

Multifunctional Agriculture Ecology and Food Security International Perspectives

Please be aware that the actual replacement cost of this item (in the first 5 years of being purchased) will be in excess of \$200.

GLOBAL
AGRICULTURE
DEVELOPMENTS

J. Ram Pillarisetti · Roger Lawrey
Azman Ahmad

Editors



1000723317

NOVA

GLOBAL AGRICULTURE DEVELOPMENTS

Additional books in this series can be found on Nova's website under the Series tab.

Additional e-books in this series can be found on Nova's website under the e-book tab.

AGRICULTURE ISSUES AND POLICIES

Additional books in this series can be found on Nova's website under the Series tab.

Additional e-books in this series can be found on Nova's website under the e-book tab.

GLOBAL AGRICULTURE DEVELOPMENTS

**MULTIFUNCTIONAL AGRICULTURE,
ECOLOGY AND FOOD SECURITY
INTERNATIONAL PERSPECTIVES**

**J. RAM PILLARISSETTI
ROGER LAWREY
AND
AZMAN AHMAD
EDITORS**

 **nova**
publishers
New York

UNIVERSITY
OF
SOUTHERN
QUEENSLAND
LIBRARY

Copyright © 2013 by Nova Science Publishers, Inc.

All rights reserved. No part of this book may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, electrostatic, magnetic, tape, mechanical photocopying, recording or otherwise without the written permission of the Publisher.

For permission to use material from this book please contact us:
Telephone 631-231-7269; Fax 631-231-8175
Web Site: <http://www.novapublishers.com>

NOTICE TO THE READER

The Publisher has taken reasonable care in the preparation of this book, but makes no expressed or implied warranty of any kind and assumes no responsibility for any errors or omissions. No liability is assumed for incidental or consequential damages in connection with or arising out of information contained in this book. The Publisher shall not be liable for any special, consequential, or exemplary damages resulting, in whole or in part, from the readers' use of, or reliance upon, this material. Any parts of this book based on government reports are so indicated and copyright is claimed for those parts to the extent applicable to compilations of such works.

Independent verification should be sought for any data, advice or recommendations contained in this book. In addition, no responsibility is assumed by the publisher for any injury and/or damage to persons or property arising from any methods, products, instructions, ideas or otherwise contained in this publication.

This publication is designed to provide accurate and authoritative information with regard to the subject matter covered herein. It is sold with the clear understanding that the Publisher is not engaged in rendering legal or any other professional services. If legal or any other expert assistance is required, the services of a competent person should be sought. FROM A DECLARATION OF PARTICIPANTS JOINTLY ADOPTED BY A COMMITTEE OF THE AMERICAN BAR ASSOCIATION AND A COMMITTEE OF PUBLISHERS.

Additional color graphics may be available in the e-book version of this book.

Library of Congress Cataloging-in-Publication Data

Multifunctional agriculture, ecology and food security : international perspectives / editors: J. Ram Pillarisetti, Roger Lawrey and Azman Ahmad.

p. cm.

Includes index.

ISBN 978-1-62618-294-3 (hardcover)

1. Agriculture--Economic aspects. 2. Agriculture--Environmental aspects. 3. Sustainable agriculture. 4. Agriculture and state. I. Pillarisetti, J. Ram. II. Lawrey, Roger. III. Ahmad, Azman, 1969-

HD1433.M854 2013

338.1--dc23

2013007525

Published by Nova Science Publishers, Inc. † New York

CONTENTS

Preface		ix
About the Authors		xi
Introduction		xxi
Chapter 1	Multifunctional Agriculture and Wellbeing in Developing Nations <i>J. Ram Pillarisetti and Clement Tisdell</i>	1
Chapter 2	Economic Analysis of Consumer Behaviour and Agricultural Products Based on Biodiversity Conservation Value <i>Mitsuyasu Yabe, Takashi Hayashi and Bunei Nishimura</i>	21
Chapter 3	Multifunctional Agriculture in Indonesia: Agricultural Policy and Farming Systems <i>Siti Jahroh</i>	39
Chapter 4	Tropical Mountains Multifunctionality: Dendritic Appropriation of Rurality or Rhyzomic Community Resilience as Food Security Panacea <i>Fausto O. Sarmiento, Ricardo Russo and Brandilyn Gordon</i>	55
Chapter 5	Re-Defining the Rural-Urban Relationship Through Multifunctional Peri-Urban Agriculture: The Case of Native Maize Conservation in Mexico City <i>Tania Hernández-Cervantes and José-Antonio Serratos-Hernández</i>	69
Chapter 6	Youth Employment in Least Developed Countries: The Contribution of Sustainable Agriculture <i>Donald L. P. Lee</i>	87
Chapter 7	An Overview of Multifunctional Benefits in Relation to Small Scale Farming in China <i>Xin An-jing, Zuo Zhi, Yang Song and Kuang Rong-ping</i>	101

val system or
e, mechanical

o expressed or
missions. No
arising out of
any special,
ers' use of, or
e so indicated
ch works.

