

IGES White Paper IV 2012

Greening Governance

in Asia-Pacific



GREENING GOVERNANCE IN ASIA-PACIFIC

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2012

Institute for Global Environmental Strategies (IGES)

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**IGES White Paper IV 2012
Greening Governance in Asia-Pacific**

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Foreword

The fourth IGES White Paper examines innovative approaches to governance that have emerged from Asia-Pacific, recommends new governance arrangements and policy solutions in the region to accelerate the transition to a green economy, and additional changes in governance arrangements that may push conventional boundaries but will be needed over the next few decades in order to achieve sustainable development. The goal of writing this publication was to contribute to improving past governance arrangements that oversaw the failure to operationalize sustainable development over the past two decades.

Without significant governance reform in Asia-Pacific, we argue that global sustainable development, the main focus of the 2012 United Nations Conference on Sustainable Development (Rio+20), will remain an under-implemented ideal rather than a new reality. We hope that this White Paper, together with the IGES Proposal and other publications prepared for Rio+20, will influence the decisions of policymakers in the Asia-Pacific region and globally to carve out efficient and effective institutional arrangements and improved governance that will take us forward to a sustainable future.

The chapters in the White Paper cover a lot of ground, from community-based forest management to city-to-city networks and making carbon governance in Asia greener by exploring the relationship between climate change mitigation, green economy and sustainable development. Analysis and recommendations cross borders by looking at sustainable resource circulation and management in Asia, and the transfer of green, low-carbon technologies. A recurrent recommendation from each chapter is for improved information sharing and capacity development, as tentative steps towards sustainability can be seen in many countries and should be replicated and scaled up. Therefore this White Paper recommends establishing a regional platform to address these issues as a first step towards a possible regional environmental organization.

I would like to express our sincere gratitude to all who helped develop this White Paper, especially the peer reviewers for their expert advice and insights; the IGES Board of Directors, Board of Trustees, and executive staff for their guidance throughout the production process; and to the many people working in the sustainable development policy community who have shared their knowledge and engaged with our researchers to exchange ideas on developing innovative approaches to sustainable development. This engagement is critical to developing a high quality and meaningful publication. We hope the White Paper will make a substantive contribution to ongoing policy discussions on governance, green economy, and sustainable development in the Asia-Pacific region.

Prof. Hironori Hamanaka
Chair of the Board of Directors
Institute for Global Environmental Strategies (IGES)

Opening Remarks

Planning for the fourth IGES White Paper began just as the 2012 United Nations Conference on Sustainable Development in Rio de Janeiro (Rio+20) process was getting underway. Throughout, IGES took an active role by hosting a regional consultation for major groups at our annual International Forum for Sustainable Asia and the Pacific (ISAP), sending staff to the intersessional and informal-informal meetings and hosting our own side events, submitting the “IGES Proposal for Rio+20” to the zero draft of the outcome document, and producing a series of policy oriented briefs, reports, and papers. Throughout the processes international focus has been on global institutional reform and a green economy, less attention has been paid to reform of environmental governance, institutional reform and green economy at the regional, national and sub-national levels.

This gap in the analysis was an opportunity for IGES to leverage our knowledge and policy-research experiences to present cases, conduct analysis, and make recommendations for the Asia-Pacific region on the main themes of Rio+20 – the institutional framework for sustainable development; and a green economy in the context of poverty alleviation. Ultimately, we believe, regional action will be the critical factor for achieving sustainable development and strong evidence is needed to show how greening governance and the economy are the best policy agenda items for creating a low carbon, resource efficient, socially inclusive, and resilient society. This White Paper is our latest contribution to the evidence base for the Asia-Pacific region.

The outcomes of the Rio+20 process will influence sustainable development policy for years to come, which means it is what we do in a post-Rio+20 world that matters the most. The recommendations in this fourth IGES White Paper will provide a substantial basis for creating better institutions and policies in Asia-Pacific to accelerate the transition to a green economy and achieve sustainable development.

Hideyuki Mori
President
Institute for Global Environmental Strategies (IGES)

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Abbreviations and Acronyms

ACB	ASEAN Centre for Biodiversity
ACEF	All-China Environment Federation
ADB	Asian Development Bank
AECEN	Asian Environmental Enforcement and Compliance Network
APAN	Asia Pacific Adaptation Network
ASEAN	Association of South East Asian Nations
AWAREE	Awareness on Environmental Education in Asian Cities
BAU	Business As Usual
BELA	Bangladesh Environmental Lawyers Association
CAEC	China-ASEAN Environmental Cooperation Center
CAI-Asia	Clean Air Initiative Asia
CAREC	Central Asia Regional Economic Cooperation
CBFM	Community Based Forest Management
CCP	Chinese Communist Party
CDCF	Community Development Carbon Fund
CDM	Clean Development Mechanism
CEC	Commission for Environmental Cooperation
CER	Certified Emissions Reduction
CES	Constant Elasticity of Substitution
CFM	Community Forest Management
CFMC	Community Forest Management Committees
CFUGs	Community Forest User Groups
CGE	Computable General Equilibrium
CITES	Convention on International Trade in Endangered Species
CLAPV	Center for Legal Assistance to Pollution Victims
CO ₂	Carbon Dioxide
COBSEA	Coordinating Body on the Seas of East Asia
COP	Conference of Parties
CSE	Centre for Science and Environment
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
CSR-Asia	Corporate Social Responsibility in Asia
DDR	Doha Development Round
DENR	Department of Environment and Natural Resources (Philippines)
DFO	District Forest Office (Nepal)
DNA	Designated National Authority

DRR	Disaster Risk Reduction
EANET	Acid Deposition Monitoring Network in East Asia
EAS EMM	East Asia Summit Environment Ministers Meeting
ECOSOC	United Nations Economic and Social Council
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EIONET	European Environment Information and Observation Network
E/HIA	Environmental/Health impact assessment
EPR	Extended Producer Responsibility
ERIA	Economic Research Institute for ASEAN and East Asia
ESABII	East and Southeast Asia Biodiversity Information Initiative
EU	European Union
FAO	Food and Agricultural Organization
FD	Forest Departments
FOIA	Freedom of Information Act
FPIC	Free Prior and Informed Consent
FRA	Forest Rights Act
GDP	Gross Domestic Product
GE	Green Economy
GEF	Global Environment Facility
GG	Green Growth
GGGI	Global Green Growth Institute
GHG	Greenhouse gas
GMS	Greater Mekong Subregion
HD	Hutan Desa (Village Forest)
HKm	Hutan Kemasyarakatan (Community Forest)
HLS-ESC	High Level Seminar on Environmentally Sustainable Cities
ICLEI	International Council for Local Environmental Initiatives
ICIMOD	International Centre for Integrated Mountain Development
IEA	International Energy Agency
IFSD	Institutional Framework for Sustainable Development
IGES	Institute for Global Environmental Strategies
IPCC	Intergovernmental Panel on Climate Change
IPEA	Institute of Public and Environmental Affairs (China)
IPR	Intellectual Property Rights
IPRA	Indigenous Peoples Rights Act
ISDR (UNISDR)	United Nations International Strategy for Disaster Risk Reduction
IWRM	Integrated Water Resources Management
JBIC	Japan Bank for International Cooperation
JFM	Joint Forest Management
JICA	Japan International Cooperation Agency
JPOI	Johannesburg Plan of Implementation
KLRTC	Kuala Lumpur Regional Training Centre

LCS-RNET	International Research Network for Low Carbon Societies
LCD	Low-Carbon Development
LEDS	Low Emission Development Strategies or Plans
LGU	Local Government Unit (Philippines)
MCED	Ministerial Conference on Environment and Development
MDGs	Millennium Development Goals
MEAs	Multi-lateral Environment Agreements
MEP	Ministry of Environmental Protection (China)
METI	Ministry of Economy, Trade and Industry (Japan)
MKE	Ministry of Knowledge Economy (Republic of Korea)
MOEJ	Ministry of the Environment Japan
MRC	Mekong River Commission
NAFTA	North American Free Trade Agreement
NAMAs	Nationally Appropriate Mitigation Actions
NAPCC	National Action Plan for Climate Change
NARBO	Network of Asian River Basin Organisations
NDRC	National Development and Reform Commission
NEASPEC	North East Asian Seas Programme on Environmental Cooperation
NEAT	Network of East Asian Think Tanks
NGO	Non-Governmental Organization
NOWPAP	Northwest Pacific Action Plan
NPV	Net Present Value
ODA	Overseas Development Assistance
OECD	Organisation for Economic Cooperation and Development
OECS	Organization of Eastern Caribbean States
PACE	Partnership for Action on Computing Equipment
PCGG	Presidential Committee on Green Growth
PDDs	Project Design Documents
PEMSEA	Partnerships for Environmental Management of the Seas of East Asia
POs	People's Organizations
PROPER	Program for Pollution Control Evaluation and Rating
PRTR	Pollutant Release and Transfer Registers
REDD+	Reducing Deforestation and forest Degradation+
ROK	Republic of Korea
SACEP	South Asia Cooperative Environment Programme
SD	Sustainable Development
SDGs	Sustainable Development Goals
SEIS	Shared Environmental Information System
SMEs	Small and Medium-size Enterprises
SMM	Sustainable Materials Management
SPREP	Secretariat of the Pacific Regional Environment Programme
SS	Safety and Security
TAI	The Access Initiative

TEMM	Tripartite Environment Ministers' Meeting
TMS	Target Management System
TTC	Technology Transfer Credits
UNCBD	United Nations Convention on Biological Diversity
UNCED	UN Conference on Environment and Development
UNCRD	United Nations Centre for Regional Development
UNCSO	United Nations Conference on Sustainable Development
UNDESA	UN Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNECOSOC	United Nations Economic and Social Council
UNEO	United Nations Environment Organisation
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development
WEO	World Environment Organization
WEPA	Water Environment Partnership in Asia
WHO	World Health Organization
WRI	World Resources Institute
WTO	World Trade Organization
WWF	World Wildlife Fund for Nature

Executive Summary

1. Introduction

The twin themes of Rio+20, the United Nations Conference on Sustainable Development, are extensively addressed in this White Paper, as IGES views 2012 as a turning point in the future path towards sustainable development. At the International Forum for a Sustainable Asia-Pacific (ISAP) organized by IGES in Yokohama in July 2011, more than 800 participants discussed the Rio+20 themes of a green economy within the context of sustainable development and poverty alleviation, and the institutional framework for sustainable development. The regional stakeholder consultation at ISAP 2011 not only informed the subsequent regional consultations on preparations for Rio+20 at the Asia and Pacific Regional Preparatory Meeting held in Korea in October 2011, it also accorded IGES an opening for key messages to be incorporated into the draft documents for Rio+20. IGES publications, including this White Paper throughout its drafting process, have been used to inform these important United Nations and major group processes and documentation in the lead up to Rio+20.

Nevertheless, the White Paper is not only about Rio+20. The equally important topic of regional, national, and community level governance addressed by the White Paper has generally been overlooked by a global summit which has focussed on issues affecting relations between the developed and developing world and the need to implement a new development paradigm and reconsider existing global institutional arrangements that may have outlived their usefulness. By focusing on these neglected levels of governance at regional, national, and community levels, IGES hopes to draw attention to the overwhelming necessity of complementary efforts to the global debate at levels where real world action takes place. Long overdue governance reforms at regional, national, and community levels in Asia-Pacific are needed, whatever the outcomes of Rio+20 might be, and this White Paper aims to support reform with cases of best practices, analysis of current governance arrangements, and recommendations for both incremental and sweeping reform.

2. In relation to a green economy

No “one size fits all” approach to a green economy - The essence of a green economy is to transform fossil fuel based, wasteful, and inequitable economies into low carbon, resource efficient, and socially inclusive economies while stressing job creation and long-term prosperity. Asia-Pacific is a rapidly growing and diverse region but also remains the region with the highest number of people living at or below poverty levels as defined by the United Nations, with some of the most vulnerable communities and an environment that is continuing to degrade. Therefore, the pathways to sustainable development, poverty eradication, resilient communities, and environmental quality will vary according to national circumstances and the extent of international support, and will generally go through a progression as explained below. As a country’s economy matures emphasis would shift from one stage to the next:

- Least developed, highly vulnerable countries (such as small island states, glacier-dependent and land-locked arid countries, and countries with extensive low-lying deltas and coastlines) should maintain emphasis on adaptation and increasing resilience, while simultaneously addressing poverty reduction.
- Emerging economies should initially emphasise low-carbon economic growth, while paying continued attention to poverty reduction.
- Developed economies should begin to shift economic emphasis to sustainable consumption and production to reduce their global ecological footprint.

Accordingly, the “green economy” will look very different from country to country and the Asia-Pacific region’s decision makers should resist any attempt to develop a rigid global blueprint intended to apply to all countries. In any case, the green economy tends to be viewed as a dated concept dressed up in new garb, and therefore, it should facilitate rather than detract from the continuing struggle to attain the ultimate goal of sustainable development. The cautious approach by developing countries to support the green economy in the region should be taken seriously at Rio+20 and beyond and their concerns addressed in a comprehensive manner. Many of the advocates of the green economy are now stressing that the green economy is a means or stepping stone towards sustainable development, rather than a replacement (and rightfully so).

Nevertheless, the need for better indicators and means of progress towards the green economy and sustainable development remains a priority. Many countries are looking at alternative metrics to Gross Domestic Product or other economic indicators to stress that national objectives and human wellbeing should not be measured in economic terms alone. Examples from Asia-Pacific such as Gross National Happiness (Bhutan) or the self-sufficiency economy (Thailand) are promising attempts to redefine the meaning of national progress. While these may simply be indicators of a willingness to explore alternatives to GDP, they do serve as a positive basis to the emerging global research agenda and possible new policy directions. In the Rio+20 process the proposal by some countries to develop Sustainable Development Goals to follow on from, or merge with, the Millennium Development Goals is strongly supported by many participants from member states, major groups and others, with emphasis on earth system boundaries, poverty eradication, sustainable consumption and production patterns, renewable energy, and reduced vulnerability, improved risk management, and increasing resilience.

Transfer skills and know-how, not just technology - Low carbon economic growth as the cornerstone of the green economy in developing countries is highly dependent on the transfer of applicable technologies. Technology transfer, however, is not only a process of supplying capital equipment from one entity to another but also includes the transfer of skills and know-how for operating and maintaining the hardware, and understanding the technology so that further independent innovation is possible by recipient firms. While the creation of a multilateral acquisition fund to purchase Intellectual Property Rights (IPRs) for low carbon technologies continues to represent a sticking point in climate change negotiations, at a minimum, voluntary transfers of IPRs for green technologies should be part of the corporate social responsibility of large firms.

Cooperate regionally to achieve resource efficiency – Asia-Pacific is scouring the globe for access to resources to fuel its continuing high growth rates, but much of that resource material may be available in the region through better use of waste. Regional cooperation should be promoted to achieve higher productivity in the use of resources, sounder international materials circulation and reduced total environmental impacts of resource utilization in Asia-Pacific. Developed and emerging countries in Asia should direct a portion of their recycling funds to international collaboration on sound materials

circulation, given the progress made or underway in incorporating the extended producer responsibility concept into their legal frameworks and policies.

3. In relation to the institutional framework for sustainable development

Strengthen regional, national, and local level governance - Much of the focus in the build up to Rio+20 has been on the issue of reforming global/international environmental governance and strengthening the functions of United Nations agencies focused on sustainable development. IGES believes reform is necessary but the focus is misplaced as most attention should be on regional, national, and local level governance, in accordance with Agenda 21's subsidiarity principle, highlighting what has worked well since 1992, what remains to be fixed, and seeking agreement on support mechanisms to enable the international community to work together to improve governance at these lower levels. Asia-Pacific must work progressively and cannot rely on global UN reform to address its urgent sustainable development challenges.

Set a long term goal of creating a regional environment agency - For the Asia-Pacific region, with its highly diverse economies, languages, geographic conditions, and political systems, regional integration and harmonization are still in their infancy. Nevertheless, given the pace of development, the extent of transboundary environmental impacts, intra-regional trade, and tentative steps towards regional and sub-regional communities it is timely to set a long term goal of creating an Asian regional environment agency (possibly modelled on the European Environment Agency) and begin to take initial steps in that direction by institutionalizing information sharing and capacity development, and by expanding the scope and sustained support for existing networks and subregional environment agencies. Consideration could also be given to transforming the Secretariat of the Pacific Regional Environment Programme (SPREP) and possibly other regional organizations into a Pacific Regional Environment Agency.

At national level, assure multi-level, multistakeholder participation in decision making, and guarantee access to information - National environmental governance in Asia-Pacific has been substantially improved over the past four decades as most governments have now created a central environmental authority operating under a framework law, but still many challenges remain in implementation. Many standard environmental issues like clean water, clean air, and solid waste management, for which well proven management approaches are known, remain poorly addressed, while emerging environmental problems like toxic and hazardous chemicals, biodiversity loss and climate change are often underfunded, with environmental agencies also lacking the necessary human resource capacity.

The message from Rio+20 in relation to national environmental governance should be along the lines that environmental quality is a basic human right and governments are failing in their duty of care to their population if the environment is allowed to degrade further. Much greater emphasis needs to be paid to effective compliance with, and enforcement of, existing environmental laws, regulations, and policies. Governments alone, however, cannot fulfil this agenda—multi-level, multistakeholder participation in decision making and guaranteed access to information for all are essential. South-south cooperation, peer-to-peer networks, and international technical and financial support are also needed.

Empower communities to manage natural resources on which they depend - At the local level, communities should be given greater responsibilities for managing natural resources that are essential for their continuing livelihoods, whether these are water resources,

secure land rights, or forest resources. Community-based governance arrangements convey a sense of local ownership that makes them more effective and efficient than centralized, top-down government divorced from a direct connection with the local natural resource base. Recent financing innovations like payment for ecosystem services and REDD+¹ open up new avenues for sustainable community-based management of natural resources and governments should be encouraged to test these and other similar governance innovations.

Resilient societies – In the aftermath of multiple disasters in the Asia-Pacific region in recent years, and the increased likelihood of extreme weather events due to climate change, greater emphasis needs to be placed on developing resilient societies to minimize the impacts of disasters and to ensure rapid recovery. In addition to multistakeholder and multi-level governance, as outlined above, greater attention needs to be paid to financial schemes and insurance mechanisms to support immediate and medium-term recovery, and distributed (rather than centralized) infrastructure for key life support functions such as food security, energy, transportation, and water.

To summarize, improved governance in the Asia-Pacific region is vital to achieving global goals, and no amount of incremental reform at the global level can substitute for more robust institutions at the regional and national levels, greater empowerment of communities and other stakeholders, and much more innovative approaches to enabling factors such as financing and policy reform. This White Paper outlines an ambitious agenda of governance reform for the Asia-Pacific region which will require strong community support and political will. IGES remains committed to this agenda and will continue contributing supportive research to further the Asia-Pacific region's road to sustainable development. We hope that the outcomes from Rio+20 will support recognition of the need for governance reform at the regional, national and community levels and send a powerful message to national governments along these lines.

