

## Sectoral Approaches in the Post-2012 Climate Regime: Issues, Perspectives and the Way Forward

Kentaro TAMURA

### KEY MESSAGES

- Sectoral approaches should be associated with stringent and deep quantitative national reduction targets by developed countries and a concrete mechanism to support actions by developing countries.
- Given divergent views on sectoral approaches, sectoral actions should be initially piloted on a limited scale. For example, while sector-wide participation should be required in sectors with significant emission reduction potentials in developed countries, a sub-group of firms (for instance, new and/or efficient ones or multinational enterprises) should be required to participate from developing countries.
- Additional and specific revenue streams should be established to support activities by developing countries' entities involved. To relieve concerns held by developing countries, such revenue streams should avoid the national budgetary system (like the Clean Development Mechanism (CDM) levy for the adaptation fund). To provide incentives for developed countries, their financial payments should be counted as part of their legally-binding emissions reduction commitments with an upper limit.
- Tradable credits should be given to individual entities that prove their efficiency improvement above an internationally-agreed, sectoral intensity target. By rewarding individual firms (or factories), rather than governments or sectoral associations, this option can generate genuine incentives for improving beyond the targets.
- Participating entities in developing countries should be allowed to make progressive improvements in technology uptakes and energy efficiency.
- Any agreement on technology standards under sectoral approaches should be notified to the WTO Agreement on Technical Barriers to Trade, to secure international transparency in adoption of standard systems.

### 1. Key issues

Sectoral approaches have recently been catching significant attention. The Bali Action Plan requested Parties to consider cooperative sectoral approaches and

sector specific actions, to enhance implementation of Article 4.1(c) of the Convention. Sectoral approaches are also proposed as one of the comparable methodologies employed across developed countries for calculating sectoral mitigation potentials, as well as a way of making

*\*This brief reflects the views of participants at the IGES consultations on the post - 2012 climate regime.*

**Box: Key questions**

1. In the future climate regime, should sectoral approaches be
  - Mandatory or voluntary (legal nature)?
  - Within or outside UNFCCC (institutional arrangement)?
2. How do we ensure that UNFCCC principles such as equity and common but differentiated responsibilities (CbDR) are adequately reflected in implementation of sectoral approaches?
3. What incentives are needed to encourage both developed and developing countries to take sector-specific actions?
4. How can we address developing country concerns on sectoral approaches with respect to international trade and technology choices?
5. Which mechanisms are most useful to overcome data-related barriers in the implementation of sectoral approaches in developing countries? How can the future climate regime support such efforts?



**Figure 1. Various types of sectoral approaches**

developing countries take sector-based mitigation actions. These opened up formal negotiations over sectoral approaches in the UN process. Outside the UN process, the G8 Summit, Gleneagles Dialogues, and the Major Economies Meeting also referred to sectoral approaches. Furthermore, the International Energy Agency (IEA), the Asia Pacific Partnership on Clean Development and Climate (APP), the International Aluminium Institute (IAI), and the International Iron and Steel Institute (IISI) have all

been making sector-specific efforts, especially in terms of information exchange, data gathering, and best practice identification. However, there still remain contentious issues that need reconciling to achieve an agreement on sectoral approaches (see Box). After looking at diverse perspectives from stakeholders, this brief provides ways forward on each contentious issue.

**2. Nature, type, scope and institutional architecture**

**2.1 Challenges**

As Figure 1 shows, there are various types of possible sectoral approaches. While developed countries and international business associations tend to support the concept of sectoral approaches, developing countries expressed concerns or reservations. What they envisage, however, differs from one another. These divergent perspectives reveal no common understanding of how sectoral approaches could be formulated and implemented.

In addition to the issue of a common understanding of sectoral approaches, lack of reliable, detailed data at the sectoral level is another fundamental challenge, especially in developing countries. For sectoral approaches to be effectively implemented, data-related barriers need to be overcome.

