

*Bertelsmann Foundation (ed.)*

# Megatrends in Global Interaction

| Verlag BertelsmannStiftung

# Contents

<b>Foreword</b> .....	7
<b>Introduction</b>	
<i>Michael Mandelbaum</i> .....	9
<b>Demographics and Migration</b>	
<i>Jack A. Goldstone</i> .....	15
<b>Global Security</b>	
<i>Benjamin Wittes</i> .....	53
<b>Biodiversity and Climate Change</b>	
<i>Wolfgang Cramer, Katrin Vohland</i> .....	85
<b>Energy and Natural Resources</b>	
<i>Stephen P. A. Brown, Joel Darmstadter</i> .....	137
<b>Economic Globalization</b>	
<i>Scott Barrett</i> .....	195
<b>Global Governance</b>	
<i>Bruce D. Jones, with Andrew Hart</i> .....	231
<b>Conclusion</b>	
<i>Michael Mandelbaum</i> .....	261
<b>Contributors</b> .....	267

# Foreword

Thinking about “our global future” is often a recipe for vertigo. Although the individual words are simple, the concept is larger and more complex than we as individuals first realize. This book sets out to help us understand how to shape our global future by examining the intersecting megatrends which will greatly impact our world.

Throughout its history, the Bertelsmann Stiftung has tackled a range of major global issues, albeit most commonly in isolation from one another. This elicited the question: Could we design a project that examines our global future through the dynamic interactions among megatrends rather than by looking at each trend individually? From that simple thought experiment, this multi-year project began as an earnest attempt to create a different prism through which tomorrow’s world could be viewed.

We selected six megatrends for analysis, each chosen through a process of prioritization. We do not portend that these megatrends are the only issues that matter, but we feel that each is particularly important in shaping our global future. One chapter is devoted to each megatrend, and each chapter’s author defines the current state of that megatrend and examines its potential interactions with other megatrends in the future. Thanks to the excellent work of Michael Mandelbaum, who wrote the introduction, and Nigel Holmes, who designed the infographics, we can review and reflect upon the interactions between megatrends from a macro level.

This book would not have been possible without the assistance of our partners. We wish to thank the Rockefeller Foundation for its generous support of the project even before it launched. Their advice has allowed us to think big in terms of the dissemination and distribution of the ideas presented here. We are also grateful to the Searchlight grantees, who have contributed ideas and perspectives from their regions around the world. We must, as this book shows, move beyond thinking locally if we are to cooperate and cohabitate on this planet, and develop a truly comprehensive view of the future.

Special thanks go to our own trans-Atlantic staff. The Future Challenges teams in Germany and Washington, DC, consistently overcame linguistic and time-zone issues. More often than not, they turned their differences into strengths.

## Foreword

---

This project took the efforts of many to create. We hope it enriches and engages you, and encourages you to think and act in ways that secure a better future.

*Aart de Geus*  
Member of the Executive Board  
May 28<sup>th</sup>, 2012

*Andreas Esche*  
Director, Measuring Globalization Effects

# Introduction

*Michael Mandelbaum*

Ever since the ancient Greeks consulted the oracle at Delphi for portents of what was to come, humans have sought to know the future. The future is the place, after all, to which we all aspire to emigrate. We have a natural interest in what we hope will be our home.

The future, in its precise details, is unknowable. Prediction is an art – and an uncertain, erratic, unreliable one at that – not a science. But the world of the decades to come is not completely opaque. While we cannot know everything about that world, we can be reasonably confident about some things. We cannot know what *will* happen, but we can have a good idea of what *can* happen, what *may* happen and even what is more likely than not actually *to* happen.

For example, the self-immolation of a Tunisian street vendor on December 17, 2010, which led to political upheavals that removed or threatened long-ruling dictatorships in Bahrain, Egypt, Libya and Syria, could not have been and, indeed, was not predicted – certainly not by those with the highest stakes in these events, the regimes that were toppled. But the conditions in which these uprisings took place and that made them possible – stagnant economies, large numbers of young people with no prospects in life and oppressive, corrupt, illegitimate governments – could have been, and were, observed, described and even measured. The specific spark that touched off what became known as the Arab Spring could not have been foreseen; the kindling that fueled it could have been and was, in fact, well-documented. The future is created by human choices within a context established by broad social and economic forces. The choices are frequently surprising, but the context is not. The context until the midpoint of the 21st century and beyond will be, in no small part, the product of six major global trends. They are the subjects of this book.

