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Bridging the gap: A Water System Approach

This paper will argue that what is called a "water system approach" will be a useful tool for comparative research on social development and historical transformation processes.

Premise I. The dominant social science traditions has been disinterested in the role of nature (and water) when reconstructing and analysing historical development processes, with important implications for our ability to understand nature/society relations and interactions.

The subject matter of much social sciences and historical research have been defined by the basic idea that humans, as social animals, should be understood only in the context of their social life, and the ensuing influences of interaction, social patterns, and socialization.¹ Social sciences have in general studied humans as a unit, collectively within his/her *social world*, reflecting the fact that these sciences were established in opposition to the naturalizing view of (natural and social) circumstances.² The basic argument and justification for social science as distinct from the natural science tradition has been that social facts can and should be explained by another social fact.³ This conceptualisation of the nature/society divide was supported by contemporary influential theories of development itself, whereby historical progress was regarded as a process by which humankind gradually was liberated from nature or the powers of nature. Nature was seen as a primeval state to be transcended and mastered through science, technology and culture, and hence it was of no or marginal interest to research dealing with societies and social relations. One conceptual consequence was that its impact on and its relationship with societies became ignored by a social science concerned with modernity and modernization processes; nature belonged in most cases on another side of a deep ontological gulf.

These notions about the irrelevance of nature for understanding development potentials and development patterns are also reflected in the most influential modernisation theories. Given these evolutionary models of historical development and their political-ideological influence, the question of how societies were influenced by nature and their interactions with nature, was seen as largely irrelevant.⁴ The constructionist school further developed this view, ending up seeing nature as nothing more than a social construct,⁵ and working to develop concepts of nature which conceived of it as socially constituted and culturally defined.⁶ The dynamisms of physical landscapes and their social importance were consequently rejected and hidden under the conceptual cover of social action.

The knowledge that nature is socially mediated is a truism. Values, interests, conflict and power – in short, the social - shape our conceptions of the physical reality and influence its formation. But it is necessary to study both how nature is mediated through society and society mediated through nature, but this cannot be properly done without grasping that nature exists independently from cultural ways of knowing it and still impacts societies. This means that it is necessary but not sufficient to locate social actions in wider sequences of social reproduction and transformation. Comparative studies of great historical transformation processes and countries' development patterns must also bring nature into the analytical picture and must be informed by natural science findings (without, of course, regarding these data as the objective truth about this very same nature).

Premise II: The necessity to deconstruct the idea of nature or environment as one entity.

The terms “nature” and environment covers such a myriad of variables and aspects of importance to societies that meaningful empirical research or precise discourse become impossible (the sun, wind, soil, minerals, water, energy, trees, plants, animals are among the endless number of variables). For this reason nature/society or environment/society relations cannot be rigorously and comparatively researched, neither in space nor time (from a natural science point of view the idea of nature as one entity or organism is also highly questionable, but this is another debate).

Comparative studies of human-nature or nature and socio-cultural relations, although responsible for important insights of behavioral and institutional variety, have proved to be problematic due to the empirical fact that different elements of nature have played various roles in different societies and in relation to different societal sectors at different times.⁷ Some of the most well-known works on environmental history have not analyzed societies' relation to the environment and its interconnectedness with nature as a whole, but only certain element(s) in nature and sub-systems of societies' relation to it or them.⁸ The historiographic tradition demonstrates that a deconstruction of nature as one entity is in practice unavoidable in empirical studies.

In order to carry out meaningful and rigid comparative analyses of nature/society relations one has to deconstruct nature into different elements, but the new environmentalism, being very influential among researchers interested in bringing nature into the analytical picture, has, however, had the explicit political-ideological aim of fostering a holistic approach; viewing and studying nature and the environment as a whole, or as an organism. These though systems will therefore be skeptical to suggestions that nature as one unity should be deconstructed for analytical purposes.

III. Proposition a): Water can be chosen as one such aspect of nature/society relationship that can be studied for the following reasons:

Water is one identifiable part of nature that all humans relate to, and at the same time it is something that can be delineated from other elements in nature, thus making it possible to reconstruct, describe and understand its movement and role and relevance.

Unlike all other elements in nature water has played a role in all societies at all times. It is therefore a truly universal resource. Water is simultaneously always particularistic and in flux, varying from place to place and from time to time. This inherent dualism - the simultaneous embodiment of the universal and the particular – makes water particularly interesting theoretically but also for comparative empirical studies.

Water has another advantage compared to some other elements in nature as an analytical category. While the term landscape or topography for example has connotations of stability, of Braudel's *la long duree*, will water, as precipitation or as flowing rivers, be both stable and always in a flux, undercutting the notion that geographical structures only belong to the world of the long term. By deconstructing nature and selecting one natural variable as water, that reflects and summarizes many other aspects in nature and in society because it is multifunctional in both nature and in societies, it becomes possible to study larger social units in their relations to nature more broadly, both in a diachronic and a synchronic perspective.

Proposition b) I suggest an analytical approach that is concerned with what can broadly be called “complex and multifunctional water systems”.