**2.2 Stakeholder perspectives**

Japan regarded sectoral approaches as a good way to compare sectoral mitigation potentials across countries in terms of energy efficiency, and to transfer energy-efficient technologies to developing countries. The European Union (EU) stressed the need to move beyond offsetting (i.e. the Clean Development Mechanism (CDM)) towards sectoral crediting mechanisms, and also preferred to include international aviation and maritime sectors in the sectoral approach discussion. Australia focused upon the legal nature of sectoral approaches, contending the binding nature of sectoral approaches for those

Table 1. Comparison of energy intensity among steel-making plants in China and Japan (MJ/ton, as of 2004)

		Energy consumption intensity	Cokes making process	Sinter making process	Iron making process	Steel making process with converter	Casting process with rolling mill
①	China big enterprises	20.64	4.16	1.94	13.65	0.99	2.72
②	China small enterprises	30.59	6.71	3.18	17.32	2.20	8.40
③	China best enterprise	17.45	2.58 (Bao steel)	1.52 (Hanzou steel)	11.57 (Bao steel)	-0.11 (Wuhang steel)	1.57
④	Japan average	19.20	2.78	1.55	11.59	-0.08	1.81
Differences within China	② - ①	9.95	2.54	1.24	3.68	1.21	5.68
	② - ③	13.14	4.13	1.65	5.75	2.31	6.83
	① - ③	3.19	1.58	0.42	2.07	1.10	1.15
Differences between Japan and China	① - ④	1.43	1.38	0.39	2.05	1.07	0.90
	② - ④	11.39	3.93	1.63	5.73	2.28	6.58
	③ - ④	-1.76	-0.20	-0.03	-0.02	-0.03	-0.24

Source: Ning and Tonooka (2008).

countries that would not adopt national targets. The IISI supported the idea of expanding the scope of the CDM to the sectoral level with the aim of spreading best practices globally.

On the other hand, China opposed the idea of a sectoral CDM. It also argued that the aim of “cooperative sectoral approaches and sector-specific actions” under the Bali Action Plan was to enhance implementation of the Convention, rather than developing global sectoral standards or benchmarks. India saw sectoral approaches as one way to compare mitigation actions by developed countries, but was against their application to developing countries. Like China, India also argued that universal benchmarking and standard-setting or best practices identification fell outside the scope of the Bali Action Plan. Instead, India suggested that focus should be on collaborative research and development (R&D) and compulsory licenses for climate-friendly technologies. In addition, given the technical complexity and demanding expertise, some participants at the IGES consultations suggested that sectoral approaches should be explored outside the UNFCCC process.

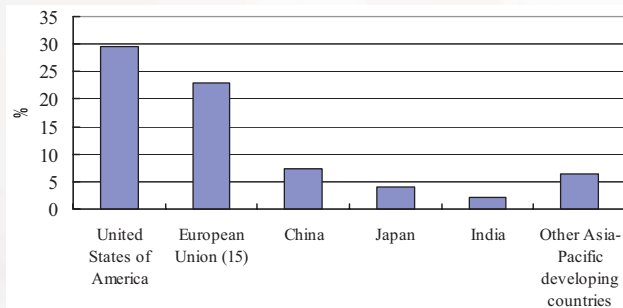
## 2.3 The way forward

One option is to pilot sectoral approaches on a limited scale to evaluate advantages and convince policy-makers. For example, while sector-wide participation should be required in sectors with significant emission reduction potentials in developed countries, a sub-group of firms (for instance, new and/or efficient ones or multinational enterprises) should be required to participate from developing countries. As shown in Table 1, in the case of the Chinese steel industry, the efficiency of some enterprises in major developing countries is as high as those in developed countries. Such enterprises are most likely to be able to gather relevant data and meet internationally-agreed efficiency targets if adequate incentives are given. By focusing on a small number of capable actors in developing countries, this option could alleviate data-related concerns (Mizuno 2008). This approach would provide a testing ground, focusing on specific actions among a small number of actors. It could also promote a better and common understanding of sector-specific conditions.

### 3. Principles (UNFCCC and others)

#### 3.1 Challenges

“Common but differentiated responsibilities (CbDR)” is the fundamental principle underlying differential responsibilities and burden sharing in the climate regime. The implicit goal of this principle is to balance responsibility for cause, degree of climate change impact, and capacity to assume costs for GHG emissions abatement (Wiegandt, 2001). Because of its distribu-



