

◆ 書 評 ◆

*Governing Low-Carbon Development and the Economy*

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1 Introduction and Overview

How can market-based climate and energy policy be integrated in a sustainable way by multi-level governance? This is the major question raised in this timely book, which appeared in a five volume series originating from a perennial research project on “Multilevel Environmental Governance for Sustainable Development” in Japan. Facing the necessities of, on the one hand, finding a convincing political answer to rapidly progressing global warming and, on the other hand, rethinking the current energy system after the 2011 Fukushima disaster, the distinguished authors of this interdisciplinary book are convinced that a long-term sustainable low-carbon development can only be achieved by simultaneously phasing out nuclear energy and reducing greenhouse gas (GHG) emissions to a level consistent with the 2° C target. In order to reach these goals without detrimental effects on the economy, the authors think an integrated policy mix based on market-based instruments (MBI) indispensable. By applying a variety of methods ranging from qualitative, descriptive case studies to sophisticated, quantitative economic models, the authors convincingly support their view by theoretical arguments as well as empirical evidence from the supra-national, national, and local levels with a special focus on Japan.

2 Contents and Evaluation

2.1 Energy Transformation and Climate Policy

Until March 2011, Japan had assumed that nuclear energy could contribute to a both environmentally effective and economically efficient climate policy. But Oshima (Ch. 13) proves that the actual costs of nuclear energy are highest amongst all power sources if the full costs of electricity production – including direct, back-end, siting, and damage costs – are taken into account. Hence, nuclear energy cannot be economically justified as the main power source for a sustainable society. Emphasizing the obvious trade-off between phasing out nuclear energy and cutting GHG emissions, Azuma (Ch. 14) shows that a phase-out leads to electricity price and carbon dioxide (CO<sub>2</sub>) emission increases in the short run. But replacing the current equipment with the latest liquefied natural gas (LNG) technology seems a cost-efficient strategy for achieving both CO<sub>2</sub> and nuclear energy utilization reductions, while carbon pricing as well as renewable energy promotion continue to be necessary.

Energy conservation has been a focal point of environmental and industrial policy in Japan. Its respective success has strongly depended on the Energy Saving Act, a mixture of regulatory, informational, and financial measures, which, despite of its inadequacy to limit absolute emissions,

Shimamura (Ch. 15) recommends as an interim approach for developing countries, where time is not ripe for quantity-based policies such as cap-and-trade. Energy consumption in Japanese households had not levelled off before the 2011 government restrictions, as Lee (Ch. 16) shows. Still, the author values the earlier “Eco Point Program” for reducing household CO<sub>2</sub> emissions and revitalizing the economy but also sees economic instruments indispensable for stimulating long-lasting changes in consumption patterns.

## 2.2 Multi-level Climate Policy Governance

Global climate policy in recent years has been significantly influenced by the rise of developing countries such as Chinas, as emphasized by Ueta/Niizawa/Takamura (Ch. 1). Progress on the global level thus heavily depends on issue linkage, side payments from developed to less developed countries, and border adjustments in pioneering countries. In addition, as national vested interests will continue to be decisive, a green growth strategy that produces both benefits for nation states and the global community appears necessary.

But even focusing global climate policy on an extension of the Kyoto Protocol with carbon pricing induced technological change in developed countries could, according to Sakamoto's (Ch. 17) model, lead to significant long-term shifts in global energy use towards a low carbon society; and the integration of the US would even compensated for the non-participation of developing countries. Anyway, national or regional strategies will, according to Kameyama's (Ch. 8) analysis of climate policy visions of the US, EU, China, and Russia, coexist with global negotiations on the UN level, because of significantly diverging views on multi- vs. unilateralism

and binding vs. voluntary targets. Still, targets might be handled multilaterally, if previously agreed upon at the national level.

But national climate policy success depends on several factors. Multilevel governance – instead of e.g. national level government-coalition changes – is considered decisive by Watanabe (Ch. 12) in a comparison of Japan and Germany. While Germany was pressured for a stringent emissions trading scheme (ETS) by the EU, Japan suffered from the influence of the climate policy laggards such as China and the US. In addition, while industry opposition is usually strong in each and every country, institutional and procedural factors in the political and administrative system such as political leadership and cross-ministry governance frameworks are key, as explained by Lee (Ch. 9) for the case of ETS in South Korea and Japan. Nevertheless, Kubo (Ch. 10) describes some promising recent changes in the Japanese political and administrative system, but remains skeptical about Japan overcoming its fragmentary, inflexible, and vague climate policy in the near future due to the ongoing sectionalism and the persisting lack of political leadership. But a long-term stable political framework including quantified climate and energy targets is indispensable for the progress of a sustainable low-carbon development, as Ikkatai (Ch. 11) points out comparing Japan and Germany.

Besides international and national initiatives, bottom-up local climate policy has an increasingly important role to play, because, firstly, it is tailored to the specific local circumstances as shown by Fujita (Ch. 5) for increasing the GHG absorption capacity of forests, by Morotomi (Ch. 6) for reducing office buildings' CO<sub>2</sub> emissions in Tokyo, by Arimura/Yamamoto (Ch. 7) for

voluntary approaches to foster environmental management systems in companies, and by Kawakatsu (Ch. 20) for restructuring transport infrastructure. Secondly, local initiatives may boost residents' awareness and willingness to contribute to climate protection as well as effectively bind local governments to their constituency's preferences. And, thirdly, local initiatives might propel national governments to further action as several examples from the US have shown. In Japan, where early environmental regulation had been already initiated by local activities, the Omnibus Decentralization Act of 2000 paved the way for further bottom-up climate policy and a beneficial dynamic environmental federalism.

