

Cambridge University Press

978-0-521-46796-4 - As Climate Changes: International Impacts and Implications

Edited by Kenneth M. Strzepek and Joel B. Smith

Frontmatter

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This book is the first study involving original analyses of potential global effects of climate change. The project, mainly funded by the U.S. Environmental Protection Agency, involved over 150 scientists from across the globe, and thus is the largest study of its kind. Common climate change scenarios were used to examine the impacts on agriculture, water resources, coastal resources, forests and human health. The studies focused on the impacts of climate change in the developing countries although some global analyses were also conducted. In addition Egypt was used as a case study and is the first integrated analysis of a single country. This book will be of great use to climate change researchers and policy makers. Interested individuals will also find this book helpful in understanding potential impacts of climate change.

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Kenneth M. Strzepek and Joel B. Smith, Editors

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Contents

List of Authors	ix
Collaborating Researchers and their Areas of Study	xi
Preface	xvii
Acknowledgments	xviii
<i>Executive Summary</i>	1
Joel B. Smith, Kenneth M. Strzepek, Laurence S. Kalkstein, Robert J. Nicholls, Thomas M. Smith, William E. Riebsame and Cynthia Rosenzweig	
<i>1 Introduction</i>	19
Joel B. Smith and Laurence S. Kalkstein	
<i>2 World Food Supply</i>	27
Cynthia Rosenzweig, Martin L. Parry and Günther Fischer	
<i>3 Complex River Basins</i>	57
W. E. Riebsame, K. M. Strzepek, J. L. Wescoat, Jr., R. Perritt, G. L. Gaile, J. Jacobs, R. Leichenko, C. Magadza, H. Phien, B. J. Urbiztondo, P. Restrepo, W. R. Rose, M. Saleh, L. H. Ti, C. Tucci and D. Yates	
<i>4 Global Sea-level Rise</i>	92
Robert J. Nicholls and Stephen P. Leatherman	
<i>5 Human Health</i>	124
Laurence S. Kalkstein and Guanri Tan	
<i>6 Global Forests</i>	146
T. M. Smith, P. N. Halpin, H. H. Shugart and C. M. Secrett	
<i>7 An Assessment of Integrated Climate Change Impacts on Egypt</i>	180
Kenneth M. Strzepek, S. Chibo Onyeji, Magdy Saleh and David N. Yates	
<i>8 Adaptation Policy</i>	201
Joel B. Smith, Jeffrey J. Carmichael and James G. Titus	
Index	211

The colour plates will be found between pages 56 and 57

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Preface

Since the Industrial Revolution, human activities have led to a significant increase in the atmospheric concentrations of greenhouse gases. There is strong scientific evidence that the continued addition of greenhouse gases into the atmosphere will alter global climate, increasing temperatures and changing rainfall and other weather patterns. Global mean temperature is estimated to increase by about 0.3°C per decade during the next century, resulting in a likely increase of about 1°C above today's levels by 2025 and 3°C before the end of the next century. By the middle of the next century these predicted changes will expose ecosystems to temperatures higher than any seen for the last 150,000 years. The rate of increase in global temperatures will be greater than those which have occurred naturally over the last 10,000 years.

In 1989 the U.S. Environmental Protection Agency (EPA) published a report to Congress entitled *The Potential Effects of Global Climate Change on the United States*. This report identified the vulnerability of physical and biological systems to climate change, including agriculture, forests, water resources, sea level rise, biodiversity and wildlife, energy demand, air pollution, and human health. The results of the report, as well as more recent scientific findings, suggest that global climate change will result in a world very different than that which exists today.

As a natural extension to the 1989 report, EPA initiated a series of studies to assess the potential global implications of climate change, with a particular focus on developing countries. This book is the culmination of that effort. The studies concentrated on the potential international impacts of climate change on coastal resources, agriculture, forests, rivers, and human health. The studies found that developing countries are significantly vulnerable to climate change. However

it is not possible to say that climate change will result in negative impacts for all physical and biological systems in all developing countries. The particular vulnerabilities of a country depend upon its own set of physical and economic circumstances. But all countries will incur some negative impacts, and will certainly spend scarce and valuable resources to avoid the detrimental effects of climate change.

An important feature of this effort was the direct involvement of developing country scientists. Scientists from over 30 countries, including 18 developing countries, actively collaborated in the studies reported here, ensuring that the best available data was used for each country. Another important outcome was the transfer of analytic methods and skills to developing country scientists. The successful cooperation between researchers in the developed and developing countries in this effort helped lay the foundation for the current U.S. Country Studies Program

It is anticipated that the insights reported in this book will be of interest to the entire international community, particularly the Intergovernmental Panel on Climate Change (IPCC), the International Negotiating Committee (INC), and the Conference of the Parties to the Framework Convention on Climate Change. Hopefully, it will spur continued collaboration among scientists from different countries, and further efforts to assess the potential global implications of climate change.

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Acknowledgments

This volume is the result of work by hundreds of international researchers with input from local, regional, and national decision-makers. The authors of the chapters were those directly involved in performing the quantitative analysis and writing the results. The primary international collaborators are listed by the chapter in which they participated. The list of people who helped to make this a better work through a variety of contributions is too large to include here, but to all of them we are grateful.

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