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## 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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In his fascinating article on the 'duty of water,' Jim Wescoat brings the reader on a historical journey that explores how our normative relationship with water has evolved over time. He draws on several different discourses, delving into philosophy, history, law and hydrology. The first half of the article features a rich discussion of the duty of water at three distinct periods in history: in 18th century Britain, where the duty of water was understood to be a measure of water-related efficiency for steam engines; in colonial India, where the concept provided the normative basis for the allocation of canal irrigation water; and in U.S. West, where the duty of water became the basis for the minimum standard of private water rights appropriation and use. The article could

C3602

make an even more important contribution to the literature, however, if the analysis in Sections 6 and 7 was expanded on in the same wonderful detail.

In section 6 on ethical duties, it would be helpful for Jim to expand on who holds the duty and who is the beneficiary. He notes that "water users and uses jointly engage one another as means and ends" – but what does it mean for a natural resource, as opposed to a natural person, to hold a duty? Does the moral nature of the duty change depending on the beneficiary or the use – i.e. whether it is for industry, irrigation, personal consumption or survival? It would also be useful to link this discussion of moral philosophy to the current trends in Section 7. For example, utilitarian rationales seem to dominate the historical understanding of the duty of water, with its emphasis on efficiency, maximizing irrigation area, and intensification. Yet, more recent trends (i.e. the human right to safe drinking water and sanitation or the rights-based approach to water use) seems more in line with theories promoted by other philosophers, such as Rawls or Grotius.

As the article's title and introduction promise a discussion of the emergent norms in socio-hydrology, it would also be valuable for Jim to enhance the discussion of these emergent duties in Section 7, and in particular, to discuss potential conflicts related to such differing interpretations of such duties. For example, the duty of intensification seems in line with the historical interpretation of the duty of water, but how does this conflict with the duty of water for environmental flows? Does the concept of virtual water suggest a transnational duty of water? Within the international human rights discourse, the human right to water is focused on water for drinking, personal use and sanitation – not irrigation. How does this influence the way we ought to understand the duty of water? Moreover, how does the use of 'rights' language, often by disempowered peoples, relate to the historical understanding of a duty of water (as opposed to a duty to water)? Given the duty of water's origins in steam technology, it would be interesting to consider the duty of water in the context of current business practices by water-intensive industries, such as the beverage and mining industries, which often create

conflicts with local communities. To whom is the duty of water owed in such contexts, and what is the nature of such a duty? An analysis of this issue would tie in nicely with the brief discussion of equitable access, allocation and use. Finally, the discussion of the public trust doctrine might be more appropriately discussed within Section 7, as this is an emergent issue that, as Jim notes, is gaining traction in places like South Asia.

Overall, this is a captivating piece that provides new insights into the historical origins of the duty of water. It would be even stronger if similarly detailed treatment was given to the discussion of ethical duties and to emergent norms. Thank you for the opportunity to submit this review.

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C3604