s contained in
nd/or damage
or otherwise

1 regard to the
ublisher is not
' other expert
ht. FROM A
TEE OF THE

editors: J. Ram

. Sustainable
r. III. Ahmad,

Chapter 8	The Multi-Functionality of Smallholder Farming: A Case of Ethiopia <i>Hailu Araya</i>	109
Chapter 9	Multifunctional Agriculture in Brunei Darussalam: The Prospect of Developing Agritourism as a Diversification Strategy <i>Azman Ahmad</i>	123
Chapter 10	Multifunctional Agriculture in Sudan: Indigenous Practices and Potential Environmental and Social Roles <i>Siddig El Tayeb Muneer</i>	137
Chapter 11	Agriculture, Indigenous Knowledge and Rural Livelihoods in Tanzania <i>Evelyne A. Lazaro</i>	149
Chapter 12	Multifunctional Aquaculture in Brunei Darussalam: Potential and Policy Options <i>Rafidzah Sulaiman and Roger Lawrey</i>	161
Chapter 13	Albanian Agriculture: Analyzing the Past to Decide for the Future <i>Endrit Kullaj and Majlinda Çakalli</i>	183
Chapter 14	Biological Control Agents for Crop Protection and Sustainability of Agro-Ecosystems in Kyrgyzstan <i>Tinatin Doolotkeldieva</i>	197
Chapter 15	Multifunctional Agriculture in Sri Lanka <i>J. M. R. Sarath Bandara</i>	209
Chapter 16	Priorities and Capacity of Food Policy in Mongolia: The Dilemma Between Ambitions and Reality <i>Erdenebolor Baast and Elske van de Fliert</i>	225
Chapter 17	Encouraging Youth Participation in Agriculture: The Case of Brunei Darussalam <i>D. H. Norulazidah P. H. Omar Alli and Haji Suhaimi Haji Ali</i>	245
Chapter 18	Sustainable Agriculture and Food Security of Bangladesh – Issues and Recommendations <i>Shaikh Tanveer Hossain</i>	257
Chapter 19	Multifunctional and Organic Agriculture: Trade and Development Perspectives <i>Sophia Twarog</i>	269
Chapter 20	Potentials of Organic Farming in Sustaining a Rich Biodiversity and Best Conservation Practices: Opportunities for Africa <i>Olugbenga O. AdeOluwa</i>	279

109	<p>Chapter 21 Multifunctionality of Organic Agriculture in Romania <i>Maria Toader, Gheorghe Valentin Roman, Lenuta Iuliana Epure and Viorel Ion</i></p>	295
123	<p>Chapter 22 Multifunctional Agriculture, Food Security and Poverty Reduction in India: The Case of Organic Agriculture <i>Gangaiah Bollempalli</i></p>	315
137	<p>Chapter 23 Sustainable Agriculture, Food Security and Social Wellbeing: The Cuba Model <i>Francisco Dueñas Hurtado</i></p>	331
149	<p>Index</p>	343

PREFACE

The editors have been deeply interested and engaged in research in environmental and development issues for many years. The idea for this book came from the editors' research and consulting on multifunctional agriculture issues. We have noticed that the international research being conducted on the multifunctional aspects of agriculture and their links to an ecologically sustainable approach to agriculture is predominantly focused on advanced economies. Research on developing country experiences on multifunctional agriculture is either limited, focused on very few countries, or is not widely disseminated. This made us realise how important it is to disseminate knowledge and information about the potential benefits of multifunctional agriculture in developing countries, which may include poverty alleviation, food security and sustainability, flood mitigation, carbon sequestration, and the preservation of biodiversity, cultural heritage and indigenous knowledge.

We invited contributions from academics, researchers and senior civil servants with first-hand experience of the subject. Our aim was to have contributions that reflect the varied nature of multifunctional agriculture in different parts of the world. The book includes chapters related to developing and emerging economies in different geographical regions. Japan is the only advanced economy included as research on consumer attitudes towards biodiversity in Japan, a pioneer of multifunctional agriculture in Asia, is highly relevant for developing countries.

