

Climate Change Policies and Challenges in Indonesia

Shinji Kaneko • Masato Kawanishi
Editors

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 Springer

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ISBN 978-4-431-55992-4

ISBN 978-4-431-55994-8 (eBook)

DOI 10.1007/978-4-431-55994-8

Library of Congress Control Number: 2016933343

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Printed on acid-free paper

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Foreword

Recognizing climate change as one of the biggest threats we face, the Government of Indonesia has made several important contributions to addressing this issue. In 2007, we hosted the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change in Bali. In 2009, the government announced a voluntary commitment to reduce its greenhouse gas emissions by 26 % below a business-as-usual scenario by 2020 using domestic resources and up to 41 % with international support. This was followed by the formulation and implementation of national and regional mitigation action plans. Indonesia is also accelerating adaptation efforts, as it is vulnerable to the impacts of climate change, such as the sea level rise and a change in the rainfall pattern. In this regard, the national adaptation action plan was officially launched in 2014. The Ministry of National Development Planning/National Development Planning Agency (BAPPENAS) has been coordinating with relevant line ministries and local governments for the implementation of these planned actions. We have integrated climate change mitigation and adaptation into the Medium-Term Development Plan. The Japan International Cooperation Agency (JICA) under the Project of “Capacity Development for Climate Change Strategies in Indonesia” has supported the mainstreaming process.

As part of the climate change mitigation and adaptation implementation plan, Indonesia recognizes the importance of human capacity. Therefore, human resource development is one of the important components of the above project, under which some young officials from Indonesia had opportunities to study at Hiroshima University, Japan. Contributions were made to this publication by those officials and professors at the university as well as experts of JICA, among others. The chapters in this publication present recent developments on climate change policy in Indonesia. The book also provides a collection of chapters that address the complexity of the relationship between climate and development policies in a range of sectors in Indonesia.

I would like to convey our gratitude to Professor Shinji Kaneko at the Graduate School for International Development and Cooperation of Hiroshima University, who has guided our young officials in completing their research works. Our sincere

appreciation is also extended to Professor Akimasa Fujiwara, the Dean of the Graduate School. I wish to convey our many thanks to JICA. I hope that this book will contribute to better understanding and further discussion of the complex issues of climate and development.

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Endah Murniningtyas

Preface

Background and Objective of the Book

The relationship between climate change and sustainable development has been a long-standing issue among researchers and practitioners. It was also considered at the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC). The climate and development nexus is complex. While development policy regulates carbon emission paths, the resulting change in climate constrains possible development paths. While climate change mitigation and adaptation actions can alleviate negative effects on development, many of the determinants for the mitigative and adaptive capacities are shaped by the level of development. As capacities for effective climate actions have strong overlap with those for sustainable development, synergies and co-benefits exist between the two. There are potential trade-offs, however, since some climate responses may draw resources away from other developmental priorities, impose limitations on growth, or have adverse distributional effects. While the above findings are based on a high level of consensus among researchers, the latest IPCC report indicates that “the amount of supporting evidence is relatively limited as so many aspects of sustainable development and climate change mitigation and adaptation have yet to be experienced and studied empirically.” Against this backdrop, this book provides empirical studies on the links between climate actions and development, using Indonesia as a case.

Indonesia has the second largest forest area in the world. It is one of the fastest-growing economies as well. According to the World Development Indicators, the population more than doubled and the real gross domestic product (GDP) increased by more than ten times during the period from 1965 to 2005. With a population of 240 million in 2010, Indonesia is the world’s fourth most populous country after China, India, and the United States, and ranked at 16th in the world in terms of GDP. With this growth and scale, it also has become widely recognized as one of the largest greenhouse gas (GHG) emitters in the world. On the occasion of the G20 meeting in Pittsburgh (USA) in September 2009, the then Indonesian president announced a voluntary commitment to reduce its GHG emissions by 26 % by the

year 2020 compared with the business-as-usual (BAU) level through its own national efforts and 41 % with international support. To follow this announcement, the National Action Plan for GHG Emission Reduction (*Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca*; RAN-GRK) was issued as Presidential Regulation number 61/2011 in September 2011 to provide a policy framework. In addition, Presidential Regulation number 71/2011 was issued for the purpose of regulating regular submission of national GHG inventory (Chap. 2, this volume).

Indonesia is also prone to the impacts of climate variability and change. According to the latest National Communication of Indonesia, a substantial increase in temperatures, as well as a significant change in the volume and pattern of rainfall, has been observed across the country, and a number of climate models agree that these trends are projected to continue or even accelerate in the future. In response, the National Action Plan for Climate Change Adaptation (*Rencana Aksi Nasional untuk Adaptasi Perubahan Iklim*, RAN-API) was developed and officially launched in February 2014 with the aim of providing directions for mainstreaming climate change adaptation into national, local, and sectoral development planning (Chap. 4, this volume).

