**Progress in socio-hydrology, a meta-analysis (Pande et al., 2017)**

**Main messages:**

**(INTRODUCTION) Human demand for food, water, and energy** has grown to the point that humans are in sharp competition with nature, and can no longer afford to take for granted nature’s ability to restore itself. The negative consequences of the global water crisis remind us that: (1) humans themselves have played a **key role** in generating such crises, (3) water crises transcend the isolated actions of humans at any given location.

We can no longer ignore the role of humans (They can no longer be considered as external drivers or prescribed boundary conditions, but central to the hydrological system and endogenous to the coupled human-water system (CHWS)).

**(SOCIO-HYDROLOGY)** Socio-hydrology puts humans central to CHWS, aiming to interpret emergent phenomena (due to complex interactions) in terms of bidirectional feedbacks between humans and the water environment, towards sustainable water management and robust policy analysis. These emergent phenomena rise when the technology (infrastructure, water saving technology,..), norms and values (environmental awareness, community sensitivity,..), institutions and socioeconomic growth are part of system dynamics (i.e. The evolution of human values, norms and institutions play a critical role in defining the societal feedbacks within the socio-hydrological framework). Specifically, process socio-hydrology aims to understand and hypothesize about the nature of observed social and hydrological processes, building hypotheses about how different parts of the CHWS may be dynamically interconnected, and proposing theories and models of the feedbacks.

**(TELECOUPLED)** Liu et al. (2015) has similarly been arguing for a hierarchical integration of relevant subsystems at finer spatial and temporal resolutions to address global sustainability challenges that we face, such as safe operating space for humanity in terms of resource use. Such efforts have led to the emergence of the notion of tele-coupling in Land System Science (LSS) (Friis et a., 2016) where location-specific land cover dynamics is influenced not just by local drivers of change such as population pressure but also distal coupled social environmental/land cover dynamics through flows such as trade of goods and of knowledge. Therefore, the endogenization of humana gency, in terms of values and norms, technology, economics and trade, and environmental degradation must also be extended to space, which is a necessity for global water sustainability.