**Figure 2. Cumulative CO2 Emissions (1850-2000): Percent of the world total**

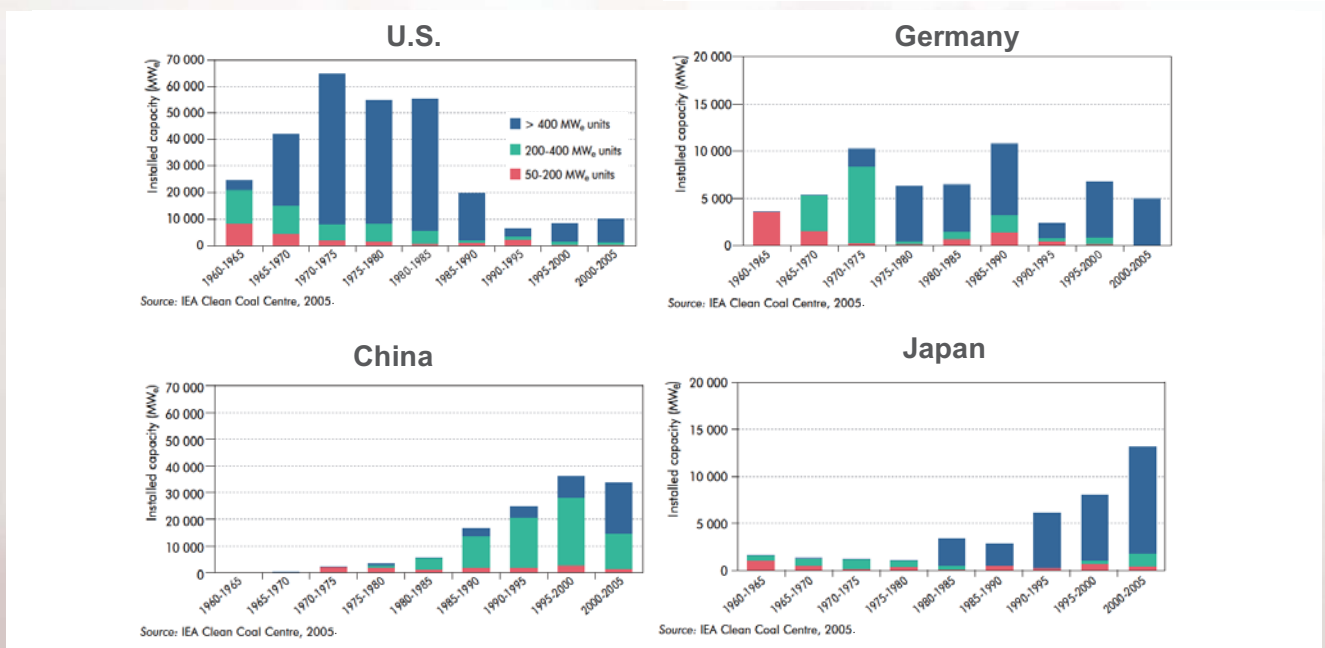
Source: Climate Analysis Indicators Tool (CAIT) Version 4.0. (Washington, DC: World Resources Institute, 2007).

tive nature, how to interpret the CbDR principle in the actual context tends to spark off contentious debate.

#### 3.2 Stakeholder perspectives

Japan argued that sectoral approaches are consistent with the principle of CbDR because financial and technical support would be provided by developed countries to developing countries. Japan also noted that their proposed sectoral approach would be equipped with nationally tailored benchmarks, thereby effectively reflecting national circumstances. Furthermore, some developed countries, including Japan and the United States (U.S.), stressed the evolving application of the principle in light of the degree to which the world economy is changing, implying more mitigation responsibility for rapidly-growing economies.

On the other hand, developing countries expressed concerns. For example, one Chinese participant in the IGES consultations pointed out that sectoral approaches do not take into account historical emissions (see Figure 2). G77/China mentioned that globally uniform standards and benchmarking are not acceptable.



**Figure 3. Age Distribution of Coal-Fired Power Plants in China, Germany, Japan and the U.S.**

On this point, one Japanese participant to IGES consultations pointed out that given significant difference in technology stock across countries, it is not practical to seek to develop a single benchmark (see Figure 3). India also saw sectoral approaches as deviation from Principle 11 of the Rio Declaration, which states that “environmental standards, management objectives and priorities should reflect the environmental and development context to which they apply”. Furthermore, in terms of equity, Least Developed Countries (LDCs) expressed a concern that they would be excluded from new access to finance and technologies because discussions over sectoral approaches tended to focus on mitigation actions in major developing countries.

### 3.3 The way forward

To reflect the principle of CbDR, sectoral approaches should be associated with stringent and deep mid-term quantitative national reduction targets by developed countries and a concrete mechanism to assist developing countries’ sector-based activities. It is important to send a message of developed countries’ leadership and provide support to developing countries. One of the Japanese participants at our consultations noted that putting national emissions reduction caps on developed countries could function as a driving force for internationally competing firms in developed countries to embark on sectoral approaches. These firms would seek to level the playing field. There is a growing expectation that the new U.S. administration would take significant steps on domestic climate policies to set an economy-wide emissions cap, as well as international climate cooperation. Such initiatives could lead to an environment where both developed and developing countries would be able to join sectoral approaches more positively than previously.

