

## SCENARIOS FOR THE 21<sup>st</sup> CENTURY



# GLOBAL DESTINIES, REGIONAL CHOICES

# Allen Hammond

000  
C7  
700



# **Which World?**

## **Scenarios for the 21st Century**

### **GLOBAL DESTINIES, REGIONAL CHOICES**

ALLEN HAMMOND

---

ISLAND PRESS / Shearwater Books  
*Washington, D.C. / Covelo, California*

*A Shearwater Book*  
*published by Island Press*

Copyright © 1998 by World Resources Institute

All rights reserved under International and Pan-American Copyright Conventions. No part of this book may be reproduced in any form or by any means without permission in writing from the publisher: Island Press, 1718 Connecticut Avenue, N.W., Suite 300, Washington, DC 20009.

Shearwater is a trademark of The Center for Resource Economics.

Library of Congress Cataloging-in-Publication Data  
Hammond, Allen L.

Which world? : scenarios for the 21st Century / by Allen L.  
Hammond.

p. cm.

"Global destinies, regional choices."

Includes bibliographical references and index.

ISBN 1-55963-575-4 (cloth)


1. Economic forecasting. 2. World politics—1989—Forecasting.  
3. Twenty-first century—Forecasts. I. Title.

HC59.15.H33 1998

98-13589

330.9'051—dc21

CIP

Printed on recycled, acid-free paper 

Manufactured in the United States of America  
10 9 8 7 6 5 4 3 2 1

# **Which World?**

Scenarios for the 21st Century

*To Alice, my companion in the past and the present,  
and to our son, Ross, and our daughter, Lily,  
and still other generations that will come after,  
to whom the future belongs.*

## *Preface*

The twentieth century has seen both the Russian Revolution and, seventy-five years later, the emergence of the genetic fingerprinting technique that proved fraudulent the claim of the woman once thought to be Anastasia, youngest daughter of the last Russian tsar. Outside my window I can see my small sailboat, made of high-tech plastic and equipped with Mylar sails—materials that literally did not exist even fifty years ago. I write these words with a laptop computer that weighs but a few pounds and yet is more powerful than the huge, room-sized machines common only twenty-five years ago. Truly, the world is changing very rapidly, and not just technologically. The Soviet Union, born in the Russian Revolution, has disappeared, and the political ideology of Communism—which once held half the world in its sway—is rapidly following the Soviet Union into oblivion. The world's population is nearing 6 billion people, more than three times the number who lived on Earth at the beginning of the century. Women, who at the beginning of World War I could not even vote in the United States, are becoming a decisive electoral force.

New technologies, the rise and fall (and sometimes collapse) of nations, swelling populations, an increasingly global economy, striking increases in literacy, and other profound social changes—all these are transforming our world with extraordinary speed. Tomorrow's world, in consequence, will be quite different from today's. Moreover, many of the choices that now confront human society have long-term conse-

quences, such as potentially altering Earth's climate for centuries or extinguishing treasured life-forms—whether magnificent wild animals or valuable plants—forever.

Under such circumstances, making wise choices about the future is not easy. Indeed, most of us individually, preoccupied with the problems of today, don't think much about tomorrow. And collectively, society has little in the way of organized attempts at foresight—the short-term horizons of the quarterly profit statement and the next election all too often dominate economic and political attention. Yet even unconsciously, we are making choices, shaping the future. It is as if we were driving into the future at high speed, over uncertain ground, and without headlights: Might we collide with an unexpected obstacle or even drive right over an unseen cliff? Could better headlights—*new insights* into the future—lead society to change course so as to avoid emerging problems and secure a better future for generations to come?

This book is one result of a five-year research effort to explore these questions. The study, known as the 2050 Project, was organized by three major research organizations—the Brookings Institution, the Santa Fe Institute, and my own institution, the World Resources Institute—and involved dozens of scholars from all over the world. As its name implies, the study focused on the next half century, the period between now and the year 2050.

The 2050 Project viewed human societies and their interactions with one another and with Earth as what scientists call a complex system—a system that is subject to abrupt shifts from one pattern of behavior to another. Studies of such systems show that traditional scientific approaches—simplifying the system or attempting to analyze only one aspect of it—can give very misleading answers: strong linkages among different parts of the system are what create its complexity and determine its often unpredictable behavior. To gain insight into a complex system, particularly one that is imperfectly understood, it is often necessary to take “a crude look at the whole,” to use Nobel laureate Murray Gell-Mann's apt phrase.<sup>1</sup> Taking a crude look at the whole—considering demographic, economic, technological, environmental, social, cultural, political, and other factors that may determine the

future—became a guiding principle for the 2050 Project, and for this book.

