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## Rivers, Technology and Society: Learning the Lessons of Water Management in Nepal, by Dipak Gyawali

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precisely what we mean, would bring us a certain kind of relief. It would draw us closer to the landscapes upon which we originally and hopefully founded our democratic arrangements for governing ourselves, our systems of social organization, and our enterprise in commerce. If we could speak more accurately, more evocatively, more familiarly about the physical places we occupy, perhaps we could speak more penetratingly, more insightfully, more compassionately about the flaws in these various systems which, we regularly assert, we wish to address and make better.

Scientists, lawyers, and natural resource policy professionals intuitively know the importance of terminology and language, the written and spoken forms of which are the basic elements of our work. While formal references to the information contained in this book are unlikely to appear in your next peer-reviewed journal article or brief to the court, I can highly recommend this creative publication to everyone that enjoys the *Natural Resources Journal*.

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*Rivers, Technology and Society: Learning the Lessons of Water Management in Nepal*. By Dipak Gyawali. New York: Zed Books, 2003. Pg. 281. \$75.00 hardcover.

Satisfying the world's energy demands is an omnipresent issue and, as the effects of global warming become manifest, nations are increasingly pressed to identify low-emissions energy sources. For many, hydroelectric power looms as an attractive option. In *Rivers, Technology and Society: Learning the Lessons of Water Management in Nepal*, Dipak Gyawali – water engineer, economist, and environmental activist – examines water resource management in Nepal, a land with more than six thousand rivers and streams, a people “mesmerized for the past half-century by hydroelectricity” and the “vision of becoming sheiks of Araby lolling hydrodollars from the sale of hydropower to India.”

Focusing on the last two decades, Gyawali reminds us that transforming “falling water” into resource requires more than building dams for hydroelectricity. To develop water resources, he shows, one must first grasp deeply that water does not exist in a social, political, and historical vacuum. Rather, sound water management requires thoughtful

meditation on regional history and the societal effects of politics, technology, and foreign aid. Such mindfulness is a prerequisite to implementing water policy that is feasible, low-risk, environmentally sound, and equitable, which should be the ultimate aim of resource development policies and practices.

By unraveling three overlapping cases, Gyawli makes clear the complexity of Nepalese water resource development. In a first essay, Gyawli examines the Mahakali Treaty between Nepal and India to show the issues and agonies that Nepal has recently faced. Next, he describes the Arun Dam Project, sponsored by the World Bank, to show how donor policies can negatively impact recipient societies. In a final essay, Gyawli describes a philosophical battle between advocates for the construction of large and small dams.

In the first essay, Gyawli retells the making of the Mahakali Treaty to illustrate the politics of water resource management and the mitigation of past mistakes. The Mahakali River forms the international border between Nepal and India and is the lifeblood of millions of South Asian inhabitants who rely heavily on the river for drinking water, irrigation, and hydroelectricity. To settle potential disputes, Nepal's parliament and the Indian government ratified a treaty that limited Nepal's water access to four percent of the Mahakali River annually. The power imbalance was stark. "Nepal acted like a simple villager who has transferred his goods to the shopkeeper before negotiating the price" (p. 54), leaving the country to ponder remedies so that "its history will not reek of this fraud well into the future" (p. 56), a problem facing many countries and cultural groups (e.g., American Indian tribes throughout the western United States) that are involved in trans-boundary resource agreements.

Gyawli shows how a thorough Detailed Project Report (DPR) could be used to remedy a situation that has occurred due to poor policy and judgment. A DPR examines technological parameters, evaluates existing resources, and serves as a base document for planning and implementing a project. Gyawli argues that, to better understand the cultural politics of a water resource, a successful project begins with a good DPR.

In the book's second essay, Gyawli describes the Arun Dam Project to illustrate myriad and often disastrous effects of donor policies. The Arun River originates in China and Tibet, flows south into Nepal and India, and ends up as a major tributary of the Ganges. A site on the Arun was identified by the Japanese International Cooperation Agency as attractive for a large dam that would double Nepal's power generating capacity and cost \$1.1B. Nepal raised \$500M; the World Bank planned to lend the rest. The risk of the project failing and Nepal falling into debt was never fully examined. Impact studies served to justify the dam only; they did not address serious infrastructural challenges – inadequate roads and

power to the site – and high numbers of engineers (500) and construction workers (10,000) needed to build the dam. From the beginning, “Arun-3 had many unanswered technical, economic and social anomalies which never featured in the official consideration of the project, either within the government of Nepal or within the World Bank” (p. 71).

Many economists and developers in Nepal, Gyawali argues, believed that capital shortages were the primary challenge to building the dam and to development in general; Gyawali shows convincingly, however, that the architects of western assistance failed miserably to consider the social, cultural, and historical context within which Nepalese capital, in this case, functioned. Thus, the project was doomed from its outset.

In his third and final essay, “Neo-Gandhian Maoists v. Nehruvian Stalinists,” Gyawali unpacks a philosophical battle that raged in Nepal between hierarchists and egalitarians. The former were bent on completing the massive Arun Dam Project, believing it would be more feasible and manageable with massive reward potential. The latter pushed for smaller, lower reward, and lower-risk dams. The Neo-Gandhians supported equity, self-reliance, and local capacity enhancement with small scale, decentralized schemes. The Nehruvians stressed production leading to large-scale, expertise-based hierarchical structures. Between the two approaches, essential questions arose. Who should be accountable for projects that go awry? How should problems be remedied? More important, how must developing nations manage non-renewable resources?

Gyawali does not provide answers. Rather, his essays focus on asking the right questions before the building begins by analyzing past failures. He stresses the importance of multi-dimensional approaches to development. Development must examine projects from social scientific perspectives.

*Rivers, Technology and Society* is comprised of essays that were written at different times for diverse audiences with purposes that range from analysis to advocacy. What emerges is Gyawali’s thinking over the last two decades, allowing the reader to see how his views have changed over time. We travel with Gyawali as he transitions from an economist/developer to a political activist whose writing reflects a multi-dimensional view of development in Nepal. At times, the writing is dense and jargon-laden. Gyawali speaks as a water resource developer talking to other resource experts with numerous references to “cusecs,” “kilowatt-hours,” and “downstream benefits.” Moreover, Gyawali repeats himself. Throughout the author’s essays, the reader will often find himself submerged in the debates between large dams versus small dams, local and communal control versus national management, old philosophies versus new methods. Nonetheless, Gyawali’s message is clear; water does not exist independent of society. Development cannot take place in Nepal and the South without

detailed studies, strong financial planning, and an open forum to express all views. *Rivers, Technology and Society* is a must-read for water resource developers, economists, political activists, and anyone concerned about "falling water" in Nepal.

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