SPECIAL SECTION: New Epistemologies of Water in India

Combining Political Ecology and "Mésologie" for a New Geography of Rivers?

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Abstract: How do we rethink the integrated management of river basins? This article is mainly a theoretical contribution that aims to reflect on ways of knowing rivers in the context of the Anthropocene. The authors suggest a new framework based on post-positivist geographies for a deeper understanding of environmental, political, and social conflicts related to rivers. They highlight the potential of combining political ecology and its hydrosocial cycle framework with the *mésologie* of Augustin Berque. This approach, inspired by non-modern ontologies, helps to account for the full texture of the relationship between society and rivers. It emphasizes human–environment relations and the concept of "milieu". It particularly captures the role of lived experience in river–human relationships, by accounting for the emotions and interpretations that link people to rivers both collectively and individually. This is particularly appropriate in the Indian context where rivers are ritually revered.

Keywords: River; Anthropocene; Political Ecology; *Mésologie*; Hydrosocial Cycle.

1. INTRODUCTION

While there are ongoing debates about whether the Anthropocene should be acknowledged as a new geological period, the acceleration of physical changes on the Earth's surface since the mid-twentieth century has created challenges for human societies. This acceleration has been both in

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amplitude and in rhythm and is being experienced through land degradation, natural resource depletion, river valley reshaping, and climate change. In response, Chartier and Rodary (2016) call for geographers in France to take environmental change seriously and counter the "eco-scepticism" of some French geographers who believe that technology can solve global environmental issues. They propose reinterpreting the episteme of geography in the contemporary context and shifting to an "environmental geography".

In this paper, we elaborate on a new theoretical framework for the environmental geography of rivers with the objective of rethinking existing practices of river management. We do so by questioning the "grey epistemology" of rivers, such as the one promoted within the integrated water resources management (IWRM) approach.[1] Deliberately departing from the river basin perspective, we wish to imagine a new geography of rivers to capture how the ideas and materialities of rivers operate in the contemporary social order. We discuss combining political ecology with *mésologie* (propounded by the French geo-philosopher Augustin Berque, it is a non-modern ontology inspired by phenomenological perspectives [Berque 2014]) to cover the full texture of the relationships between society and rivers.

2. RIVER STUDIES: WHAT KIND OF "OBJECT" IS A RIVER?

In this section, we provide a brief history of the study of rivers to explore what kind of "object" a river is. We do this by accounting for the diverse ways of knowing rivers and by revealing the hegemonic meanings of rivers. We borrow this approach from geographer Jamie Linton, who highlighted the hegemonic meanings of water while reconstituting "the story of a modern abstraction" (Linton 2010). For our analysis, we consider three schematic chronological phases: the pre-modern, modern, and post-modern.[2]

The pre-modern phase encompasses antiquity and the entire medieval period up to the Renaissance. Examples drawn from ancient texts and archaeological evidences as presented by Metchnikoff (1889), the scientific secretary and collaborator of the French geographer Elisée Reclus, illustrate

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[1] IWRM is an international reference for water management. Its initial guiding principles (Dublin Statement, January 1992) gave way to a more technical and less political approach and was also introduced within the European Water Framework Directive (2000).
[2] Here "post-modern" refers to all critical approaches, though sometimes contradictory, that emerged in the 1980s and that oppose the positivist approach. This proposal is in line with Mark Moberg's discussion about anthropological theories (Moberg 2013).

the significance of rivers as providers of water and fertile sediment for agriculture and livestock rearing.[3] The *Hymn to the Nile*, found on the Sellier Papyrus, explicitly states "Rises he [the Nile], the earth is filled with joy, every belly rejoices, every being receives his food, every tooth grinds" (translation from Metchnikoff 1889, 211). During this phase, humans developed river knowledge primarily to help them manage their dependence on the river, as in the case of irrigation work. This river–society dynamic is also evident in Sanskrit literature (NIH 2018; Mukherjee and Choudry 2018). The pre-modern agenda was to make the most of the river and to try to minimize its destruction—offerings to the deified river were one such modality—without questioning society's dependence on the river. The river–human relationship was characterized by adaptation or "accommodation" in Reclus' framing (Metchnikoff 1889).