Its first chapter, written by Jack Goldstone, concerns demography. This is the most reliably predictable of all the six trends. Many of the inhabitants of the world four decades hence are already alive, and the number that will join them during that period can be forecast with considerable accuracy because birth and death rates change only very slowly. The size and distribution of the world's population will be determined, as the chapter shows, by the consequences of the great demographic transition now under way, in which birthrates and death rates both decline. Where the transition is most advanced, in the rich

countries, populations will both age and shrink. (The United States will be a partial exception. In 2050, Americans will be older than they are now on average, but there will be more of them.) Where its effects are only beginning to be felt, in poorer countries, populations will continue to grow, in some places rapidly. The great shifts of population from younger to older age cohorts and among different countries will, as the author shows, reconfigure our world in ways that give rise to new social and economic challenges with which governments will have to grapple. Between now and the year 2050, we will see unprecedented increases in older groups demanding pensions and health care in the rich countries, a huge youth surge in the very poorest countries, and the emergence of billions of new consumers in markets for food, energy, manufactures and services in the successful developing countries. The numbers of those seeking international migration and of swelling new and existing urban centers will likely increase dramatically as well.

In the next chapter, Benjamin Wittes writes about one of the most pressing security challenges the world will have to face: the wider distribution and lower cost of technologies that have benign but also destructive uses. The fissionable material on which nuclear power reactors run but which is also crucial for nuclear weapons is the most dramatic example, but not the only one. Biology produces both medical miracles and deadly pathogens. Cybertechnology connects the world but can also disrupt, at great cost, the many connections it creates. Where once the greatest threat to people and property came from the large, well-organized military forces fielded by sovereign states, Wittes argues, in future decades, the chief danger may come instead from disaffected, resourceful, determined individuals and small groups.

The reduction of biodiversity – the existence of variation within individual species and of many different distinct species – is the third trend the book examines. It has, as Wolfgang Cramer and Katrin Vohland note, a variety of causes: the reclamation of land for farming and human habitation, deforestation, environmental pollution and, not least, climate change. Since the future benefits of endangered plant and animal species cannot be known, the cost of their disappearance cannot be calculated with any certainty. But these costs, counted in benefits lost, could be very high indeed.

In the book's fourth chapter, Stephen P. A. Brown and Joel Darmstader assess the future of the planet's natural resources, with an emphasis on those devoted to producing energy. Energy's economic role may be compared to the part oxygen plays in human life. Like oxygen, energy is indispensable. Unlike oxygen, however, it is not free, and since the inhabitants of the planet use so much of it, the world's energy future will have an enormous impact on its economic future. Moreover, since the consumption of what are overwhelmingly the most popular energy resources, fossil fuels, has powerful, if not entirely predictable, effects on the Earth's atmosphere – and, above all, on the planet's temperature – the pattern of energy usage will affect human and all life forms in ways that extend beyond economics.

Economic globalization, as Scott Barrett writes in his chapter on the subject, involves the integration of markets of all kinds throughout the world. By some accounts, globalization has been the dominant feature of international affairs in the last two decades. The ever-larger cross-border flows of goods, money and people are often said to be both inevi-

table and benign. As Barrett writes, globalization is not necessarily either. In previous eras, globalization has stalled and even declined; global markets have actually *disintegrated*. And where integration does take place, the consequences are usually complicated and mixed, varying from market to market, from country to country and from one period to another. The one thing that is all but certain about globalization is that the world will have to cope with these diverse consequences in the decades ahead.

One way that it will attempt to do so is through the mechanism of global governance, the subject of the book's sixth and final chapter by Bruce D. Jones, with Andrew Hart. The term global governance refers to the arrangements for dealing with issues that transcend national borders. The chapter canvasses the forms it may take in the first half of the 21st century.

