

# Preface

Writing a book is always a major undertaking. And it seems to become increasingly difficult given the plethora of information and events that compete for one's attention and reduce the amount of concentrated time for one activity. Why then did I decide to write this book? After having written numerous journal articles, I decided that the point has come to take stock and weave all these individual contributions together into a more coherent whole. This book summarizes more than a decade of my conceptual and empirical work on water governance and management.

"Water Governance in the Face of Global Change"—the title of the book is timely. When I started my work on water governance and management, water crises were already a topical theme in academic, policy, and practitioner circles. Since then, the situation has deteriorated rather than improved, and water governance, in its current form, cannot cope with the challenges ahead.

From understanding to transforming—the subtitle of the book conveys several messages. I believe that an improved scientific understanding of the complex dynamics of water governance systems will also strengthen the guidance for urgently needed reforms in water governance. And water governance requires a sweeping transformation rather than small, incremental changes.

This book makes a contribution to the development of a theory of water governance that is built on a systemic and complete understanding of water governance. I am convinced that only a systemic and broad approach can do justice to the complexity of the phenomena we are facing in this domain. Strong theoretical foundations must be established in close exchange with the phenomena under consideration. How can a theory of the dynamics of societal processes of change be developed without closely observing and even engaging in such processes? My own research program and theoretical reasoning have been inspired mainly by what I have observed as problems and unexpected challenges rather than pursuing one school of thought.

My initial work focused on the role of processes of social learning and participatory, adaptive approaches in water management. In a field dominated by

technocratic approaches and instrumental thinking, it was not a trivial undertaking to communicate the importance of the human dimension and participatory management. Innovative approaches in management were constrained by a whole range of factors that were characteristic of and stabilized the prevailing way of doing business. I realized that “adaptive management requires integrated system design to build and sustain enabling structural conditions.” One could also rephrase this and argue that the introduction of innovative management approaches requires major structural transformations. What are the structural conditions and how are they interrelated? Being a system scientist, I noted that the entire design of and logic underlying the delivery of a societal function such as water management is strongly influenced by the reigning paradigm. In water management, this has traditionally been a command and control approach that has dominated regulatory frameworks, the design of large-scale technical infrastructure, or management practices. Hence in my work, the importance of paradigms—or expressed in another way, cultural–cognitive institutions—has always played a key role.

The emphasis of my research activities shifted from social learning in actor groups to structural change and societal learning, to governance of transformation. To what extent can transformative change be governed? This is an as-yet open question which I attempt to at least partly answer in this book. My own reasoning builds on an evolutionary understanding of structural change which combines purposeful design with instances of self-organization and emergence.

In trying to draw together the scholarly work that is relevant for developing the overall argument of this book, I cover a lot of ground. At the same time, this coverage cannot be complete. I have included what I consider important theoretical and empirical contributions that influenced my work. I summarize major streams of scientific discourse in a field and give credit to eminent scholars that collectively shaped an important line of reasoning. Being a system scientist, I try to integrate different perspectives to achieve a holistic understanding of governance systems and their dynamics. In adopting such a broad understanding, seemingly incompatible theories may start to look complementary rather than contradictory. A problem orientation supports integration and openness.

For whom did I write this book? My main target audience is the interdisciplinary and diverse community of scholars working on water governance and management issues. In particular, I would like to reach young scholars who seek inspiration for their own work. I can only encourage those early-career researchers not to follow trodden paths but to be creative and to escape narrow disciplinary thinking. This may also imply not pursuing what looks in the short term to be the most promising path for a successful academic career. Incentive systems in science do not necessarily encourage unconventional and interdisciplinary thinking. Admittedly, the situation has improved over the past decade, and many excellent journals with a strong reputation are now available for publishing interdisciplinary research. Yet securing tenured positions in academia remains difficult for those with an interdisciplinary background. But I am optimistic that this situation will change soon as we urgently need such people both in research and education.

In my career, I have been fortunate in having the opportunity for exchange with quite diverse communities, which I have always experienced as enriching and inspiring for my own thinking. My efforts in community-building work are reflected in my role as editor of three books and twelve special issues in peer-reviewed journals. During these undertakings, I have always been exposed to both natural and social scientists from numerous disciplines. The water community dominated by natural scientists and engineers has a focus on a mechanistic understanding, on well-defined problems and on instrumental approaches to problem solving. With regard to the scale of the phenomena under investigation, the global change community constitutes the other end of the spectrum. As part of the scientific steering committee and subsequently co-chair of the Global Water System Project, I have had substantial interactions with this community. Most of the human dimensions scholars working on global change questions come from an interdisciplinary background. What unites this community is the desire to develop an improved understanding of and responses to the challenges posed by global change to sustainable development. Working both in developed and developing countries has proven to be extremely important by permitting reflection on the potential for and limitations of the transferability of insights from one place to another. And it convinced me of the importance to developing frameworks that facilitate comparisons across cases.

My work on frameworks profited from exchanges with the SES (social-ecological systems) Club, an interdisciplinary informal group of scholars. Over the past decade, the SES Club has worked on developing and applying a framework for social-ecological systems to overcome fragmentation and to facilitate comparative analyses of case study research. Our most prominent member was the late Elinor Ostrom with whom I had a lot of productive exchanges. We did not always agree on the underlying theoretical arguments, but discussions with Lin were always inspiring and even when we disagreed she remained constructive and never dismissed alternative ways of thinking.

Writing this book would not have been possible without the contributions of the many enthusiastic members of my research team at the Osnabrück University. The Institute of Environmental Systems Research provides the freedom to conduct interdisciplinary and unconventional Ph.D. research. Conducting numerous empirical analyses, introducing new conceptual and methodological ideas, and challenging my thinking, my research team has always provided a very enriching environment for my scientific work. I would like to thank all of my colleagues for their hard work and numerous inspiring discussions.

A sabbatical last year provided the distance from everyday business that was required to start writing the book. I would like to thank STIAS, the Stellenbosch Institute for Advanced Studies in South Africa, for the invitation to use their facilities as a base and for their generous support. STIAS is a stimulating and tranquil place to focus on writing. Discussions with other fellows from entirely different fields during the lunch breaks and wine receptions often provided unexpected inspiration. The spectacular landscape offered many opportunities for exploration for a nature lover and bike enthusiast like me. At the same time, I was

exposed to the harsh realities of a developing country and the challenges that water governance and management is facing in such a context.

The book profited from the numerous comments provided by my colleagues during the various stages of the writing process. I would like, in particular, to thank Janos Bogardi, Stefanie Engel, Louis Lebel, Andrea Lenschow, Oran Young, and Andreas Thiel for reading and commenting on draft chapters.

I would also like to thank Caroline van Bers for her meticulous review of the book, for trying to understand what I wanted to say, for making suggestions for linguistic improvement, and for pointing out vague statements and inconsistencies. The book profited a lot from this thorough check!

This book is the inaugural volume of an entire series on “Water Governance—Concepts, Methods and Practice.” I trust that this series will contribute to the strengthening of the reputation of water governance scholarship in science and in practice.

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