After the Renaissance, a conceptual distance between human actors and rivers emerged in the West. Scientists used mathematics and physics to explain the world and natural phenomena, independent of religious perspectives. In parallel, dualist views as seen in the philosophical works of René Descartes separated nature from society. New scientific tools emerged to control nature and rivers. The technologies developed during the Age of Exploration allowed for elaborate hydrography, which was also driven by military and strategic imperatives. There was a growing specialization of sciences, and disciplines such as hydraulics, hydrology, sedimentology, hydrogeology gradually emerged, alongside a scrutiny of the quality of water and its biology. The mathematical approach, as well as the complexities encountered by engineers in the applied sphere (such as while engineering large dams and river valley infrastructure), led to fragmenting problems and increasing specialization to reduce the number of factors considered and minimize the errors in mathematical modelling (Pardé 1959). The social dimensions of the problems tackled by "river scientists" were dismissed, particularly the question of anthropogenic impacts on rivers. Humans were not included among the objects of the studies.

Diverse reactions to the modernist model became more prominent in the second half of the twentieth century, during the post-modern phase. One of them was the increasing interest in environmental sciences among researchers in order to address the anthropogenic impacts on the

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[3] Leon Metchnikoff was a close friend and collaborator of Elisée Reclus and was part of a group of exiled Russian anarchist geographers in Switzerland which also included Pierre Kropotkin (Pelletier 2013); he was also a professor at the Academy of Neuchâtel. His opening address at the *Société Neuchâteloise de Géographie*, published in the Bulletin de la SNG in 1885, was the subject of comments recently published by Patrick Rérat and Etienne Piguet (Rerat and Piguet 2011).

environment. The scientific community then developed new fields of study such as eco-toxicology and bio-indicators for rivers. In parallel to this push for "more science", a critique of modern science emerged in the 1980s within various post-modernist approaches; research started focusing on the relationship between objects and subjects, humans and non-humans, and the related arrangements and hybrids (Latour 1991). Braun (2008) proposed the term "non-modern ontologies" to describe Anglo-Saxon works, which brought about an epistemological and ontological rupture, particularly in geography (Braun 2008). These theories assumed that the boundaries of "what is", especially between humans and non-humans, were no longer fixed, but in perpetual recombination, following the concept of networks from actor-network theory (Latour 1991).

These non-modern ontologies permeate recent works in emotional ecology (Smith 2013), political ecology of emotions (Sultana 2015), and hydrosocial studies within the political ecology of water. The latter approach explores the features and dynamics of the "hydrosocial cycle" that account for the *dialectical* and *internal* relations between water and society (Linton and Budds 2014). In the same ontological vein, but according to a different conceptualization based on phenomenological perspectives,[4] Augustin Berque (2014, 2016) has developed mésologie[5] or the study of the milieu, i.e., the neither entirely objective nor entirely subjective relation between humans and their environment. In Berque's works, the milieu is simultaneously physical and ecological and human interpretation (2014). As in other non-modern ontologies such as actor-network theory, Berque's mésologie breaks the object–subject conceptual divide and renews our understanding of the human–environment relation as a mutually and internally shaping connection, parallel to the concept of a hydrosocial cycle in the political ecology of water framework.

3. TOWARDS AN ENVIRONMENTAL GEOGRAPHY OF RIVERS: WHAT DOES POLITICAL ECOLOGY TEACH US?

Political ecology of water provokes a reconceptualizing of water; it provides a radical critique of the capitalist mode of production and of "natural" approaches to water that ignore water's social construction. It addresses the call for a cosmopolitical geography that explicitly explores the role of

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[4] Here, "objects and subjects interpenetrate each other to form a geographical world that is only accessible through lived experience" (Pradeau 2013).
[5] This term should not be equated with the *mesology* developed by Charles Robin, a disciple of Auguste Comte, in the nineteenth century, which presents a positivist and determinist epistemology (Berque 2014).