Indonesia has thus been making efforts to reconcile sustainable development and climate change policy. In this process, trade-offs as well as synergies between the two have been faced. Forest areas are where such conflicts are visible, with competing interests of oil palm plantations, mineral development, forest conservation, and the welfare of those who live there, among others (Chaps. 5 and 6, this volume). Energy subsidy is another example of controversy, with a potential to substantially and simultaneously affect the carbon emission paths, economic growth, and distribution between the rich and the poor (Chap. 7, this volume). This book compiles empirical studies on these and other similarly contentious issues, based on the experiences in Indonesia, as one of the most proactive on climate policy among developing countries. While it is mainly intended for practitioners, the editors hope that it will be also useful for researchers and students.

The plan to publish this book originated from the collaboration between Hiroshima University and the project “Capacity Development for Climate Change Strategies in Indonesia” of the Japan International Cooperation Agency (JICA). This project has been in operation since October 2010 to support the government of Indonesia in enhancing its capacity to tackle climate change. Under the project, some officials of the Indonesian government were provided with opportunities to study at Japanese universities, including Hiroshima University. Contributions to this book were made by those who received funding to study at the university, as well as JICA experts of the Project and other researchers in and outside Indonesia.

At the time of this writing, the new administration under President Joko Widodo has been established, with a mixture of continuity and change in policies relating to climate and development. The new president launched the National Mid-term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional*, RPJMN) for 2015–2019, which retained both RAN-GRK and RAN-API. In the meantime, he issued a regulation concerning the merger of two formerly separate

ministries to form the Ministry of Environment and Forestry. At the same time, he ordered the integration of the duties and functions of the REDD+ Agency and the National Council on Climate Change, both of which had been established under the previous administration, into the newly formed ministry. These recent institutional changes have not yet been reflected in some of the following chapters. Reconciliation of sustainable development and climate policy, however, will continue to be a challenge in Indonesia, and this is also the case for many other countries.

Outline of the Book

This book consists of two parts. Part I, from Chaps. 1, 2, 3 and 4, provides an introduction to climate change policies and institutions in Indonesia. While Chap. 1 reviews the economic development and carbon emission path in Indonesia, Chaps. 2, 3 and 4 address the climate change mitigation and adaptation policies. Kaneko (Chap. 1) provides an overview of the economic growth and trade, energy supply and demand, deforestation, and GHG emissions in Indonesia since 1990. The author employs a preliminary decomposition analysis of the energy-related CO₂ emissions over the last 40 years with data from the International Energy Agency (IEA).

Morizane, Enoki, Hase, and Setiawan (Chap. 2) introduce climate change mitigation policies and institutions in Indonesia. This chapter is descriptive in nature, but it has a comprehensive coverage of the relevant topics, such as GHG emissions status and trends; RAN-GRK and other mitigation-related initiatives, including those related to “reducing emissions from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks (REDD+)”; institutional arrangements; and international cooperation, and funding mechanisms, including the Joint Crediting Mechanism (JCM).

Based on the results of a field survey, Ueda and Matsuoka (Chap. 3) demonstrate the scale of apparent changes in emission figures which may result from pure methodological improvement for GHG inventory preparation, not from actual mitigation actions. The implication of the apparent changes on policy formulation and evaluation is also discussed. The difficulty in establishing appropriate data and its policy implication is also addressed in Chap. 9.

Consideration of the monitoring and evaluation of climate change adaptation has expanded significantly in recent years among both researchers and practitioners. In Chap. 4, Kawanishi, Preston, and Ridwan evaluate national adaptation planning, using RAN-API as a case. The criteria and scoring system, developed by prior research, are applied to evaluate RAN-API, both as identified in its document and as viewed by stakeholders. A desktop review and questionnaires were undertaken to this end. This chapter also provides an overview of the climate variability, change, and impacts in Indonesia.

Part II is a collection of chapters that address climate change sectoral challenges. Chapters 5, 6, 7, 8, 9, 10, 11 and 12 address sectoral mitigation actions in Indonesia, analyzing their synergies and conflicts with development in Indonesia. The sectors were selected on the basis of their significance in the national economy and GHG emissions. Chapters 13 and 14, on the other hand, address climate impacts on rice production and response measures in Indonesia. Rice, the staple food of the country, is chosen because of its significance in national food security and rural development.