The 2050 Project set out to find paths or trajectories into the future that might lead society toward a favorable destination half a century from now, and it developed scenarios to explore future trajectories. This book draws on those scenarios and the underlying analyses; it also adapts scenarios developed by the Global Scenario Group—an independent international group—and by other independent scholars.

In addition to the 2050 Project, this book builds on my own decade-long experience in studying global trends. As it happens, for much of that period I served as editor-in-chief of the World Resources Institute report that summarizes the United Nations's environmental data for scholars and policy makers around the world.<sup>2</sup> Seeing these numbers cross my desk gave me a unique opportunity to analyze environmental, economic, and social trends in nearly 200 countries and to consider what the data reveal about potential conditions in the year 2025 or 2050.<sup>3</sup> Building on these data and the analyses of them done by me and my colleagues at the World Resources Institute and by many other scholars, this book asks where humanity appears to be headed and what destinations we could plausibly reach within the next half century.

Finally, this book incorporates information on many different regions and insights into their unique characteristics. Some of these insights come from my personal experience in different regions, but far more come from the experiences and knowledge of colleagues who are native to the regions or who have lived or worked extensively there. In addition, I sought out regional experts and scholars; I consulted the field reports of anthropologists and other professional observers stationed in one country or another under the auspices of the Institute of Current World Affairs; I used informal networks of journalists to find and interview people who exemplify the changes under way in particular regions; and I drew on regional workshops organized by the 2050 Project or one of its sponsoring institutions.

The result has been an intellectual odyssey that has greatly enriched my own appreciation of the world we live in, sharpened my concern for



its future, and stimulated new ideas about how we might shape the future for the better. *Which World?* shares the insights of that journey with a wider audience, portraying three different but plausible futures for human society and exploring their implications.

One important caveat should be mentioned here. The world is inherently unpredictable, and truly unexpected events could occur. For example, scientists cannot rule out a sudden, disastrous shift in climate that would plunge part of the world back into a mini-ice age—a shift that actually happened once before, about 11,000 years ago. A terrible new disease—perhaps even one deliberately constructed as a weapon of biological warfare—could devastate society, as did the bubonic plague in the Middle Ages. An asteroid could strike Earth in a cosmic collision like the one that killed off the dinosaurs. Such things are possible, but in this book I focus on much more plausible events, much less extreme futures. Even so, as I describe on the pages that follow, human destiny remains deeply uncertain: for the next half century, there are both ample causes for concern and ample reasons for hope.

*Allen Hammond*  
*Rolphs Wharf, Maryland*  
*30 November 1997*

## *Acknowledgments*

This book builds on and borrows extensively from the work and thinking of many of my colleagues who participated in the 2050 Project, my colleagues in the Global Scenario Group, and my colleagues at the World Resources Institute, as well as the publications of a large number of other scholars and analysts. I benefited from the help of journalists, scholars, and friends in every region of the world, many of whom contributed examples and expert local knowledge. But the synthesis and the interpretation are my own, and so must be the responsibility for what is printed on these pages.

In particular, I would like to acknowledge John Steinbrunner of the Brookings Institution, Bruce Murray of the California Institute of Technology, and Rob Coppock of the German–American Academic Council as comrades-in-arms during the development of this book, from whom I learned in ways large and small. Paul Raskin and Gilberto Gallopin of the Stockholm Environment Institute contributed enormously to my thinking on scenarios. Many other colleagues read and commented on the manuscript at various stages or helped me think through pieces of it, including Jan Clarkson, Michael Cohen, Ann Florini, Tom Fox, Sumit Ganguly, Jonathan Lash, R. K. Pachauri, Walt Reid, Bob Repetto, Veerle Vandeweerd, and Changhua Wu.

To Gus Speth and Jessica Matthews I owe my involvement in the analysis of global trends and many insights into the development

process, and to Murray Gell-Mann I owe the initial inspiration for the 2050 Project that led to this book. Many other colleagues at the World Resources Institute inspired and helped in more ways than I could list. Sharon Bellucci, Philip Howard, and Carolina Katz helped in different phases of the research for the book; Maggie Powell helped with the figures.