politics in creating a "geography of justice" (Chartier and Rodary 2016, 41–43). New conceptual tools have been proposed, such as the hydrosocial cycle, which differs from the hydrological cycle in that it accounts for the material as well as discursive co-production of water and society (Bakker 2000; Swyngedouw *et al.* 2002; Linton and Budds 2014). It also invites researchers to reinterpret discourses and representations of water in order to reveal the political dimensions they contain and the social injustices that they may entail (Linton and Budds 2014). Several of these works on rivers, therefore, highlight the blind spots of policies and river management practices (Bakker 1999; Sneddon and Fox 2006; Norman and Bakker 2009; Graefe 2011; Tvedt 2011; Alatout 2012; Bouleau 2014; Bourblanc and Blanchon 2014). These works often relate to "politics of scale" analyses (Swyngedouw and Heynen 2003; Rangan and Kull 2009), which also bring to the fore the social construction of scales that are often misinterpreted as a given. Some authors have also questioned the hegemonic use of the watershed concept, promoted by international organizations and the European Commission (Molle 2009; Graefe 2011). Others investigate rescaling measures in river management, shedding light on the biases involved (Sneddon and Fox 2006; Norman and Bakker 2009; Vogel 2012; Bourblanc and Blanchon 2014). These works successfully address a classic theme in political ecology, i.e., the social distribution of benefits and costs within the nested perimeters of river management policies (Molle 2005; Matthews 2012; Vogel 2012).

However, political ecology does not deeply engage with the materiality of rivers, nor with the emotions and attachments towards rivers. This observation concurs with critiques from works that strongly engage with the material dimension such as "bodily" or feminist geographies,[6] and with critical physical geography that aims to develop dialogues between physical geography and critical approaches (Lave 2015). This observation also draws on approaches that seek to integrate the emotional dimension that permeates the world with academic works (Smith 2013; Sultana 2015; Chartier and Rodary 2016). In particular, the symbolic, ethical, religious, and emotional dimensions of rivers are not subject to specific analyses in political ecology's river narratives, even though the authors acknowledge the significance and roles of river imaginaries (Bakker 1999; Molle 2005; Sneddon and Fox 2006; Alatout 2012; Bouleau 2014).

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[6] We must note here at least two exceptions: Peterson (2000) proposes to model a river in its socio-political context as an ecosystem interacting with its own environment in his case study on the Columbia River in US. Bouleau (2014) details the biological indicators for the Rhone and Seine rivers in France and shows how these reflect the co-production of science and waterscapes.

We argue that these bonds and attachments are likely to play a significant role in the "strategic field of power relations" (Foucault *et al.* 2001, 241) through collective and/or individual actions. Dallman *et al.* (2013) presented the spiritual and emotional connections between the Winnemem Wintu tribe and its residual sacred spaces that were threatened by the extension of the Shasta Dam in California. The research demonstrated how these connections, perceived as inseparable from the identity and memory of the tribe, triggered the tribe's struggle—however symbolic—against the dam project. Drew (2017) investigated the extent to which women's religious devotion, beliefs, and practices involving the Ganga River catalysed and shaped political mobilizations against dam projects in the upper Ganges Basin. Boelens (2014) proposed the concept of a "hydrocosmological cycle" to extend hydrosocial analyses to the examination of "ancient and modern myths [that] attempt to normalize and subjugate actors to control by the dominant groups in water society" (245). However, these approaches do not particularly investigate the ontological dimensions that underpin these perspectives. Our proposition, as presented in the next section, will therefore turn to Berque's mésologie.

4. THE CONTOURS OF THE "ENVIRONMENTAL GEOGRAPHY OF RIVERS" IN THE INDIAN CONTEXT

Based on the richness of river–society relations that the existing literature highlights, we call for hydrosocial analyses to incorporate a focus on the materiality of rivers and the emotions and interpretations attached to them simultaneously.[7] An environmental geography of rivers should scrutinize how the emotional and metaphoric, which could be the cultural, ethical, ideological, or spiritual dimensions of rivers, enrich the hydrosocial cycle. Emotions and interpretations emerge from sensitive relationships between individuals and rivers but also from collective representations, systems of preferences, and values, religions, and ideologies. Swyngedouw (2007) emphasized the importance of ideologies in his analysis of Franco's "hydrosocial dream" for Spain, as did Alatout (2012) in his "geopolitical imaginaries" of the Jordan River. Religious beliefs and rituals are inseparable from several rivers in India, particularly the Ganges. The attachment to rivers operates simultaneously at the physical and spiritual levels. In the Indian context, bodily interactions with rivers are central to human–river relations. Many rituals involve bathing and ablutions with water from the Ganges or even taking a sip from it. Haberman recalls

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[7] For example: Sharma (2009), Eck (2012), and Singh (2013) shed light on the Indian context of revered rivers.

