

tive to the realities of politics and conflict; and other actors responding to natural disasters should make a concerted effort to restore the environment (p. 42).

Though the analysis is compelling, the report's main weakness lies in its vague policy recommendations. It is hardly news that environmental restoration will minimize the damage caused by disasters, or that "building trust and reconciliation" is pivotal to increasing cooperation among disputants. Most of the recommendations are aspirational and do not address the hard realities on the ground. The real issue is the lack of political will on the part of governments, the international community, and powerful elites to make the sacrifices necessary to mitigate inequalities that are

further exacerbated by natural disasters. How does one create incentives for powerful groups to implement the policies needed to minimize the impact of future disasters? This specific recommendation is lacking—which is what the policy realm most needs.

Overall, I found the report a fascinating examination of how three regions addressed the devastating impact of a natural disaster and their divergent outcomes on conflict. Renner and Chafe conclude that the tsunami and earthquake created opportunities and challenges that warrant further study to determine why the effects on the conflicts were so varied. *Beyond Disasters* is a timely call for more in-depth research on disaster relief and its links to conflict mitigation.

Bridges Over Water: Understanding Transboundary Water Conflict, Negotiation and Cooperation

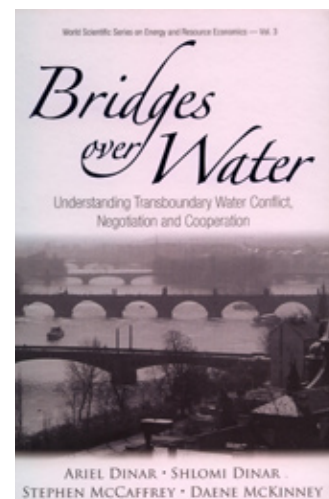
By Ariel Dinar, Shlomi Dinar, Stephen McCaffrey, and Daene McKinney
Singapore: World Scientific, 2007. 468 pages.

Reviewed by ANNIKA KRAMER

Two riparian states, A and B, share one transboundary aquifer. The countries' economies are based only on the aquifer's water: They pump water to sell it on the international market as bottled water. Assume, for simplicity's sake, that the capacity of the international market to consume water is limited, and the price per unit of water is a decreasing function of the quantity. Unfortunately, A and B decide how much water to pump without consulting the other. Each country then pumps as much water as possible and sells it on the market; however, this floods the international market and lowers the price for water. If the two countries instead communicated and cooperated, they could maintain high market prices for water and realize the highest joint payoff.

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With this transboundary groundwater version of the famous "prisoner's dilemma," the authors of *Bridges Over Water: Understanding Transboundary Water Conflict, Negotiation and Cooperation* demonstrate how a transboundary water situation could be expressed using game theory. Game theory is only one of the approaches employed by this textbook, which seeks to introduce the multidisciplinary facets of freshwater management by considering its



political, economic, legal, environmental, and hydrological aspects. Representing a cross-section of disciplines, authors Ariel Dinar, Shlomi Dinar, Stephen McCaffrey, and Daene McKinney seek to fill the void by producing a single textbook that covers all aspects of negotiations over transboundary water, an ever-expanding field of study. As such, this book is a very valuable undertaking.

Bridges Over Water is aimed at graduate students in economics, engineering, water law, and international relations, as well as practitioners of water resource management, international water law, and water policies. The book provides a theoretical background on water resources and international water law, as well as quantitative approaches to analyzing transboundary water problems, such as river basin modeling and game theory. The annex offers detailed case studies of particular transboundary river basins, lakes, and aquifers, together with the treaties governing cooperation. A CD-ROM accompanying the book includes modeling software, which can be used to model the fictive Lara River basin or other basins.

The book starts with an introduction to global water issues, sectoral use patterns, and water scarcity concepts. After taking stock of the world's transboundary river basins, the first chapter points out that conflict is not the prevailing outcome of riparian states' divergent interests. However, it does not provide a clear overview of common conflicts of interests in transboundary water basins, such as issues of water quality, quantity, and flow timing, or divergent water management priorities such as hydropower, flood control, or wetland protection. This overview would have provided readers with a clear understanding of the most common problems. Also, the authors should have devoted some time to introducing the concept of integrated water resources management as the recognized approach to water management and as a basis for understanding the environmental, social, and political processes taking place in river basins. Instead, it is not mentioned until later in the book, and its principles, including participatory approaches

and institutional aspects, are under-represented in the following chapters.

