

Climate Change in Asia and the Pacific

How Can Countries Adapt?

Edited by

Venkatachalam Anbumozhi

Meinhard Breiling

Selvarajah Pathmarajah

Vangimalla R. Reddy



www.sagepublications.com
Los Angeles • London • New Delhi • Singapore • Washington DC

Copyright © Asian Development Bank Institute, 2012

All rights reserved. No part of this book may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage or retrieval system, without permission in writing from the publisher.

First published in 2012 by



SAGE Publications India Pvt Ltd
B 1/I-1, Mohan Cooperative Industrial Area
Mathura Road, New Delhi 110044, India
www.sagepub.in



SAGE Publications Inc
2455 Teller Road
Thousand Oaks, California 91320, USA

SAGE Publications Ltd
1 Oliver's Yard, 55 City Road
London EC1Y 1SP, United Kingdom

SAGE Publications Asia-Pacific Pte Ltd
33 Pekin Street
#02-01 Far East Square
Singapore 048763

Published by Vivek Mehra for SAGE Publications India Pvt Ltd, typeset in 10/13pt Minion Pro by Star Compugraphics Private Limited, Delhi and printed at Chaman Enterprises, New Delhi.

Library of Congress Cataloging-in-Publication Data

ISBN: 978-81-321-0894-8

The SAGE Team: Sharel Simon, Arpita Dasgupta

Contents

<i>List of Tables</i>	ix
<i>List of Figures</i>	xi
<i>List of Abbreviations</i>	xv
<i>Preface</i>	xxi
<i>Acknowledgments</i>	xxiii

Introduction	1
<i>Worapot Manupipatpong and Venkatachalam Anbumozhi</i>	

PART I

Climate Change Challenges, Scenarios, Risks, and Planning Tools

1. Review of the Economics of Climate Change on Southeast Asia	9
<i>Tae Yong Jung</i>	
2. Agricultural Impact of Climate Change: A General Equilibrium Analysis with Special Reference to Southeast Asia	17
<i>Fan Zhai and Juzhong Zhuang</i>	
3. Monitoring the Vulnerability and Need for Adaptation Planning for Food Security	36
<i>Vangimalla R. Reddy, David H. Fleisher, Dennis J. Timlin, Venkatachalam Anbumozhi, K. Raja Reddy, and Yang Yang</i>	
4. Monitoring the Vulnerability and Need for Adaptation Planning for Food Security	47
<i>Venkatachalam Anbumozhi</i>	

PART II

Evolving Adaptation Measures in the Region

5. Valuing Natural Resource Management: Climate Change Adaptation in the European Union	69
<i>Meinhard Breiling</i>	
6. Monitoring the Vulnerability and Adaptation Planning for Water Security	80
<i>Zhijun Chen</i>	

7. Water Management Practices and Climate Change Adaptation: South Asian Experiences <i>Selvarajah Pathmarajah</i>	104
8. Adaptation Measures for Climate Change in Japan <i>Toshio Okazumi and Eiji Otsuki</i>	125
9. Climate Change Impacts on the Mekong River Delta <i>Shigeko Haruyama</i>	130
10. Integrated Approach to Climate Change Impact Assessment on Agricultural Production Systems <i>Tsugihiko Watanabe</i>	138
11. Adaptation in Urban Settings: Asian Experiences <i>Jostacio M. Lapitan</i>	157

PART III

Successful Programs and Measures of Adaptation in Vulnerable Areas

12. Flood Disasters and Warning Systems in Northern Thailand <i>Thada Sukhapunnapan and Taikan Oki</i>	173
13. Integrated Flood Analysis System: An Efficient Tool to Implement Flood Forecasting and Warning Systems <i>Kazuhiko Fukami, Tomonobu Sugiura, Seishi Nabesaka, Go Ozawa, Jun Magome, and Takahiro Kawakami</i>	180
14. Effectiveness of Early Warning Systems and Monitoring Tools in the Mekong Basin <i>Guillaume Lacombe, Chu Thai Hoanh, and Thierry Valéro</i>	198
15. Insurance Solutions to Climate Change in Asia and the Pacific <i>Yuri Murayama, Harumi Yashiro, and Hideki Kimura</i>	208
16. Community Based Approaches to Climate Change Adaptation: Lessons and Findings <i>Masanori Kobayashi and Ikuyo Kikusawa</i>	219
17. Learning to Adapt: Case of Gender Alliance in Japan <i>Midori Aoyagi</i>	232
18. Structural and Nonstructural Adaptation Measures of Climate Change in India <i>Agastin Baulraj</i>	237

PART IV**Action Plan for Policymakers and Planners to Reduce Risk Impact**

- | | |
|--|-----|
| 19. Adapting to Climate Change: Developing Local Capacity
<i>Srikantha Herath</i> | 255 |
| 20. Financing Adaptation Responses: Disaster Mitigation in Viet Nam
<i>Bui Duong Nghieu</i> | 264 |
| 21. Economic Analysis of Climate Change Impacts on Agriculture
at Farm Level
<i>Kuppannan Palanisami, Coimbatore Ramarao Ranganathan,
Samiappan Senthilnathan, and Sevi Govindaraj</i> | 278 |
| 22. Supporting Climate Action Plans: The Role of the Adaptation
Knowledge Platform
<i>Serena Fortuna</i> | 289 |

PART V**Capacity Building Strategies for Mainstreaming Climate Change
Adaptation**

- | | |
|---|-----|
| 23. Enhancing the Adaptive Capacity in the Asia and Pacific Region:
Opportunities for Innovation and Experimentation
<i>Venkatachalam Anbumozhi</i> | 297 |
| 24. Current Status of Adaptation Planning in the Region
<i>Tomonori Sudo</i> | 322 |
| 25. Mainstreaming Climate Change Adaptation into Development Planning
<i>Youssef Nassef</i> | 330 |
| Conclusions, Policy Implications, and the Way Forward
<i>Robert Dobias, Venkatachalam Anbumozhi, Vangimalla R. Reddy,
and Meinhard Breiling</i> | 340 |

- | | |
|---|-----|
| <i>Glossary</i> | 351 |
| <i>About the Editors and Contributors</i> | 353 |
| <i>Index</i> | 00 |