Notes

1. Reducing Emissions from Deforestation and Forest Degradation (REDD). REDD+ also includes the role of conservation, sustainable management and enhancement of forest carbon stocks (UN-REDD Programme: <http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx>)

Chapter 1

Asia-Pacific, Green Economy,
and Institutions for Sustainable
Development

Chapter 1

Asia-Pacific, Green Economy, and Institutions for Sustainable Development

Peter King, Hideyuki Mori and Robert Kipp

1. Background

Twenty years after the 1991 Earth Summit in Rio de Janeiro, Brazil the United Nations Conference on Sustainable Development (referred to as Rio+20) was held again in Rio de Janeiro, in June, 2012 with the objective “to secure renewed political commitment for sustainable development, assess the progress to date and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development, and address new and emerging challenges.”¹ Under the main themes of Rio+20—a green economy in the context of sustainable development and poverty eradication; and institutional framework for sustainable development,²—the United Nations General Assembly noted that “the green economy approach is an attempt to unite under one banner a broad suite of economic instruments relevant to sustainable development” (UNGA 2010). From an institutional perspective, the “key question is whether institutional or structural changes could help to accelerate the achievement of the sustainable development agenda in all three of its dimensions” (UNGA 2010) – economy, society, and the environment. The other key question, therefore, is whether the old governance arrangements that oversaw the failure to operationalize sustainable development over the past two decades are now up to the task of maintaining and accelerating this renewed push for a transition to a green economy, or is more radical reform required?

Box 1.1 Brief history of UN sustainable development conferences

1972	Stockholm, Sweden	UN Conference on the Human Environment. Outcomes included the Stockholm Declaration, Stockholm Action Plan (109 recommendations), 5 resolutions (ban on nuclear weapons, international database on environmental information, actions linking development and environment, creation of an environment fund, and establishment of United Nations Environment Programme).
1977	New York, USA	UN Conference on Desertification
1983		World Commission on Environment and Development, convened to prepare a long-term action agenda. The main outcome was the report, <i>Our Common Future</i> , published in 1987.
1992	Rio de Janeiro, Brazil	UN Conference on Environment and Development (Earth Summit). Outcomes included the Rio Declaration, Agenda 21, Statement of Forest Principles, and the UN Framework Convention on Climate Change and Convention on Biological Diversity.
1994	Cairo, Egypt	UN Conference on Population and Development, leading to an international plan of action.
2002	Johannesburg, South Africa	World Summit on Sustainable Development. Main outcomes were the Johannesburg Declaration on Sustainable Development and the Johannesburg Plan of Implementation.

Source: ENB (2011), Speth (2004)

Since 1992, global policy makers have struggled to operationalize the concept of sustainable development, with its emphasis on the integration of economic, social, and environmental pillars and protecting the needs of future generations. During the Rio+20 process there was renewed interest in finding effective ways of communicating the urgency of sustainable development, especially to decision makers primarily interested in poverty eradication and economic growth, often from a short-term, politically expedient perspective.

While the debate regarding how best to strengthen the weak environmental pillar of sustainable development at the global level dominates discussions in preparations for Rio+20, for the Asia-Pacific region, a detailed examination of regional, national, and local governance arrangements is needed, if past mistakes are not to be repeated post 2012. Asia-Pacific cannot rely on UN reforms alone to address its urgent sustainable development agenda. Accordingly, this White Paper focuses on the adequacy of current governance arrangements in Asia-Pacific to accelerate the transition to a green economy, examines innovative approaches to governance that have emerged from the region, and recommends additional changes in governance arrangements that will be needed over the next few decades.

Box 1.2 Governance and institutions

Governance refers to how societies share power, through structures and processes that govern individual and collective decisions and actions. Governance is not the sole domain of governments, but involves multiple actors, including the private sector, non-governmental organizations (NGOs), and academia. Governance includes laws, regulations, policies, institutions, partnerships, public debates, political parties, public participation and consultation processes, demonstrations and protests, strikes and other union actions, the judiciary, and other decision-making influences.

Institutions are part of governance but specifically refer to the networks and organizations that organize stakeholder groups to formulate decisions and implement actions. Institutions vary from informal arrangements, like communities of practice, to formally established organizations, like government agencies. As for governance, institutions are not necessarily governmental but can facilitate action among multiple levels of governments, locally, nationally and regionally, along with NGOs, academia, and the private sector.

1.1 Green economy in the context of sustainable development and poverty eradication

Green growth and the green economy have been subjected to considerable investigation by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP 2005) and the United Nations Environment Programme (UNEP 2011), as well as by other international organisations (European Commission 2011). UNEP positions the green economy in the context of sustainable development and poverty eradication, in part due to the sensitivity of developing countries which still regard the decades-old debate over poverty eradication and sustainable development as unresolved and are suspicious that a green economy might impose new barriers to trade. The “Towards a Green Economy” report claims that “transitioning to a green economy has sound economic and social justification” (UNEP 2011).³ The report debunks the myths that there must be a trade-off between “environmental sustainability” and economic progress, and that greening of the economy is a drag on economic growth. It also shows how a green

economy can contribute to poverty alleviation in agriculture, forestry, freshwater, fisheries and energy (UNEP 2011). Policies to achieve this transition and the estimated price tag (USD 1.05 to 2.59 trillion or 2% of global GDP) are also documented.

UNESCAP notes that the challenge for Asia-Pacific is to pursue economic growth that will enable achievement of the Millennium Development Goals (MDGs) on poverty alleviation and environment for the current generation “without jeopardizing the environmental carrying capacity for future generations” (UNESCAP 2005). According to UNESCAP, green growth is a paradigm shift requiring countries to create “win-win” synergies between environment and economy, while acknowledging that even greater economic growth is needed in this region. Enabling policies are divided into “measures for environmental performance and for environmental sustainability” (UNESCAP 2005, 2009).

The green economy is portrayed, therefore, as being consistent with the earlier concepts of sustainable development, but with an emphasis on the economic dimension. Green growth makes this emphasis on the economy even more transparent. According to the UN Department of Economic and Social Affairs (UNDESA), “there is no unique definition of the green economy, but the term itself underscores the economic dimensions of sustainability or, in terms of the recent UNEP report on the Green Economy (UNEP 2011), it responds to the ‘growing recognition that achieving sustainability rests almost entirely on getting the economy right.’ It also emphasizes the crucial point that economic growth and environmental stewardship can be complementary strategies, challenging the still common view that there are significant tradeoffs between these two objectives—in other words, that the synergies prevail over the tradeoffs” (Ocampo 2011, p. 4).

As for sustainable development, where multiple definitions have emerged, the green economy and green growth potentially suffer from the same definitional morass. Huberty et al. (2011) find three predominant concepts of green growth that have emerged: (i) that greenhouse gas (GHG) emissions reductions can be compatible with economic growth (and not a drag on growth); (ii) that investment in low carbon technologies can generate green jobs in a recession (and stimulate recovery); and (iii) that green investment can transform the economy and “fuel a new green industrial revolution.” The concept of a green stimulus or Green New Deal, in the context of kick-starting economies suffering from the global financial crisis, emphasises investments in clean energy that expand demand for green jobs and other factors of production in the short-term, while reducing GHG emissions and increasing economic growth in the longer term (Strand and Toman 2010).

In fact, the notion of a green economy is not new, as it has been debated for more than three decades, with early antecedents including Arne Naess’ concept of ecosophy and deep ecology dating from 1973 (Naess 1989, Glasser 2005) and the Club of Rome’s Limits to Growth in the 1970s (Meadows 1972), followed by Small is Beautiful (Schumacher 1973), Spaceship Earth (Buckminster Fuller 1968), and the Blueprint for a Green Economy in the 1980s (Pearce et al. 1989; Pearce 1991, 1993). Unfortunately many of these concepts were seen at the time as left-wing, anti-industry, or anarchistic, suitable only for dropouts and hippies, and they rarely penetrated mainstream economic thinking (Bookchin et al. 1993). Other influential strands that have guided the current debate on the green economy include the ideas of natural and social capital (Prugh 1995, Kareiva 2011), ecological economics (Costanza et al. 1997), natural capitalism (Hawken 2008), and mainstreaming environment into development.

The global financial crisis in 2008/2009 certainly appears to have given the old idea of

a green economy new life, as several countries seized the opportunity to invest heavily in green technology in the guise of economic stimulus packages (Robins, Clover, and Singh 2009, European Commission 2011, Strand and Toman 2010). Others have looked at the current financial crises in the U.S. and Europe and sought to provide a rationale for a zero-growth economy (Meadows et al. 2004, Victor 2008, Jackson 2009, Strauss 2010, Mantica 2010) to rethink the seemingly inevitable march of globalization (Milani 2000), and for more ethical behaviour by companies, consumers and politicians (Perelman 1976, Bednar 2003, Henderson 2007, Clapp 2011). In addition, climate change and the need to reduce GHG emissions, by moving away from an economy so dependent on fossil fuels, have provided further impetus for rethinking the structure of the global economy (Ellis et al. 2010).

1.2 Institutional framework for sustainable development

At the global level, discussions on strengthening the institutional framework for sustainable development have focused on (i) reinforcing the role of the UN Economic and Social Council (ECOSOC); (ii) upgrading the UN Commission on Sustainable Development (CSD) to a permanent agency with enhanced functions; and (iii) building on the UNEP Nairobi-Helsinki process to reinforce the United Nations Environment Programme (UNEP) (European Commission 2011). Emphasis is on greater efficiency and effectiveness of the relevant UN agencies, with several observers noting that form should follow function. There is, however, still considerable debate over the optimal scope and mandate of these institutions.

UNEP has been singled out as an important actor in the global arena but is seen by most observers as being hamstrung as it is only an inadequately funded “programme” rather than an “organization.” Some countries have called for UNEP to be transformed into a World Environment Organization (WEO) or specialized UN agency (UNEO) along the lines of the World Health Organization (WHO) or the International Labour Organization (ILO), while others doubt that such a change will make UNEP any more efficient or more effective. Several other institutions also claim a mandate in relation to environmental issues, including the United Nations Development Programme (UNDP), Food and Agricultural Organization (FAO), World Health Organization (WHO), Global Environment Facility (GEF), and the various secretariats of the multilateral environment agreements (which in turn need to be better integrated and streamlined). Recognizing the particular weaknesses of environmental governance within this institutional framework for sustainable development, in preliminary discussions for Rio+20, reform of international environmental governance intends to include:

- (i) A UN system-wide, medium-term strategy for the environment;
- (ii) A joint management mechanism for all major trust funds for the environment;
- (iii) Establishment of environment-development country teams; and
- (iv) Development of an overarching framework for capacity building and technical assistance.

As for the green economy, this attention to the institutional framework for sustainable development and international environmental governance is not a new agenda, but has periodically re-emerged ever since the Stockholm Conference in 1972. Mr. Gus Speth, former head of UNDP, recalls that in 1989, 24 countries signed the Hague Declaration calling for “an international body that could make non-unanimous decisions needed to protect the global environment” (Speth 2004). Eventually 40 countries signed the declaration, but key states like the U.S., China, Russia, and United Kingdom did not, so it went no further. Many of these opponents have not changed their view in the past two

decades, and several other UN agencies and secretariats of the multilateral environment agreements are not supportive, so the prospects for WEO/UNEO remain highly uncertain.

1.3 IGES Proposal to Rio+20

While most of the focus in the build up to Rio+20 has been on the issue of reforming global/international environmental governance, less attention has been paid to reform of environmental or sustainable development governance at the regional, national and sub-national levels. At the second preparatory committee meeting for Rio+20, Mr. Sha Zukang, the Conference Secretary-General, noted that deliberations on the institutional issues should address all levels of government. This gap in the analysis to date was seen as an opportunity for the White Paper IV and the IGES Proposal for Rio+20 to leverage IGES' knowledge and policy-research experience to contribute ideas from the Asia-Pacific region and influence the Rio+20 outcomes.

Accordingly, while acknowledging the importance of action at the global level and its likely subsequent impact on regional governance, any real chance of achieving global sustainability goals ultimately depends on successful reform in Asia-Pacific—in structural transformation of the economy (towards a sustainable, low carbon, green economy) and in governance structures, processes, and effective implementation (towards effective performance, policy coherence, and integration). As the fastest growing and most populous region in the world, and often referred to as the global “factory,” Asia-Pacific needs to provide leadership in moving towards a sustainable future rather than waiting for the rest of the world to act. Without significant governance reform in Asia-Pacific, it could be argued that global sustainable development will remain an under-implemented ideal rather than a new reality.

At the risk of being repetitive, the main IGES submission to the Rio+20 process (IGES 2011) picks up on many of these conclusions and bears reiterating at this point. With respect to the outcomes of the Rio+20 conference these points were proposed based on many years of participation and research on sustainable development policies in Asia-Pacific and we believe these points bear consideration as a part of relevant future policies and institutions.

On resilient societies:

- Multi-stakeholder collaborative approaches should be incorporated into economic and social development planning, environmental policies, and disaster management plans.
- Resilient societies should build upon cooperation among local municipalities, NGOs and private companies. Community-to-community relief has been observed as more flexible than the vertical relief channel of national government to local community.
- Public participation should be encouraged in disaster management policies as well as in overall economic development.
- Reducing vulnerability to hazards should be based on an integrated assessment of social, economic, environmental and geographical vulnerability factors, as these are the factors which affect vulnerability and determine if hazards will become disasters.
- Governments should consider development of financial schemes to alleviate risks and stimulate post-disaster economic recovery.
- Decentralized and diversified infrastructure should be emphasized so that the economy is able to mitigate the impact of disasters and quickly spring back to normalcy after a major crisis.

On promoting green growth:

- A precautionary (no-regrets) approach should be followed, starting with building a low-carbon economy with a resilient, secure energy supply system.
- Governments should promote the green economy by introducing fiscal incentives, e.g., shifting the tax base from labour and income to taxing environmental damage such as pollution and unsustainable resource consumption and gradually phasing out environmentally harmful subsidies.
- Decoupling of economic growth and resource use and environmental impacts, through the promotion of green technologies, mindful of possible rebound effects.
- A phased approach, along with international policy cooperation, should be used in setting priorities regarding sustainable production and consumption.
- Current policies should be revised to promote less resource intensive development, resource circulation, resource substitution, total reduction of environmental impact from consumption, and wider investment in green industries through development of packaged policy at all stages of the life cycle of products and services.
- Policymakers should internalize negative ecological externalities into the economic system and promote sustainable agriculture and greening of the product supply chain.
- Overall, IGES recommends developing a green economy roadmap to move in the directions mentioned above.

On promoting an improved institutional framework for sustainable development:

- To change the direction of economic systems and stave off ecosystem collapse, fundamental institutional changes and coherent goals that are reinforced at global, regional, national, and local levels by consistent incentives, regulations, policies, and action will be required.
- Multi-level governance is necessary for coherent and effective action. Vertical and horizontal cooperation between and within levels is needed to minimize policy tradeoffs and maximize synergies between traditionally separate sectors and policy domains, and sustainability goals need to be mainstreamed into all major societal decisions and sector plans.
- Environmental and sustainable development governance should be carried out in accordance with the subsidiarity principle, which prescribes that issues ought to be dealt with by the smallest, lowest or least centralized competent unit.
- Cooperation between countries should be enhanced to share best practices on environmental compliance and enforcement, to provide technical assistance to developing countries in need of capacity strengthening, and to continuously upgrade regional, national, sub-national and local compliance and enforcement actions.
- Governments are encouraged to support the creation of a global Sustainable Development Council to better coordinate and oversee budgeting of all UN programmes and agencies.
- Ultimately, IGES recommends that UNEP be upgraded to a specialized agency, with its own decision making mandate and legal identity.
- For improved coordination and information sharing, IGES suggests the formation of a regional environmental focal point, which in the long run could be developed into an Asian Environmental Organization.
- At the national level, IGES recommends that high level focal points and coordination committees be appointed above the sector ministries to ensure that sustainable development concerns receive sufficient attention and are vertically integrated and mainstreamed.
- National level environmental governance should be improved in such a way that

will further promote local level actions in close collaboration with municipal or local governments.

1.4 Overall context in Asia-Pacific

As indicated above, the key question to be addressed in this section is how governance changes in Asia-Pacific could help to accelerate the achievement of the sustainable development agenda in all three of its dimensions, assuming that a low carbon economy, green economy, and sustainable consumption and production are all critical elements (and possible stepping stones) of that transition. To address this question, a thorough understanding of the current governance arrangements, existing strengths and weaknesses, and possible alternative arrangements is needed. The overview in this chapter is supported by more detailed analysis and specific recommendations in the chapters that follow and in the IGES Proposal for Rio+20 (IGES 2011).

1.4.1 Regional and subregional governance

Asia-Pacific has developed rather limited regional and subregional institutions up to now. Even in the economic area, institutions in the region have been weak and lacking coordination compared to other regions such as Europe. The tremendous diversity in Asia-Pacific, in cultures, languages, social and economic systems, and the unfortunate history of geopolitical conflict in the region, are major obstacles to increased regional integration.

Since only low priority has been given to the environment, naturally the region's environmental institutions (including soft options such as forums and networks) have been weak and sporadic, covering only specific issues in a non-substantial manner. Despite the lack of regional institutions, the fact that almost all countries in Asia have remained as developing countries with small economies at the global scale until recently has, by default, kept most environmental problems in the region from being totally destructive when viewed from a planetary perspective (although often quite disastrous at a national level). However, steady economic growth, the emergence of economic superpowers, continuing population growth, and regional integration are now changing the regional context very quickly. In the so-called Asian century, the Asia-Pacific region is now seen as a major force in changing the global environment and benign neglect of the environment is no longer an option.

Economic integration in the region has promoted translocation of various highly polluting industries to developing parts of Asia, which may have resulted in the total increase in environmental loads, such as GHG emissions, and transboundary environmental issues. This clearly indicates an emerging need to strengthen regional environmental institutions which can properly deal with growing environmental challenges in the region and the responsibility of developed countries to assist in creating a level playing field for protection of their own industries. Attracting industries on the basis of lax environmental controls is a race to the bottom and is not in the best interests of any country or the region.

Existing regional and subregional environmental governance arrangements including those addressing particular thematic issues (e.g., Malé Declaration, ASEAN Transboundary Haze Agreement, EANET, etc.) are diverse yet weak in addressing substantial issues. For example, Indonesia's failure to ratify the ASEAN Transboundary Haze Agreement, despite being at the centre of the problem, is reflective of weak compliance and enforcement at all levels. Much could be achieved simply by insisting on

more comprehensive implementation of existing agreements, legislation, regulations and policies already part of current governance arrangements. A reluctance to add sanctions to regional agreements stems from the overarching principle of non-interference in sovereign affairs. Yet, as seen from the European experience, some degree of yielding sovereignty is a necessary condition for effective regional governance.

There is no overarching regional environmental or sustainable development institution in the Asia-Pacific region, although regional arms of global institutions such as UNEP's Regional Office for Asia and the Pacific, UNDP, WHO, FAO, and UNESCAP, use their convening powers and, in the case of FAO, UNEP and UNDP, access to GEF funds to undertake a wide range of mostly capacity strengthening projects. Similarly, the Asian Development Bank (ADB) and country offices of the World Bank have access to GEF and other environmental and climate change funds and are now extremely active in pursuing a sustainable development agenda, with funding levels outweighing other regional institutions.

At the subregional level, there is a plethora of institutions, including the Association of South East Asian Nations (ASEAN), Tripartite Environment Ministers' Meeting (TEMM), South Asia Cooperative Environment Programme (SACEP), Greater Mekong Subregion (GMS), North East Asian Subregional Programme on Environmental Cooperation (NEASPEC), and Secretariat of the Pacific Regional Environment Programme (SPREP). These subregional institutions are intended to foster cooperation among countries, harmonize approaches to the environment, carry out subregional environment programmes, and provide a unified "voice" for the community represented.