### 2.3 Market-based Policies for Climate Protection

Emerging and expanding carbon markets have had a significant influence on the development of global climate policy, as Ueta/Niizawa/Takamura and Niizawa (Ch. 1, 2) argue based on past experiences. And even though some critical issues remain to be addressed, carbon markets need to be continued, e.g. in the form of a Sector Crediting Mechanism (SCM), Reducing Emissions from Deforestation and Forest Degradation (REDD), and linking domestic ETS. Ikkatai (Ch. 11), using the German example, even emphasizes that cap-and-trade and taxes are decisive in creating a low-carbon economy, because only carbon pricing can solve the conflict between the economy and the environment by decoupling growth and emissions.

However, to date, experiences with carbon markets are ambiguous. On the global level, International Emissions Trading (IET) has mainly re-allocated hot air from Eastern Europe and Russia, as Niizawa (Ch. 2)

argues. And, as shown by Na (Ch. 3), while the Clean Development Mechanism (CDM) has raised substantial funds, projects have focused on investment countries' GHG emission reductions and on energy security – instead of sustainable development – in major host countries such as China. Also, projects seem to be unequally distributed across regions of the world and project areas.

But while problems with international carbon markets obviously result from the insufficient regulatory framework and the baseline-and-credit character of the CDM, domestic cap-and-trade schemes, despite all criticism, function better. The major merit of this instrument remains its capability to accurately achieve a pre-given absolute volume emission target at minimum social cost; a view that is supported by Lee's (Ch. 9) analysis of scheme proposals in South Korea and Japan, by Ikkatai's and Watanabe's (Ch. 11, 12) accounts of the supra-national EU ETS, and by Morotomi's (Ch. 6) examination of the local Tokyo Metropolitan Government Emissions Trading Scheme (TMG ETS). Hence all authors agree on the continuing importance of domestic carbon markets in multilevel-governed climate policy.

The same is true for carbon taxes, especially if integrated in a revenue-neutral environmental fiscal reform (EFR), because an EFR produces economic, environmental, and even social benefits, as exemplified for Germany by Ikkatai (Ch. 11). Park (Ch. 4), against the background of non-binding pledges in the Copenhagen Accord, even argues for an EFR especially in developing countries, where cap-and-trade schemes are particularly difficult to implement. Tax rates could then be adjusted to countries' voluntary targets and competitive disadvantages could be prevented by

boarder tax adjustments.

Tax revenue – and even emission right auction proceeds – spending can support climate protection especially when carbon prices are low. Fujita (Ch. 5) exemplifies this for the case of increasing the GHG absorption capacity of forests in Japanese prefectures. Kawakatsu (Ch. 20), analyzing the experiences with funding options in France, Germany, and the US, recommends to use revenues from a tax on the indirect beneficiaries of the public transportation system (motor car drivers, landlords etc.) – in addition to the usual user charges – for restructuring local transportation infrastructure to a more sustainable one. Focusing on the actual refunding mechanism and using the Swedish nitrogen oxide (NO<sub>x</sub>) charge and the recent Japanese carbon tax as diverging examples, Ito (Ch. 19) shows the economic, environmental, and political advantages of a refund based on output levels over technology-specific subsidies.

Still, despite of the merits of MBI, in addition to effective carbon pricing, measures such as command-and-control standards, voluntary agreements, and environmental management systems (EMS) should continue to play an accompanying role, as Arimura/Yamamoto and Shimamura (Ch. 7, 15) argue using examples from Japan. In addition, technology innovation calls for complementary policies such as R&D subsidies and effective patent rules, as Hamamoto (Ch. 18) points out. In any case, policy integration plays a key role; a fact that is true not only for energy and climate policy, as Ikkatai (Ch. 11) exemplifies for Germany, but also for industrial and environmental policy, as Hamamoto (Ch. 18) emphasizes.

### 3 Conclusion and Recommendation

A low-carbon development is possible even without the use of nuclear energy. But in order to succeed, all governance levels need to be involved, and market-based policies such as cap-and-trade as well as carbon taxes have to play a decisive role in an integrated policy mix. This view is convincingly supported by this well-organized collection of in-depth research papers. Cutting-edge ideas are well-founded using a wide range of analytical tools and employing knowledge from a variety of social sciences.

One particular strength of the book lies in combining rigorous theoretical analysis with policy-relevant reasoning with the aim of improving future energy and climate policy-making on the global, national, and local level. But the book is also unique in its focus on Japan, a country which, on the one hand, can still act as a mediator in global climate and energy policy due to its leading role in energy efficiency, its historic significance in the Kyoto process, and its geographically, politically, and culturally strategic position in the Pacific between East and West. On the other hand, knowledge about climate and energy policy in Japan is still sparse in other parts of the world; a shortfall that this volume will hopefully remedy.

While certainly not being able to answer all design and even more political feasibility questions in the highly sophisticated realm of climate and energy policy, this rich book is a must-read for all scholars and policymakers interested in shaping a sustainable climate and energy policy mix. With a comprehensible focus on Japan – but also looking beyond –, it provides good-practice examples, shows the chances, but also discusses the challenges of a nuclear-free low-carbon development. But this very

welcome volume can also be recommended for university teaching as it compiles easily accessible but highly valuable information on current energy and climate issues. It can thus serve in increasing young people's

awareness for and their understanding of one of the most important issues of today's societies and a livable future. I therefore wish the book a wide dissemination and a broad audience.