## 4. Incentives

### 4.1 Challenges

International cooperation needs to be self-enforced—i.e. the cooperation should be incentive-compatible so

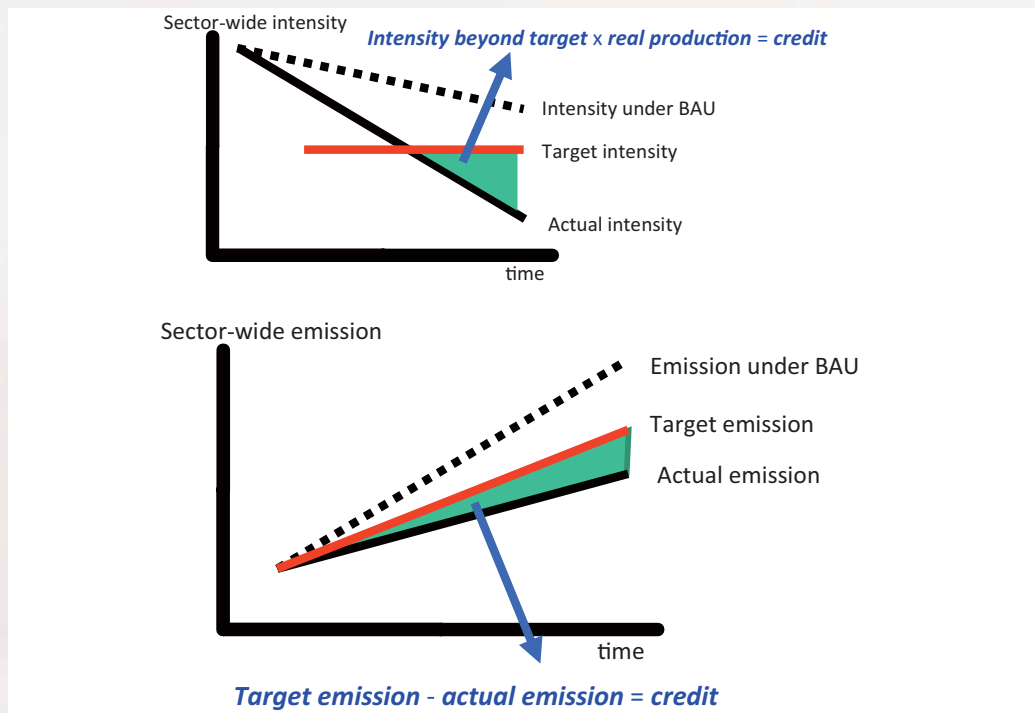
that states reach and adhere to agreements, as doing so is in their interests (Barrett 2003). Thus, for sectoral approaches to be agreed and implemented effectively, it is critical that they provide adequate incentives.

### 4.2 Stakeholder perspectives

Sectoral crediting mechanisms are sometimes seen as a means to provide market-based incentives for sector-specific actions. Under the crediting mechanisms, sellable credits are granted for additional improvements. However, there is no agreement on how to provide such credits (see Figure 4). The Center for Clean Air Policy (CCAP), the initial advocator of sectoral approaches, proposed a crediting mechanism based upon negotiated intensity benchmark (Schmidt et al., 2006). The IISI supported the sectoral CDM (a baseline and credit approach). On the other hand, pointing out the complexity of benchmarking and baseline-setting, the Republic of Korea proposed sectoral or national intensity targets against a base year. One participant from a European country to the IGES consultations, however, preferred absolute targets because they could more easily make generated credits fungible with compliance units based upon absolute emissions reduction commitments. In addition, CDM practitioners expressed a concern that the CDM would not be eligible for the sectors covered by the sectoral crediting mechanisms to avoid double counting.

Non-market-based incentives include the provision of finance and technology. Japan proposed simplified conditions and procedures for project-based mechanisms and financial support for those developing countries that would commit themselves to sectoral approaches. However, developing countries in general held deep-seated concerns about the credibility of developed countries’ financial and technological commitments. For example, the joint political declaration made by the European Community and its member States, together with Canada, Iceland, New Zealand, Norway and Switzerland on their preparedness to contribute collectively US \$410 million annually by 2005 (FCCC/CP/2001/L.14) was not fully realised.