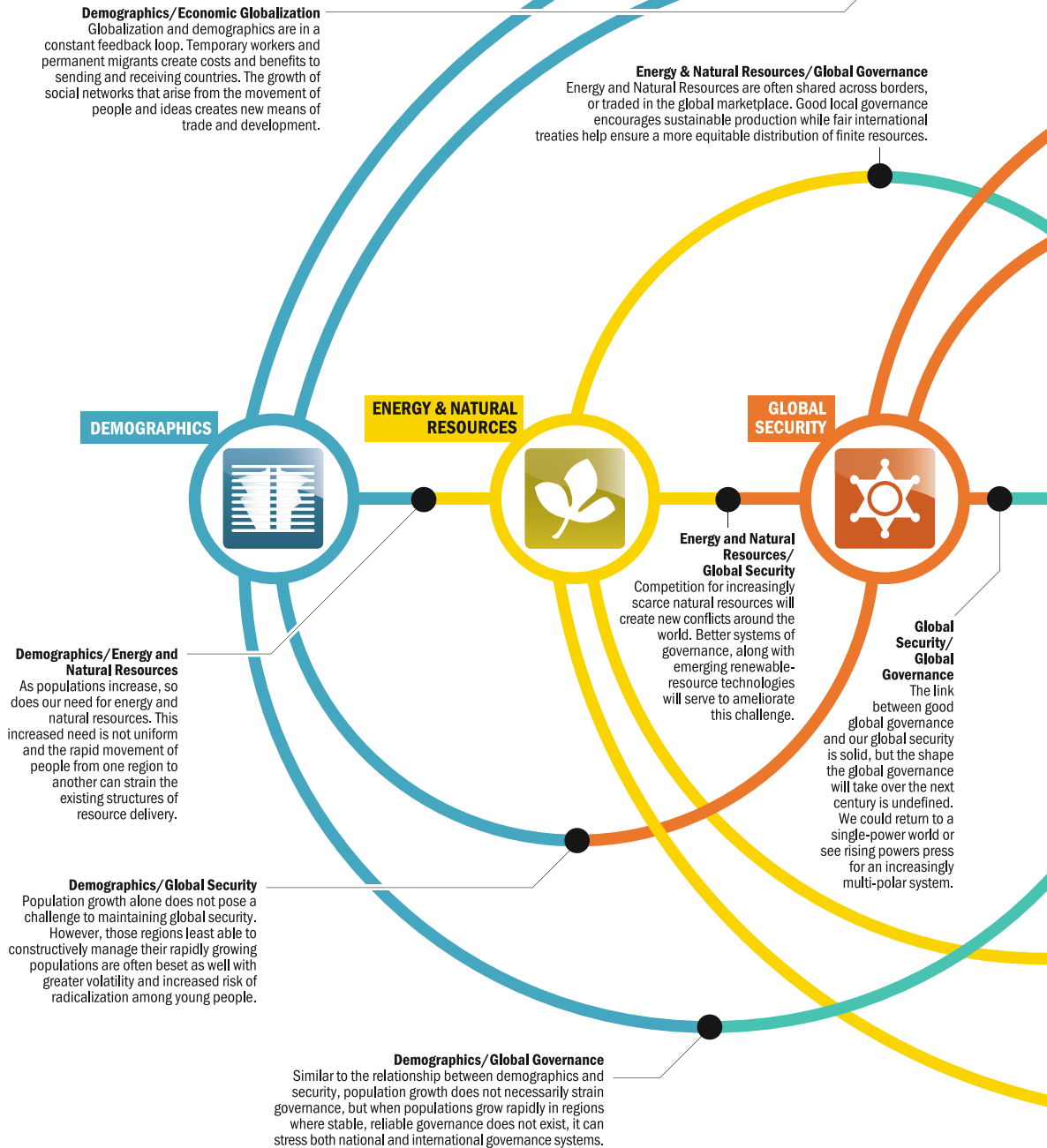
Each of the trends described in the pages that follow will have a major impact on the social, economic and political life of the planet in the four decades to come: hence the title of the book – *Megatrends in Global Interaction*. Each of the essays describing them provides an overview of their major features and may therefore be seen as a briefing on its particular subject. Each essay, moreover, describes the likely interactions between its subject and the other five megatrends. And closely interrelated they are: The number of people in the world, for example, will do much to influence the amount of energy consumed globally, which will in turn help determine whether many species survive or vanish and how fast the world's national economies are able to grow.