In some respects, there may be too many of these subregional institutions, as mandates overlap, funds are limited, and a lot of time is taken up by national agencies in preparing for and attending the large number of subregional meetings, conferences, and workshops, which may detract from the necessary attention to environmental issues at the national level. As one example, the multiple coastal and marine programs at the subregional level—the Coordinating Body on the Seas of East Asia (COBSEA), the Partnerships for Environmental Management of the Seas of East Asia (PEMSEA), and the Coral Triangle Initiative—could benefit from streamlining and integration.

The Asia-Pacific region is dynamic, and needs to strengthen its governance framework to achieve sustainable development goals, fully involving key stakeholders at all levels. Strong economic growth and further globalisation will necessitate greater involvement of the private sector, while serious social issues like poverty and unemployment require full involvement of civil society including communities and families. Corporate social responsibility and ethical investment are pursued by regional bodies such as Corporate Social Responsibility in Asia (CSR-Asia) and regional chapters of the World Business Council on Sustainable Development. To date, the regional arm of the World Business Council on Sustainable Development has not been particularly active but could take on a more active role in the lead up to Rio+20.

Topics covered at the regional/subregional level later in this White Paper include regional environmental agreements, regional institutions (such as the subregional environment programmes of SPREP, SACEP, other), regional networks and partnerships (AECEN, CAI-Asia, PEMSEA, COBSEA, CTI, other), and regional centres of excellence. Mapping this complex set of existing governance arrangements is necessary to understand the potential for streamlining and integration, possibly through better information sharing initially and ultimately some form of regional environmental organization, as implemented in Europe.

1.4.2 National and sub-national levels

Understanding of the relationship between the environment and development is rapidly changing in the Asia-Pacific region. Green growth and the green economy concepts are now gaining substantial support in Asia. The Republic of Korea, for example, has introduced a basic law to promote green growth, which will include a cap and trade system in the near future.

The revitalized concepts of green growth and/or the green economy in the context of sustainable development suggest that there is no inherent contradiction between economic growth, social equity, and environmental protection. Countries can achieve economic growth without destroying natural and social capital in the process. Generic pathways of a transition towards a green economy have been espoused by UNEP and UNESCAP among others and a number of countries seem to be responding. Pump priming to “kickstart” economies following the onset of the first global financial crisis in the late 2000’s witnessed apparent paradigm shifts in a willingness to invest in critical elements of the green economy, such as renewable energy, mass transit, reforestation, and climate change mitigation and adaptation. Countries in Asia such as China, Korea and India have shown global leadership in demonstrating this willingness to invest in green growth.

National environmental governance has been substantially improved as most governments have now created a central environmental authority under a framework environmental law, along with subsidiary laws, decrees and regulations, but still many challenges remain in implementation. Compliance and enforcement remains weak in most countries and the environmental agencies tend to be under-resourced for the challenges they face. A positive development in the region has been the increasing environmental activism of the courts, with creation of “green benches” and training of judges and prosecutors to hear environmental cases which demand a more technical understanding of the issues involved. In India and the Philippines, the supreme courts have issued instructions to the national environmental agencies to enforce the law and clean up the environment (e.g., air quality in New Delhi and coastal environmental quality in Manila Bay).

At the national level, many countries have prepared a wide range of national action plans, national capacity self assessments, national councils (of sustainable development and climate change), mainstreaming efforts, innovative legislation, integrated policy assessments and planning approaches (such as strategic environmental assessment), and attempts to deal with transparency and corruption. Environmental quality, however, continues to degrade (UNEP 2012), suggesting perhaps that too much governance is directed towards the appearance of progress rather than effective implementation. A casual glance at many of the region’s “action plans,” for example, will show that hundreds of specific actions are proposed but these are almost never integrated into annual budgets, subjected to cost-benefit analysis, or ever followed up with periodic evaluation of implementation progress or impact assessment. Honest performance assessment, as is periodically carried out with peer review in OECD countries, would be a good starting point in the region to identify why so many plans have resulted in so little progress.

1.4.3 Local and community levels

At the local level, emphasis is on implementation of local Agenda 21s, climate change adaptation, community empowerment, community-based management of natural resources and payment for ecosystem services, city level networks and replication of

good practices. Compliance and enforcement is often best addressed at the local level, where political leaders and environmental agencies are closest to, and impacted by, specific instances of environmental degradation. For example, in Viet Nam, some local governments have created an environmental police force (environment specialists given subsequent policing training) to supplement the efforts of the local environment agencies.

Decentralisation and rapid urbanisation have made it necessary for local government, particularly cities, to address environmental issues at the sub-national level. However, most cities have only limited capacities, funding and mandates. Regional/international networks at the city level, including south-south, peer-to-peer assistance schemes, appear effective in promoting the environmental agenda at the local level.

1.5 Possible changes in governance arrangements in Asia-Pacific

Does the Asia-Pacific region have innovative governance approaches that should be adopted more widely at the global level? What are the remaining governance weaknesses and what are possible solutions? If certain changes are made to current governance arrangements, is there confidence that this region could actually make the transition to a green economy? If Asia-Pacific fails to make the transition over the next few decades, what are the implications for the global environment and the ultimate goal of sustainable development? What are the costs of governance in this region failing to adapt to the current challenges? These are some of the questions that will be addressed in subsequent chapters of the White Paper.

There is tremendous scope for optimism as continued governance failure in this region is simply too serious to contemplate, while there are sufficient examples of what can be achieved once political will is mobilized – many of which are included in this White Paper. Among the analysis and recommendations a common element is the necessity of information sharing and capacity development as essential yet basic components necessary for continued and accelerated progress on sustainable development governance. As outlined in the next chapter developing a regional hub for sharing environmental information and developing capacity should be a priority for Asia-Pacific to overcome the challenges of working in a region with a myriad of policy networks and communities. This formal institution would be the first step towards developing a regional environmental organisation.

1.6 Overview of subsequent chapters

This chapter has outlined the context for the White Paper by exploring underlying issues in Asia-Pacific and globally which affect environmental governance and sustainable development pathways in the region. Research for this White Paper started with discussions on the themes of Rio+20 and what the Rio+20 process means for the region. Many issues have been raised for the international framework for sustainable development as well as green economy and poverty alleviation, very critical issues of course, but each region in the world has its own particular issues based on their respective geographies, growth patterns, and stages of development. The chapters of **Section 2** identify some of the major issues for the Asia-Pacific region and make recommendations on near and long-term actions, and share insights based on IGES research and expertise, but also draw from analysis of strategies employed in other regions and good practices from Asia-Pacific itself.

Chapter 2 explores how to enhance international cooperation on environment and development issues in Asia-Pacific. The chapter reviews a number of pertinent drivers

of environmental change in and outside the region including a discussion of important international treaties that Asia-Pacific countries need to develop additional capacity to implement. The chapter presents an overview of the strengths and weaknesses of the “spaghetti bowl” of existing regional and subregional institutions. The analysis finds that capacity and information sharing are the most appropriate areas to focus on for expanding cooperation in the short term and recommends developing a regional information sharing hub to enhance the effectiveness of national efforts and reduce information gathering costs while building a foundation for the further institutionalization of regional cooperation. The paper recommends climate change, disaster resilience and carbon market related issues as the least contentious issues for cooperation and the most obvious benefits for countries that may choose to engage in this kind of cooperative arrangement.

Access to environmental information has long been promoted as a critical tool for promoting effective management of the environment and resources in the context of sustainable development. While a number of useful initiatives and policy measures have been adopted and are being implemented in an increasing number of countries, there is still a great deal of room for improving their effectiveness and scaling them up across the Asia-Pacific region. Environmental and natural resources issues are not restricted to national borders and as regionalisation and globalisation become the norm, access to information and meaningful participation by multiple stakeholders at multiple levels become essential to formulate sustainable development pathways. In line with recommendations for a regional information sharing hub, **Chapter 3** analyzes access to information globally based on Agenda 21 and the Rio+20 process, and examines examples from other regions for lessons which may be learned for emulating in Asia-Pacific.

Assuming that climate change issues must be addressed in the context of sustainable development to meet the concerns of government and industry, **Chapter 4** looks at making carbon governance in Asia greener by exploring the relationship between climate change mitigation, green economy and sustainable development. This chapter examines how these concepts have been realized and operationalized in domestic mitigation actions and the Clean Development Mechanism (CDM) in selected Asian countries. Governance schemes and enabling conditions are discussed and a regional platform for promoting low-carbon development is proposed.

While the previous chapters mainly look at the framework for sustainable development from international and regional perspectives, **Chapter 5** draws a line between the international and local level by examining REDD+ and community forest management (CFM) in the context of a green economy and poverty alleviation. Many countries in the Asia-Pacific region are undergoing decentralization processes that have given CFM a stronger role as an instrument to sustainably manage forest resources and alleviate poverty. In this context, the authors consider how CFM may have the potential to contribute to the empowerment of local communities and enhance their well-being with benefits for climate change mitigation and adaptation. This chapter draws on cases in six countries in Asia-Pacific which represent a range of geographical conditions and illustrate state-sponsored CFM programmes in various stages of development and intended outcomes. The chapter highlights how CFM can make a significant contribution to REDD+, and vice versa.

Continuing the focus on green economy and moving to an even more concrete level of analysis and examples, **Chapter 6** draws on case studies of past and ongoing projects between India and Japan which IGES has been closely involved with and identifies some

of the barriers and strategies for technology transfer as a key contribution to developing a green economy. Case study evidence and previously published research indicates that given the risks of the current global environmental and economic conditions and the need for urgent action, governments and companies should focus on promoting the horizontal transfer of proven and commercially available technologies as they can more easily be transferred with fewer barriers. The chapter provides realistic strategies to promote the deployment and diffusion of low-carbon technologies.

The previous chapter explored technology transfer as a part of a green economy with examples of public-private partnerships between countries in the region. **Chapter 7** emphasizes relationships between local governments as an effective means for increasing capacity and sharing knowledge for effectively managing environmental and sustainability issues in a rapidly urbanizing region. The Kitakyushu Initiative for a Clean Environment, CITYNET, and Clean Air Initiative for Asian Cities are included in the analysis as good practice examples for knowledge sharing and mutual learning. This chapter studies the functions, achievements and impacts of intercity networks, as well as the evolution of their management and operational strategies in response to the needs of network members and emerging global environmental challenges.

The final chapter in this section proposes a phased approach for achieving sustainable resource circulation and management as for developing Asia, improving resource efficiency including promotion of resource circulation will continue to be a priority. **Chapter 8** builds on the messages generated in the previous chapters on regional integration and how contributing to a green economy can be done by all countries with due consideration given to their position within the context of sustainable development. This is based, in part, on the notion that political support for a green economy at the national level is only a first step, and a political framework starting at the international level is needed for many sectors, in particular waste resource circulation and management. Specific strategic actions are suggested, including a proposal for the establishment of an international fund for sustainable resource management for financing bilateral and multilateral cooperation programmes in the 3R/materials circulation field, as well as encouraging technological development and infrastructure investment for resource efficiency and decoupling.

1.7 Conclusions

Environment and sustainable development problems cannot be solved at just one level. Therefore Asia-Pacific should promote multi-level, multi-stakeholder governance reform. In a region that is constantly threatened by natural disasters, emphasis should be placed on creating resilient societies that can minimize the impacts of disasters and quickly rebound. Decentralization and application of the subsidiarity principle should be the foundation of multi-level, multi-stakeholder governance, as well as contributing to resilient societies.

The implications of increasing regional integration in Asia-Pacific and the region's increasing global significance and emerging role are profound, not least in the need for substantive governance reform. There is a need to ensure that effective attention to environmental quality and sustainable development proceeds at least as fast as trade integration. Environment and sustainable development must be integrated into Asia-Pacific's institutions, at regional and subregional levels, from the beginning as they develop. In the best of all possible worlds, environment and sustainable development could become the leading focus of integration (perhaps progressing faster than trade), rather than constantly lagging behind and threatening the wellbeing of the region's burgeoning population.

IGES hopes that this White Paper together with the IGES Proposal and other publications prepared for Rio+20 will influence the decisions of policymakers in the Asia-Pacific region and globally to carve out efficient and effective institutional arrangements and improved governance that will take us into a sustainable future. There are many promising governance developments in the region that can be built on and the implications of failure are so severe that the challenge now is to find the collective will to bring in the changes, not just for the region but for the whole planet.

Notes

1. The UNCSO homepage contains a wealth of information on the inputs and outcomes to the Rio+20 process: <http://www.uncsd2012.org/rio20/index.php?menu=61>
2. Refinement of these themes is possible during the preparatory process and there is strong pressure for oceans (blue economy) issues to be added to the agenda (ENB 2011).
3. UNEP's Green Economy Report has been under increased fire, particularly on the modelling that underpins the report, which several observers regard as a critical weakness in the arguments (Ibon Foundation 2011).

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Chapter 2

Strengthening Governance for Environment and Sustainable Development: The potential for a capacity and information exchange platform in Asia-Pacific

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Mark Elder and Simon Olsen

1. Introduction

Asia-Pacific is now a central actor in the globalized economy. It is a diverse region that is home to both highly developed countries like South Korea and Japan, as well as fast growing emerging economies like China, which despite the current global economic slowdown, achieved a 9.3% GDP growth rate in 2011 (World Bank 2011a). India experienced a slightly lower but still impressive 8.8% GDP growth rate in 2010 (World Bank 2011b). The region is also home to ten least developed countries (LDCs) and many small island developing states (SIDS).

Millions of people have escaped poverty, but the rapid economic growth has taken a heavy toll on the environment (ESCAP 2010). There are countries with all types of environmental problems and development profiles ranging from large and rapidly growing emerging economies like China, India and Indonesia, to smaller commodity-exporting countries like Malaysia, and poor developing countries of various population sizes, like Laos, Cambodia, and Nepal. Moreover, despite this wide diversity among the countries, there are drivers and impacts common to the whole region.

Many developing countries throughout the region are facing constraints in their ability to take action on environment and sustainable development (SD)

Key Messages

- Rio+20 framed a broad discussion on the Institutional Framework for Sustainable Development (IFSD), but it mainly focused on reform of global UN bodies. More attention needs to be placed on how to strengthen regional institutions, and this chapter focuses specifically on ideas for the Asia-Pacific region.
- The Asia-Pacific region has a wide variety of institutions for the environment and sustainable development, but taken as a whole, they have been described as a “spaghetti bowl” with a great deal of fragmentation and duplication.
- Capacity development and information sharing in particular could benefit from enhanced regional cooperation, especially in relation to implementation of multi-lateral environment agreements (MEAs), accelerating progress in meeting Millennium Development Goals (MDGs) and potential new Sustainable Development Goals (SDGs), and to enhance resilience in the face of an expected increase in natural disasters.
- Other regions have had useful experiences, especially from the European Environment Agency (EEA) and its European Environment Information and Observation Network (EIONET). Although the EEA itself does not focus on regulation, the harmonization of information and capacity on environmental matters across the EU has benefited the environment indirectly by enhancing countries’ coping capacity.
- This chapter recommends the creation of a capacity and information exchange platform, as a regional body to promote information sharing, and capacity building, including helping member states adjust monitoring and reporting of progress towards meeting their environmental and sustainability commitments. Establishing such a platform could be seen as initial step for, in the longer term to set the stage for a regional environmental institution or agency.

issues domestically. Most countries in the region already have fairly well developed laws and policies, and have established specialist agencies and ministries, yet advances in environmental and SD governance often remain seriously handicapped by an acute shortage of technical resources, such as data information systems and implementation capacities.

This chapter suggests that countries could address existing and emerging drivers of environmental change and their impacts with lower costs if they were approached in a multi-lateral fashion utilizing a capacity and information exchange platform operating at the regional or sub-regional levels. This platform could serve as the first step in the long-term vision for regional sustainable development governance which would ultimately result in the creation of a regional environmental institution.

An important argument for multi-lateral capacity and information sharing on environmental issues is that countries will have to prepare low-carbon road-maps and climate change mitigation and adaptation plans as a result of the Durban Platform for Enhanced Action. Before 2015, this platform is expected to develop a "...protocol, legal instrument or agreed outcome with legal force at the twenty-first session of the Conference of the parties..." (UNFCCC 2011, 1) expected to be functionally implemented by 2020. While the details of the Durban Platform remain to be developed, it is quite likely that it will result in greater importance for acquisition and exchange of carbon emission reduction techniques and other capacity related to eco-efficiency and climate change abatement, in particular. It is therefore possible that a demand for establishing a regional and sub-regional capacity and information exchange platform will emerge in the near future, the prospects of which will be examined in the following pages.

It is very timely to discuss these issues relating to the use of international cooperation schemes to strengthen environmental and sustainable development governance at the national level, including inadequate capacity and information, since these are related to one of the key themes of the Rio+20 conference in Brazil in June 2012, that is, how to strengthen the institutional framework for sustainable development (IFSD). Much of the discussion leading up to the conference focused on reform of UN organisations, and much less attention was paid to how to strengthen governance and cooperation at the regional and national levels. One of the aims of this chapter is to address the issue of how to strengthen governance at the regional level, and how this in turn could help to strengthen governance at the sub-regional and national levels.

1.2 Main argument

This chapter explores how to enhance international cooperation on environment and development issues in Asia and the Pacific, and it concludes that the creation of a capacity and information exchange platform would be a desirable way to do this. This chapter will present options for such a platform, mandated to synthesize and disseminate capacity and information relevant for development and environmental sustainability. The aims of such a capacity and information exchange platform should be to: a) work as a hub to synthesize the communication of information; b) help member states harmonize monitoring and reporting of progress towards meeting ratified environmental treaties and development goals; and c) exchange and develop capacity and knowledge between countries.

It might be more desirable to advocate stronger institutionalisation of cooperation for the region, rather than just a capacity and information exchange platform. However, harmonizing environmental capacity and information through the latter is considered a

more politically feasible suggestion in the short run. It would be voluntary and non-binding but would help countries meet their existing commitments through capacity building, and may even lower costs by sharing information on best practices. In the long run, more institutionalised cooperation on information and capacity has potential to facilitate future harmonization of policies, legislation, regulations and standards among participating countries. All of this would not only improve the environment among participating countries, but also make it easier to maintain a strong environmental dimension in the ongoing economic integration in the region.

The chapter first reviews a number of pertinent drivers of environmental change that could become thematic issues for cooperation in this region, including a discussion of important international treaties for which Asia-Pacific countries need to enhance their capacity to implement. Second, it presents a brief overview of the strengths and weaknesses of the “spaghetti bowl” (Austrevicus and Boozman 2007) or “noodle bowl” (Baldwin 2007) of existing regional and sub-regional institutions and treaties, which are characterised by significant fragmentation and duplication.¹ This analysis will help to consider the most optimal geographic scope of countries for cooperation as well as the most likely themes for cooperation. Third, the chapter reviews a number of institutional arrangements from countries outside, as well as inside, the Asia Pacific region. Fourth, the analysis concludes that capacity and information sharing are the most appropriate areas to focus on expanding cooperation in the short-term. Two options are developed for a regional or sub-regional capacity and information exchange platform in the region. Finally, the paper concludes that the best areas of focus for a capacity and information exchange platform would be climate change, disaster resilience and carbon market related issues, since these present the least contentious issues for cooperation and would result in the most obvious benefits for countries that may choose to engage in this kind of cooperation.

