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Title: The role of values and tradeoff reasoning in adaptation decision making along the Swat and Kabul rivers of Pakistan

The provision of a safe and adequate water supply is vital to achieve multiple Sustainable Development Goals (SDGs), yet throughout the world water resources and supply infrastructure are increasingly stressed by climate and other social-ecological changes. In the Khyber Pakhtunkhwa province in northwestern Pakistan, the Swat and Kabul Rivers support livelihood strategies that depend on the water supply for irrigated agriculture, aquaculture and fishing, domestic needs, and river-based tourism. However, Pakistan is ranked as one of the most water stressed countries in the world and projections show that climate change, industrialization, and agricultural intensification will further water scarcity. Such changes necessitate adaptation by households and communities. While adaptation to climate change and compounding social-ecological stressors is widely studied, it remains unclear how adaptation decision making interacts across temporal and spatial scales. Thus, we apply a multi-scalar lens to analyze adaptation decision making. Particularly, we completed over 400 surveys with household heads in three communities in the research area, and by analyzing the survey data we documented social-environmental changes observed and experienced by respondents as well as predominate adaptation strategies they undertook. Our study identifies various values (e.g. time, money, tradition, family opinions etc.) that are traded off as individuals and households make adaptation decisions, and assesses these values across water users (by location, sector, class, etc.). While some values and associated tradeoff reasoning vary, there appear to be common values that shape adaptations across households. Additionally, our study shows the multi-scalar nature of tradeoffs in adaptation decision making, that is, both adaptive and maladaptive outcomes of decisions made at one scale can have ripple effects across spatial and temporal scales. These multi-scalar interactions remind us that adaptation outcomes should be assessed across these scales in order to mitigate maladaptation and the often associated inequities or conflict. Finally, by exploring households' negotiation of tradeoffs, this study highlights the potential to support adaptations that align with household values. As the stress from social-ecological change compounds, this alignment will be increasingly important in order to mitigate the impacts of climate change through appropriate adaptation options that support household livelihood strategies and values.