(2000) that Vallabhacarya, a sixteenth-century Hindu saint, indicated that human relations with the material river condition one's capacity to relate with the two more elevated stages of the river—the spiritual river and the goddess river. Reciting *mantras* and uttering the name of Ganga also play an important role in the Hindu faith (Eck 2012). These are ways to invoke the goddess' presence in rituals at home. In her study on the Bhagirathi Valley, Drew (2017) showed how contemporary devotees in Uttarkashi city, especially women, recite chants dedicated to the river to actualize and strengthen the human–river relation. Therefore, the rituals strongly connect devotees to the river and contribute to shaping it as "socionature", both materially and discursively.[8]

At a collective level, the sacredness of rivers has also acted as an intrinsic trigger for the mobilization of activist movements since the 1980s; for example, the Ganga Ahvaan Forum promoted the maintenance of the pristine upper stretch of the Bhagirathi River (Uttarakhand) by avoiding the construction of hydroelectric dams. The present Indian government (2020) has also chosen to leverage the reverence for the river in its landmark Namami Gange Programme launched in 2014. However, this programme is also a counter example. The attention given to the cultural and ontological values of the river for political matters is socially counterproductive, as it may divert the authorities' efforts from precisely documenting the social impacts of the environmental condition of the river and questioning the representativeness and legitimacy of policy priorities (Lafaye de Micheaux 2019).

In response to the "principle of sensitive geography", which calls for engaging with senses, practices, and emotions (Chartier and Rodary 2016), Berque's mésologie singularly complements political ecology with its concepts of milieu and trajection (the relationship, necessarily historical, of reciprocal and iterative transformation between the milieu and humans [Berque 2014]). Advancing the socionatural approach, mésologie captures the full extent of river meanings—i.e., the complex links between the material dimensions (sensory perceptions and practices also mediated by technologies) and the emotional and conceptual dimensions (value-charged representations) of rivers. It also refines the notion of temporalities: "the reality of the milieu is simultaneously present, past and possible" (Berque 1986, 151). We read this sentence as an invitation for researchers to expand

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[8] Geographer Erik Swyngedouw formed this neologism to reflect that society and nature are hybrids, internally connected and co-produced (1999). This proposition builds on a view of dialectics as internal relations (Harvey 1996) and on the actor network theory developed by Bruno Latour (1991). "Socionature" encompasses material and discursive dimensions of nature in a historical-geographical production process (Swyngedouw 1999).

the spectrum of elements incorporated in their studies, such as mythological or religious narratives that defy rational space–time conventions. As a typical example of how these narratives may shape the governing of rivers, following New Zealand's Whanganui River, the Indian court also conferred legal and human entity to the River Ganges, justifying the action through religious (or traditional indigenous) perspectives that consider rivers as more than objects.

5. CONCLUSION

The combination of the hydrosocial framework with mésologie allows for a deepening of our understanding of stakeholders' perspectives and their positionality along with the full range and texture of the components that shape the hydrosocial cycle. Through this integrated framework, the social, ecological, political, and ontological issues raised around river management initiatives and their interlinkages can be better apprehended. Within the Indian context, where society has revered rivers since the days of antiquity, "colonial hydrology" (D'Souza 2006) was the major departure from the traditional perspective that conferred *intrinsic* and *relational values* to the river (Pascual *et al.* 2017). In its contemporary legacy, evident in lofty national agendas like the interlinking of rivers, an "environmental geography of rivers" can be a provocative approach to address questions from "what changes?" to "who changes?" if rivers are intervened upon beyond redemption.

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