Bridges Over Water continues with an overview of the literature on conflict, negotiation, and cooperation over shared waters. While this chapter concisely summarizes the literature from various fields of research—which is very useful for anyone doing research in the field—it will probably not be easy for a new student to understand due to its brevity and the multitude of concepts it introduces.

The third and fourth chapters introduce the main principles of international water law and cooperation, providing examples of their application in transboundary basins around the world. The prisoner's dilemma presented above sets the stage for two chapters on cooperative game theory and how it can be used to analyze the cooperative or competitive behavior of riparians in transboundary basins. A fictive example of a basin shared by three riparians is interesting to read in spite of the many formulas that might scare away those less familiar with economics. Together with the knowledge gained in the chapter on "The Use of River Basin Modeling as a Tool to Assess Conflict and Potential Cooperation," game theory is used to analyze the hypothetical but illustrative example of the Lara River basin in the book's annex. The modeling software provided with the book allows students to track cooperation's likely effects on the basin.

The seventh chapter discusses conflict and cooperation over water from the perspective of international relations and negotiations, including examples illustrating how the relative power and geography of riparians—as well as conflict history, domestic policy, and external actors—can influence the balance between conflict and cooperation. This chapter creates a more realistic picture of the various social and political factors that may sidetrack economically rational behavior. The following chapters, "Overview of Selected International Water Treaties in Their Geographic and Political Contexts" and "Global Analysis of International Water Agreements," provide a comprehensive overview of how

international freshwater agreements can help settle water disputes, including a useful set of questions for analyzing freshwater agreements. Together with the basin case study template in Annex 2, these questions will hopefully contribute to an increasing pool of comparable case study analyses.

Preparing a textbook on such an interdisciplinary topic and targeting graduate students from multiple disciplines is ambitious. *Bridges Over Water* must be complemented by a knowledgeable teacher who can give additional explanations and adjust the contents to the students' level. The book would have

benefited from a clearer introduction to the major problems and issues of dispute; moreover, more attention could have been devoted to the actual problems water managers face on the ground—especially in developing countries, where many of the transboundary rivers of the world are located—such as the lack of data, the difficulty of enforcing agreements, and limited institutional capacities to maintain river basin organizations. Overall, however, *Bridges Over Water* is a valuable contribution that helps fill the need for comprehensive textbooks on transboundary water conflict, negotiation, and cooperation.

The Environmental Dimension of Asian Security: Conflict and Cooperation Over Energy, Resources, and Pollution

Edited by In-Taek Hyun and Miranda A. Schreurs
Washington, DC: United States Institute of Peace, 2007. 362 pages.

Reviewed by PAUL G. HARRIS

The Environmental Dimension of Asian Security: Conflict and Cooperation Over Energy, Resources, and Pollution describes and analyzes connections among resources, the environment, and security in Northeast Asia. Despite its title, this book is not about all of Asia, but instead focuses on its eastern, and particularly its northeastern, states and regions. Given the number of people living in this part of the world, its prodigious pollution, its unprecedented economic growth—and the dominant “growth-first, clean-up-pollution-later model of development” (p. 254)—as well as the region's growing appetite for natural resources, anyone interested in environmental security should be concerned about the issues addressed in this book.

Broadly speaking, the book examines the practice of and prospects for regional environmental cooperation, and provides readers with detailed descriptions and analyses of sev-

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eral prominent environmental and resource issues. The 12 consistently informative chapters include three devoted to defining environmental security and identifying regional institutions that address environmental and resource problems; three focused on energy security, including one dedicated to radioactive waste; two on the marine environment and water security; and chapters on food security, Korea, and NGOs.

Most chapters are very detailed, well-written, and freestanding, allowing readers to easily skip