Together, the chapters provide a picture of the world's future. It is not, and cannot be, a detailed picture. It is like a house glimpsed from a distance. The street number, the design of the doors and windows, and the color the walls are painted cannot be clearly seen. But the shape of the building is discernible.

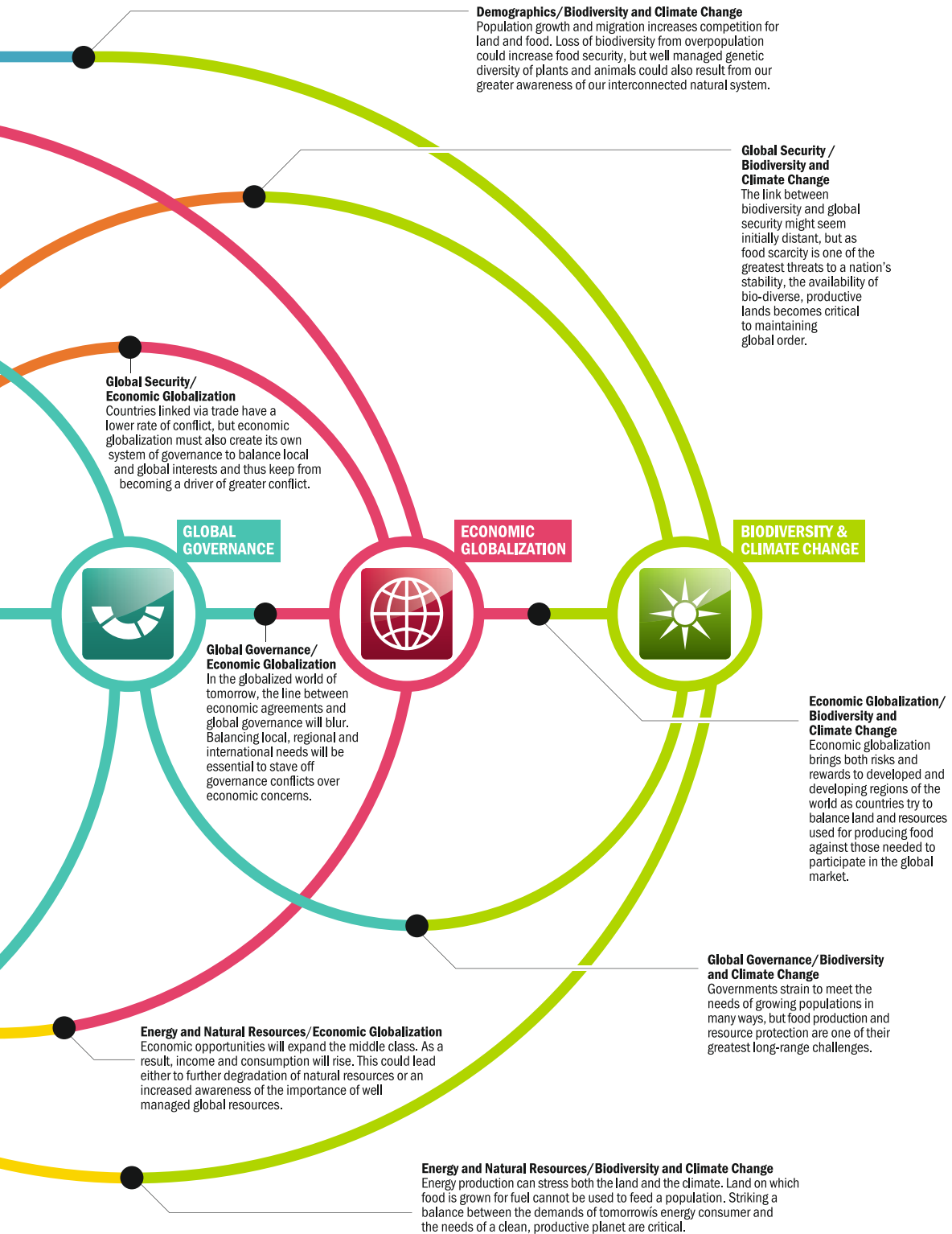
The six megatrends described in this book will do a great deal to determine the shape of the human future. The descriptions of them that follow offer as valuable a guide to that future as is available from the inevitably limited evidence of the present.

