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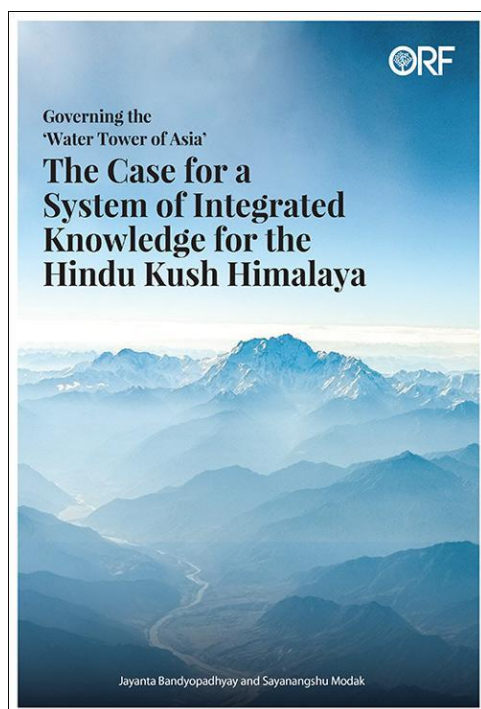
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BOOK REVIEW

A SINKing Feeling: New Insights into the Himalaya's Pressing Environmental Issues

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Jayanta Bandyopadhyay and Sayanangshu Modak, *Governing the 'Water Tower of Asia': The Case for a System of Integrated Knowledge for the Hindu Kush Himalaya*, March 2022, Observer Research Foundation



This vital work by Bandhopadhyay and Modak (2022) addresses one of the most compelling dilemmas of our time: how do we conserve rivers now that they are stressed by climate change and growing human need for freshwater? It considers what is arguably the globe's most important hydrological system—the 10 rivers that flow from the Hindu Kush Himalaya (HKH). The book explains that at least 2 billion people live in these basins, distinguished by a highland–lowland divide. The river systems are formed in ecologically fragile and complex

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highlands before descending to densely populated foothills and plains where “poverty reduction is a priority” (10). Most of these rivers are fed by snow/ice melt and monsoonal climate systems that create high seasonal flow divergences. These complex river systems are made even more administratively burdensome by the national borders that transect the basins. They flow through 16 nation-states, and 8 of the 10 rivers require international governance.

Bandyopadhyay and Modak demonstrate that the governance of these rivers has operated on a “reductionist paradigm” (104) that has not served the rivers or the humans residing around them. They propose a compelling new approach to this governance called the system of integrated knowledge (SINK). Unlike earlier water governance systems, it includes a governance model and the scholarship, policy, and community processes through which this model could be implemented.

SINK begins with the notion that “nature organises itself in a systematic and integrated manner” (9) but argues that river governance has been predominantly reductionist, and that this has interrupted nature’s systems. The creation of multiple knowledge silos has caused this reductionism through single-discipline, time-bound research projects and an over-reliance on engineering solutions. For rivers to thrive, they need to be governed holistically, requiring “integrated knowledge” based on a more comprehensive, multi-disciplinary array of inputs.

Furthermore, this integrated knowledge needs to be implemented. As the authors point out, water management theory has promoted the Integrated Water Resource Management (IWRM) approach since the 1990s; it seeks to avoid “resource challenges from escalating into crises” (6). However, as it operates from a crisis avoidance perspective, it has ultimately become a means to gain funding rather than to help rivers and has not been widely utilized by governments (26–28). SINK is “a framework for bringing IWRM closer to practice” (6) through primary, secondary, and tertiary knowledge integration. The primary level integrates similar research disciplines; the secondary level integrates less similar and non-scholarly indigenous and local knowledge systems; the tertiary level integrates previous knowledge into water governance through the efforts of experts, policymakers, and civil society. “Water governance experts”, they say, “should manage the integrated and inclusive knowledge through a model of a ‘knowledge pyramid’: the most consolidated and synthesised knowledge is at the top – often characterised as wisdom” (9).

The authors' use of the extensive HKH river system enables them to stretch the case for holistic river governance from the interdisciplinary and integrated stakeholder level to the inter-basin and international level. They argue that this large area has shared issues such as high monsoon flows, disputes over access to water, and water-scarce periods that would be best approached through transnational cooperation rather than nationalist frameworks. This would require a series of transnational studies that fill in the many data holes that uneven research funding and water governance approaches have created. It would also require the recognition of each basin's "unique characteristics in terms of meteorological, hydrological, political and ecological features" (12).

Bandyopadhyay and Modak systematically lay out the theory and practice of SINK through an introduction, a literature review, an overview of the 10 HKH basins, and a chapter entitled "The Case for SINK". Their introduction offers a brief overview of the HKH region and its river basins' geographies, cultures, and economies. It describes the basins' relationships to inner Asia's mountain ranges and plateaus, and how these mountains have influenced atmospheric circulations and precipitation. In this and other parts of the work, the book's graphics and imagery are excellent and greatly help readers understand this complex topic. The authors show the relationship between the region's three dominant weather systems—the westerlies and the east and south Asian summer monsoons—and how the mountains' rain shadows direct precipitation. The introduction explains how the region's hydrological system has "extended vital ecosystem services to support life, in general, and in particular, the human communities" (10) in the mountains and on the lower basins' vast plains.