It was also argued that sectoral approaches could pro-



**Figure 4.**

Source: K. Hombu (2008) "Target Setting for Sectoral approach—Discussion Paper" presentation prepared for IGES Asia Pacific Consultations on the Post-2012 Climate Regime, held on 9-10 October 2008, Kyoto.

vide other forms of incentives by levelling the regulatory playing field for sectors where international trade and investment was significant (Baron and Ellis 2006, Bodansky 2007, Schmidt et al. 2006). Sectoral approaches were also expected to create new markets for energy efficient technologies, where developed country companies could prevail. Those countries that opposed the idea of benchmarking and standards set forth different forms of incentives. For instance, India mentioned that collaborative R&D and compulsory licensing could function as an instrument of technology development and transfer, thereby providing incentives for sector-specific action.

### 4.3 The way forward

Enterprises participating in sectoral actions in developing countries should be given preferential access to financial support, while their implementation would be subject to a third-party review process. For

this purpose, additional and specific financial streams should be established. To relieve concerns held by developing countries about the certainty and additionality of financial resources, the revenue streams should be based upon sustainable sources and be designed to avoid the annual budgetary process. Increasing a "share of proceeds" of Certified Emissions Reductions (CERs) generated from CDM activities and/or expanding such a concept to other carbon credits should be seriously considered. To provide incentives for developed countries, their additional financial contributions should be counted as part of their legally-binding emission reduction commitments (BASIC 2006). Based on a market carbon price, financial payments could be converted into emissions reduction amounts with a predefined upper limit. The upper limit can alleviate environmental concerns that the financial payments counted as emissions reduction commitment does not directly contribute to emission reduction. This could provide incentives for both developed and de-

veloping countries. It can also increase the certainty of financial delivery. The idea of establishing a new financial scheme, however, might lead to many sticky issues, such as the arrangement of a governing body and competition with other funds.

Another option for providing incentives is to give tradable credits to individual entities that prove their efficiency improvement above an internationally-agreed, sectoral intensity target. Unlike other sector-wide crediting proposals, the option proposed is designed to reward individual entities, rather than governments or sectoral associations. This can reduce the likelihood of free-riding, and effectively reward individuals that make actual efforts, thereby generating genuine incentives for improving beyond the targets. Another advantage is that intensity targets could be more politically acceptable than absolute targets. However, there are some disadvantages. Once intensity targets are achieved, this provides perverse incentives, i.e., more production and more emissions lead to more credits. Furthermore, if fungibility of credits generated from sectoral intensity targeting with compliance units is problematic, a question as to the buyer of such credits will be raised. One remedy could be to establish a formula to convert intensity target-based credits to absolute target-based ones, though optimisation remains a challenge.

## **5. Implications for trade and technology choices**

### **5.1 Challenges**

Since many proposals for sectoral approaches contain benchmarking, efficiency standards and technology standards, there are growing concerns about the implications of sectoral approaches for international trade and technology choices.

### **5.2 Stakeholder perspectives**

India expressed a concern that sectoral approaches could turn out to be a basis to impose trade barriers against energy-intensive goods and restrict developing countries' technology choices. Sectoral approach-

es might increase dependency on specific technologies of which intellectual property rights (IPRs) are held by developed country companies, and impose a set of technologies that are not optimised for national resource endowments. In addition, China also pointed out that sectoral approaches should provide neither trade barriers nor punitive trade measures. Indonesia also noted that sectoral approaches should not lead to unjustifiable discrimination or disguised restriction of access for non-Annex I Parties to international trade. On the other hand, Japan, with some support from some developing countries like Indonesia, argued that sectoral approaches could be designed to identify the potential for most efficient technologies and best practices, and thus play a facilitative role in technology transfer. Sectoral approaches are seen as a vehicle for effective diffusion of the most efficient technologies and best practices.

### **5.3 The way forward**

To address trade and technology-related concerns, participating entities in developing countries should be allowed to make progressive improvements in technology uptakes and energy efficiency as long as actual improvement is demonstrated through a pledge and review process. Another option is that any agreement on energy efficiency standards or technology standards under sectoral approaches should be notified to the World Trade Organisation Agreement on Technical Barriers to Trade (WTO/TBT).