The themes are diverse and include indigenous knowledge, biodiversity, organic agriculture, food security, small-holder farming, youth in sustainable agriculture, agritourism and others. Editing such a diverse collection of papers enhanced our perception of different country experiences. We believe that the comprehensive nature of the book will stimulate further interest in readers on development, wellbeing and sustainability related to agriculture. This book can be considered as a scholarly reference work for libraries and researchers across the world.

We are grateful to the distinguished international researchers who passionately espoused the importance of multifunctional and sustainable agriculture to solve the myriad problems of the current unsustainable and environmentally and socio-economically destructive agricultural systems. Their works inspired us in the undertaking and preparation of the book. We also thank colleagues and students who shared our enthusiasm and contributed to useful discussions. A special thanks to Noratikah Hazwani Awang Kharin for her dedication and invaluable assistance in editing and formatting the chapters. Thanks are also due to our families for their encouragement, and to the Faculty of Business, Economics and Policy Studies at Universiti Brunei Darussalam for financial assistance.

sequestration in forestry and agroforestry systems. He has been active in Costa Rican national organizations, and has been a member of the National Forestry Research Commission and the National Agroforestry Commission. He currently serves on the Board of Directors of the National Association of Agricultural and Forestry Extensionists (ANEAF) and the Committee on Accreditation for Validation/Verification Bodies for Greenhouse Gases, of the Costa Rican Accreditation Entity (ECA).

Roger Lawrey PhD (Queensland) is Professor and Head of School (Accounting, Economics and Finance) at the University of Southern Queensland, Australia. Prior to this he spent many years in the Faculty of Business, Economics and Policy Studies at Universiti Brunei Darussalam (UBD). He is an economist with interests in applied microeconomics including energy and resource economics, public utility pricing, the development of small states, and managerial economics. He has published three books and many articles in internationally refereed journals and has extensive experience including membership of the University Senate and Council at UBD. His experience in the field spans more than 25 years, and he has worked in industry, consultancy and/or academia in the United Kingdom, Canada, Australia and Brunei.

Shaikh Tanveer Hossain, Dr., is a Sustainable Agriculture Advisor of Livelihood Enhancement Program (funded by The Netherlands) in Friends In Village Development Bangladesh (FIVDB), Bangladesh and Visiting Scientist of Laboratory of Crop Science, Faculty of Agriculture, Ehime University, Japan. Earlier he was a scientist of the Bangladesh Rice Research Institute (BRRI). He is pioneer of integrated rice-duck farming technology and organic vegetable production in sack method in Bangladesh. Dr. Hossain was awarded the grand prize of Organic Farming Innovation Award (OFIA) from the International Federation of Organic Agriculture Movements (IFOAM) and Rural Development Administration (RDA), South Korea at the 17th IFOAM Organic World Congress on September 30, 2011 in Gyeonggi Province, Republic of Korea. He was also awarded the Weed Science Award from the Weed Science Society of Bangladesh in 2011. More than 50 scientific papers of Dr. Hossain have been published in international and national scientific journals and proceedings of international conferences. Dr. Tanveer holds a Ph.D. in Agriculture from United Graduate School of Agricultural Sciences, Ehime University, Japan.

Siddig El Tayeb Muneer earned a B.Sc. in Agricultural Economics in 1981 from University of Khartoum (Sudan). He was awarded an M.Sc. in Rural Sociology in 1986 and Ph.D. in Rural Sociology (with a minor in economics) in 1989 from Iowa State University, USA. He served as Professor of Rural Sociology and Rural Development and Head of the Department of Agricultural Extension and Rural Development, University of Khartoum, Sudan (1990 – 2000). Since 2000 he has been working as Professor of Rural Sociology and Rural Development at the Department of Agricultural Extension and Rural Sociology, King Saud University, Saudi Arabia. He has also worked as a rural development expert and socio-economist for UNDP, FAO, World Bank, UNICEF and several national and international NGOs.

Siti Jahroh is a lecturer in the Department of Agribusiness, Faculty of Economics and Management, Bogor Agricultural University, Indonesia. She was born in Lampung, on 26 November 1977. She received her Master and Ph.D. degrees in International Bio-Business Studies in 2004 and 2007, respectively, from the Graduate School of Agriculture, Tokyo University of Agriculture, Japan. She also graduated from the same university for her Bachelor's degree in International Agriculture and Food Studies in 2002. She was active in