1.3 Environmental issues in Asia-Pacific

Environmental issues in Asia-Pacific are similar to those challenging development globally and which are also experienced in other regions. However, due to the rapid economic growth of many countries in the region, environmental constraints may be becoming increasingly serious here. Among the global megatrends and driving forces especially relevant for the Asia-Pacific region’s environment are: 1) economic growth, and its accompanying energy consumption and CO₂ emissions; 2) urbanization; 3) consumption (Marcotullio 2007, Choi and Didham 2009); and 4) population growth (Parker 2011).

Areas that could benefit from greater international cooperation include climate change, resilience and disaster prevention, environmental and sustainability related aspects of increased trade and economic integration, as well as other transboundary problems. All of these issues are interrelated. Therefore, cooperation on the drivers of climate change such as consumption, energy demand, and greenhouse gas (GHG) emissions and their effects in terms of natural disasters and the implications for countries’ resilience could improve national capacity to respond.

This becomes apparent when looking at the region’s growing CO₂ emissions. Between 1995 and 2005, the Asia-Pacific share of global CO₂ emissions grew from 42 to 48%. In 2006, the region emitted nearly 14 billion tonnes of CO₂, an increase of 5.3% from the previous year (ESCAP 2010). Overall, the emissions are predicted to increase by 75% in the next two decades (Doi et al. 2010). The GHG emissions are largely from increased energy demand. In connection with the Durban Plan for Enhanced Action, it is conceivable that all countries, no matter their development status, eventually will engage

in low-carbon development and make increased use of market-based mechanisms, such as carbon trading and the clean development mechanism (CDM). Increased exchange of knowledge and expertise in these areas could therefore soon become a feasible theme for cooperation, as this creates financial incentives for all involved parties. Building on that idea, this chapter combines climate change responses with the concept of resilience, early warning and disaster prevention, as these thematic areas seem to have less conflict and appear to be win-win issues on which countries can cooperate.

Resilience is an urgent issue in this region, as Asia-Pacific “bears the brunt of natural disasters, accounting for 80% of lives lost globally” (Reliefweb 2012). Therefore, transboundary cooperation on disaster prevention and resilience could become a relevant area for international cooperation through a capacity and information exchange hub.

The convergence of environmental with international trade concerns is a trend emphasized by the Asian Development Bank (ADB 2011). Transboundary environmental challenges are not limited to the Asia-Pacific region; increasing regional cooperation and integration, and the stronger role for softer forms of policy coordination are recognized elsewhere as well (EEA 2010). While some degree of cooperation is already occurring, the global negotiations on further trade liberalization under the Doha Development Round (DDR) under the World Trade Organization (WTO) have stalled, so trade and economic integration is now proceeding through regional and bilateral initiatives. The deadlock in the global trade negotiations has also prevented a comprehensive global agreement on trade and environment (EEA 2011). Early response to these trends by establishing regional or sub-regional capacity and information exchange mechanisms could be advantageous for countries, anticipating the move towards overall regional integration.

As argued above, the transboundary characteristics of energy, climate change, disaster resilience and environment/sustainability-related trade and economic integration issues would benefit from enhanced multilateral cooperation. Some of the trends above already show a range of regionalization and integration, based on the assumption that a multi-lateral approach is cost-effective and beneficial. However, more can be done in the Asia-Pacific region, especially when we compare the level of integration that is apparent elsewhere. Other chapters of this White Paper, particularly the chapters on climate change and waste management and recycling, also provide examples of how cooperation in those issue areas could be approached.

2. Potential areas of focus

One important function of a capacity and information exchange platform would be to assist with implementation of multi-lateral environment agreements (MEAs). In addition to providing assistance on existing agreements, it could also support countries' efforts in areas where discussions or negotiations are still underway. Countries in the region are already members of many agreements at multiple levels, although there are significant differences in terms of which countries are members of which agreements. This can complicate the achievement of synergies between different agreements. However, for an information exchange platform, this need not be a problem, since information sharing itself does not impose significant obligations on countries. Moreover, it could actually facilitate cooperation, as countries that are not members of a particular treaty may still benefit from the information provided.

This section provides a brief discussion of a few intergovernmental agreements related to the major environmental issues, drivers and impacts discussed above. It particularly

looks at the extent to which Asia-Pacific countries are members, and to what extent it is necessary to build up their implementation capacity.

All countries in the Asia-Pacific region have ratified the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the United Nations Convention to Combat Desertification (UNCCD). While different countries have different statuses and obligations in the UNFCCC (Annex I, Annex II, and Non-Annex I countries), the framework convention and its protocol should provide a legal foundation for cooperation on climate change issues throughout the region, in particular with a view to future commitments as proposed in Durban. There is no consolidated regional information sharing platform on climate change yet, although there are some initiatives underway, such as the International Research Network for Low Carbon Societies (LCS-RNET, which has a global scope but whose secretariat is in East Asia) and the Asia Pacific Adaptation Network (APAN).

The biodiversity related conventions are slightly more complex. The Convention on Biological Diversity (CBD) (1992) has been ratified and accepted by all Asia-Pacific countries (CBD 2011). The Convention on International Trade in Endangered Species (CITES) (CITES 2011) is ratified by almost the entire region.² The Convention on the Conservation of Migratory Species of Wild Animals (CMS) has not been ratified by Japan, South Korea, Laos and a number of Central Asian countries, which therefore would limit the possibility of clustering work on biodiversity across the entire region. However, enhancing ASEAN-wide cooperation would still be possible and necessary in light of the pressure on biodiversity caused by urbanization and resource use. The biodiversity area already has two official initiatives related to information sharing in the region, the East and Southeast Asia Biodiversity Information Initiative (ESABII) and the ASEAN Centre for Biodiversity (ACB) (See ESABII 2012; ACB 2012). ACB in particular has collected a significant amount of information on its website, but it is unclear how biodiversity can be linked to other issues such as climate change or resilience. The biodiversity initiatives also have funding problems, so linkage to capacity and information exchange platform with a wider scope might help them to attract more funding and operate more efficiently.

In the field of disaster management, the United Nations is already working through the International Strategy for Disaster Risk Reduction (ISDR), its Hyogo Framework for Action, and regional initiatives including the Asia-Pacific Gateway for Disaster Risk Reduction (DRR) and Development Gateway. The latter currently exists only as an internet-based portal for “information sharing, building networks, accessing technical services and promoting regional cooperation among partners working on mainstreaming DRR in Asia and the Pacific” (Asia-Pacific Gateway 2012). In addition, in 2010, ESCAP launched the Regional Cooperative Mechanism for Disaster Monitoring and Early Warning, Particularly Drought. This initiative has national focal points in all countries.

Climate change (especially adaptation) is thematically closely related to disaster risk reduction. Cooperation on these issues in the Asia-Pacific region could focus on technology transfer, capacity exchange and bilateral or multi-lateral carbon trading. It would be relevant for countries to develop their capacity in these areas to enable multi-lateral engagement in climate change and resilience related work in the future. As mentioned, the region’s countries are diverse, and include Annex I, Annex II and non-Annex I countries. Cooperation would not necessarily focus on legal commitments, but rather around voluntary cooperation geared towards low-carbon technologies, carbon market access, energy security and disaster risk reduction. Current initiatives include the Asia-Pacific Regional Platform on Adaptation to Climate Change and the Kitakyushu Initiative for a Clean Environment, among others (IGES 2011; Kikusawa 2011). But

there are other initiatives to test-run emissions trading schemes for example in Australia, China and India and countries that engage in this type of activity early on may be able to reap benefits faster, if carbon trading becomes a mandatory part of achieving pledged emission reductions.

A capacity and information exchange platform could help to coordinate information on all of these interrelated issues. To be sure, for biodiversity, treaties and information sharing mechanisms already exist, but they lack predictable funding and have different member countries, so a broader platform could enhance coordination and efficiency. For climate, resilience and disaster related issues it is likely that cooperation activities will not be treaty-based from the beginning. It is more likely that a capacity and information exchange platform could emerge on a voluntary basis, emphasizing the benefits that countries reap from cooperation, in terms of reducing the transaction costs of obtaining information on issue related areas benefitting implementation.

3. Existing regional and sub-regional institutional frameworks

The following section briefly surveys a few of the main regional and sub-regional bodies in the environment and development field in the Asia-Pacific region. An in-depth evaluation of the bodies in the region is beyond the scope of the chapter; however, this survey can provide information on the trends in the region, which can help in considering how to enhance the regional institutional framework.

The first observation is that there is a large number and variety of different bodies, networks and institutions in the Asia-Pacific region (e.g. ADB 2010), covering a wide variety of areas and functions, as can be seen from the following table.

Table 2.1 Variety of regional institutions in the Asia Pacific

Categories	Major Examples
UN-related (regional & country offices)	<ul style="list-style-type: none"> • United Nations Environment Programme (UNEP) • United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) • United Nations Development Programme (UNDP) • World Health Organization (WHO) • Food and Agriculture Organization (FAO)
Multi-lateral development banks & funding agencies	<ul style="list-style-type: none"> • World Bank (WB) • Asian Development Bank (ADB) • Global Environment Facility (GEF)
Regional and sub-regional integration	<ul style="list-style-type: none"> • Association of Southeast Asian Nations (ASEAN) • ASEAN+3, ASEAN+6, ASEAN ++ • Economic Research Institute for ASEAN and East Asia (ERIA)
Sub-regional, general environment	<ul style="list-style-type: none"> • North-East Asian Subregional Programme on Environmental Cooperation (NEASPEC) • Secretariat of the Pacific Regional Environment Programme (SPREP) • South Asia Co-operative Environment Programme (SACEP) • Central Asia Regional Economic Cooperation (CAREC) • Coordinating Body of the Seas of East Asia (COBSEA) • Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) • Northwest Pacific Action Plan (NOWPAP) • Network of Asian River Basin Organisations (NARBO)

Categories	Major Examples
Environment ministers meetings	<ul style="list-style-type: none"> • East Asia Summit Environment Ministers Meeting (EAS EMM) • Tripartite Environment Ministers Meeting Among Japan, China, and Korea (TEMM) • Ministerial Conference on Environment and Development in Asia and the Pacific (MCED)
Multi-lateral Environmental Agreements	<ul style="list-style-type: none"> • Acid Deposition Monitoring Network in East Asia (EANET) • ASEAN Haze Agreement • Male Declaration
Bilateral cooperation	<ul style="list-style-type: none"> • Japan International Cooperation Agency (JICA) • Japan Bank for International Cooperation (JBIC) • China-ASEAN Environmental Cooperation Center (CAEC)
International intercity networks	<ul style="list-style-type: none"> • International Council for Local Environmental Initiatives (ICLEI) • Kitakyushu Initiative • CITYNET • C40
UN Type II Partnerships	<ul style="list-style-type: none"> • CAI-Asia
Regional networks	<ul style="list-style-type: none"> • Asia 3R Forum • Asia Co-benefits Partnership • Asia Pacific Adaptation Network (APAN) • Asian Environmental Enforcement and Compliance Network (AECEN) • Water Environment Partnership in Asia (WEPA) • East and Southeast Asia Biodiversity Information Initiative (ESABII) • CAI-Asia
Regional groupings/ offices of NGOs	<ul style="list-style-type: none"> • World Business Council for Sustainable Development (WBCSD) • CSR Asia • World Wide Fund for Nature (WWF)
Others	<ul style="list-style-type: none"> • Global Green Growth Institute (GGGI)¹

Note: ¹GGGI has been initially structured as a non-profit foundation under Article 32 of the Civil Code of the Republic of Korea on 16 June 2010. Its aim is to convert into an international organization in accordance with an agreement among its major partner governments in 2012 (<http://www.gggi.org/about/overview>, accessed 26 March 2012).

This is not a complete listing of Asia-Pacific mechanisms. Categories are illustrative and not necessarily mutually exclusive. Source: Authors.

Some are geographically overlapping in terms of their mandate and membership, and have members in different sub-regions, although not necessarily covering all countries in a sub-region. Overall, the institutional framework in the region can be characterized as a “spaghetti bowl” or “noodle bowl” with an extensive and complex set of bodies characterized by significant duplication and overlap. It is important to point out that the summarized regional and sub-regional institutions and mechanisms are by no means comprehensive or representative of all activities in the entire Asia and Pacific region.

The different institutional forms range from soft agreements and voluntary networks, to entities based on treaties or resolutions. Membership also varies, both in terms of countries, including regional vs. sub-regional, but also in terms of whether they are intergovernmental, non-governmental, or have mixed governmental and non-governmental membership. The scope of functions and activities of these organizations is also wide ranging. Regardless of membership, it seems that some kind of institutional linkage between these organizations and the countries may be important for the organization’s effectiveness, and this would also be true in the case of a multi-lateral capacity and information exchange platform.

Overall, many institutions are centred around the Association of Southeast Asian Nations (ASEAN), which is the focal point of the gradual trend towards increasing regional

(especially economic) integration. China, Japan, and South Korea are connected through ASEAN+3, and additional countries are added in other configurations. The ASEAN member countries have established a research institute, the Economic Research Institute for ASEAN and East Asia (ERIA), to further promote integration in the long run.

A number of United Nations (UN) institutions are active in the region. Some, like the Economic and Social Commission for Asia and the Pacific (ESCAP), which is a regional commission, have a very broad mandate, ranging beyond sustainable development. Others include UN programmes like the United Nations Environment Programme (UNEP) and United Nations Development Programme (UNDP), as well as specialized agencies like the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Some focus more broadly on sustainable development, while others focus more narrowly on the environment. Regarding functions, many focus on knowledge and information exchange, some on monitoring, and few on harmonization. The Global Environment Facility (GEF) and multi-lateral development banks such as the World Bank and the Asian Development Bank (ADB) play a key role in financing, and national donors (particularly from developed countries) and select NGOs are also important.

Two examples from this region which already have extensive information sharing functions include the Network of Asian River Basin Organizations (NARBO) and the Mekong River Commission (MRC). NARBO aims to promote integrated water resources management (IWRM) throughout Asia. The network is based on a charter and focuses on training and enhancing the capacity of governments and thematically related organizations in the field of IWRM. As a network of networks, it provides exchange programmes to its members. Its 76 members (as of 2010) consist of river-basin organizations, governments, and other knowledge partners at national, regional and interregional levels. The charter of NARBO requests members to pay annual fees, but in reality this has not yet been necessary, since members receive support from development banks and financing institutions, and are requested to co-finance any activities they wish to engage in. NARBO functions like a meta-network, disseminating information and capacity from thematically more substantive organisations like the MRC, the International Centre for Integrated Mountain Development (ICIMOD) and other organizations with expertise over larger geographical areas. The MRC, which began as the Interim Mekong Committee over 50 years ago, gained independence from other development agencies (notably the UN) in 1995, as a result of the 1995 Mekong Agreement, which provided it with the legal foundation for its operations.

In addition, there are many smaller networks, some including both governments as well as other stakeholders, particularly from the research community, that focus on a variety of issues. The scope and functions of NGOs also vary widely. Existing institutions also vary to the extent on which their governance process includes multi-stakeholder participation. It should be noted that there is significant variation in institutional endowment in the different sub-regions.

Taken together, it is widely recognized that there is significant overlap and duplication among the institutions and frameworks in the spaghetti bowl, as well as issues that fall between the cracks (e.g., PRCEE, IGES, and KEI 2009; Yoon 2007; Takahashi 2002). Many are underfinanced and understaffed, and coordination is difficult. There are many reasons for this situation, including competition among donors (and recipients), jurisdictional territoriality, and inadequate communication between different policy communities. There have been a number of efforts to rationalize the situation in a number of areas, but their success has been limited.

However, the situation has now reached the point where there are so many networks and initiatives, that countries are having increasing difficulty managing their own participation in them, paralleling a similar problem with environmental and sustainable development governance at the global level (e.g., Najan et al. 2006). Moreover, the constrained financial situation of donors and governments is likely to continue, so in the future it will become increasingly difficult to maintain funding for so many overlapping initiatives.

Capacity and information exchange may be the best way to begin to synergize the efforts of some of the disparate bodies and networks in the region and foster greater cooperation and coordination among them. Information collection, sharing and exchange is one of the most common elements of existing institutions and networks, while capacity building is commonly cited as a key need in the region. Therefore, capacity and information exchange is a good candidate to focus on in terms of strengthening regional institutions. Moreover, the region overall tends to be characterized by “soft” or voluntary cooperation mechanisms rather than binding agreements (Yoon 2007; Koh and Robinson 2002), and this also tends to make information sharing and capacity building an easier focus of cooperation.

4. Examples from other regions

The following section highlights examples of institutionalisation of environment-related regional and multilateral cooperation from outside the Asia-Pacific region. They have been chosen because they are important existing examples, and examining their structures and functions could provide ideas on how to strengthen institutions in the Asia-Pacific region.

4.1 The European Environment Agency

A prime example from the European region is the well-known European Environment Agency (EEA), which has successfully strengthened regional environmental governance through capacity building, knowledge generation, awareness raising and information exchange. The increased quality and availability of reliable information has benefitted informed decision-making and formulation of good policies in the countries that are members. The EEA is facilitating data collection across Europe, and it obtains its information through the European Environment Information and Observation Network (EIONET), which is a partnership network of the EEA (EEA 2011). This network is a congregation of almost 350 institutions with more than 1,000 experts situated throughout and beyond Europe. The EIONET network provides timely and quality-assured data, information and expertise for assessing the state of the environment in Europe and the pressures acting upon it. Its structure is loosely knit but nationally and regionally integrated with reference centres and national focal points in each member country. To harmonize this information gathering effort and provide access, the shared environmental information system (SEIS) has been established creating a web between existing databases across the region. One of the many advantages of this modernization of information collection and dissemination is that it can reduce the administrative burden both at national and international levels. This fundamental realization brought about the EEA, which is funded by the overall EU budget.

The success of the EEA and its EIONET network can be partly explained by the obvious division between regulatory and information gathering/diffusion functions (EU 2011). While EIONET, through its national focal points, collects data on countries’ environmental status, the regulatory mandate of the EU is exercised by a completely different

organization, the Environment Directorate General. The EEA just ensures that the data as well as the capacity to collect, process and disseminate it is harmonized throughout member states. The European examples show that separating the regulatory from the information and capacity generating functions has gained the trust of member countries and fostered a greater willingness to participate. As a result, the EU now has very clear indicators of the state of the regional (and national) environment, which enables well-informed decision-making on the environment and other sectors.

While EEA and EIONET are part of the EU, membership in the EU is not a prerequisite to membership in EEA and EIONET. In fact, five out of the 32 members are not part of the EU (Turkey, Norway, Switzerland, Iceland, and Lichtenstein), while seven West Balkan countries are cooperating members.³ Non-EU members also contribute to the EEA's budget. The EEA began operations in 1993, and in its early years, there were many non-EU members who joined EEA as a key part of the accession process to join the EU (Hoffman 2011).

Of course, currently there is no Asia-Pacific equivalent to the EU. Nevertheless, an organisation similar to the EEA may still be useful in Asia-Pacific. ASEAN has developed several environment-related working groups under the ASEAN Senior Officials Meeting on the Environment, and the ASEAN Secretariat has an Environmental Department under the ASEAN Socio-Cultural Community Department (ASEAN Secretariat 2009). The ASEAN Secretariat has already made important efforts to collect and harmonize environmental information and publishes a state of the environment report, but there are general problems of data consistency and harmonization, as well as basic data collection.⁴ Creating an organisation like the EEA/EIONET could help to address this problem.