Susan Sechler, then at the Pew Foundation, contributed both by pushing me to make the book better and by arranging funding. Chuck Savitt of Island Press believed in this book for years before it was written, and my editor there, Laurie Burnham, helped enormously to shape its structure and sharpen its prose. Finally, a thanks to those institutions whose resources made it all possible: the John D. and Catherine T. MacArthur Foundation and the Howard Gilman Foundation for supporting the 2050 Project and the Pew Charitable Trusts for supporting the writing of this book.

# Contents

<i>Preface</i>	<i>ix</i>
<i>Acknowledgments</i>	<i>xiii</i>

## **PART I. LOOKING AHEAD**

Chapter 1	
Thinking About the Future	3
Chapter 2	
The Power of Scenarios	13

## **PART II. THREE WORLD VIEWS**

Chapter 3	
<i>Market World: A New Golden Age of Prosperity?</i>	26
Chapter 4	
<i>Fortress World: Instability and Violence?</i>	37
Chapter 5	
<i>Transformed World: Changing the Human Endeavor?</i>	47

## **PART III. TRENDS THAT SHAPE OUR FUTURE**

Chapter 6	
Critical Trends: Demographic, Economic, and Technological	66

Chapter 7	
Critical Environmental Trends	87
Chapter 8	
Critical Security Trends	102
Chapter 9	
Critical Social and Political Trends	115

#### **PART IV. REGIONAL CHOICES**

Chapter 10	
Latin America: Equitable Growth or Instability?	130
Chapter 11	
China and Southeast Asia: Can the Asian Miracle Continue?	148
Chapter 12	
India: A Second Independence?	172
Chapter 13	
Sub-Saharan Africa: Transformation or Tragedy?	187
Chapter 14	
North Africa and the Middle East: Autocracy Forever?	201
Chapter 15	
Russia and Eastern Europe: Transition to What?	213
Chapter 16	
North America, Europe, and Japan: Leadership or Stagnation?	223

#### **PART V. GLOBAL DESTINIES**

Chapter 17	
Choosing Our Future	239
<i>Which World?</i> On-line: A HyperForum on the Future	253
<i>Appendix.</i> Regions and Projections: The Details	255
<i>Notes</i>	269
<i>Index</i>	293

*PART I*





## *Chapter 1*

# Thinking About the Future

IN THE SPRING OF 1995, I taught a graduate class on the potential implications of long-range trends in population, economic growth, and the environment. It was a new experience for me—I'm a researcher and a writer, not a teacher—but what was really unexpected was the ingrained pessimism of my students, most of them knowledgeable professionals in their thirties. They seemed predisposed to believe that growing populations in poor regions of the world would inevitably lead to disaster, that environmental degradation could only get worse, that violence and conflict would inevitably escalate—in short, that a familiar litany of dark prophecies would come true. And they found it curious, even incomprehensible, that I, who knew the trends better than they, did not share their view.

It's not hard to see why my students and many others hold pessimistic views. An unprecedented 90 million people are added to the planet each year, most of them in the poorest countries, which are least



able to accommodate them. Poverty, disease, and hunger continue to blight the lives of hundreds of millions of people. Valid concerns persist about sweeping global economic changes that could eliminate jobs and livelihoods, undermining whole communities; about rising economic disparity; about failing governments and worsening social conditions. It's certainly possible that this generation's legacy to the next will be an Earth poisoned by industrial toxins, shorn of virgin forests, and committed to an altered climate. Every week, it seems, there is fresh evidence of a world in trouble—another African country in chaos; a killer smog that shuts schools and airports in several Southeast Asian countries; new violence or drug-related corruption in Latin America. Yet as I hope to show, the prospects for the future are more complex, and ultimately more hopeful, than such headlines suggest.

Just as I am troubled by simplistic pessimism, however, I find the other extreme, simplistic optimism, even more disturbing. True, there is much to be optimistic about: the spread of democracy and market economies, the rapid advance of new technologies, widespread improvements in literacy. The peaceful evolution of South Africa into a multiracial democracy, the remarkable and unheralded introduction of village-level democracy in China, and the rapid spread of economic reform in Latin America suggest that positive changes are under way. It is certainly possible that such trends will dramatically increase opportunity, wealth, and human welfare, at least for many of the world's people, and that new knowledge and human ingenuity will engender solutions to many social and environmental problems. The next half century might really see the emergence of the world's first truly global human civilization. But the operative words here are "might" and "possible."

Might Latin America, for example, overcome its tradition of neglect for the poor and special privilege for the very rich that makes it the most inequitable region on Earth? That will require far more than economic reform.

Will it be possible for China—the world's fastest-growing market economy, embedded in the socialist structures of the last major Communist power—to defy its internal contradictions and tensions, its mas-