

## ***Interactive comment on “Reconstructing the duty of water: a study of emergent norms in socio-hydrology” by J. L. Wescoat Jr.***

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I am grateful to this dream team of geographers, historians, and a human rights lawyer who have expertise in South Asian and comparative water research. I have printed Bob Varady’s comment to keep in a special file. I thank all of the reviewers for reading and commenting on the paper with care. They are generous in their appreciation of the paper’s aim and constructive criticisms of how it can be strengthened.

The reviewers’ recommendations vary in emphasis, but they converge on the abbreviated scope of sections 6 on ethics and 7 on emergent duties. Doing justice to those sections will also entail some refinement of the paper’s problem statement (section 1) and socio-hydrologic framework (section 2). My responses to reviewer recom-

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mendations are presented in the order in which changes would appear in a revised manuscript.

1. Historical socio-hydrology and/or history of ideas? (sections 1 and 2). David Gilmartin correctly notes my emphasis on changing ideas about irrigation duty, vis-à-vis the social history of irrigation systems. I will make this clearer early in the paper, but I will also underscore how ideas about duty have been embedded within practices of water management (vis-à-vis theoretical treatises which are rare). This can be accomplished in part through a slight renaming of the “norms” listed in the paper, e.g., as irrigation practices, measurements of practice, standards of practice, valuations of practice, and justifications for practice. I will also be more explicit about the inductive method used to identify norms embedded in irrigation project documents. Daanish Mustafa and Sharmila Murthy also call for more discussion of the relationships between norms and practices in ways that are addressed below.

2. The role of social power relations in water ethics (section 5 and 6). Daanish Mustafa offers a compelling argument for discussing differential power relations in water norms, and their material consequences for peoples and places involved; I would discuss the literature he suggests. In a similar vein, Gilmartin identifies related irrigation concepts, e.g., “command” and “regime,” and an interpretation of them as transpositions of political and ethical concepts in engineering practice. I would address these issues in the way that Sharmila Murthy’s suggests, i.e., through more precise analysis of the ethical duties identified in the historic section (i.e., who has duties, who benefits from them, who adjudicates conflicts among different types of water duties, etc.).

3. Elaborating the argument regarding ethical duties (section 6): My paper currently presents the pluralism of water standards as a fact, both in their variety and substance. I briefly draw upon Kant’s formal typology of duties to shift toward an ethical position, and then offer a pragmatic alternative to it. All of the reviewers find this section too brief. In the revision, I would elaborate briefly upon the Kantian typology, and more so upon the pragmatist alternative. The pragmatist approach grapples with the dynamism

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of emergent water duties in a pluralistic world. The relevant literature is cited in the paper but needs to be discussed. Following the reviewers' suggestions, this section will strive to articulate the conditions under which the pragmatic approach can be a good one.

4. Explaining the rise, fall, and emergence of water duties (section 5 and 7): David Gilmartin asks for a sharper historical assessment of why the duty of water went out of favor in the mid-20th century, in part to assess what continuing salience it might still have, and in part to assess whether emergent duties entail a rejection of previous conceptions of duty. In addition to the case law that I already cite on the increasingly intractable geographic heterogeneity faced by duty of water assessments, I will cite cases that involve the two main norms that encompassed and superseded the duty of water concept, i.e.: 1) the "historic beneficial use rule"; and 2) the "no injury rule". Water rights holders have strict duties to put water to actual use and in ways that society regards as beneficial, and not to adversely affect other water rights holders. These private duties determine the nature and limit of a water right, which the state has corresponding public duties to administer and protect. There are other nominal duties, e.g., not to "waste," and explaining why some of these have been less enforced in practice, will help address the power relations questions that Daanish Mustafa raises.

5. Assessing emergent water norms (section 7). This section offers more detail than section 6, but it needs another level of development to make the case for the pragmatic approach to normative inquiry in sociohydrology. I envision three additional steps. The first step would show how some emergent duties are embedded in existing practices. Examples include water rights exemptions for domestic use, the practicably irrigable acreage standard in Indian water rights, provision for public access to water, recognition of new types of beneficial use in some jurisdictions, and judgments about changes in use that are deemed de minimis. I agree with Murthy's suggestion to move part of the public trust doctrine example into section 7 as it would also support this first step. The second step would be to discuss the uneven progress of emergent norms in different

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jurisdictions, which would underscore the role of normative concepts in sociohydrology. The third step would discuss emergent norms that break with previous conceptions of water rights and duties (Gilmartin and Murthy). The ethical movement to reframe social duties to provide water as human rights to the water necessary for dignity, equality and respect is one example. Rights claims on behalf of other species and ecosystems is another example. The pragmatist approach must strive to assess what difference those reframings can make in practice.

6. Rebalancing water norms (section 8). If the public trust doctrine example is repositioned as an emergent water norm in section 7, as Sharmila Murthy suggests, this final section will need to focus more directly on "balancing water norms." It needs discuss what balance can mean in a dynamic, pluralistic world, and how it can move beyond the sometimes naive and mechanistic perspectives that Mustafa and Gilmartin rightly flag for revision.

Again, I thank each of the reviewers. The issues they raise can be addressed succinctly in ways that will help the paper realize the aim of demonstrating how historical sociohydrology can help anticipate, understand, and balance emergent water norms.

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