Preface

In April 2014 the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) invited me to be a Co-Chair – along with Simon Ferrier from the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia – to lead and prepare a ‘Methodological Assessment Report on Scenarios and Models of Biodiversity and Ecosystem Services’ to help guide IPBES in its thematic, regional and global assessments. The assessment team, which consisted of over 80 experts drawn from all regions of the world, submitted its report to IPBES and it was accepted and approved by the Fourth Plenary Session of IPBES held in Kuala Lumpur, Malaysia on 22–28 February 2016. The report, which was based on an in-depth analysis of a large body of knowledge including about 1500 scientific publications, highlighted the importance of using scenarios and models for making informed decisions to address environmental risks such as global warming, loss of biodiversity and ecosystem services.

Environmental change driven by socio-economic and other factors is taking place at a rapid pace and governments and societies need to anticipate these changes and respond effectively to address the likely adverse impacts of these changes, such as rising global temperatures and sea levels, growing frequency and intensity of disasters, and loss of biodiversity and ecosystem services. In this context scenarios and models can play an important role in enabling policy-makers and decision-makers to take informed decisions to address emerging environmental events and risks. They are useful in enlightening scientists, policy-makers and decision-makers on how the future is likely to unfold, alerting them about environmental risks, helping them to assess the alternative pathways to address these risks, helping in all phases of the policy cycle (that is, agenda-setting and review, policy design and decision-making, policy implementation), and encouraging them to take proactive steps to address these risks such as reducing use of fossil fuels, increasing the coverage of protected areas and restoring degraded ecosystems. Scenarios and models have been a key component of most global, regional and national environmental assessments carried out over the last decade such as the Intergovernmental Panel on Climate Change (IPCC) Assessment Reports, the Millennium

Ecosystem Assessment, the Convention on Biological Diversity's (CBD) Global Biodiversity Outlook reports, the United Nations Environment Programme's (UNEP) Environmental Outlook reports and IPBES's Global and Regional Assessment reports on Biodiversity and Ecosystem Services.

Apart from a comprehensive review of scenarios and models of biodiversity and ecosystem services, the book includes chapters that discuss theoretical and conceptual issues as well as applications and uses of scenarios and models for making environmental assessments in diverse contexts. The book has chapters that have a global or regional focus as well as case studies drawn from Africa, Asia, Australia, Europe, North and South America covering different sectors such as agriculture, forest, wetland, marine and urban areas. The contributors to this book are leading experts from around the world who have made a significant contribution to the literature in this area. Some of them have also been part of IPCC and IPBES assessments or other global, regional and national assessments.

At the outset I would like to express my sincere thanks to all the contributing authors for readily responding to my invitation to contribute a chapter to this book, and for putting up with my frequent emails reminding them about the timely submission of their chapters and revised chapters in the light of reviewers' comments, as well as responding to queries and clarifications. But for their unstinted cooperation and support this book would not have been possible.

The book has undergone a rigorous review process. Besides the editor, most chapters were reviewed by two or more reviewers. I am extremely grateful to the following contributing authors for sparing their valuable time and giving several useful comments on the chapters. They are: Ram Avtar, Andrea Ghermandi, Louise S.L. Teh, Dominic Moran, Ramón Pichs-Madruga, Lydia F. Prieg, Federica Ravera, Isabel M.D. Rosa, Rafael De Oliveira Silva, Michael Sinclair, Vivek Shandas, U. Rashid Sumaila, Clement A. Tisdell and Dmitry Yumashev. In addition to the contributing authors, I am also grateful to the following external reviewers for reviewing the chapters and giving several suggestions and comments which were useful to the authors for improving the rigor and quality of their chapters. They are: Poulomi Bhattacharya (Tata Institute of Social Sciences, Hyderabad, India), Elumalai Kannan (Jawaharlal Nehru University, New Delhi, India), Andreas Kontoleon (Cambridge University, UK), Parmod Kumar (Institute for Social and Economic Change, ISEC, Bangalore, India), Charles Perrings (Arizona State University, USA) and B.P. Vani (ISEC, Bangalore, India).

I am also grateful to the following authors and to Springer and Elsevier for permission to publish the following articles in this book:

Ida Kubiszewski, Robert Costanza, Sharolyn Anderson and Paul Sutton (2017), The future value of ecosystem services: global scenarios and national implications, *Ecosystem Services*, 26, 289–301.

Louise S.L. Teh, William W.L. Cheung and U. Rashid Sumaila (2016), Scenarios for investigating the future of Canada's oceans and marine fisheries under environmental and socioeconomic change, *Regional Environmental Change*, 17 (3), 619–633.

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