4.2 The Commission for Environmental Cooperation

The Commission for Environmental Cooperation (CEC) is a cooperation framework between Canada, the U.S. and Mexico. The CEC focuses on conservation, protection and enhancement of the environment and sustainable development including enforcement and compliance, environmental information, the nexus between environment and economy, pollutants and human health, as well as biodiversity conservation. It is administered by a council, consisting of the highest level environmental authorities of the respective countries, and it is legally defined as an international organization, based on a treaty among the three participating countries. Since the CEC also adheres to Principle 10 of the Rio Declaration, an advisory body consisting of 15 citizens from the member countries advises the council. It is funded by equal contributions from all three member states (CEC 2012).

The CEC was intended to address potential environmental issues expected to result from trade and investment liberalization based on the North American Free Trade Agreement (NAFTA), which came into force at the same time. As sub-regional and regional trade and investment liberalization also move steadily forward in the Asia-Pacific region, it is important to consider how to institutionalise environmental safeguards, as seen with the establishment of the CEC.

One lesson for the Asia-Pacific region is that other regions have realized the environmental implications of trade liberalization and have established environmental institutions to address them. A second lesson is that these bodies are overseen by very high level officials at the minister level, thus ensuring that whatever is decided in this forum is linked back to domestic decision-making. There is a strong domestic level legal

backing to whatever decisions are made in the CEC. A third important lesson is that the use of a multi-stakeholder architecture ensures input not only from governments but also from citizen groups, which is arguably an important point for political legitimacy. In the Asia-Pacific region, there are already a few sub-regional trade and economic liberalization initiatives such as the ASEAN Free Trade Area (AFTA), and various others are under discussion. Before these progress any further, more effort should be made to consider bodies which can anticipate and address environmental implications before they occur. A capacity building and information exchange platform, with mechanisms that allow multi stakeholder input, could be the first step.

4.3 The Organization of Eastern Caribbean States

The Organization of Eastern Caribbean States (OECS) consists of nine states in the eastern part of the Caribbean. Its mission is to contribute to the sustainable development of its member states by means of promoting economic integration, human rights and good governance. It is mandated to help its member states realize their commitments to international environmental agreements. It also seeks to harmonize the positions of its member countries in international negotiations, enabling them to adopt common positions. It is based on a treaty (Treaty of Basseterre) and its level of integration is quite advanced including shared passports as well as a monetary union.

The OECS is based on a strong legal foundation providing legitimacy as the representative organ of its members. The organization helps its countries develop common positions in international negotiations. While this aspect is important and helpful for these countries, it may be premised on the assumption that all member states have similar interests. The OECS is clearly different than the abovementioned CEC, as it is an intergovernmental, treaty-based body, and therefore perhaps most comparable to ASEAN. Among its member states, the level of legal and financial integration is advanced, but since it only involves a limited number of states, it could be a realistic example for a sub-regional congregation of countries in one of Asia-Pacific's sub-regions. Currently there are no bodies with this level of integration in the Asia-Pacific region, but it could be an example to observe over the long-term, as overall regional integration progresses.

5. Scenarios for a capacity and information exchange platform

Broadly speaking, there are two possible options regarding the geographical scope for setting up a capacity building and information exchange platform. One has a sub-regional focus, while the other has a regional focus.

5.1 Sub-regional focus

One option for a capacity and information exchange platform would be to give it a sub-regional scope. Southeast Asia may have the greatest potential to either a) initiate a sub-regional capacity and information exchange platform, or b) act as driving force in initiating a regional capacity and information exchange platform, since the multilateral institutionalisation of environmental cooperation may be more advanced than in other sub-regions, such as Northeast Asia, and its members may have greater capacity than other sub-regions, such as the Pacific islands. Moreover, other Asia-Pacific countries have built regular connections with ASEAN, such as ASEAN+3 and others. Nevertheless, other sub-regions also have existing frameworks (such as NEASPEC, SPREP, SACEP, or CAREC) which could become the nucleus of, or be linked to, a sub-regional platform.

Geographical proximity may be an advantage of this option, as it may be easier to reach an agreement among a smaller (sub-regional) group of countries, rather than a larger and more diverse regional group with fewer environmental issues in common. Arguably, those sub-regions with the least well-developed institutional infrastructure have extra reason to be involved in capacity and information exchange, and they might enjoy well-placed support from better established sub-regions to do so. At the same time it is also possible to imagine using the regional convening powers of bodies such as ESCAP to establish a negotiation forum to reach an agreement on sub-regional capacity and information exchange platforms with each sub-region advancing at its own pace. The UNEP Regional Office for Asia-Pacific (UNEP ROAP) could also play a similar role to the EEA as discussed above: collecting, synthesizing and distributing information obtained through the existing sub-regional networks. This would be consistent with UNEP's sub-regional focus in the Asia-Pacific. These sub-regional platforms could then be coordinated by either UNEP or ESCAP.

5.2 Regional focus

Another option is to give the capacity and information exchange platform a broader regional focus. In Asia-Pacific, however, this may be more difficult than the example of the EEA/EIONET would indicate. While the EEA is completely disconnected from regulatory functions, it still rests solidly on EU regulation (current version No. 401/2009), as well as on the Aarhus Convention—a UNECE convention, which provides a legal requirement for access to environmental information (among others). Both provide crucial legal backing and incentives for regional information exchange, which can hold states accountable and committed to share information with EU agencies and the public at large. This also means that the funding for the EEA and EIONET is provided through the EU and participation is linked to countries' existing obligations. Nevertheless, as mentioned above, EU membership is not a requirement for EEA membership, and the EEA membership includes some non-EU members, who also contribute to the funding and benefit from the information and capacity which is shared through the EEAs networks.

Of course, there is no institution comparable to the EU in the Asia-Pacific region which could serve as the anchor for this type of regional focus. Therefore, in order to obtain these benefits in Asia Pacific, it is important to consider how a seed can be planted to help the region to begin to move in the direction of the EU's capacity and information sharing system. ASEAN and other sub-regional organisations already collect some information, and ASEAN publishes a State of the Environment Report with a certain level of information, although considerably more needs to be collected. Moreover, it is important to harmonize and unify the information collected by member countries.⁵ These efforts might be enhanced if cooperation among these various sub-regional organizations could be strengthened. Expanding the geographic scope to include Northeast Asia and some Pacific countries could make it easier to raise funds, although given the stringent fiscal conditions among developed countries, emerging economies may need to fund their own participation. In the longer term, the sub-regional networks could be linked together, thereby augmenting the capacity and information exchange platform at the regional level.

For Asia-Pacific, a regional arrangement would be possible, but only to the extent that it involves clear benefits for participating countries, and as long as the capacity and information sharing is voluntary—or until an Asia-Pacific version of the Aarhus Convention is articulated and ratified, as suggested elsewhere in this White Paper. Therefore, capacity building and information exchange on either climate change, and/or disaster

resilience related issues could be the most attractive option for countries to start with as a focus for the platform.

5.3 Recommendations regarding the structure

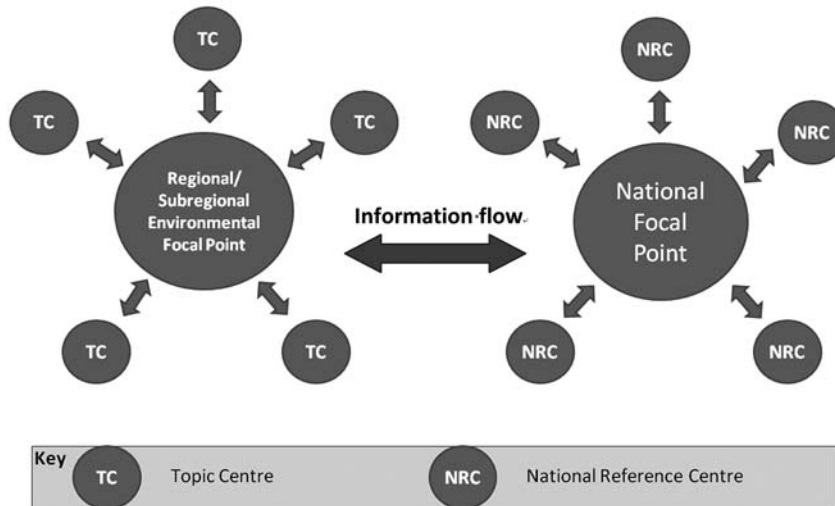
Regardless of whether cooperation is initiated with a sub-regional or regional scope, it is important that the physical centre of the capacity and information exchange platform finds a neutral home, potentially housed by existing international organisations in this region, provided they have an appropriate focus area matching the mandate of the capacity and information exchange platform. Doing so would avoid dominance by a single country, which could undermine multi-lateral cooperation. In addition to the actual centre, it is equally important that the platform links up with existing national focal points in member countries, and that these are connected to national policy making processes.

The organization of the platform should include multi-stakeholder participation. Collecting information, reporting monitoring results and creating regional or transboundary surveys of the state of the environment is necessarily a multi-stakeholder effort needing input from research institutes and NGOs, as well as academia and other stakeholders. This is the case not only for collecting information, but also for using it. Currently in the Asia-Pacific, multi-stakeholder participation in governance is practiced in some cases,⁶ but generally it is not as strong compared to other regions, so there is room for improvement.

There are three ways this could be done. First, more focus could be placed on the science-policy interface, which might provide avenues for more science-based decision-making. Second, multi-stakeholder involvement in monitoring and reporting must be intensified and reinforced. Third, it would be crucial to provide a central role for civil society in a future capacity and information exchange platform to ensure that it is not only governments that develop their capacity on environmental issues.

If it were decided from the outset that the capacity and information exchange platform should have a regional scope, existing multilateral negotiation forums could be utilized to reach an agreement on funding arrangements. In this case, ESCAP could be an appropriate platform for intergovernmental negotiations, as well as for secretariat services, and could house a virtual information exchange platform, as well as organise capacity building on regional levels. If a sub-regional focus was considered more appropriate, then discussions could be centred on UNEP ROAP, in conjunction with ASEAN+.⁷ Regardless of its scope, the structure could be patterned on the following figure:

Figure 2.1 Possible structure for enhancing information exchange and harmonization in Asia-Pacific



Source: Adapted from EEA/EIONET model (EEA 2011)

Organisations with the necessary issue relevant expertise to be Topic Centres (TCs) already exist and could be hosted by, for instance, the Asian Policy Forum, the East Asian Bureau of Economic Research, the Network of East Asian Think Tanks (NEAT), the ASEAN University Network, and the Association of East Asian Research Universities to name a few. ISDR could act as a topic centre for climate and disaster related issues, and the ASEAN Centre for Biodiversity for biodiversity related issues. These topic centres could act as information hubs and synthesise reports received from countries to ensure that a harmonized standard is achieved. The right side of Figure 2.1 depicts the national level, where national focal points would be responsible for obtaining information from the local level and for collaborating with national reference centres. National reference centres would be appointed including universities, civil society groups, consultancies and other centres knowledgeable in the thematic area. These would have to be identified in consultation with national governments.

As mentioned above, many countries already have national focal points for other forums. Where appropriate, these should be given new portfolios to match the mix of mandates on the regional institutional level. Doing so can potentially guard against the disabling overlap and fragmentation of related work portfolios on national levels. When cross-cutting issues are to be addressed, there should be a corresponding focal point appointed in relevant ministries and agencies at the national level.

6. Conclusion

This chapter has argued that there is a need to strengthen the institutional framework for sustainable development in the Asia-Pacific, and that the creation of a regional or sub-regional capacity and information exchange platform may be a good option for the short-term. A reference for this could be the EEA/EIONET in Europe. There are several different interrelated issues such as climate change, disaster/resilience, economic integration, and other transboundary issues that would benefit from such a capacity

and information exchange platform. While there is a broad range of organisations and frameworks already operating in the region, and many of them engage in information sharing, they nevertheless suffer from significant overlap and duplication as well as inadequate funding and human resource capacity. A focused capacity and information exchange platform may help to synergize these efforts and enhance their efficiency and effectiveness, while building a foundation to further institutionalise cooperation in the region.

Two broad options to set up a platform were presented, including either a sub-regional or a regional scope. The platform could be new or based on existing regional or sub-regional frameworks and organisations such as ASEAN, ESCAP, UNEP, or sub-regional cooperation mechanisms.

In the long run, cooperation on knowledge generation, information sharing and harmonization of information among those countries would reduce the costs of obtaining information on particular issues and help address environmental problems with help from other partner countries. It is most likely that it will be more effective to approach countries which already share environmental or developmental commonalities (shared ecosystems important to their development for instance) to set-up such meta-knowledge platforms. In the long run, the progression of open regionalism may steadily increase the feasibility of enhanced environmental cooperation and institutionalisation among the region's countries, especially Japan, South Korea, China, and the ASEAN++ countries.

Regardless of the scope, the capacity and information exchange platform could quite reasonably start among a small number of countries—a “coalition of the willing”—and expand to interested countries in other sub-regions, depending on existing bilateral ties and the successes of the original members. The development of capacity to collect and process information could be financially supported by lead-countries such as Japan and South Korea, and involve organizations from those countries with expertise and experience in managing capacity building and information sharing networks. Climate change and carbon trading would be attractive themes for cooperation, as they involve financial incentives for all involved parties. Resilience and disaster risk reduction have clear potential for reducing damage costs and fewer apparent implications for economic competitiveness, and as they are newer topics the existing base of information is particularly underdeveloped, so countries may be interested in cooperation on information sharing these areas.

From an initial focus on capacity and information sharing in one or several of the suggested issue areas, this cooperation could be subsequently enhanced, leading to a more institutionalised form of regional organization. Expanded areas of cooperation could include joint policy studies among countries. In time, these studies could analyse the strengths and weaknesses of different options for addressing particular problems and help to foster deeper international cooperation on domestic problems of mutual interest as well as on transboundary problems, leading eventually to the achievement of multilateral policy coordination in the region. In the long run, as the platform develops and expands its own capacity, it could help to maintain a strong environmental dimension in the process of economic integration, as well as help the countries to develop common positions in international negotiations.

Notes

1. The concept of the Asia spaghetti bowl or noodle bowl was coined by Haruhiko Kuroda, President of the Asian Development Bank in July 2006, denoting the fragmentation and overlap of regional agreements and initiatives.

2. Countries which have not yet ratified include Turkmenistan, Tajikistan, Timor Leste and Iraq.
3. See the EEA's website, <http://www.eea.europa.eu/about-us/countries-and-eionet> (accessed 26 March 2012).
4. Interviews with the ASEAN Secretariat, 2010.
5. Interviews with the ASEAN Secretariat, 2010.
6. For example, a student-business forum was included in the Tripartite Environment Ministers Meeting (between China, Japan and Korea) from 2011. See the TEMM website: <http://www.temm.org/sub05/view.jsp?id=21> (accessed 12 March 2012).
7. ASEAN++ refers to unspecified combinations of ASEAN plus other countries, such as ASEAN+3, ASEAN+6, etc.

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Chapter 3

Forging Policy and Institutional Frameworks to Promote Access to Environmental Information

Chapter 3

Forging Policy and Institutional Frameworks to Promote Access to Environmental Information

Masanori Kobayashi

1. Introduction

Access to environmental information has long been advocated as a critical tool for promoting effective management of the environment and resources in the context of sustainable development. While a number of useful initiatives and policy measures have been adopted and are being implemented in an increasing number of countries, there is still a great deal of room to improve their effectiveness and expand the scale of such policies and initiatives to the national, sub-regional, regional and global levels. The environmental and natural resources are of concern beyond national borders, as countries in the region and the world become more inter-dependent in terms of resource use and its impacts.

There are disputes over, for instance, large scale hydropower dam construction or mining projects in forests/coastal areas (Peoples' Daily Online 2012, Fuller 2011, ICCHR 2011). Conflicts emerge for various reasons, including barring the public from accessing information on the assessment of a project's environmental impact. Denying public access to environmental information often results in a stalemate with regard to the execution of a proposed project. Hindering public access to environmental information undermines public interests in sharing objective information and allowing the public to take part in an open consultative process. Access to environmental information remains vaguely defined in many countries and the resulting issues continue to intensify (Article 19, 2009, Article

Key Messages

- Governments should develop and reinforce policy measures to ensure public access to environmental information by adopting a freedom of information act or legislation on public access to environmental information.
- Stakeholders should bolster their efforts to obtain environmental information and disseminate it to the public to prompt changes in individual, organisational or communal behavioural patterns in order to curb environmental damage and achieve sustainable development.
- Governments and aid agencies should aid access to information and engage stakeholders in preparatory consultations with respect to publicly funded projects.
- Governments should agree on, and explicitly state in the final document of the United Nations Conference on Sustainable Development (Rio+20) in June 2012, the launch of a negotiation process for developing a regional/global convention on public access to environmental information, as well as public participation in decision-making and judicial proceedings over environmental matters.
- Governments, international organisations and relevant organisations should support the development and implementation of policy measures on public access to environmental information at the transnational or sub-regional level as a supplementary tool to national, regional and global policies on public access to environmental information.

19 and the Access Initiative 2011).

In order to promote concerted actions for effective and sustainable management of the environment and natural resources, it is vital to ensure a policy standard for public access to environmental information at the trans-boundary, sub-regional and regional level in Asia, as well as at the global level.

This chapter reviews the development of policies and institutional frameworks related to public access to environmental information as one of the critical factors in promoting effective governance for the environment and sustainable development, and addresses challenges in forging such frameworks to better promote public access to and utilisation of environmental information. The chapter presents an analysis of priority policy issues and findings, and offers recommendations for consideration in preparing for the United Nations Conference on Sustainable Development (Rio+20) and carrying out the follow-up process.

2. Public access to environmental information as a critical tool for participatory governance

Public access to environmental information is a critical tool for promoting stakeholder-centred participatory environment and sustainability governance. This is a policy imperative in the preparatory process for Rio+20. Public access to environmental information is defined as one of the three pillars of Principle 10 of the Rio Declaration on Environment and Development adopted in 1992. Principle 10 underscores the importance of three factors in promoting effective environmental management and sustainable development, namely (i) access to environmental information, (ii) participation in environmental decision-making, and (iii) access to judicial and administrative proceedings (United Nations 1992a). Environmental information includes products and activities as well as environmental protection measures in accordance with Agenda 21 (United Nations 1992b). Principle 10 was further elaborated in the Johannesburg Plan of Implementation (JPOI) adopted in 2002. Paragraph 164 in Section H of the JPOI on “strengthening institutional frameworks for sustainable development at the national level” states that all countries should provide access to information and foster full public participation in sustainable development policy formulation and implementation (United Nations 2002). As well, public interest advocates have demanded the disclosure of information primarily because environmental issues were being ignored in developmental decision-making, resulting in massive adverse environmental impacts on ecosystems and communities. Later, when the transparency movement arose, advocates began calling for access to information to curtail corruption and inefficient use of public funds (WRI 2002). These two movements resulted in making the call for access to information global and visible.

Environmental information can influence various stakeholders and markets (Kathuria 2008). Labelling, certificates and information on products and service content and production/delivery methods can influence consumers and their consumption choices. Environmental information can also influence investors/bankers on decisions about investing in companies and result in the reflection of environmental liabilities in lending portfolios in banking, stock and financial markets. Employees are able to choose companies that have better environmental records, and entrepreneurs and employers can ensure the recruitment and attainment of competent and committed employees in the labour market by publicising information on a company’s superior environmental performance. Environmental information can also enable governments and regulators

to improve environmental law enforcement and enhance compliance of businesses with environmental regulations. NGOs and communities can demand that businesses and governments improve environmental policy implementation and increase public pressure or partnerships to enhance the environmental performance of businesses and governments.

