

Sustainable Economic Development Resources, Environment, and Institutions

Edited by Arsenio M. Balisacan | Ujjayant Chakravorty | Majah-Leah V. Ravago

“If we are to understand the impact of public policy on sustainable economic development and poverty reduction, we must likewise understand the structure of the economy and its institutions. The illustrious authors of this volume contribute to this mission by providing an integrated vision of an economy’s natural resources, institutions of governance, and especially its agricultural and rural development.”

- His Excellency Benigno S. Aquino III, President of the Republic of the Philippines

“As nations around the world experience both the benefits and the problems that come with economic growth, many have come to see sustainable economic development as their key objective. This volume brings together social scientists and natural scientists from industrialized countries, emerging economies, and the developing world to examine the crucial interface between environment, resources, economic development, and political institutions. This book thereby provides an effective entry-point to the literature for novices, as well as a state-of-the-art survey for experts.”

- Robert N. Stavins, Harvard Kennedy School

“The pursuit of sustainable development has become an important policy objective. By presenting a unique combination of conceptual analyses and insightful case studies, the book, ***Sustainable Economic Development: Resources, Environment, and Institutions*** makes an important contribution in defining this challenging notion and identifies strategies to achieve it. This book emphasizes that the design of sustainable development policies requires understanding of the dynamics of natural resources, human behavior, economic forces, and the inner-working of institutions. The book explains complex concepts with lively analysis of important examples from fields such as water, energy, and agriculture as well as macroeconomic stabilization and poverty alleviation.

This book provides an excellent introduction to development and natural resource policy for advanced students, and it is an outstanding source for economists, natural resource specialists, policy analysts, and other practitioners working in the resource and development fields.”

- David Zilberman, UC Berkeley

The 25 chapters in this book lay down the foundations of sustainable development in a way that facilitates effective policy design. The editors mix broad thematic articles with focused micro articles, balancing theories with policy designs. It begins with two sections on sustainable development principles and practice and on specific settings where sustainable development is employed. Other sections illuminate institutions, governance, and political economy. Additional sections cover sustainable development and agriculture and risk and economic security, including disaster management. This rich source of information should appeal to any institution involved in development work and to development practitioners grappling with an array of difficult on-the-ground developmental challenges.



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Balisacan
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Sustainable Economic Development

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Edited by

Arsenio M. Balisacan

Ujjayant Chakravorty

Majah-Leah V. Ravago



For Jim Roumasset
Outstanding economist, mentor, colleague, and friend

Preface and Acknowledgments

Development research and policy analysis must continually adapt to changing conditions as nations adjust to new constraints and challenges, including poverty, degradation of the environment and natural resources, globalization, and increasingly complex “rules of the game” in trade, finance, and management of the global commons. These changing circumstances have demonstrated the need for the advancement of policy analysis that explicitly focuses on the design of new institutions and the efficient as well as sustainable management of natural as well as produced capital.

The chief objective of this volume is to refine and synthesize classical and modern ideas in development and policy analysis. The title of this volume has gone through several rounds of discussion. Sustainable economic development (SED) in this volume, as we have articulated in Chapter 1, departs from the conventional “less is more” version. SED expands the conventional view of the economy to the *environomy*—the integrated economic and environmental resource system. Whereas the popular view often confuses sustainability with self-sufficiency and espouses renewable energy at almost any cost, our version of SED promotes the efficient use of resources and the accumulation of total capital for the advancement of human welfare, including poverty reduction.

The chapters include policy analyses, state-of-the-art reviews, reports of new empirical results, and conceptual explorations. The chapter contributors are among some of the most eminent academics and policy practitioners in the world, including professors and economists from Harvard University, the University of California, Berkeley and Davis, the World Bank, the International Food Policy Research Institute, and officials from other research and policy institutions. The volume aims to capture the interest of development practitioners and professionals, policy makers, and development academics.

This volume also serves as a *Festschrift* for James A. Roumasset—professor, mentor, and friend. It pays tribute to his work and honors him as an outstanding economist. The breadth and depth of this volume is reflective of the impetus that Jim provided to his former students and of the common interest he has shared with his colleagues. From the areas of economic development policy, behavior, and organization in agriculture, to environmental resources such as energy and water, this volume contributes to providing guidance to the design of policy and institutional reform aimed at achieving sustained growth and development. The contribution of scientifically sound yet applied research is paramount for good policy making. This is what we have learned from Jim Roumasset.

Jim was, and still is, ahead of his time. Many of the problems he identified in the early days of his academic career are major research challenges today. Back in the day when biotechnology was still unheard of, he was already studying the benefits and costs of the adoption of Azolla for Philippine Rice Production.¹ Jim thought about fossil fuel use and global warming long before the issue became a global concern.² Born at the time of “wartime prosperity” in the United States, his

¹See his paper “Technology and Agricultural Policy: An Assessment of Azolla for Philippine Rice Production” (with A. Balisacan and M. Rosegrant), *American Journal of Agricultural Economics*, 67(4), 726–732, November 1985.

