Book Review

Water, Ecosystems, and Society: a confluence of disciplines

Jayanta Bandyopadhyay, Sage, 2009

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Much has been written recently on integrated water management, and this book provides a welcome contribution to these debates by calling for an interdisciplinary approach to water research and policy. The author begins from the premise that freshwater is not simply for human consumption, but provides critically important ecosystem services and environmental flows. By adopting an interdisciplinary approach, Bandyopadhyay argues, this fundamental situation can be addressed, mitigating many of the analytical omissions and policy failures that continue to plague contemporary water management around the world.

The book's argument is developed in three steps across four chapters. First, the author stakes out his claim that an interdisciplinary approach to water management is now urgently needed. Disciplinary barriers have meant water management has become "stagnant in its style and limited within disciplinary bounds" (p. 2). "Truly, water systems management needs inputs from so many diverse stakeholders that it can be called a confluence of disciplines" (p. xii). Having established this need, nine interrelated areas of cross-disciplinary research are identified to provide the backbone for effective water management, with each area having ecological and socio-economic dimensions.

Secondly, the author proceeds to demonstrate the value of interdisciplinarity through close consideration of flooding, paying particular attention to the costs and benefits of flood events from the socio-economic, ecological, and hydrological viewpoints. He demonstrates the diversity of ecosystem services provided by floods, and the often profoundly beneficial environmental flows that flood events generate. This second chapter provides many interesting insights into flood prediction and control in India, not least that there is now growing recognition among academics of the need to 'live with floods', analogous to the recently adopted policy perspective of 'making space for water' in the UK and the Netherlands.

The third chapter considers how dispute resolution over water resources can be achieved, by developing more accurate means for establishing the value of water. A useful review is provided of economic valuation of water systems in terms of their consumptive use and the ecosystem services provided by them. Again, Bandyopadhyay uses different disciplinary positions on value (use value, exchange value, and ecosystem services, with emphasis given to scarcity value) to provide a more holistic assessment of water's critical environmental and socio-economic contribution, arguing that by assigning value in this way, policy practitioners, political classes, and populations will be obliged in future, to use water more efficiently and effectively. Particularly interesting here is the way in which established valuation tools are used by Bandyopadhyay to serve cross-disciplinary

purposes. The book concludes with a critical assessment of the proposed river-link project, which, the author contends, demonstrates the shortcomings of hard-engineered solutions to 'water shortage'. Thus, the book engages with the environmental and socio-economic components of water management and identifies new approaches to address them constructively.

Bandyopadhyay draws on his extensive knowledge of Indian water governance and policy for illustrative purposes – a very appropriate geographic focus, given the complexity of ecological, hydrological, and socio-economic factors involved here – and the highly disparate (but abundant) work that has already been produced on the Indian context. As a reader without detailed knowledge of this national setting, I found this very useful and highly supportive of the author's argument that there now needs to be a move away from the traditional engineering supply-side approach to consideration of water provisioning for ecosystem services. The author draws on this rich material very effectively, interweaving insights into contemporary water management from local, regional, and national scales, to demonstrate existing shortcomings and inefficiencies.

The author contends that an interdisciplinary approach provides a means of addressing incrementalism in water management—still the predominant policy strategy adopted by most Indian water practitioners. However, it is also suggested that the policy scene is changing and that recent policy developments may mark modest progress towards integrated water resource management, even though this approach is still in its infancy.

Bandyopadhyay provides a refreshing and very stimulating analysis of the benefits of interdisciplinary approaches to water systems without being prescriptive. His analysis highlights clearly that the current technocratic/water engineering approach no longer can provide all the answers, reliant as it is upon states holding a monopoly over water allocation decisions and policymaking. Instead, water management requires a more polycentric, and non-hierarchical form of management, based on recognition of the finite nature of available water resources and mutual dependence between state actors, policy practitioners, local stakeholder groups, and the decision-making process.

At the outset, the author sets the aim of the book "being a tool for realizing the conceptual shift needed among water professionals" (p. xi). I think the book largely delivers on this goal, by providing an excellent analysis of a key policy issue, and by highlighting the utility of an interdisciplinary approach to understanding a complex policy issue in a multi-faceted and multi-scaled policy environment. Overall, there are few grounds for criticism of Bandyopadhyay's analysis or his choice of empirical materials, though in places there's a slight unevenness in style, perhaps arising from the book's origins as a set of lectures. Strangely, too, there is absence of an explicit geographical consideration of these issues—yet geography, as a discipline speaks to all the topics and themes discussed herein (scales, the need for unity of physical and social science approaches, and the potential value of landscape-based approaches to water management to address ecological and socio-economic criteria). The author also (rightly) places importance on valuation techniques, particularly "if valued properly", but does not elaborate on what he means by this phrase. A related point is Bandyopadhyay's assertion that application of ecosystems valuation to water will enhance economic growth, whereas in practice it may well result in its diminution. More could also have been made of the role of adaptive governance approaches to water management, which are now applied increasingly in south-east Asian contexts. Despite these (small) criticisms, however, this is an excellent book that will provide an important baseline for future studies of integrated water resource management in India and beyond.