The analytical approach is concerned with three different analytical layers that have to be studied individually and in conjunction with each other. First and most fundamentally it is concerned with the physical form and behaviour of water to the extent it is of relevance to societies. This includes a nation's, a region's or the analytical unit's precipitation and evaporation patterns, the way and how the rivers run in the landscape and through societies or is stored underground or in glaciers, and (where applicable); the particular interface between the rivers and the ocean. To integrate this layer in the analysis and to understand it requires knowledge of natural sciences and the collection of natural science data since these data, although they are socially modified, are of fundamental social and historical relevance. The argument is that this physical space and these differences in physical space matter when historical development and types of social practices shall be explained.

The second analytical layer concerns itself with two aspects of human/water relations; the actual human modifications of the physical water landscape and other water-related artefacts. These open and complex water systems thus reflect in different degrees not only natural and geographical conditions, but also societies' ability or determination to manipulate or use their water over time; they are material artefacts reflecting and influencing both natural and cultural contexts. Water has an increasing multi-functionality in societies, a phenomenon that influences and reflects the way water has been manipulated, used and controlled.

The institutional and conceptual dimension of a water system is the third and final layer, i.e. the management practices and “habits of thoughts” or ideas about water and water control that have developed over time in different human/water contexts. The concept therefore also encompasses the importance and permanence of water management practices in all societies, and cater for the different and often competing conceptions of water and how these ideas about water have over the centuries been influenced to different degrees by the physical and hydrological context in which the actors operate.

This water system approach argues for a kind of extended analytical reductionism: the deconstruction of nature in order to focus on one element to enable analyses that includes both natural and social factors and how different water worlds interact, influence each other and are conceived. The approach and term encourage and make possible analyses of the interrelationships between these three comparable factors in all societies on a continuum and over time. The term has nothing to do with system theory, and should not be regarded as being similar to notions like ecosystem or to an “ecosystem approach”. It is not concerned with functional relationships, the flow of energy through the system or with so-called “optimal level” thinking.

The concept of “open and multifunctional water systems” provides a means of seeing our world and our history as products of both human and nonhuman actors and forces, because all three layers and their interconnectedness have been a structural while at the same time varying factor in all societies’ development. The natural world cannot be reduced to a blank slate or an empty stage on which only human actions matter and central aspects of societal development patterns and transformations cannot be explained unless structures and events in the water world also are integrated in the analysis.

¹ This view has also been criticized by some sociologists: See for example Murphy, Raymond, 1997. *Sociology and Nature. Social Action in Context*, New York: Westview Press. This book argues that the “blind spot” of sociology is its blindness to the role of nature for understanding social life.

² In Parsons’ system theory the physical environment assumed a basic but largely passive role – and importantly, one that was effectively separated, analytically, from the social and cultural systems. (Parsons, Talcott, 1960. “An outline of the Social System”, in Talcott Parsons etc.,,,:30-79

³ See for example Durkheim, Emile, 1982. *The rules of the sociological method*. New York: The Free Press. Max Weber. For an overview of dominant sociological thinking on the issue, see also Coser, L. A. 1971. *Masters of sociological thought*. New York: Harcourt Brace Javanovich, Giddens, A. 1993. *Sociology*. London: Polity Press, Gosling, R. A., Hill, M., Free, L.K., & Taylor, S. (2003). *Introduction to sociology*, (7th ed.). London: University of London Press, Haralambus, M and Holborn, M. 2002, *Sociology: Themes and Perspective*. London; University Tutorial Press, Stones, Robb. 1998. *Key Sociological Thinkers*. London: Macmillan Press, Swingewood, A. 1991. *A short history of sociological thought*. London: Macmillan Press.

⁴ The modernization theories that gained prominence after World War II (for example the influential work of W. W. Rostow), such as the “basic needs” strategies of the 1980s (see books by Stewart, F., for example), or the “right based” development strategies of the 1990s do not consider questions of natural constraints or opportunities in general or how water availability influenced the past and might influence future development options available to different countries or regions. Although the UN and the World Bank give more and more political attention to freshwater as an issue, water systems or “nature” are not integrated in the same international development institutions’ development strategies and development rhetoric. See for example the Annual Human Development Report, published by the United Nations Development Programme.

⁵ Typical examples: environment has to be “invented” (Macnaghten, P. and J. Urry. 1998. *Contested Natures*. London/California/New Dehli: Sage: 32), or a “fish is only a fish if it is socially classified as one” (Tester 1991: 46, or “nature no longer exists” (Beck, U, A. Giddens, and S. Lash (eds.) 1994. *Reflexive Modernization: Politics, Tradition and Aesthetics in Modern Social Order*, Cambridge: Polity: 206).

⁶ Eder, Klaus. 1996. *The social construction of nature*. London: Sage: 20

⁷ See for example Pratt et al. (2000), Part 1 of Jamieson (2001), Gottlieb (2003), Selin & Kalland (eds.) (2003), Turner (2005), Baird Callicott & Palmer (2005), and Radkau (2008).

⁸ See for example the famous books Crosby, Alfred W., Jr. 1972. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport, CT, Greenwood Press; Warren, D. 1995. *With Broadax and Firebrand: The Destruction of the Brazilian Atlantic Forest*. Berkley and Los Angeles, CA, University of California Press; and Opie, J. 1993. *Ogallala: Water for a Dry Land*. Lincoln, University of Nebraska Press.