²He later obtained a National Science Foundation grant on energy, global change, and sustainable development (1992–1994) that led to a string of papers co-authored with students and former students, e.g., “Endogenous substitution among energy resources and global warming” (with Ujjayant Chakravorty and Kinping Tse), *Journal of Political Economy*, 105(6), 1201–1234, 1997 and the 2005 paper on optimal and sustainable development (with Lee Endress and Ting Zhou) referenced in Chapters 1, 3, and 5 of this volume.

predilection toward an academic career was most likely influenced by his parents. Charles headed the Bureau of Labor Statistics office for the Western US, including Hawaii, and Helen was an elementary school teacher. Jim's first role model was Carlmont High School English teacher, John Durham, a brilliant non-conformist who also pointed Jim in the direction of his now wife, Jane Kirton. His next biggest influence was Peter Diamond, who showed how teaching policy economics leads to original thought.

Jim joined the Peace Corps after college and was assigned to the province of Catanduanes in the Philippines, where he and a group of seasoned teachers developed a *New Math* curriculum for grades one to six and implemented a training program for a thousand public school teachers. He extended his Peace Corps stint to serve as Agricultural Information Officer for the Bicol Development Planning Board. These experiences started his romance with the Philippines and with agricultural development. He would later recall: "I learned from my own mistakes about the foolishness of self-sufficiency schemes and puzzled about the importance of extra-market forces such as investment interdependencies. There is nothing like realizing the limitations of your own understanding to motivate further study."

He then moved to Hawaii, receiving an MA from the University of Hawaii in 1969 and then on to Wisconsin for a PhD in 1973 (both in Economics). His dissertation "Risk and Choice of Techniques for Peasant Agriculture and the Case of Philippine Rice Farmers" won First place in the 1973 Omicron Delta Epsilon Society competition for best US PhD dissertation in Economics. This work was the basis of his influential book *Rice and Risk: Decision-Making among Low-Income Farmers in Theory and Practice*, in the North-Holland series Contributions to Economic Analysis, edited by Dale Jorgenson.

From 1972 to 1976, Jim taught Public Economics, Econometrics, and Uncertainty at the University of California, Davis. However, his Hawaii connections and the quasi-Asian culture beckoned. He returned home in 1976 and has been with the University of Hawaii ever since.

Jim took a leave of absence from 1978 to 1979 to direct the Agricultural Development Council program in the Philippines, where he started research programs in the New Institutional Economics and the analysis of agricultural policies with students and young faculty members at the University of the Philippines in Los Baños and Diliman. He continued this work in the early 1980s through Honolulu's East-West Center. This presented him an opportunity to bring in students, mostly from Asia, to work as research interns and at the same time study development economics. He would later refer to this decade as the "golden 80s." His students from this and later eras firmly established themselves in academe, government, and international organizations. Jim had and continues to have a knack for spotting excellent students. To date, he has supervised 27 students at the University of Hawaii (UH) and another nine students from other departments of UH and other universities. A number of these students are contributors to this volume.

This volume is a product of an almost decade-long conceptualization, planning, and coordination that started in 2005. The conference on "Risk, Resources, Governance and Development: Foundations of Public Policy" held at the Imin Conference Center in Honolulu, Hawaii on December 7–8, 2012, sealed the commitment of our colleagues to contribute to this effort. The conference discussions and the subsequent papers have shaped much of the form that this volume has taken. Each chapter focuses on a subject to which Jim has made major contributions and identifies possible directions for future academic and policy research.

We especially thank the chapter authors whose support and enthusiasm made this endeavor a success. Our appreciation also goes to the other conference speakers and session chairs James Wilen, Shankar Sharma, Nancy Lewis, Denise Konan, Inessa Love, Byron Gangnes, and John Lynham, whose focus and stimulating discussion advanced the conference objectives. We thank Keijiro Otsuka for readily accepting our request to write the foreword.

A huge thank you to the people and agencies that believed in this effort and provided financial support to this venture. We thank the US Agency for International Development (USAID), Philippines, through the Climate Change and Clean Energy Project for providing funding support to the conference and the production of this volume. Organizing the conference in 2012 was expensive and would not have been possible if not for the generosity of our sponsors—Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), University of Hawaii College of Social Sciences (UH-CSS), East-West Center (EWC), International Food Policy Research Institute (IFPRI), University of Hawaii Economic Research Organization (UHERO), University of Hawaii Economics Department (UH Econ), and the UPecon Foundation, Inc. Many thanks also to the following for facilitating the support of their respective agencies: Gil Saguiguit, Director of SEARCA; Denise Konan, Dean of CSS; Nancy Lewis, Director for Research at EWC; Mark Rosegrant, Director, Environment and Production Technology Division at IFPRI; Carl Bonham and Kimberly Burnett, Executive Director and Associate Specialist, respectively, at UHERO; Byron Gangnes, Chair of the Department of Economics at UH; and Ramon Clarete, Chair of the UPecon Foundation, Inc. Thanks also to chapter authors Marilou Uy and Suthad Sethboonsarng for generous support from their personal funds.

The conference and this volume took form due to the concerted effort of the people at the East-West Center, UH Department of Economics, and the UP School of Economics. Chasuta Anukoolthamchote from the Department of Economics at UH provided coordination and assisted in travel logistics for some of the invited speakers. Administration and conference logistics handled by EWC were very ably managed by Carolyn Eguchi, who was in turn assisted by Laura Moriyama. Christine Ablaza, Ma. Christina Epetia, and Rosemarie San Pascual from UPSE provided administration and research assistance during various stages of the project. Reuben Campos designed the conference website, Lily Tallafer provided preliminary editorial assistance, and Rowena Sancio's organizational skills and attention to detail were invaluable assets in bringing the chapters to Elsevier.

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