Their review of previous literature provides an overview of IWRM and its limited uses and abuses. It then highlights four ideas circulating in global "post-IWRM" (27) discussions about water governance that would be helpful in HKH water governance: (1) a focus on the initial motivations for integration; (2) a critical examination and assessment of the processes and sub-processes that generate integrated knowledge; (3) an examination of the factors that bind water governance elements together; and (4) the creation of the scope to apply knowledge to diverse and complex situations. They conclude this chapter by outlining research areas wherein knowledge needs to be integrated: (1) knowledge of the earth's surface; (2) knowledge and perception of flows in rivers; and (3) knowledge of science, society, and governance.

The overview of the 10 HKH river basins describes each basin's physiography, socio-cultural milieu, and the challenges associated with integrated governance. This excellent outline could stand by itself as a reference for basin comparison. After identifying each basin's common and unique issues, the authors make a key and detailed argument in the last chapter, "The Case for SINK". This chapter explains that SINK is a "framework for research, education and communication programmes for creating a new community of professionals and policymakers who are better equipped for initiating and sustaining new governance processes" (104). As noted earlier, Bandyopadhyay and Modak argue that this integration needs to be approached at three levels: primary (close-disciplinary), secondary (trans-disciplinary and indigenous/local knowledge systems), and tertiary (between these systems and governance). As they explain, this approach will allow "experiential as well as experienced learning that will act as feedback to fine-tune the integrations at the lower levels" (109). Their approach envisions a system in which research, local experiences, and governance expertise inform each other, and each group adjusts its practice as a result.

The chapter outlines how this integrated approach, and the fine-tuning feedback it prompts, will address what they see as the eight core challenges for the HKH river basins: (1) addressing water-related hazards, (2) sediment management, (3) the conservation and use of aquatic diversity, (4) water quality recovery, (5) transboundary cooperation and conflict resolution, (6) the hydropower dilemma, (7) the promotion of desired land use and economic activities, and (8) the institutional process for the adoption of payment for ecosystems services. As with the overview of the basins that preceded it, the authors' succinct and insightful overview of these issues is immensely helpful for appreciating HKH rivers' multiple large-scale dilemmas.

The central premise of the work is compelling, and the related issues within the text, and the authors' approach that the following few paragraphs identify, enforce this main argument. They emphasize the need to work across disciplines and, more importantly, to work with local and indigenous communities in the highlands and lowlands.

Along with its many strengths, the text also has several minor faults and a main drawback. The minor faults include several geographic and historical mistakes. The authors say that the "eastern margin of the Qinghai-Tibetan plateau" is "west of Pamir and Tien Shan mountains" (16), while the entire plateau is east of these mountains. The unclear use of the term "n/a" in the tables makes it seem like there is no agriculture in China's section of the

Brahmaputra basin (64), when large areas of it are irrigated (Li *et al.* 2017). Their use of the term “social sciences” is vague and seems to include humanities, law, and social science subjects (108). They represent nationalist rhetoric as history in some of their historical readings. An example of this is the idea that Great Yu is a historical figure (39) and that ancient China’s approach to water was balanced (41), when evidence suggests that humans had already changed the rivers’ hydrology in 500 BCE (Kidder and Zhuang 2015). The authors claim that the Nepali name Sagarmatha is older than the English name for the mountain, Everest (15), without acknowledging the controversy around the mountain’s Nepali name. The mountain’s only long-standing pre-colonization name was its Tibetan/Sherpa name, Chomolungma.

The proposal’s main drawback is its approach to local and indigenous knowledge systems. On one hand, this work insists that SINK should include “other disciplinary knowledge systems, including indigenous/local/traditional knowledge” (9), and praises these systems as being “highly diverse and adaptive” (106). On the other, it suggests that they are not “formal knowledge entities” (106), thus suggesting that only university knowledge systems are formal. It also assumes that locals “have limited exposure to the formal knowledge systems” (106), which, given the previous assumption, suggests that they do not have a university education; this is a sweeping generalization.

Rather than problematizing the relationship between large nation-states and their often highland minorities and asking whether environmental justice issues can be included in river management—for instance, by assigning water sovereignty provisions for these groups—the work sidesteps the contentious issue of sovereignty. The authors’ only acknowledgment of the region’s multiple nations is oblique and reproduces several of the problematic majoritarian stereotypes about them. It describes them as objects of study—of “social anthropological importance” rather than as autonomous subjects. And it problematises their multiplicity, stating that “the same diversity can be a cause for potential conflicts over the products and services of the natural environment, including river flows” (13). Such an approach naturalizes the status-quo, nation-state-led, extractive approach to the rivers’ headwaters and ignores the rivers’ multiple forms of sovereignty. The “potential conflicts” over the rivers will be resolved only by addressing this issue.

These criticisms of facts and focus are not merely scholastic pedanticism. They reflect the integration to which SINK aspires and the basins require.

As the authors suggest, to live with the rivers, we must grapple with issues not usually regarded as water governance. This includes minoritization and local indigenous sovereignty. Let us hope everyone is prepared for the challenges SINK advocates because it is necessary for the sake of the rivers and humanity.

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