

BOOK REVIEW

East Asian Low-Carbon Community: Realizing a Sustainable Decarbonized Society from Technology and Social Systems

**Edited by Weisheng Zhou, Xuepeng Qian, Ken'ichi Nakagami,
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This book is the first systematic and ambitious attempt to systematize environmental and economic policy achievements to make a case for an East Asian Low Carbon Community. It provides a substantive analysis of principles, approaches, and best practices in low-carbon policy and highlights significant advances in today's interdisciplinary methodological development. The book provides quantitative evidence on the effectiveness of an East Asian low-carbon community using policy engineering studies and scenario design. The book is highly regarded since it provides a new roadmap for realizing a transnational decarbonized society.

The book is organized as follows: Part 1: Concept and Framework of the East Asian Low-Carbon Community, Part 2: Urban-Rural Linkages for Low-Carbon Community, Part 3: Realizing a Low Carbon Community through Technological Innovation for Low-Carbon Community, and Part 4: Social Innovation for Low-Carbon Community.

The book consists of 20 chapters, with contributions from 20 authors. Reflecting the interdisciplinary nature of this book, the authors' areas of expertise are truly diverse. The professional contributions of each are ably synthesized by the three editors.

The book introduces various low-carbon society principles, from local to global, in combination with best practices in technological development and social innovation, providing new perspectives on climate change and environmental sustainability and international cooperation and peacebuilding in East Asia.

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The report of Working Group III of the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)¹ reveals that the sequential expansion of policies and laws addressing mitigation worldwide to date has resulted in avoiding greenhouse gas emissions that would have occurred in their absence. However, the March 2022 UNFCCC Global Stocktake Synthesis Report² shows that even if the current targets set by Nationally Determined Contributions (NDCs) under the Paris Agreement are achieved, they will lead to a 13.6% increase in emissions in 2030 compared to 2010 levels and will not help limit global warming to 1.5°C. There is a serious gap between the goals of NDCs and the goal of limiting global warming to 1.5°C. There is also an implementation gap between the NDC goals and the expected outcomes from existing policies. To limit global warming to 1.5°C, there is a growing urgency for action to peak global greenhouse gas emissions between 2020 and 2025, reducing them by about 43% by 2030 and 84% by 2050 relative to 2019 levels globally. As part of this emissions reduction plan, global carbon dioxide emissions must be reduced by about 48% by 2030 and 80% by 2040 relative to 2019 levels, bringing global carbon dioxide emissions to net zero by the early 2050s. Immediate action must be taken to achieve this.

Together, the three countries, China, Japan, and Korea, account for about 30% of the world's primary energy consumption and CO₂ emissions. All three countries declared a "5060" goal (net zero greenhouse gas emissions in 2050 or 2060). However, about 90% of carbon emissions come from energy sources, and the key to achieving a decarbonized society lies in trends in coal use, especially as a base-load power source, trends in expanding renewable energy, the future of nuclear power generation, and the introduction of international cooperation frameworks and policy innovations.

East Asia, led by China, Japan, and Korea, faces three challenges simultaneously: economic development, prevention of environmental pollution, and transition to a decarbonized society. A so-called "green recovery" (a method of dealing with the economic recession caused by COVID-19 that seeks to revive the economy through climate protection and other environmentally friendly investments) is required to cope with the "crisis" of the COVID-19 and to create a more resilient society that can simultaneously address these challenges. To achieve a decarbonized society by 2050, the realization of an East Asian decarbonization community, with China, Japan, and South Korea as the main players, should be considered a viable policy option.

Achieving a low-carbon society is a common goal among developed and developing countries. It is essential to tackle this issue to ensure a sustainable decarbonized society. To solve this global problem, local efforts coordinated at a national level are indispensable. The realization of a wide-area low-carbon society through cross-border multilateral cooperation and policy integration is also required. Realization of a wide-area low-carbon society that transcends national borders will create a sustainable and vibrant international society in harmony with economic development, pollution control, and society, where measures are taken to mitigate and adapt to global climate change. The authors present an analysis of the characteristics of the concept of the East Asian Low-Carbon Community and

¹ <https://www.ipcc.ch/report/sixth-assessment-report-working-group-3>

² <https://unfccc.int/topics/global-stocktake/global-stocktake>

its multilayered structure centered on Japan, China, and South Korea.

To limit the increase in global temperatures to below 1.5 °C, as outlined in the Paris Agreement, measures to reduce carbon emissions from large emitters in East Asia, namely China, Japan, and South Korea, have attracted global attention. Differences among the three countries in terms of the environment, economy, and energy mean that each is at a different stage of emission reduction. In building their emission reduction strategies, the environmental, economic, and energy characteristics in China, Japan, and South Korea have to be taken into account. While China is simultaneously grappling with poverty eradication and environmental protection, and responding to climate change, Japan and South Korea are combating climate change with leading technologies and high levels of energy efficiency. Although there are many differences between the three countries, all advocate realizing low-carbon societies and achieving sustainable development. Moreover, ensuring energy security, developing low-carbon technologies, cultivating low-carbon industries, and adapting to climate change are challenges faced by all three countries. The authors analyzed the targets and countermeasures of the three countries in their Intended Nationally Determined Contributions (INDC) under the Paris Agreement. In the process of achieving emission reduction targets, the respective efforts of each country are indispensable and contribute to international cooperation.

According to the scientific findings of the IPCC Sixth Assessment Report (AR6, Physical Science Basis)³, the internationally agreed threshold of 1.5°C is dangerously close and warns the world of the urgent need to move "faster, stronger, and higher" in addressing global warming.

Therefore, this book positions carbon neutrality as a strategic issue common to East Asia. It discusses it theoretically and empirically, relying on interactions among actors of different dimensions to converge on an optimal solution that can be realized through green recovery. The book also discusses social and technological innovations to realize a broad-based low-carbon society, the best mix of energy, and the simultaneous reduction of pollutants such as SO_x and NO_x. The realization of green recovery itself is considered to contribute greatly to the realization of the East Asian carbon neutrality goal.

In conclusion, this book presents a new vision of regional de-carbonization strategy with concrete scheme design and substantial quantitative demonstration from original interdisciplinary studies. It provides a new horizon for climate change and environmental conservation, as well as international cooperation and peacebuilding in East Asia.

³ <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i>