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Preface

This book, entitled "Toward Sustainable Agriculture of Rice in Asia: Economic Challenges and Policy Implications," is a record of the Asia-Japan Research Institute International Workshop held on July 14, 2022, which took place online amid pandemics. This workshop brought a number of young researchers together in an international scientific exchange with a focus on Asian rice production, innovations, and climate change adaptation toward sustainable agriculture.

Rice is the staple food for more than half of humanity — with 90% of the world's crop grown and consumed in Asia. It sustains lives and livelihoods. How the current level of annual production could be increased to meet the demand for rice — which is expected to grow faster than the production in most countries — in an environmentally and economically sustainable way is a challenging question.

The increasing scarcity of natural resources, environmental degradation, and ecosystem loss have already begun to limit the expansion of food production. More specifically, climate change affects agriculture and food systems adversely due to irregular weather patterns, droughts, floods, and natural disasters. Climate change and its impacts are becoming more severe, devastating rice farms and rural livelihoods, especially in Asia. Hence, it poses significant challenges to global food security and safety. On the other hand, recently, agriculture has been found to be an increasing contributor to greenhouse gas (GHG) emissions which may exacerbate global warming. Ten percent of global methane emissions come from rice production. Hence, strategic policies to mitigate food safety risks while minimizing environmental impacts in the era of climate change have become more important.

The good news is that sustainable agriculture can be a solution

for climate change adaptation and mitigation, ensuring food security, and improving rural livelihoods and climate resilience. It is crucial for Asian countries, as the major rice producers, to develop sustainable agriculture. Sustainability is now widely accepted as a guiding concept and goal for our low-carbon economies, agriculture, and the food system. Some approaches are in practice already but conditions are still challenging.

This book gives an insight into the current economic and policy challenges for rice in the era of climate change and towards sustainable agriculture with case studies in China, Japan, India, Thailand, Indonesia, and Vietnam. In the first chapter, Dr. Qi Dong compares the differences in rice production and cost efficiency between China and Japan. In Chapter 2, Dr. Phuc Trong Ho introduces the benefits of high-quality rice varieties in the Mekong Delta of Vietnam, and in Chapter 3, Dr. Orawan Srisompun describes how drought affects Thai rice farmers and their adaptations. In Chapter 4, Dr. Thanh Tam Ho introduces rice production towards sustainable agriculture, an economic and policy challenge in Vietnam and Japan. Dr. Mohammad Rondhi, Suci Virgianti Diani, and Rizky Yanuarti introduce the effects of risk preferences and perceptions on Indonesian farmer participation in farm insurance in Chapter 5, and Dr. Melanie Connor shows the roadmap from science to policy for sustainable rice production in Southeast Asian countries, with a focus on Vietnam, in Chapter 6. The Concluding Chapter is a summary of the discussion on economic and policy challenges in developing Asia rice production. It is my hope that these chapters will provide meaningful suggestions for promoting sustainable agriculture and economic development in Asia.

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Thanh Tam HO

Dr. Thanh Tam HO

Chapter 4. Rice Production for Sustainable Agriculture: Case Studies in Vietnam and Japan

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