Hydrol. Earth Syst. Sci. Discuss., 10, C3457–C3459, 2013
www.hydrol-earth-syst-sci-discuss.net/10/C3457/2013/

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Socio-hydrology and the science-policy interface: a case study of the Saskatchewan River Basin" *by* P. Gober and H. S. Wheater

D. Feldman

feldmand@uci.edu

Received and published: 26 July 2013

Gober and Wheater provide an informative overview of the various ways in which the Saskatchewan River basin and its hydrological challenges exemplify the grave challenges to food supply, municipal welfare, industrial development, and ecological resource protection faced by large catchments, world-wide, in light of growing demands for water on the one hand and increased threats to supplies and their quality on the other. These threats are becoming increasingly exacerbated by climate change which, as the authors show, is imposing stress upon the surface and groundwater resources of a region often perceived as a "water-rich" by outsiders. Moreover, the pressures faced

by this basin, particularly in light of climate change-induced threats to precipitation patterns and streamflow, among other parameters - are comparable to those being faced by large watersheds in arid and semi-arid parts of the planet. The Colorado River basin in the USA and Murray-Darling-Murrumbidgee basin in Australia most notably come to mind in comparing issues related to irrigation, urban demand, ecosystem threats, and the various uses of water-marketing schemes to assist in the prudent re-allocation of water from lower- to higher value uses which they discuss in the Saskatchewan basin.

The heart of their paper is an analysis of the role of climatological uncertainty coupled with rapid demographic change in impeding prospects for overcoming the governance fragmentation problems characteristic of decision-making in many large basins. The authors do a good job of pinpointing the need for better coordination of place-based problems - citing a large body of literature which focuses on ways in which decision-making under uncertainty approaches can assist in these efforts. The strongest part of their argument is the plea for better understanding of the social processes that facilitate trasferring water knowledge under conditions of uncertainty, and the need for "boundary-spanning" efforts to better connect information producers, including climate modellers, wth the end-users of that information. I find little to disagree with in their case study, but would suggest that additional studies not cited in their paper have tried to elucidate ways to better engage critical stakeholders in such efforts, including integrated assessment.

As shown by Feldman and Ingram (2009) for instance, while moving from climate science to adaptive action is an immense challenge, especially in regards to the management of water resources, knowledge networks are one set of strategies that have been successfully employed to put climate knowledge to use. These networks can overcome barriers to information adoption including stovepipes, pipelines, and restricted decision space by overcoming policy and science-related hurdles of reliability, credibility, and trust. Key to these efforts is collaboration among resource managers and climate forecast producers through boundary organizations. Our review - which is the

result of a larger collaboration with colleagues supported by the U.S Climate Change Science Program and published in a NOAA report (CCSP 5.3) - examined a series of decision-support experiments and evaluations that used seasonal-to-inter-annual forecasts and observational data in policy-making in cooperation with scholars from universities across the nation and with program managers from the National Oceanic and Atmospheric Administration.

In short, efforts on the part of various Regional Integrated Sciences and Assessment (RISA) initiatives across the USA in recent years, and which are mostly housed in universities, in partnership with National Oceanic and Atmospheric (NOAA) laboratories, have helped build a regional-scale picture of the interaction between climate change and the local environment from the ground up. In some cases, information specialists act like Agricultural Extension services in responding to user needs. Several factors are critical in connecting scientists and decision-makers, including dedicated organizational leadership, stable and secure funding for these efforts, sound packaging of climate information in readily useful ways, and the cultivation of "integration skills," particularly among science agencies. It would be useful at some future point to revisit whether - and how well - such efforts are occuring in the Saskatchewan River basin and what specific impediments to boundary spanning and knowledge-network development are being faced in this region. The extent to which lessons from RISAs and other efforts documented in CCSP 5.3 can be applied to this catchment might also supplement the good beginning established by Gober and Wheater in illuminating ways of overcoming governance fragmentation in the particularly critical realm of integrated assessment and stakeholder consultation.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 6669, 2013.