# INTERACTING MEGATRENDS

Most of the trends in this study connect with, and affect each other in important ways. Here are some of the major links.







## Contributors

*Scott Barrett* is the Vice Dean of the School of International and Public Affairs at Columbia University and holds a joint academic appointment with the Lenfest-Earth Institute. Prof. Barrett's research focuses on transnational and global challenges, ranging from climate change to disease eradication.

*Stephen P. A. Brown* is a professor of economics, the director of the Center for Business and Economic Research, and the executive director of Nevada KIDS COUNT at the University of Nevada, Las Vegas. Prior to joining the University of Nevada, Las Vegas, Dr. Brown was nonresident fellow and co-director of the Center for Energy Economics and Policy at Resources for the Future. He has conducted inquiries into domestic and international energy markets, energy security policies, climate policy, public finance, government performance and regional economic growth.

*Wolfgang Cramer* is an environmental geographer and plant ecologist. Prof. Dr. Cramer and is the Research Director at the Mediterranean Institute for Ecology and Paleocology, IMEP. Until recently, Dr. Cramer served as a professor of global ecology at Potsdam University. His main scientific contributions were initially in the area of modeling forest dynamics under climate change. He now seeks a broader understanding of biosphere dynamics at the global and continental scale, including aspects of natural and human disturbance as well as biodiversity.

*Joel Darmstadter* is a Senior Fellow at Resources for the Future. He has conducted research centered on energy resources and policy. His recent work addresses issues of energy security, renewable resources, and climate change.

*Jack A. Goldstone* is the Virginia E. and John T. Hazel Jr. Professor at the George Mason School of Public Policy and an Eminent Scholar. Prof. Goldstone is a leading authority on regional conflicts. His work on issues such as social movements, revolutions, and international politics has won him global acclaim and research support from the Mac-

Arthur Foundation, the US Institute of Peace, and the American Council of Learned Societies.

*Bruce D. Jones* is Director and Senior Fellow of the NYU Center on International Cooperation (CIC), and Senior Fellow and Director of the Managing Global Insecurity Program at the Brookings Institution. Prof. Jones's research focuses on US policy on global order and transnational threats.

*Michael Mandelbaum* is the Christian A. Herter Professor of American Foreign Policy at The Johns Hopkins University School of Advanced International Studies in Washington, D.C. He has also taught at Harvard and Columbia Universities and at the United States Naval Academy in Annapolis. Prof. Mandelbaum is the associate director of the Aspen Institute Congressional Project on American Relations with the Former Communist World. He serves on the Board of Advisors of the Washington Institute for Near East Policy, a Washington-based organization sponsoring research and public discussion on American policy toward the Middle East.

*Katrin Vohland* is a guest scientist at the Potsdam Institute for Climate Impact Research and is also affiliated with the Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Research at the Humboldt University Berlin. Dr. Vohland's research includes adaptation strategies of ecosystems and societies to climate change and management of biodiversity.

*Benjamin Wittes* is a senior fellow in Governance Studies at The Brookings Institution and co-director of the Harvard Law School-Brookings Project on Law and Security. He is the author of *Detention and Denial: The Case for Candor After Guantanamo*, published in November 2011, and co-editor of the forthcoming *Constitution 3.0: Freedom and Technological Change*. He is widely seen as a foremost expert on data and technology proliferation and their implications for security.