One advantage of the first option is that this could provide breathing space to adopt new technologies. The merit of the second option is that this could secure international transparency in adoption of standard systems. However, the potential demerits of the WTO/TBT notification are that, since dispute between climate change and trade agreements have not been legally tested so far, this might open up a "Pandora's box". In essence, it is necessary to prove that the sectoral approach taken is the least-trade restrictive and necessary to address climate change. This could be done through, for example, multilateral agreements for energy efficiency standards given that Article 2.5 of the WTO/TBT Agreement stipulates that a regula-

tion is presumed not to contain any unnecessary obstacles to international trade if it is established in accordance with "relevant international standards" (Zhang and Assunção 2004).

## 6. Conclusion

There are other issues that this report does not address, such as the selection of sectors and institutional arrangement of sectoral approaches. However, in the course of the IGES consultations on post-2012 climate regime, participants repeatedly pointed out the five issues addressed herein. For any sectoral approaches to be agreed and implemented effectively, it is critical to tackle these five issues, i.e. a form of sectoral approaches, data-related barriers, consistency with UNFCCC principles, incentives, and trade and technology-related concerns. The options put forward here are expected to reconcile the priorities and concerns of Asian stakeholders with global interests, and help the sectoral approach discussion move forward.

## References

- Baron, R. and J. Ellis. 2006. *Sectoral Crediting Mechanisms for Greenhouse Gas Mitigation: Institutional and Operation Issues*. Paris: OECD/IEA.
- Barrett, S. 2003. *Environment and Statecraft: the Strategy of Environmental Treaty-Making*. Oxford: Oxford University Press.
- BASIC. 2006. *The Sao Paulo Proposal for an Agreement on Future International Climate Policy: Discussion Paper for COP-12 & COPMOP-2*. São Paulo: Instituto de Estudos Avancados da Universidade de São Paulo. ([http://www.basic-project.net/data/SP\\_prop\\_rev\\_nairobi.pdf](http://www.basic-project.net/data/SP_prop_rev_nairobi.pdf))
- Bodansky, D. 2007. *International Sectoral Agreements in a Post-2012 Climate Framework Working Paper*. Arlington, VA: Pew Center on Global Climate Change. (<http://www.pewclimate.org/docUploads/International%20Sectoral%20Agreements%20in%20a%20Post-2012%20Climate%20Framework.pdf>)
- Mizuno, Y. 2008. *Involving Major Developing Countries in a Global Sectoral Approach to Emissions Cuts. Point Carbon 7: 7.*
- Ning, Y., and Y. Tonooka. 2008. *Study on Production Formation and Energy Consumption in Chinese Iron and Steel Industry. Energy and Resources 29, no. 5: 313-318.*
- Schmidt, J., N. Helme, J. Lee, and M. Houdashelf. 2006. *Sector-based Approach to the Post-2012 Climate Change Policy Architecture, The Dialogue on Future International Actions to Address Global Climate Change Working Papers*. Washington, D.C.: Center for Clean Air Policy. ([http://www.ccap.org/docs/fck/file/Sector\\_Straw\\_Proposal-FINAL\\_for\\_FAD\\_Working\\_Paper\\_2006.pdf](http://www.ccap.org/docs/fck/file/Sector_Straw_Proposal-FINAL_for_FAD_Working_Paper_2006.pdf))
- Wiegandt, E. 2001. *Climate Change, Equity, and International Negotiations*. In *International Relations and Global Climate Change*, edited by U. Luterbacher and D. F. Sprinz, 127-150. Cambridge, MA: MIT Press.
- Zhang, Z. X., and L. Assunção. 2004. *Domestic Climate Policies and the WTO. The World Economy 27: 359-386.*

**Acknowledgements:** We are grateful for the financial support from the Global Environment Research Fund (H-064) of the Ministry of the Environment, Japan; reviewers Prof. H. Hamanaka, Mr. H. Mori, and Mr. T. Hiraishi; interns Mr. H. Sugano and Mr. Q. Su; and administrative assistance from Ms. A. Miyatsuka, Ms. Y. Itakura and Ms. I. Munekata.

**Suggested citation:** Kentaro Tamura\* 2008. Sectoral Approaches in the Post-2012 Climate Regime: Issues, Perspectives and the Way Forward. IGES Briefing Notes on the Post-2012 Climate Regime. Issue No. 1. Institute for Global Environmental Strategies, Hayama, Japan. pp 1-8.

\* e-mail: [tamura@iges.or.jp](mailto:tamura@iges.or.jp)

## CONTACT

**IGES**

Institute for Global Environmental Strategies

2108-11 Kamiyamaguchi, Hayama, Kanagawa, Japan 240-0115

TEL: 81-46-855-3700 FAX: 81-46-855-3809

URL: <http://www.iges.or.jp>