Public access to environmental information contributes to the following dimensions (WRI 2002; Foti et al. 2008):

- Effective environmental information collection and management: Providing a mandate to governments to collect and manage environmental information prompts governments to collect, manage and transform information into a useful form (WRI 2002).
- Public awareness on entitlements to clean environment: Environmental information increases the public's knowledge of their entitlement to a clean environment, including clean air and water (Stephan 2002).
- Public vigilance over polluters: Environmental information mobilises the public to provide more frequent surveillance of polluters and makes polluters sensitive to negative publicity (Stephan 2002).
- Public environmental monitoring: Environmental information allows the public to supplement government monitoring of the environment and/or undertake environmental monitoring in place of the government (Florini 1998).
- Collective actions for effective environmental management: Environmental information induces the public to undertake collective actions for environmental management (Stephan 2002).
- Public participation in decision making on the environment: Environmental information enables the public to participate in decision making about the environment (Che and Ernhard 1997).

Despite the wide range of demonstrated or potential benefits to increased usage of, or enhanced public access to environmental information, most policy and institutional frameworks still require further revision to capitalize on the above-mentioned benefits at all levels.

3. Policy measures and activities for promoting public access to environmental information

3.1 Environmental information disclosure mechanisms in developing Asian countries

Environmental information has been promoted to foster changes in behaviour in production and consumption to achieve resource efficiency and a green economy. Eco-labelling, environmental reports and certificates and Pollutant Release and Transfer Registers (PRTR) are some typical measures.

Green procurement and green consumerism have been promoted to enhance the awareness of consumers to purchase more environmentally sound goods and services, such as the Green Purchasing and Green Procurement Initiative in Thailand or the Green Consumer Initiative in the Republic of Korea (MOEJ 2010). These information-based measures are undertaken in accordance with national legislative measures or voluntary business or consumer groups' programmes. The effectiveness of green labelling schemes depends on the responses of procurers and purchasers and requires further

evaluation (GEN 2004); in some cases, its impacts have been regarded as restrictive in reducing environmental impacts (Volpe et al. 2011).

PRTR was introduced in the aftermath of the 1992 United Nations Conference on Environment and Development to support pollution prevention and chemical management by promoting data collection and dissemination on releases and transfers of potentially harmful chemicals (OECD 2001). Asian countries have traditionally lagged behind in introducing PRTR programmes (Totoki 2009), even as international projects continue to support PRTR programme development in connection with the Stockholm Convention on Persistent Organic Pollutants (UNITAR 2012).

Several countries have taken recourse to environmental information that generates more direct public pressure on polluters and publicity for environmentally sound businesses. Notable examples are (i) Indonesia PROPER (the Program for Pollution Control Evaluation and Rating), (ii) Green Rating Project (GRP) in India, (iii) Eco-Watch in the Philippines, (iv) Green Book programme in Viet Nam, and (v) Green Watch Program in China (Kathuria 2008). While their progressive approaches are valuable, they are still at the developmental stage in achieving their objectives.

These programmes match the socio-economic conditions of the businesses and society in each country. PROPER rates environmental performance of business operators and links poor performance with financial penalties. PROPER was first introduced in Indonesia in 1995. The Ministry of Environment assesses the environmental performance of business corporations in key aspects such as air pollution, water effluents and waste, and rates their performance using a colour scheme (López et al. 2004). Performance well below environmental standards is rated black. If a company receives a black rating for two consecutive years, the law provides that financial institutions or banks must halt financial loans and other aid to the concerned corporations. The scheme generated immediate response and helped the private companies with poor environmental compliance records in reducing pollutant emissions and complying with environmental standards (López et al. 2009). The scheme is considered highly effective and other neighbouring countries in Southeast Asia, such as the Philippines and Viet Nam, are introducing similar mechanisms.

These environmental information mechanisms which generate public pressure on polluters and publicity for environmental enterprises have spread to other regions. In India, the GRP was first introduced by a NGO, the Centre for Science and Environment (CSE). The announcement of the programme generated impacts from the start, for instance, in inducing the private companies to introduce corporate environmental policies even before releasing information on the results of environmental performance ratings. Right at the start of the GRP, eight companies adopted new corporate environmental policies (Kathuria 2008). In GRP, another effective tool is communication with business executives. When the manager responsible for supplying environmental information fails to disclose environmental information on corporate activities a GRP staff member is able to communicate directly to the corporate executive level. With instruction from the top of the company, environmental information is then usually provided in a timely manner.

Success of environmental information schemes depends on ensuring the commitment of businesses and political will of the government. For the Philippines Eco-Watch, the President announced the start of the programme together with leaders of the Philippines Business Association (Kathuria 2008). Building upon the achievements of Eco-Watch, a similar programme called “Beach Eco-Watch” programme was launched to rate and disclose information on coastal environmental conditions thereby encouraging local

people to keep the beach environment clean and to demonstrate good water quality and high suitability for recreational purposes.¹ The extent and modalities of information dissemination requires further examination and improvement, for instance, with respect to free and timely dissemination (TEI 2010) and in the case of Laguna Lake, it is still considered insufficient in terms of providing information for local communities (Foti and Silva 2010).

The combination of positive and negative publicity is also viewed as a success factor for environmental information measures. Viet Nam's Green Book programme is also accompanied by a Black Book. The Green Book lists the names of companies that demonstrate good environmental performance, while the Black Book is its polar opposite, listing the name of the companies that have revealed poor environmental performance. The simple division between good and bad creates incentives for entrepreneurs to rectify and improve their environmental performance.

China's Green Watch Program is another prototype in which the Ministry of Environmental Protection (MEP) rates the environmental performance of enterprises in five categories. Over the period 2001-2005, more than 8,000 companies were reviewed, and those rated as red and black (companies with poor environmental performance) decreased from 17% in 2001 to 10% in 2005 (Anbumozhi et al. 2011). Generally, the mechanisms for rating environmental performance have contributed to company compliance with environmental standards and regulations and improved environmental performance of the companies. Improvement impacts range from 14-50% in Indonesia, the Philippines and Viet Nam (Kathuria 2008; Anbumozhi et al. 2011), although the need to improve the extent and modalities of information dissemination remains (TEI 2010).²

There are several key aspects necessary to ensuring the success of such environmental information rating and disclosure mechanisms (Kathuria 2008). An effective institutional set-up is needed, such as an advisory panel consisting of experts, NGO representatives, journalists, and industry leaders to ensure sound operation and accountability. A grace period between the negative rating of a company's environmental performance and the release of such information may also be helpful. If companies successfully rectify infringements and ensure immediate compliance with environmental standards and regulations, information on the infringement does not have to be released.

While sensible and strategic operation of environmental information mechanisms can contribute to enhanced compliance with environmental standards and regulations, some limitations remain. PROPER, for instance, is a voluntary programme, and companies need to agree to be rated by the government on their environmental performance. Foreign-owned companies tend to be more responsive than domestic businesses. The coverage of companies by these programmes has been expanding, but it is impossible to rate the environmental performance of all companies, particularly small and medium enterprises (SMEs). It is necessary to explore and employ more innovative and inclusive approaches to expand the scope of applying environmental information mechanisms to enhance company compliance.

3.2 Green Choice Alliance Programme of China

The Institute of Public and Environmental Affairs (IPEA), a Chinese NGO, runs the Green Choice Alliance Programme. IPEA publicly releases information on violation of environmental laws and regulations by businesses and corporations. Information on the violation of environmental laws and regulations is made available to the public by the national and local environmental authorities on a regular basis.

IPEA tailors information released by the government and puts it into a more palatable form for the public (Wang, J. 2011). The uniqueness of this “black list” is to create public pressure on the business sectors to comply with environmental laws and regulations. The rationale of this black listing stems from the disparity between the cost of compliance and the penalty imposed for the infringement of environmental standards and regulations. In China, the penalty for violating environmental regulations is set very low compared with the cost of reducing or eliminating pollution. Corporations sometimes neglect the installation of proper pollution control devices while paying the marginal amounts of penalties imposed for violating environmental laws and regulations. IPEA has developed a partnership with a wide range of organisations, and now generates funds to conduct surveys and stakeholder dialogues and produce environmental reports.

IPEA places an emphasis on the following features of its activities:

(i) Outreach to consumers

IPEA calls upon consumers to use their power to influence the environmental performance of companies through the wise choice of products and producers that have good records of environmental performance. This movement thereby discourages the purchase of goods and services provided by business operators that have bad records of environmental performance.

(ii) Communication with businesses

IPEA demands that businesses strictly examine their environmental performance not just in the companies themselves, but in their supply chains as well, and encourages them to cease business operations with companies that infringe or fail to meet environmental standards and performance.

(iii) Partnership with other NGOs

IPEA operates through a small office, but with an extensive network of environmental NGOs. IPEA is collaborating with 34 NGOs as of May 2011 to develop and disseminate the black list of companies that are in breach of environmental standards and regulations.

(iv) Systematic environmental information management

IPEA systematically compiles information on the black list, and produces reports on a regular basis, which are disseminated through printed reports and their website. IPEA manages information on over 79,000 records of cases of companies in breach of environmental standards and regulations.

(v) Database management

IPEA manages a database that stores information on the blacklist. The database has a search engine, and it is possible to obtain, with this database, information on the name of the company, the year of environmental standard/regulation infringement, and their details.

(vi) Environmental auditing

IPEA engages companies to monitor remediation of environmental standard/regulation infringement through its auditing programmes, and to ensure that the companies will remain committed to compliance with environmental standards and regulations.

(vii) Partnership with corporations

IPEA develops partnership with companies that have demonstrated positive environmental performance and compliance records, and encourages them to expand the Green Choice Alliance Programme actions to their business partners.

(viii) Peer pressure dynamism

IPEA responds to requests by companies to list other violators on the black list and to remove their names from the list once they have demonstrated compliance with environmental laws and standards.

The multifaceted features of engagement and partnership development featured in IPEA's Green Choice Alliance Programme demonstrate a model of activities that NGO and civil society organisations can undertake to influence businesses and consumers to rectify breaches in environmental standards/regulations and encourage them to take recourse to more environmentally sound purchasing and production patterns.

4. Freedom of information policy for public access to environmental information in Asia

A Freedom of Information Act (FOIA) is a critical policy instrument for public access to environmental information. As of November 2011, FOIA has not been adopted in all countries in Asia. Those that have introduced FOIA legislation or are in the process of enacting FOIA are shown in Table 3.1.

Table 3.1 Indicative table on the status of freedom of information acts in Asia and the Pacific

	Northeast Asia	Southeast Asia	South Asia	Central Asia	Pacific
Countries with comprehensive FOIA	Japan, Rep. of Korea, Mongolia	Indonesia, Thailand	Bangladesh, India, Nepal	Kirgizstan, Tajikistan, Uzbekistan	Timor Leste
Countries with FOIA	China		Pakistan		
Countries with FOIA bills pending adoption		Brunei, Cambodia, Lao PDR, Philippines, Viet Nam	Afghanistan, Bhutan, Sri Lanka	Kazakhstan	
Countries with no FOIA processes	DPRK	Malaysia, Myanmar, Singapore		Turkmenistan,	PNG

Source: Authors; developed from Banisar 2011.

Table 3.2 Major policy and institutional deficiencies in access to environmental information in selected Asian countries

Country	Assessment Years	China - Yunan Province	India	Indonesia	Nepal	Philippines	Sri Lanka	Thailand	Viet Nam	Number of countries that indicated deficiencies
		2008	2004-09	2004-09	2008	2007-08	2006-09	2007	2007	
Legislative constraints										
Lack of legal provisions on EI access	1	1	1				1	1	1	6
No mandate for environmental information collection and management					1					1
No mandate for environmental report	1		1							2
No legal provisions on voluntary information disclosure					1					1
EIA not shared with the public	1									1
Exceptions/exclusions		1			1	1				3
Institutional constraints										
No political commitment						1				1
Government officials' broad discretion	1			1		1				3
Failure in timely provision		1	1	1		1			1	5
No regularity in information provision					1					1
No penalty for failure to provide			1			1	1			3
Bureaucracy		1								1
Lack of capacity						1		1		2
Lack of funding						1				1
Expensive cost for access			1		1		1			3
Weak monitoring			1				1			2
Inadequate data				1			1		1	3
Lack of mandatory inspection					1					1
No hard copy/visual information					1					1
No nation-wide information provisions including remote areas and minorities							1	1		2
No database								1		1

Source: Authors; developed from the Access Initiative (2010).

A FOIA is an essential initial step for ensuring public access to environmental information. Table 3.2 assesses implementation of FOIA and future challenges in some selected countries in Asia. Policy and institutional constraints are commonly seen in the following aspects: (i) lack of legal provisions on environmental information access (6 countries), (ii) failure in timely provision of information (5 countries), (iii) wide exceptions/exclusions (3 countries), (iv) broad government discretion (3 countries), (v) lack of penalties for failure to provide information (3 countries), (vi) prohibitive cost for access to environmental information, and (vii) inadequate data (3 countries). Table 3.2 is not an exclusive list of such constraints. However, it demonstrates that there are still considerable gaps in the institutional and legal framework of many Asian countries that need to be improved for effective implementation of the FOIA or legislation on public access to environmental information in order to achieve the intended policy objectives.

5. Features derived from public access to environmental information

5.1 Information access and participation in decision-making over environmental issues

Environmental information needs to be shared effectively among stakeholders and must be better used for optimal decision-making for natural resource management. A good example can be found in a project on “Institutionalising Local Mechanisms for Integrated Sustainable Water Management and Water Governance in Baguio, Philippines.” In this project, the information on water resource management in Baguio City is shared with a newly created multi-stakeholder body called the City Water Resources Board (CWRB). CWRB holds regular meetings and shares information essential for water resource management to promote consensus building on policies and collective actions which foster sustainable water resource management, such as for contentious issues as illegal logging and forest clearance by squatters in the forests that perform important functions of storing rainwater and supplying freshwater in urban areas.

It is not easy to institutionalise multi-stakeholder consultations like the one observed in Baguio City. In Thailand, air, water and soil contamination in the vicinity of the Map Ta Phut Industrial Zone has been a longstanding concern for the local community (Wangcharoenrung 2011). Local residents are already advised not to drink polluted groundwater. The Thai Administrative court ruled in 2009 to suspend the operation and expansion of some business plants and factories due to insufficient environmental impact assessment. The ruling was reversed after resubmission of the impact assessment reports and preparation of a community-based management plan, and the operation and expansion of plants and factories were permitted. However, the concerns of the local residents on the pollution levels and potential health impacts have not yet been fully addressed and an effective mechanism has not yet been established to regularly share environmental information and promote multi-stakeholder policy dialogue.

The threshold of success seems to hinge upon the size of the concerned area and the magnitude of stakeholder conflict and pecuniary value. When the issue involves a large area, highly complex interest conflicts and a large pecuniary value of vested interests, it is not straightforward to promote and institutionalise mechanisms to share information, promote policy dialogue and pursue collective actions. It may be necessary to involve an external facilitator with a strategic vision, and if possible, with the proper mandate to resolve the conflict, although there is no evidence yet of this approach working.

6. Public access to environmental information and access to judicial proceedings over environmental issues

Access to judicial proceedings is another important avenue to environmental information and justice. Pollution victims, for instance, must be able to exercise their legitimate right to seek the termination of polluting activities and obtain damages and compensation for the harm caused by pollution on human health, livelihoods, business and the environment. However, developing countries face multiple constraints in assuring access to judicial proceedings for environmental causes. The shortage of qualified environmental lawyers and judges is one important constraining factor. The limited financial capacity of pollution victims also impedes access to judicial proceedings.

Maintaining Environmental Sustainability via Legal Means is a prototype project in China to promote access to judicial proceedings on environmental matters. The Center for Legal Assistance to Pollution Victims (CLAPV) was established in October 1998 by the China University of Political Science and Law. CLAPV works with legal experts and scholars to provide free legal advice for pollution victims by operating a hotline, exchanging letters or facilitating face-to-face consultation (Wang, C. 2011). From 1999 to 2010, CLAPV has assisted in 177 cases, including 151 civil cases, 18 administrative cases and eight criminal cases. The plaintiffs assisted by CLAPV won 36 cases and lost 33 cases; 49 cases are still pending. It is difficult to generalise the impact of such cases on the polluting behaviour of corporations. However, there have been cases where illegal building permits were nullified and the legal standing of a local environmental watchdog NGO was accepted in the process of the lawsuit.

A Chinese NGO, the All-China Environment Federation (ACEF), provides lawyers with training on environmental laws and litigation (Wang, Y. 2011). ACEF-affiliated lawyers have provided legal assistance to 110,000 victims of 636 pollution cases since its establishment in 2005. ACEF also provides training and undertakes public awareness raising campaigns on the people's rights to the environment. To facilitate access to environmental proceedings, it is vital to develop an organisation that provides legal staff with training on environmental litigation and supports the efforts of lawyers to provide pollution victims with free legal services and to raise public awareness on environmental rights.

The Bangladesh Environmental Lawyers Association (BELA) undertakes comprehensive activities to mobilise and disseminate environmental information, implements training and awareness raising campaigns and offers concessional legal services (Hasan 2011). Access issues at multiple levels are all inter-linked through BELA activities. At the initial stage of developing policies over environmental access issues, it is more pragmatic and useful that a progressive organisation undertake a range of access issues in tandem. Challenges still remain such as how to enforce court rulings in favour of plaintiffs to protect their environmental rights. There are reported cases where courts have ruled in favour of plaintiffs on environmental issues, but the court rulings were not enforced, leaving the infringement of laws and people's rights unresolved.

7. Regional approach to enhancing policies and institutional frameworks for public access to environmental information

7.1 Aarhus Convention

European countries have advanced policy standardisation on public access to

environmental information under the Aarhus Convention. The Aarhus Convention is a progressive regional policy instrument that aims to ensure the public's right to access information, public participation and justice, and imposes on member country governments an obligation to ensure such access (UNECE 2011). The Aarhus Convention was adopted in June 1998 and entered into force in October 2001 after the ratification of the Aarhus Convention by 16 countries. The Aarhus Convention provides guidelines for implementation, sets up a clearinghouse mechanism and offers capacity development training. Most importantly, the Aarhus Convention is considered an integral part of European laws and can be directly applied by national courts. The European Court of Justice and the Compliance Committee established under the Convention can also recommend appropriate measures to member countries to comply with the Convention (Krämer 2011).

In the 1990s, there was growing pressure from governments and civil society to ensure that all the governments in Europe could assure the timely provision of environmental information and public access to the information. Article 4, therefore, clearly provides that the government and public authorities, in response to a request for environmental information, must make such information available to the public, within the framework of national legislation. Article 5 stipulates that the governments and authorities must possess and update environmental information relevant to their functions. It also stipulates that mandatory systems must be established to ensure an adequate flow of information to public authorities about proposed and existing activities which may significantly affect the environment.

Article 6 (c) further provides that in the event of any imminent threat to human health or the environment, whether caused by human activities or due to natural causes, all information which could enable the public to take measures to prevent or mitigate harm arising from the threat and is held by a public authority must be disseminated immediately and without delay to members of the public who may be affected.

