WATER DIPLOMACY

A NEGOTIATED APPROACH TO MANAGING COMPLEX WATER NETWORKS

SHAFIQUL ISLAM
AND LAWRENCE E. SUSSKIND

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WATER DIPLOMACY

Water is the resource that will determine the wealth, welfare, and stability of many countries in the twenty-first century. This book offers a new approach to managing water that will overcome the conflicts that emerge when the interactions among natural, societal, and political forces are overlooked. At the heart of these conflicts are complex water networks. In managing them science alone is not sufficient, but neither is policy-making that doesn't take science into account. Solutions will only emerge if a negotiated or diplomatic approach—that blends science, policy, and politics—is used to manage water networks. The authors show how open and constantly changing water networks can be managed successfully using collaborative adaptive techniques to build informed agreements among disciplinary experts, water users with conflicting interests, and governmental bodies with countervailing claims. Shafiqul Islam is an engineer with over twenty-five years of practical experience in addressing water issues. Lawrence Susskind is founder of MIT's Environmental Policy and Planning Program and a leader of the Program on Negotiation at Harvard Law School. Together they have developed a text that is relevant for students and experienced professionals working in a variety of engineering, science, and applied social science fields. They show how new thinking about water conflict can replace the zero-sum battles that pit experts, politicians, and stakeholders against each other in counterproductive ways. Their volume not only presents the key elements of a theory of water diplomacy, it includes excerpts and commentary from more than two dozen seminal readings as well as practice exercises that challenge readers to apply what they have learned.

Shafiqul Islam is the first Bernard M. Gordon Senior Faculty Fellow in Engineering and Professor of Water Diplomacy at the Fletcher School of Law and Diplomacy at Tufts University. He is the Director of the Water Diplomacy Initiative. His research group—a diverse network of national and international partners—integrates theory and practice to create actionable water knowledge. He has published over 100 refereed journal and other publications.

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ABOUT RESOURCES FOR THE FUTURE *AND* RFF PRESS

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PREFACE

To address the emerging realities of our globalized world, we can no longer rely on the popular twentieth-century paradigm to which we have become so accustomed: scientists innovate; politicians make policy; and people respond, especially when they are unhappy. We offer a twenty-first-century approach to water management that acknowledges the complexity and uncertainty of natural and societal systems, accepts the increasing interconnectivity and consequences of important decisions, and rejects the unquestioned authority of hierarchical governance structures.

Our views have been shaped by a number of important books—*The Consolation of Philosophy* (Boethius, 525AD), *The Reflective Practitioner* (Schon, 1983), *Managing the Unknowable* (Stacey, 1992), *At Home in the Universe* (Kauffman, 1995), *The End of Certainty* (Prigogine, 1996), *The Science of the Artificial* (Simon, 1996), *The Third Side* (Ury, 1999), *The Black Swan* (Taleb, 2007), *Thinking in Systems* (Meadows, 2008), *Working Together* (Poteete, Janssen, and Ostrom, 2010), *Practical Wisdom* (Schwartz and Shapiro, 2010) and *Water Wisdom* (Tal and Rabbo, 2010).

Our approach to water diplomacy starts with a question: How can we ensure effective management of water as a common pool resource given that we can neither predict nor control many of the forces involved in its allocation and use? We think of diplomacy as the process of defining and resolving water issues at every level—from the design of a small-scale sanitation system in a village, to the development of a contested hydroelectric facility in one region of a country, to formal treaty negotiations among different nations.

Water problems are shaped by many natural, societal, and political interactions that create complex water networks. As population growth, economic development and climate change put increasing pressure on water resources, the management of these networks becomes increasingly important. Science cannot

provide all the answers. Policy-makers must take what scientists have to say into account, but beyond that, they also need to empower the relevant stakeholders to help formulate and implement solutions. To do this, we believe it will help to think of water as a flexible, even an expandable resource.

In our assessment, the most vexing water management problems are neither simple nor complicated. Simple problems are easily understood and manageable. Complicated problems, while not simple, involve interactions that are still knowable and predictable. Complex problems—and that is what most water management problems are—involve interactions that are both unknowable and unpredictable. Complex problems like these are not easily controlled. They involve too many variables, too many interactions and too much feedback.

For centuries we have taken nature apart and analyzed its components in ever-increasing detail. Now we realize that such "reductionism" can only provide limited insight. Water systems are more than the sum of their parts. "Systems engineering," which water managers have relied on for years, does not work well when natural, societal, and political boundaries are mismatched and cause–effect relationships are ambiguous.

We view water networks as an interconnected set of nodes representing natural, societal, and political variables. The flow of information among these nodes is what enables them to evolve and adjust. Our challenge is how best to manage the flow of information to formulate and achieve desired outcomes. It is in this context that we propose a new Water Diplomacy Framework (WDF) rooted in ideas from complexity theory and non-zero-sum negotiation. Water users and managers can use this Framework to link scientific objectivity and contextual understanding.

Throughout the development of this book, Shafik Islam has had the help of an extraordinary set of mentors, students, and friends. Several deserve special mention including A. Akanda, R. Bras, A. Chassot-Repella, E. Choudhury, Y. Gao, A. Jutla, P. Mollinga, I. Rodriguez-Iturbe, W. Moomaw, K. Portney, M. Reed, D. Small, and R. Vogel. Shafik also wants to acknowledge the love, support, and encouragement of his parents, his wife (Naaz), and their two wonderful daughters (Maia and Myisha). Without their unyielding support and their wise and diligent criticism during never-ending dinner-table conversations, this work would not exist.

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Shafik Islam
Larry Susskind
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LIST OF ACRONYMS

ACF	Apalachicola-Chattahoochee-Flint
BATNA	Best Alternative to a Negotiated Agreement
CALFED	CALFED Bay-Delta Program (CA and Federal agreement)
CAM	Collaborative Adaptive Management
GWP	Global Water Program
IWRM	integrated water resources management
JFF	joint fact-finding
MRC	Mekong River Commission
PON	Program on Negotiation at Harvard Law School
RCN	research coordination network
USACE	U.S. Army Corps of Engineers
WDN	Water Diplomacy Network
WDF	Water Diplomacy Framework
WDW	Water Diplomacy Workshop
ZOPA	Zone of Possible Agreement

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