

Human-Environment Interactions

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VOLUME 1

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Human-Environment Interactions

Current and Future Directions

 Springer

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*Eduardo Brondízio and Emilio Moran wish to dedicate this book to their dear colleague and friend **Elinor Ostrom**, who was kind enough to read the manuscript and write the Foreword despite her illness. She passed away on June 12, 2012. She was an inspiration to us and to everyone who met her. Lin will be profoundly missed. She left a legacy that will be lasting, and her contributions to human-environment interactions are evident in this book and in the work of hundreds of scholars throughout the world.*

Foreword

Eduardo Brondízio and Emilio Moran have both contributed to the study of human-environment interactions (HEI) with their own in-depth studies of these interactions in a variety of settings. They have now edited a path-breaking volume that addresses human-environment interactions in a fascinating and cumulative manner.

In their introduction to the volume, they provide an innovative and useful analysis of three broad themes that help readers gain a useful overview of the variety of relevant theories related to human-environment interactions: environmental determinism, cultural determinism, and human-environment interaction. The first two are unidirectional and pose either the environment or culture as the dominant factor. The third poses human-environment interactions as the result of extensive interactions between the environment and the humans living in it. Reading Brondízio and Moran's overview of these three approaches is very useful for researchers like me, who have read some of the earlier scholars they analyzed without a recognition of these underlying contradictory approaches. Brondízio and Moran's analysis provides a firm foundation for the excellent chapters that follow their introduction.

The 17 chapters in this volume are largely written by younger scholars who come from multiple countries. All of them take complex views of the basic relationships between ecological and social factors affecting human-environment interactions over time. In the first part on "Health and Adaptation Approaches," the seven authors of three chapters focus on over time health affecting the Xavante Indians from Central Brazil, residents living in rural Tibet, and the subtle relationships between humans and wildlife interactions and emerging infectious diseases. In the second part on "Land Change and Land scape Management Approaches," the first of four chapters looks at change in natural resource management in Scotland while the other three compare agroforestry or forestry systems in India, the United States, and Africa.

The third part is devoted to "Institutions and Political Ecology Approaches." As Brondízio and Moran stress in their introduction, institutional approaches are an important current development that make a strong emphasis on human-environment interactions. In this part, scholars are focusing on interactions in the Lower Amazonian Floodplain, in the Amazon, in western Honduras, and in fast-

growing communities in the United States and related counties, looking at the urban-rural fringe. Chapter 10 is an experimental chapter that carefully studies whether having a regulation by itself or the size of the penalty imposed is the most important in convincing people to conserve natural resources.

Part IV focuses on “Historical and Archeological Approaches” and addresses some of the key issues that dominated the literature at an earlier juncture, including the adaptable agroforestry systems of Japanese immigrants in Brazil, looking at the intensification of agroforestry systems in Uganda from 1890 to 1995, and whether agriculture was a key productive activity in pre-colonial Amazonia. In the last part on “Future Directions,” Eduardo Brondízio and Rinku Roy Chowdhury look at future directions in human-environment interaction research, drawing on the chapters in this volume and amending some of the approaches taken in traditional work by scholars who focus on one and only one discipline to explain human-environment interactions.

The overall quality of this volume is so high that I cannot recommend a particular part to the reader. I think all chapters in this volume are worth a thorough reading. I hope to be able to use many of these chapters in my own graduate seminar on institutional analysis, as there is so much to learn from a careful reading of this book.

By Elinor Ostrom

About the Authors

Sanchayeeta Adhikari is the Berg postdoctoral fellow in the Geography Department at Macalester College and teaches environmental remote sensing and GIS. She was born in India and completed master degrees at Banaras Hindu University and the Indian Institute of Technology, with respective majors in geography, specializing in regional planning, and planning and development. She completed her PhD in geography with a minor in natural resource management at the University of Florida, where her work focused on studying land change science within the broader realm of human-environment interactions using spatial analysis tools such as remote sensing, GIS, and spatial statistics. She continues to work on issues relating to conservation policies, forest ecology and land use, and land-cover change.

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Emilio F. Moran is distinguished professor and the James H. Rudy professor of anthropology at Indiana University, professor of environmental sciences, adjunct professor of geography, and director of the Anthropological Center for Training and Research on Global Environmental Change at Indiana University. He is the author of 10 books, 14 edited volumes, and more than 150 journal articles and book chapters. His research has been supported by NSF, NIH, NOAA, and NASA for the past two decades. His three latest books, *Environmental Social Science* (Wiley/Blackwell 2010), *People and Nature* (Blackwell 2006), and *Human Adaptability* 3rd edition (Westview 2007), address broader issues of human interaction with the environment

under conditions of change. His most recent book, *Meio Ambiente & Florestas* (Editora SENAC Sao Paulo 2010), addresses the value of forests in Brazil and the world. His book *Developing the Amazon* (Indiana University Press 1981) was the first book-length study of the human and environmental impacts of the Transamazon Highway. He is a fellow of the Linnean Society of London, fellow of the American Anthropological Association and the Society for Applied Anthropology, and fellow of the American Association for the Advancement of Science and was elected to the National Academy of Sciences in 2010.

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Elinor Ostrom was a university distinguished professor, Arthur F. Bentley professor of political science, and co-founder and senior research director of The Vincent and Elinor Ostrom Workshop in Political Theory and Policy Analysis at Indiana University. She was also founding director of the Center for the Study of Institutional Diversity at Arizona State University. She was a member of the American Academy of Arts and Sciences, the National Academy of Sciences, and the American Philosophical Society and a recipient of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel (2009). Her authored and coauthored books include *Governing the Commons* (1990), *Rules, Games, and Common-Pool Resources* (1994), *Trust and Reciprocity* (2003), *The Commons in the New Millennium* (2003), *Understanding Institutional Diversity* (2005), and *Working Together* (2010). Elinor passed away on June 12, 2012, and will be greatly missed by everyone.

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Acknowledgments

This edited volume began as a workshop held at Indiana University in February 2010. The idea was to bring together a set of young to mid-career scholars to share their latest thinking of human-environment interactions research. The discussion was lively and productive—and led to invitations to other scholars who were unable to come to that workshop to join this volume and ensure that the coverage of the book was more complete both geographically and conceptually. The editors thank the authors for their patience and their excellent papers.

The workshop was made possible by financial support from Indiana University's Center for Research on Environmental Science (CRES) and the Anthropological Center for Training and Research on Global Environmental Change (ACT). The arrangements for the workshop were ably handled by ACT's Assistant Director for Administration Linda Day and her assistant Kelsey Scroggins. Without their attention to detail and their responsiveness to the invitees' needs, the intellectual excitement felt at the meeting would have been constrained by concerns with other practical issues. We also wish to recognize the enormous contribution of Joanna Broderick, who worked with individual authors, edited the whole volume for clarity and grammar, and ensured that citations and references were consistent. Editors Fritz Schmuhl and Takeesha Moerland-Torpey at Springer were encouraging from start to end in moving the manuscript forward through the review and production process.

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