These provisions spell out the obligations and responsibility of each government to collect, manage and disseminate environmental information and respond in the timeframe provided by the national legislation to any legitimate request to supply environmental information.

One of the most notable features of the Convention is the Compliance Committee and compliance review procedures. They ensure the effective implementation of the Convention and compliance of the member countries with the Convention. Article 15 requires the Meeting of the Parties to establish arrangements for reviewing compliance with the Convention. The Compliance Committee performs its functions through the following procedures:

- a Party may make a submission about compliance by another Party;
- a Party may make a submission concerning its own compliance;
- the Secretariat may make a referral to the Committee; and
- members of the public may communicate concerning a Party's compliance with the Convention.

In addition, the Committee may examine compliance issues on its own initiative and make recommendations; prepare reports on compliance with or implementation of the provisions of the Convention at the request of the Meeting of the Parties; and monitor, assess and facilitate the implementation of and compliance with the reporting requirements.

The Compliance Committee reviews non-compliance issues, and where necessary, provides recommendations to the concerned parties to rectify non-compliance. A window is also guaranteed for an individual to bring a non-compliance complaint to the attention of the Compliance Committee members. With these compliance procedures of the Aarhus Convention, there are already a number of cases where plaintiff NGOs that were once refused access to environmental impact assessment reports by the government were granted access to such information after a decision by the Compliance Committee (Krämer 2011).

8. Prospects for developing a regional convention on public access to environmental information

Countries in Asia and the Pacific regularly prepare and submit national reports and communication on the issues related to multilateral environmental agreements (MEAs). The information contained in such reports and communications is mainly at the national scale and provides information on the trends and status of national policies in various sectors.

Apart from the MEA reporting, several countries and NGOs in Asia have been promoting public access to environmental information. The most notable one is The Access Initiative (TAI) spearheaded by the World Resources Institute (WRI). To date, 52 countries have joined TAI and many have conducted regular assessments at the national level on access to information, decision-making and justice. Nearly 100 countries have national laws that provide public access to information (Banisar 2011; Vleugels 2010; Open Society Justice Initiative 2012). At least 19 countries in Asia and the Pacific have such laws. Bangladesh, Cambodia, India, Indonesia, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, and Viet Nam have participated in TAI in conducting assessments on access issues (WRI 2012). For example, TAI in Indonesia catalyzed the development and adoption of Indonesia's Law on Public Information Transparency in April 2008 that entered into force in 2010.

The European Union has taken a dual approach to public access to information by ratifying the Aarhus Convention at the European Community level and adopting legislation at the member state levels. Although the ratification of the legal instrument by the EU brings it into the EU's legal systems without separate legislation (Kremlis 2005), the EU compels its member states to adopt laws and regulations to enforce the objectives of the Convention by its Directive 2003/4/EC adopted on 28 January 2003 and published on 14 February 2003 (EU 2003). It even set a deadline: Directive 2003/4/EC stipulates that the Member States comply with the Directive by 14 February 2005, two years after publication. EU applicant countries were also encouraged to accede to the Aarhus Convention (Zaharchenko and Goldenman 2004). The European Union's integration and expansion process has propelled the access to the Aarhus Convention by the Eastern and Central European countries.

The Aarhus Convention was developed under the auspices of the United Nations Economic Commission for Europe (UNECE) and countries in other regions were not involved in the negotiation process. So far, no attempts have been made to pursue similar regional policy instruments to be developed under the auspices of the equivalent United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Technically speaking, the Aarhus Convention is open to all interested countries and involvement in negotiations is not a requirement for countries to become members of the Convention. However, current members are members of UNECE and do not include countries outside of the UNECE region at this time (UNECE 2012).

At the Fourth Session of the Meeting of the Parties to the Aarhus Convention held in Chisinau, Republic of Moldova in July 2011, the Russian Federation announced its intention to accede to the Convention, and Mongolia, not a UNECE member, expressed its interest to accede to the Convention (IISD 2011). The member countries of the Aarhus Convention have stated in the Chisinau Declaration adopted in July 2011 that the Convention principles should be taken into account in consideration of the institutional framework for sustainable development at the UN Conference on Sustainable Development 2012 (UNECE 2011), and have invited countries in other regions to accede to the Convention (UNECE 2011b). Expanding the application of the Aarhus Convention at the global scale remains a strategic issue in the process for the UN Conference on Sustainable Development 2012 and will be further discussed in the following section.

9. Targeted policy goals in the UN Conference on Sustainable Development 2012 and beyond

9.1 National legislation on public access to environmental information and Principle 10

While many countries have now adopted national legislation on public access to environmental information, Asian countries still lag behind in effective implementation of such legislation. Table 3.3 shows the aspects that Asian countries need to tackle to improve their performance.

Table 3.3 Suggested actions towards the United Nations Conference on Sustainable Development 2012

Bangladesh	<ol style="list-style-type: none"> 1. Inclusive and Independent EIA 2. Transparency mechanism to resist corruption in environmental administration 3. Environmental Justice
Cambodia	<ol style="list-style-type: none"> 1. New international instruments to be developed to provide global and regional standards for, and oversight of, the implementation of Principle 10 into national law, 2. Specific time bound information to be developed regarding the implementation of the Bali Guidelines adopted by the UNEP Governing Council in February 2010, 3. Commitment to be reaffirmed by all the international organisations and agencies who codify Principle 10 of the Rio Declaration in their rules and procedures.
India	<ol style="list-style-type: none"> 1. Early and effective public consultation should be ensured across relevant law implementation, 2. Public funding should be provided for environmental cases, 3. Cumulative impact assessment should be made mandatory.
Indonesia	<ol style="list-style-type: none"> 1. Full implementation the Environmental Protection and Management Act No. 32 of 2009. 2. Protection for the public's right to participation which includes: a) whistle blower protection, b) protection for the environmental activists from Strategic Lawsuit Against Public Participation. 3. Full Implementation of the Public Information Disclosure Act (PIDA) No. 14 of 2008 within public bodies.
Nepal	<ol style="list-style-type: none"> 1. The institutions should be created to strengthen institutional arrangements for safeguarding access rights. 2. Civil society organisations must be involved in the creation of policies and plans by improving their capacity to undertake technical analysis particularly for those organisations that work on climate change or for diversifying agricultural livelihoods. 3. The government should show urgency and willingness to effectively implement court rulings around the environment.

<p>Sri Lanka</p>	<ol style="list-style-type: none"> 1. Restore the public's right to comment on Initial Environmental Examination Reports under the National Environmental Act before a decision is taken on approving projects. The right was initially granted but was taken away by an amendment to the National Environmental Act in 2000. 2. Ensure strict enforcement of the EIA provisions of the National Environmental Act as currently many development projects are implemented in violation of said provisions. 3. Introduce disclosure provisions into the National Environmental Act in respect of environmental information that is not specific to prescribed projects.
<p>Thailand</p>	<ol style="list-style-type: none"> 1. To enact the proposed Public Participation in Public Policy Process Act, and to modify the Enhancement and Conservation of the National Environmental Quality Act (1992). 2. Capacity building of both civil society and government officials (especially those in Provincial Administrative Organizations) with respect to the right to information and public participation. 3. Revise the environmental and health impact assessment (E/HIA). Also, implement strategic environmental assessment (SEA) as a planning tool for policy development and spatial development process.
<p>Viet Nam</p>	<ol style="list-style-type: none"> 1. Decree on mobilising the strength of the community (in awareness and active role) for environmental protection and sustainable development. 2. Reservation of an appropriate percentage of environmental protection funding under the State budget to serve the community's environmental protection activities. 3. Investment in expanding advanced models on "community's actions in environmental protection and sustainable development."

Source: Authors; developed from WRI 2011.

10. Development of global/regional Principle 10 conventions

There has been a growing momentum, at least by NGO/CSO communities, to pursue the development of a regional/international convention on Principle 10. The concept of developing a regional convention has been advocated over the past years (Kobayashi and Mori 2005). Various NGO/CSO stakeholder forums have outlined possible points of agreements at Rio+20. At the Regional Consultation Meeting on Rio+20 held in Beijing in May 2011, it was proposed to seek the development of a regional convention on Principle 10 that includes provisions on public access to environmental information, participation in decision-making over environmental matters and access to judicial proceedings (IGES 2011). The Declaration of the 64th Annual UN DPI/NGO Conference adopted in Bonn, Germany in September 2011 also calls for Rio+20 to encourage the development of regional conventions on Principle 10, and to invite interested states to accede to the Aarhus Convention (UN 2011). At the Eye on Earth Summit held in Abu Dhabi, United Arab Emirates in December 2011, the participants called for facilitating the implementation of Principle 10 and promoting cooperation in line with the UNEP Guidelines on Principle 10 (Eye on Earth Summit 2011). Brazil also reiterated its call for launching negotiations on the global convention on Principle 10 at the summit (Sharma 2011).

The option also remains to encourage accession to the Aarhus Convention. Some Asian stakeholders claim that Asian countries were not involved in the negotiation over the Aarhus Convention and thus do not share ownership of the process. However, Asian and other non-European OECD countries are parties to conventions on cyber damage or elimination of corruption despite these conventions being developed by European countries. Non-European countries have acceded to these conventions on the basis of merit (USDA 2012; UNODC 2012).

Nevertheless, accession would pose other questions such as the scale of secretariat services and participation in meetings. These factors related to Convention implementation may be sufficiently significant that there is still some validity in pursuing a

new regional or global convention option.

To facilitate the preparation of Rio+20, the United Nations and its regional commissions have organised regional preparatory meetings in six different regions over the period September to October 2011. Reference was made in the final regional preparatory meeting statement for Asia and the Pacific that emphasizes the importance of implementing policies on access to information and Principle 10.³

CSO meetings were held back-to-back with regional preparatory meetings. The North American major groups and stakeholders meeting called for launching negotiations on an international convention on Principle 10.⁴ A call was also made at that meeting to continue to adopt Principle 10 in their domestic context, establish environmental tribunals, freedom of information acts and pollution release inventories, and create enforcement mechanisms that empower citizens to call for and seek legal recourse in terms of compliance to commitments and laws.

The CSO meeting for Asia and the Pacific proposed concrete features for the proposed global and/or regional convention on Principle 10 such as peer policy review and complaint/individual petition procedures that are incorporated in the Aarhus Convention.⁵ The Zero Draft of the Outcome Document for the United Nations Conference on Sustainable Development 2012 that was released in January 2012 underlined the importance of promoting public access to environmental information, decision-making and justice (UN 2012). However, there is very little indication at this time for formal negotiations to begin on a global or regional convention on Principle 10.

11. Leverage for prompting national, regional, and international policy improvement on public access to environmental information

The socio-economic backdrops are quite different now, particularly for Asian countries, compared to when the Aarhus Convention was negotiated and implementation began. Europe was moving towards its goal of regional integration, and access to the European Union already obliged new EU member countries to adopt EU directives including on public access to environmental information. Regional economic integration processes continue in Asia, but the same level of interest or leverage to prompt Asian countries to adopt national legislation or a regional/global agreement on public access to environmental information does not exist.

Nevertheless, many international financial institutions and bilateral aid agencies have been integrating public communication and information disclosure clauses in their agreements on loans, investment and grant assistance programmes. Therefore, one way to generate leverage is to promote the integration of public communication and information disclosure clauses in loan or grant agreements to be concluded between developing Asian countries and financial institutions and aid agencies.

12. Conclusions and recommendations

Access to environmental information is a critical tool for promoting sustainable development. While its importance is generally endorsed and supportive national legislation has been developed, its replication is still limited outside of Europe or OECD countries and it is difficult to enforce such policies without proper enforcement mechanisms.

The effectiveness of policy measures on public access to environmental information needs to be further examined and improved particularly in terms of free and timely dissemination and outreach to the communities and stakeholders.

Capacity development programmes are deemed effective by linking environmental information access with public participation in environmental decision-making and access to judicial proceedings. Increased support needs to be given to such collaborative activities which should target the development and adoption of enabling national legislation along with institutional and human resource development activities.

Bilateral and multilateral funding agencies also play an important role in ensuring public access to environmental information, participation in decision-making and access to environmental justice through the development and implementation of their projects and programmes.

The adoption and implementation of a regional/global convention on information access has a great deal of merit in creating synergies in policy implementation at the national, regional and global levels. The suggested regional convention on Principle 10 should be pursued more vigorously if countries in Asia-Pacific are not interested in joining a global Aarhus Convention. Principle 10 policy objectives should be further integrated into national policies and implementing such policies should be stipulated in relevant laws and guidelines in clear terms and with adequate detail.

In light of the trans-boundary nature of environmental issues, it is vital to develop transnational, sub-regional, regional or global conventions and mechanisms on access to environmental information or Principle 10. An explicit call should be made to launch a global convention on Principle 10 and encourage sub-regional and regional bodies to facilitate the experimentation of mechanisms introduced in the Aarhus Convention, such as peer review and individual petitions through compliance committees. Such functions can be experimented with and promoted in the trans-boundary and sub-regional environmental governance mechanisms and could be a key feature of a proposed regional environmental organisation as suggested in Chapter 2 and throughout this white paper.

Notes

1. Water quality in 41 out of the 57 priority beaches was monitored in June 2005, and seven failed to meet the allowable fecal coliform count as specified in the Beach Eco-Watch programme (DENR-EMB 2005). DENR-EMB notified the concerned resort owners and LGUs (local government units) of the beaches that did not conform to standards. The environmental performance in 108 industrial and commercial establishment was evaluated under the Industrial Beach Watch programme (nine green establishments, 56 blue establishments and eight assessments ongoing).
2. The cases in Philippines and Viet Nam, for instance, show that information often fails to reach the public in a timely manner and in adequate detail (TEI 2010).
3. The Asian and Pacific Regional Preparatory Meeting for the United Nations Conference on Sustainable Development, 19–20 October 2011, Seoul, Republic of Korea. The Conclusions of the Latin American and Caribbean regional meeting preparatory to the United Nations Conference on Sustainable Development held in Santiago from 7 to 9 September 2011. Not all reports are available from the regional preparatory meetings and it is expected that outstanding reports will be made available shortly.
4. In preparation for the 13th UNEP Global Major Groups and Stakeholders Forum (UNEP GMGSF) and the 12th Special Session of the UNEP Governing Council/Global Ministerial Environment Forum (GC/GMEF), 13-14 October 2011.
5. The report of the Major Groups and Stakeholders Asia Pacific Meeting 2011 Asia-Pacific Regional Preparatory Meeting for the UN Conference on Sustainable Development 2012: "The Road to Rio 2012: Charting Our Path," 17-18 October 2011, Seoul, Republic of Korea.

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Chapter 4

Green Economy and Domestic Carbon Governance in Asia

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1. Introduction

The search for solutions to climate change problems will not be found in climate policy alone, as greenhouse gas (GHG) emissions profiles are influenced not only by climate-specific policies but also by the mix of development choices made and the development paths along which these policies lead (IPCC 2007). Many countries believe that controlling GHG emissions will damage their prospects for economic growth rather than open up new opportunities for a different form of growth. Concerns that stringent commitments to climate change mitigation will erode economic competitiveness prevail among policymakers and industries in both developed and developing countries. Thus, tackling climate change issues in the context of sustainable development is particularly important not only for developing countries but also for developed countries. More recently, the concept of green economy has taken centre stage as one of the stepping stones to sustainable development. The essence of the green economy is a transformation into a low carbon, resource efficient, and social inclusive economy, while stressing job creation and long-term prosperity (UNEP 2011). Thus, the concept of green economy is also expected to alleviate the concerns about the negative impacts of climate change mitigation actions. This chapter examines how these concepts have been referred and operationalized in domestic mitigation actions and the operation of the clean development mechanism (CDM) in selected Asian countries.

Over the past decade there have been several important developments in the

Key Messages

- Climate change issues must be addressed in the context of sustainable development to meet the concerns of government and industry in countries of all types.
- Among the international climate change regime developments that have led to changes in greenhouse gas governance, the creation of the CDM stands out and has begun to change the national institutional landscape. The establishment of a Designated National Authority (DNA) in most Asian countries, which approves CDM projects, has provided an institutional foundation for designing domestic market-based mechanisms.
- Nationally appropriate mitigation actions (NAMAs) have given rise to potentially even more ambitious national reforms in the past few years.
- This chapter analyzes how such reforms have supported the concepts of sustainable development and green economy and proposes a regional institutional platform to promote low carbon development.

international climate change regime that have led to subsequent national level changes in carbon governance. One of the more prominent—the creation and the operation of the CDM—began to change the national institutional landscape with the establishment of a Designated National Authority (DNA), the governing body which provides host country approval for the CDM projects. Another more recent set of reforms, the advent of nationally appropriate mitigation actions (NAMAs), has given rise to potentially even more ambitious national reforms in the past few years. It is also important to note that most developed countries have been pursuing the emission reductions targets of the Kyoto Protocol and discussed their mid-term emissions reduction targets under the post-2012 climate regime. Having specific emissions reduction targets also led to significant changes in domestic institutional arrangements.

This chapter will consider how domestic carbon governance in Asia can be aligned with sustainable development by exploring the relationship between green economy, low carbon development and sustainable development. Due to the rapid pace of growth, Asia has become a leader in both climate change negotiations and responding to consequent reforms from those negotiations. Second, while there has been a great deal of activity at the national level, there are differences across countries.

The chapter is structured as follows. Section 2 provides the background of discussion on low carbon development, green economy and sustainable development. Section 3 examines how the concepts of low carbon development, green economy and sustainable development are mirrored in the context of domestic mitigation policies in Japan, the Republic of Korea, China and India. Section 4 empirically reviews how institutional arrangements for CDM within the country have been designed to contribute to sustainable development in host countries in Asia. Section 5 briefly summarises the status of domestic carbon markets in some developing countries. The chapter will conclude with section 6 in which a regional institutional platform is proposed as a tool to achieve sustainable development in the region.

2. Low carbon development, green economy, and sustainable development in the context of climate change discussions

The need to address climate change and simultaneously achieve sustainable development is one of the guiding principles that govern the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol. There are many provisions referring to sustainable development and related concepts (e.g., sustainable economic growth) in the UNFCCC (Preamble, Article 2, Article 3.4, Article 3.5, and Article 4.2(a)), the Kyoto Protocol (Article 2.1, Article 10 and Article 12.2) and various decisions by the Conference of Parties (COP), including the Bali Action Plan, the Cancun Agreements and the Durban Agreements. As stipulated in Article 3.4 of the UNFCCC, the right of promoting sustainable development is warranted for all the Parties under the UNFCCC.

