns (have interviews revealed the "truth" and what is the "truth" when in most situations there is no one correct answer, rather all answers are biased and reflect the context in which they are given), consistency concerns (did all interviewees provide data on all the same topics and if not is this because the issue is irrelevant for them or was it simply overlooked during the interview?), representativeness concerns (how relevant, in this case study, is it that the sample "represents" the wider/entire community? How have interviewees been selected?).

I would suggest the authors consider shortening the introduction and methods sections by referring the reader to key texts on setting up and conducting semi-structured interviews (for example "Doing Development Research", edited by Desai and Potter (2006)). They should, however, explain how they selected farmers for interviews (i.e. randomly encountered in the sampling regions or through a "gatekeeper"), and consider including the semi-structured question sheet and perhaps an interview transcript (as supplementary material or an appendix) as this would be of interest to a reader unfamiliar with semi-structured interviews. The paper should also be balanced by some discussion of the limitations and challenges of working with data derived from semi-structured interviews and the arguments annulling these concerns or strategies adopted to address

them. Most critically, to make this a paper illustrating the use of semi-structured interviews (as a mixed-methods approach) the authors should include data that would not have been possible to collect via surveys, such as the underlying factors driving irrigation practices. If they could then discuss, or even better demonstrate, how these mixed qualitative/quantitative findings could be integrated into hydrological modelling and water management planning the paper would be of great value to the community.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 8221, 2015.