Chapters 5 and 6 address forestry and peatland, the largest sources of carbon emissions in Indonesia. In Chap. 5, Indarto analyzes the relationship between forest concessions and deforestation. After examining the role of various types of forest concessions, the author reveals that some types of concessions significantly contribute to deforestation. Quantitative analyses with official data at the provincial level are employed. With this result, the chapter discusses some implications on the current forest moratorium policy and proposes alternative ways to issue forest concessions, such as auction.

Yamamoto and Takeuchi (Chap. 6) discuss prevention of peatland fire as a part of REDD+. With Central Kalimantan as a study location, where peatland fire significantly contributes to the release of large amounts of carbon, the authors find that economic factors, such as the value of labor allocation for rubber production, and non-economic factors, such as traditional mutual assistance, can promote fire prevention, suggesting the necessity of a combination of economic and non-economic incentives for the effective implementation of REDD+.

The following two chapters address the energy issue. With a growing economy and increasing population, Indonesia has become a significant energy user as well as a net importer of oil. The oil subsidy, which accounts for one-fifth of the fiscal expenditure of the government, has been the source of a long-running controversy with high political stakes. In Chap. 7, Luthfi and Kaneko analyze the net impacts of international oil prices on the macro-economy of the country. The authors also assess the effects of the removal of the oil subsidy as climate change mitigation.

“Integrated Indonesian Energy and Environment Modeling” has been conducted by the Indonesian Institute for Energy Economics (IIEE) to support BAPPENAS in the formulation of the National Mid-term Development Plan for 2015–2019. In Chap. 8, Siahaan, Fitri, and Batih introduce the modeling results with particular attention to the energy mix in the power sector and its associated GHG emissions.

Armundito and Kaneko (Chap. 9) discuss environmental productivities and carbon abatement costs of manufacturing sectors. The chapter provides a review of the changes over the last 20 years in energy efficiency and carbon intensity of the manufacturing sector, and discusses the marginal abatement cost of CO₂ emissions. With firm-level data, the authors discuss the possible financial burdens for firms in different sectors in case carbon regulations are introduced.

In Chap. 10, Ghozali and Kaneko cover consumer behavior and eco-labeling. The chapter examines air conditioners, one of the fastest-growing home appliances in the market, which consume large amounts of electricity, without energy efficiency-labeling available yet. With data from an interview survey on consumer

preferences in greater Jakarta, the chapter analyzes possible purchasing behavior changes of urban consumers in response to a hypothetical case where an authorized energy efficiency-labeling scheme is introduced.

The transport sector is the focus of Chap. 11. Mass Rapid Transit (MRT), under construction in Jakarta, is expected to mitigate traffic congestion and the associated GHG emissions. Using a consumer survey, Maimunah and Kaneko discuss the climate change mitigation effect of a possible modal shift from passenger vehicles and motorcycles to MRT and compare it with the potential impacts of other policies, such as road pricing under the Ministry of Transportation, fuel pricing under the Ministry of Energy and Mineral Resources, and tax reduction for compact cars under the Ministry of Industry.

The utilization of waste-to-energy (WTE) technologies is a long-standing strategy in developed countries in achieving the simultaneous objectives of sustainable waste management, reduction of GHG emissions, and development of energy from renewable sources. Previous studies, however, have dismissed such solutions for developing countries because of high costs, unsuitable wastes and climate, and inadequate human resources. New WTE technologies were developed that better fit tropical environments and waste with greater moisture and organic content. In Chap. 12, Johnson evaluates the feasibility of these adapted WTE projects and presents an accounting of the economic and environmental costs and benefits, using Bekasi municipality near Jakarta as a study location.

Chapters 13 and 14 shift their attention to climate impacts and responses in rice production in Indonesia. Anggarendra, Guritno, and Singh (Chap. 13) describe the “Integrated Cropping Calendar System (KATAM)” as a tool to provide climate information to farmers. In reference to the previous studies which indicate a capacity of information intermediaries and the extent of interaction as the factors that affect the use of climate information, this chapter also describes the status of agricultural extension workers and the “Climate Field School” as the government initiative to promote two-way communication.

Insurance is stipulated in Article 4.8 of the UNFCCC as one of the necessary actions “to meet specific needs and concerns of the developing country parties arising from the adverse effects of climate change.” In recent years, increasing importance has been attached to risk management and insurance in international negotiations on climate change adaptation. In Chap. 14, Pasaribu and Sudiyanto present opportunities and challenges of crop insurance as one of the risk management instruments for rice farmers under a changing climate, based on the lessons learned from the pilot insurance provided by the government of Indonesia.

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