Rebuilding the American Economy

with true cost accounting

David A. Bainbridge
Dedication

This book is dedicated with love to my parents, Lu, an expert painter of western landscapes, and Doug, a brilliant engineer, craftsman, inventor, prospector and adventurer.

They demonstrated the joys and challenges of living a sustainable lifestyle together for more than 60 years. They taught us to work hard, think independently, and value what matters.

Ski touring, Sierra Nevada mountains

This book is made available on-line in honor of their lives and achievements.
## Contents

Dedication iii
Preface v
Acknowledgements vi
Foreword vii

Chapter 1. The Causes of the Crisis 1
Chapter 2. Completing the Market 11
Chapter 3. Considering Value, Not Price 22
Chapter 4. True Cost Accounting 31
Chapter 5. Material Flow Analysis 42
Chapter 6. Environmental Accounting 50
Chapter 7. Accounting for People 60
Chapter 8. Asset Value Considerations 72
Chapter 9. Transparency 82
Chapter 10. Consumption 95
Chapter 11. Rebuilding the American Economy 101

### Appendices

A. Sources and further reading 113
B. Sustainability reporting - a brief example 126
C. List of factors for consideration 128
D. Recommended journals and books 129
Preface

Although I was trained as an environmental scientist, I have always been interested in economics because it plays such an important role in management decision-making and behavior. Throughout my career I have tried to understand the economic pressures that shape how we treat the environment and each other. Unfortunately this is rare and few ecologists have been trained in economics, and even fewer economists have been exposed to much of the science of ecology and the environment. The narrow focus and specialization inherent in our current educational system has led to many of our current problems.

As experts we often are blinded by what we “know” to be true, without understanding our limitations and the context or the meaning of our “truth” to others. The Chinese expression, “jing di zhi wa,” describes this problem. Meaning, the frog in the bottom of the well thinks he understands the world, but he does not. This has been a particularly severe problem for economics, and especially of the economic philosophy of the late Milton Friedman and his disciples, including Alan Greenspan and many others.

The pundits and purported experts who have led the United States into its current predicament have also exhibited hubris and an often profound lack of understanding and appreciation for the lessons of history. I fail to understand how anyone would willingly create such a mess for their children and grandchildren. Jay Forrester’s theory about the counter-intuitive behavior of social systems may provide the best answer. Instead of analyzing the problem and seeking the causes, we simply do more of what ever caused the crisis. Doing so, however, will not solve the problem, and is likely to make it worse. Treating the symptoms instead of the causes never fixes the problem.

I am also emboldened by the words of my friend and former colleague, agricultural engineer, gentleman, solar pioneer, and barbershop quartet singer, Loren “Tod” Neubauer. As a practical, hands-on agricultural engineer he knew that “It is better to be crudely right than precisely wrong.” I believe this book is crudely right about the way forward in rebuilding the American economy. There is much to be done, and much to be learned about rebuilding and sustainably managing the economy, the culture and the environment.

The Web site supporting this book (www.sustainabilitychampion.org) will provide additional materials for teachers and links to information. Corrections, suggestions, examples, and recommendations for improvement of future editions are welcome.

Other books by the author:

The First Passive Solar Catalog
The Second Passive Solar Catalog
The Integral Passive Solar Water Heater Book
Village Homes’ Solar House Designs
Sustainable Agriculture for California: A Guide to Information
The Straw Bale House
A Guide for Desert and Dryland Restoration

Book chapters or contributor to the following books:

Acknowledgments

Every book reflects the work, contributions, and influence of many people. I would particularly like to thank my brother, Bob, for his reviews, comments, and discussions over the years. Don Bauder, former business and financial columnist for the San Diego Union Tribune, has also provided inspiration and shaped my thinking and understanding of economics and politics.

The Ecology Graduate Group at the University of California, Davis provided a fertile interdisciplinary learning environment and helped introduce me to the complexity of natural and social systems. I first read Aldo Leopold’s “land ethic” there, and it changed my life.

Robert Johnston, my graduate advisor, introduced me to the literature of environmental planning and supported my idea of a thesis on ecological city planning, although the academic ecologists found this a “bridge too far” at the time.

Over the years my friends and colleagues in the Ecological Society of America, the Society for Ecological Restoration, the Forest History Society, the Environmental History Society, the Society for Building Science Educators and the American Society of Agricultural and Biological Engineers have also helped improve my understanding of what we know, and more critically do not know, about the world around us.

My special thanks to Ross Virginia, Arturo Gomez-Pompa, John Reiger, and Mike Allen. MGSM founding Dean Jim Goodrich kindly provided the time and opportunity for me to complete this work, and offered insight and support along the way. Ute Jamrozy, Rene Naert, Greg Lorton, Marshall Goldsmith, Paula Thielen, M. S. Krishnamoorthy, Ken Richardson, Louise Kelly, David Felsen, Ali Abu-Rahma, David Eisenberg, Kelly Lerner, Ken Haggard, Polly Cooper, Peter van Dresser, Mike and Judy Corbett, Andrea Kaus, Kathleen Truman, Ross Virginia, Janet Franklin, Tod Neubauer, Jon Hammond, Marshall Hunt, Denny Long, Bob and Chris Sowers, Bill and Athena Steen, Catherine Wanek, Bob Brown, Laurie Lippitt, M. Kat Andersen, Matts Myhrman and Judy Knox, Bob Bolles, Betsy Rich, Lynne Elizabeth, Bill Roley, David Acuff, Wes Jarrell, Betsy Bainbridge, Drew George, and many other friends and colleagues have provided ideas, wisdom, and support over the years. Al Zolynas carefully checked the entire book, Betsy Rich, brother Bob, Rene Naert, and Robert Cook graciously reviewed chapters, and Cecilia González carefully edited the manuscript, with her usual skill and deft touch.

My students at William Carey International University, U.C. Riverside, San Diego State University, and Alliant International University have also added insight and wisdom far beyond their years. Sicco Rood, Julie Janssen, Nancy Mancilla, Phil Kopp, Josh Marcengill, Yasmeen Hossain, Bev Perez, Viviana Coloma, Jose Ramirez Almoril, Vanvara Bunnak, Pornpimol Limprayoon, Jody McKinney, Prathanporn Jhundra-indra, and many others deserve special recognition for their uncompromising integrity and commitment to a better future for all. Many other graduate and undergraduate students from around the world have offered their own insight and understanding of the global challenges we face in my classes.

My special thanks also to Robert Costanza for his inspirational work and willingness to share material with a member of a different tribe. He and other members of the U.S. and International Societies for Ecological Economics have helped improve my understanding of the interplay between economics and ecology. I have also benefited from participation in the Society for Industrial Ecology, the American and International Solar Energy Societies, the American Society of Agricultural and Biological Engineers, the Society for the Advancement of Management, the Society of Building Science Educators, the North American Association for Environmental Education, and the California Straw Building Association.

I would encourage everyone to broaden their horizons and to support and participate in a range of organizations and associations. It will take us all working together to make things right.

David A. Bainbridge
Marshall Goldsmith School of Management
San Diego 2009

“…a country that measures Gross National Happiness instead of Gross National Product. Things are different there. The volume is turned down; the clock slowed. The pace of life is gentle. Fancy things are few and far between, but those precious qualities of life that seem to vanish in a western Society intent on measuring everything are not forgotten in Bhutan.”