However, no clear definition and criteria for sustainable development are provided by the current international climate change regime (Na 2010). While the World Commission on Environment and Development (WCED) provided a well-known definition of the sustainable development, i.e., “development that meets the needs of the present without compromising the ability of future generations to meet their own needs,” the concept per se is still contentious. It is difficult to reach any agreement on the interpretation of the concept among countries, let alone its concrete indicators or criteria. Nevertheless, it was agreed that developing countries would develop nationally appropriate mitigation

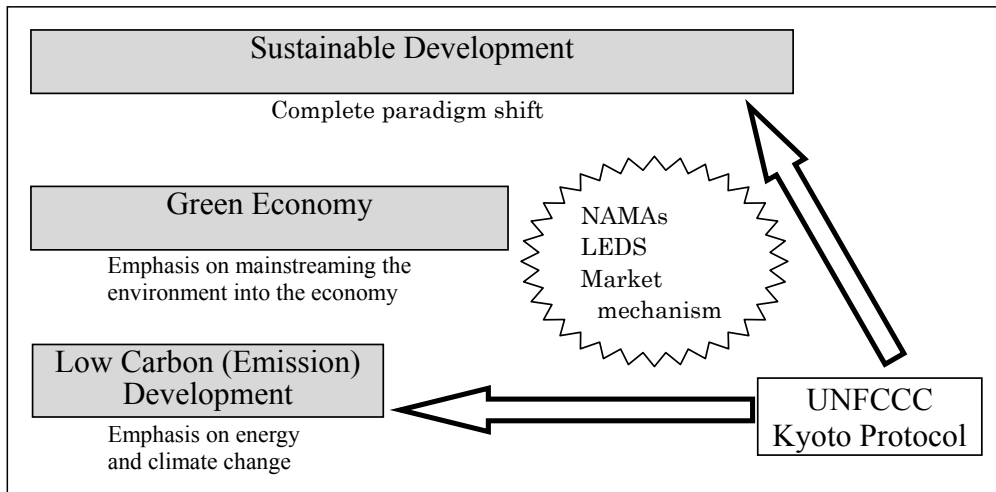
actions (NAMAs) in the context of sustainable development, aimed at achieving a deviation from business as usual emissions in 2020, but it is essentially developing country governments that determine the form that NAMAs should take and whether they are consistent with sustainable development reflecting their own national circumstances. In the case of the CDM, while one of its objectives is to contribute to sustainable development in host countries, it is also for the national authorities to establish criteria for assessing the contribution of CDM projects to sustainable development. Despite the lack of a clear working definition, sustainable development can be seen as an overarching concept, representing a paradigm shift from the current unsustainable state of mass-production and mass-consumption.

The green economy concept has been the focus of growing attention, especially following the global economic slowdown of 2008 and in preparation for the 20th anniversary of the 1992 UN Conference on Environment and Development (UNCED). Initially, a similar concept—green growth or green stimulus packages—was introduced as an emergency measure to address the 2008 global economic slowdown by investing more money in green energy and green industries. However, recognising its possible long-term impacts on a country's development trajectory, the United Nations Environment Programme (UNEP) launched the Green Economy Initiative, with a view to providing the analysis and policy support for investing in green sectors and in greening environmental unfriendly sectors. UNEP defines a green economy as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive...A green economy is not an alternative to the concept of sustainable development. But rather, it is only a means to achieve the goal of sustainable development” (UNEP 2011, 16). Although the international climate regime has not explicitly referred to the concept of green economy, in practice, many countries which implement mitigation actions tend to emphasize potential growth in income and employment is driven by public and private investments that reduce carbon emissions and enhance energy efficiency—a key element of green economy, while limited attention is paid to other environmental issues such as biodiversity and ecosystem services.

Another concept revolving around sustainable development is low carbon development (or low emission development, in the language of international negotiations). Again, there is no internationally agreed upon definition for low carbon (or emission) development. Reviewing various attempts to define low carbon development, King (2009) points out some common elements which could be included in a consensus definition: (i) reducing energy demand; (ii) moving away from carbon-intensive fossil fuels and their associated GHG emissions; (iii) continuing to meet the development needs of all groups in society, but especially those that are poor and/or vulnerable; (iv) ensuring energy security; and (v) adoption of appropriate technology and policies that continuously lead toward a low carbon society. While low carbon development can be part of sustainable development, its emphasis on energy distinguishes the low carbon development concept from more general sustainable development paths. Low carbon development has been featured recently in international negotiations, with the use of the term of “low emission,” rather than “low carbon,” development. The Copenhagen Accord of 2009 first recognized that a low emission development strategy was indispensable to sustainable development. The Cancun Agreements requested developed countries to develop low emission development strategies or plans (LEDS) and encouraged developing countries to develop LEDS in the context of sustainable development, though no definition for LEDS was provided.

Figure 4.1 shows how low carbon development, green economy and sustainable development are related. Sustainable development is an overarching concept, representing a situation where a complete paradigm shift occurs. A green economy can be thought of as an interim milestone on the path toward sustainable development. Compared with low carbon development, the concept of a green economy is more comprehensive with greater emphasis on mainstreaming various environmental issues into the economy. Low carbon development is also an element of sustainable development, but its focus is more narrowly on the energy-climate nexus.

Figure 4.1 Conceptual relationship among low carbon development, green economy and sustainable development in the context of climate change policy



Notes: LEDES = low emission development strategies or plans; NAMAs = nationally appropriate mitigation actions; UNFCCC = United Nations Framework Convention on Climate Change

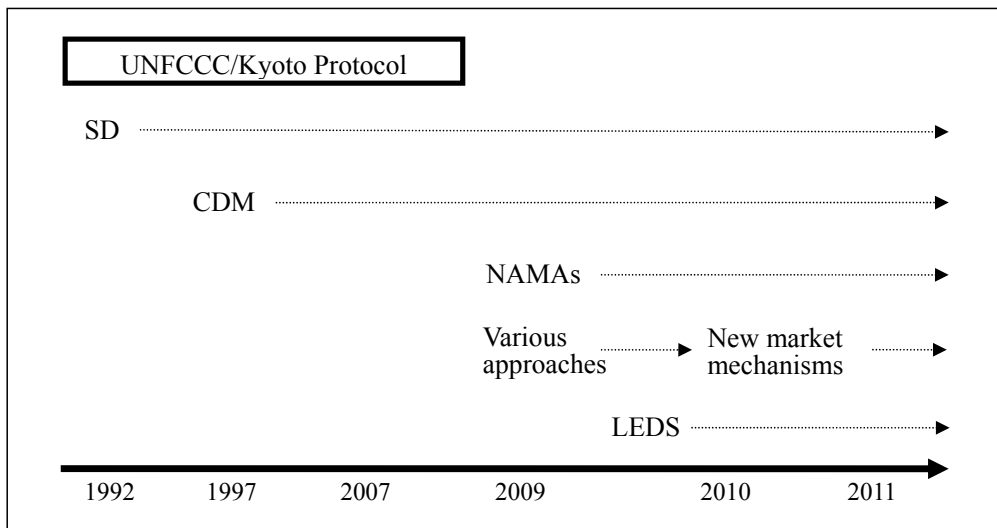
Source: Authors.

These three concepts—low carbon development, green economy and sustainable development—need to be addressed in a comprehensive manner, for example, when international society makes an effort to keep the global average temperature rise to below 2 degrees Celsius relative to pre-industrial levels. Indeed, at the 17th Conference of the Parties (COP17) of 2011, it was agreed to launch a new process—the Ad Hoc Working Group on Durban Platform for Enhanced Action—to adopt a protocol, another legal instrument or an agreed outcome with legal force applicable to all Parties by 2015 and to have it come into effect and be implemented from 2020. It was also agreed that this process shall raise the level of mitigation ambition. Options proposed to raise the ambition level include the implementation of the high end of existing mitigation pledges (including NAMAs) and the implementation of LEDES. While raising the level of mitigation ambition, each country should focus not only on low carbon, but rather should consider improvement in human well-being, social equity and other environmental consequences—key components of a green economy. Thus, it is important to examine how these concepts of low carbon development, green economy and sustainable development have been actually interpreted and adopted in key Asian countries in the context of domestic mitigation policies.

The CDM provides a good example of the actual implementation of low carbon emission

development and the implication for the green economy in the context of achieving sustainable development. The CDM is designed to attain the twin goals of cost-effectively reducing GHG emissions while contributing to sustainable development in developing countries. The CDM has created a certain amount of investment flows from developed countries to developing countries: CDM credits transacted in 2007 and 2008 were worth USD 7.4 billion and 6.5 billion respectively, almost seven times larger than the total size of the fourth replenishment period of the Global Environment Facility (GEF) Trust Fund (USD 1 billion in total between 2006-2010) for a climate change area. Thus, the CDM reduces GHG emissions and simultaneously promotes investments in green sectors with a view to contributing to sustainable development, though there are certain limitations due to the nature of a project-based mechanism. Therefore, it was natural that investments flowed to those projects which can generate very cost-efficient reductions regardless of their contribution to sustainable development. However, it is important to note that different Asian countries began to adopt different methods to promote sustainable development benefits through the CDM. Furthermore, the experience of the CDM can provide lessons and on-going efforts to establish new market mechanisms with a view to contributing to sustainable development (Figure 4.2 below shows the chronology of key terms under the climate regime.)

Figure 4.2 Chronology of key terms under the climate regime



Notes: CDM = clean development mechanism; LEDS = low emission development strategies; NAMAs = nationally appropriate mitigation actions; SD = sustainable development; UNFCCC = United Nations Convention on Climate Change

Source: Authors.

3. Domestic mitigation policies

This section examines domestic mitigation policies by selected Asian countries: China, India, Japan, and the Republic of Korea (ROK). Japan is the only Annex I Party in Asia, and therefore, commits itself to the internationally legally-binding emissions reduction target under the Kyoto Protocol. Since China, India and ROK are non-Annex I Parties, they are not subject to internationally legally-binding emission reduction commitments. However, they have submitted their NAMAs to the UNFCCC secretariat as voluntary pledges.

3.1 Japan

In Japanese policies, the terms green growth and green economy came into use around 2009. Prior to that, most policies were discussed in the context of sustainable development and low carbon development, following the principles adopted internationally at conferences such as the Earth Summit and UNFCCC. The concepts of green growth and green economy gained popularity as a means to stimulate the Japanese economy by large-scale public and private investment in “green business,” when the Japanese economy was hit by the financial crisis in late-2008. In comparison to the United States and Republic of Korea, Japan experienced a slight delay in popularizing the use of the terms green growth and green economy, partly due to the fact that economic shocks from the financial crisis arrived in Japan months after. Recent examples of related policies are below.

The Regional Green New Deal Fund,¹ a Japanese version of the Green New Deal, was developed and announced by the Ministry of Environment (MOEJ) in April 2009, to promote global warming countermeasures and to create local employment opportunities. The allocation of JPY 55 billion was announced for development of energy-saving homes, environmentally friendly traffic systems and energy infrastructure projects, improvement of disposal systems for waste containing asbestos, unauthorized dumping and low-concentration PCB waste, improvement of collection systems for drift waste, and installation of solar panels financed by local residents. The fund is meant to help local governments comply with the Law Concerning the Promotion of Measures to Cope with Global Warming, a law mandating local governments to implement environmental measures.

The concepts of green growth and green economy were also largely adopted and used in the New Growth Strategy (Basic Policies),² developed by the Democratic Party of Japan in December 2009. In this strategy, green innovations were spotlighted as a way to revitalize the Japanese economy. Green innovation was one of the key themes employed by the Democratic Party of Japan, after the Party was elected to power in August 2009. This strategy included specific targets for creating green business worth JPY 50 trillion yen, with 1.4 million new employment opportunities and 1.3 billion tonnes of GHG emissions reductions globally using Japanese technology. Aspirations such as creating a “world’s top environment and energy nation” through a comprehensive policy package, “green cities,” and “sustainable lifestyles” were listed in the strategy.

A bill for the Basic Law on Climate Change³ was developed following a speech by the former Prime Minister of Japan, Yukio Hatoyama (Democratic Party of Japan), at the UN Summit on Climate Change in 2009, in which he stated that Japan will reduce its GHG emissions by 25% by 2020 compared to 1990 levels, based on the premise that a fair and effective international framework in which all major economies participate is established and all participating economies have ambitious targets. Key goals of this bill included a 25% emissions reduction below 1990 levels by 2020 and 80% by 2050, and the share of renewable energy out of the total primary energy supply to be increased to 10% by 2020. This bill also suggested policy measures such as the introduction of domestic emission trading scheme (ETS), greening of the tax system such as through the introduction of a global warming tax, and a Feed-in Tariff (FIT) system for all renewable energy. As of this writing, this law has not passed the Diet. Although there has been no disagreement on a long-term vision to create a sustainable low carbon society, the 25% emissions reduction over a period of ten years sparked off controversy, and was particularly not welcomed by energy-intensive industries.

A Mid-to-Long-term Roadmap⁴ subcommittee was established under the Global Environmental Committee of the Central Environment Policy Council in 2010, to discuss how to accomplish the Hatoyama initiatives, based on the assumption that the bill for the Basic Law on Climate Change will be enacted. While over a hundred academic, business, and governmental representatives were invited to develop the roadmap, this subcommittee was disbanded, as the bill did not pass the Diet. In 2011, it was renamed as a “subcommittee to discuss policy measures after 2012”⁵ and discussions resumed.

Since the primary objective of the “roadmap” subcommittee was to set milestones to achieve the 25 and 80% emissions reduction targets, most discussions were centred toward low carbon development. However, under the “subcommittee to discuss policy measures after 2012,” the focus of discussions was expanded from low carbon to sustainable development, and green growth and green economy. This was partly due to comments made by committee members that short- to mid-term emissions reduction targets should not interrupt a pathway to create a competitive economy and sustainable society. Yet, it was largely due to the reality that it was difficult to form a consensus to set a cap on emissions, to which energy-intensive industries were fiercely opposed. Discussing long-term visions was easier than setting numerical targets for a specified term, and reduced tension between MOEJ and energy-intensive industries.

After the 2011 earthquake on the Pacific coast of Tohoku, the concepts of “safety and security” became highly prioritized at the “subcommittee to discuss policy measures after 2013” and the Global Environmental Committee under the Central Environment Policy Council. The tsunami caused by the earthquake took approximately 20,000 lives, destroyed much of the area’s infrastructure, and caused a devastating nuclear accident, which in turn caused serious power shortages. The ongoing level 7 meltdowns at the Fukushima nuclear power plant complex affected hundreds of thousands of residents in associated evacuation zones. This series of disasters changed the momentum of Japanese policy discussions, and safety and security issues are now discussed as an important part of national policies—as important as sustainable low carbon development, and green growth and green economy.

Table 4.1 summarizes the past twenty years of Japanese policy development with a focus on sustainable development (SD), low carbon development (LD), green growth/green economy (GG), and safety and security (SS). In Japan, non-carbon related environmental policies such as “society in harmony with nature,” achieving a balance between environmental preservation and economic growth, and improvement of eco-efficiency, etc., have been discussed in the context of sustainable development until recent years. The terms, green growth and green economy, started to be included in Japanese policies around 2009, after the global financial crisis. From 2011, after the triple disaster of the earthquake, tsunami, and nuclear accident, the concept of safety and security began to be highlighted. The history suggests that Japanese policies were linked with both long-term development of international policies and ad-hoc events such as the 2009 financial crisis and 2011 natural disaster. Safety and security issues are now widely shared among many countries, following the transboundary concerns of the nuclear plant accident in Japan. This may become a new trend in environmental policies internationally.

Table 4.1 History of Japanese policy development

	Key policy developments & events	SD	LEDS	GE
1992	<ul style="list-style-type: none"> • Earth Summit held in Rio de Janeiro. The concept of "sustainable development" was shared, and Agenda 21 was adopted. • Signing of United Nations Framework Convention on Climate Change started. 	x		
1994	<ul style="list-style-type: none"> • The 1st Basic Environmental Plan was created. Overall objectives and structure of Japanese environmental policies were written down. 		x	
1997	<ul style="list-style-type: none"> • Kyoto Protocol was signed, and Japan agreed on an internationally-legally-binding emissions reduction target of 6% (rel. 1990). 		x	
1998	<ul style="list-style-type: none"> • The Law Concerning the Promotion of the Measures to Cope with Global Warming was created, mandating the national and local governments, businesses, and citizens to contribute to the achievement of the Kyoto target. 		x	
2000	<ul style="list-style-type: none"> • The 2nd Basic Environmental Plan was created, and included the concept of sustainable development. 	x	x	
2005	<ul style="list-style-type: none"> • The 1st Kyoto Target Achievement Plan was created to set a milestone to meet the Kyoto Target. 		x	
2008	<ul style="list-style-type: none"> • The 3rd Basic Environmental Plan was created with the concept of sustainable development. • The Kyoto Target Achievement Plan was fully-revised, as the 1st commitment period started in 2008. 	x	x	
2009	<ul style="list-style-type: none"> • The bill of the Basic Law on Climate Change, which states Japanese mid-to-long-term emissions reduction targets of 25% by 2020 and 80% by 2050 was created by the Democratic Party of Japan. • The Regional Green New Deal Fund was established by MOEJ to promote countermeasures against global warming and to create local employment opportunities. • Prime Minister Hatoyama (Democratic Party of Japan) announced his initiative that Japan will reduce GHG emissions by 25% by 2020 and 80% by 2050 at the UN Summit on Climate Change. • The New Growth Strategy (Basic Policies) was approved by the Cabinet, setting green innovation as one of main pillars of Japanese growth strategies. 		x	
2010	<ul style="list-style-type: none"> • The bill on the Basic Law on Climate Change was sent to the national diet; failed. • The Mid-to-Long-term Roadmap sub-commission was established under the Central Environmental Council, to discuss a Japanese roadmap to achieve emissions reduction targets of 25% by 2020 and 80% by 2050. 		x	
2011	<ul style="list-style-type: none"> • The triple disaster of the earthquake, tsunami and nuclear reactor meltdown occurred on 11 March. • The "roadmap" sub-commission was renamed as a commission to discuss policies after 2013 to continue discussions on Japan's path towards sustainable low carbon development and green growth. • The 4th Basic Environmental Plan is under discussion. The inclusion of the concept of green growth and green development is discussed. 	x	x	x
2012	<ul style="list-style-type: none"> • Earth Summit (Rio+20) will be held in Rio de Janeiro. 	x	x	x

Note 1: SD, GG, LD and SS stand for sustainable development, green growth, low carbon development, and safety and security.

Note 2: Checks to SD, GG, and LD were made by the author to illustrate which concepts were largely adopted and used in individual policies and directions.

Source: Authors.

3.2 Republic of Korea

With presidential leadership, the Republic of Korea (ROK) has become one of the leading proponents of green growth in the world. ROK has conceptualised green growth in its own country context and has initiated a series of policy initiatives to promote the concept domestically and internationally. The operation of green growth in terms of support for the country's NAMAs, on the other hand, remains modest so far.

3.2.1 *Launching the Green New Deal*

A declaration by President Lee Myung-bak in August 2008 on the 60th anniversary of the country's founding attracted international attention not only because it ushered in a new long-term national development vision for another sixty years, but also because it bid farewell to the country's conventional quantity-oriented, fossil-fuel dependent "brown economy" and marked a fundamental shift to a quality-based "green economy." The motivation for greening the country's new growth path is embodied in the following three points: to create new wheels of economic prosperity, to address climate change through energy independence, and to raise the quality of life and enhance ROK's international standing (PCGG 2009).

The opportunity to fuel green growth arrived when ROK's economy was plunged into the worst setback in a decade caused by the global financial crisis in September 2008, which happened right after the pronouncement of the new growth vision by the President. The government launched a Green New Deal in January 2009 to overcome the crisis with an injection of a massive public investment of KRW 50 trillion (USD 38.5 billion) in total for the period of 2009 to 2012—equal to 4% of GDP—to create 970,000 new jobs as a stimulus measure. This policy package consisted of major business projects planned by each related government agency, and was also expected to be highly effective for job creation. Eighty per cent of the investments were allocated to nine major projects related to the environment, such as water and waste management, green transportation and buildings, and renewable energies.

On the other hand, among those projects, large-scale engineering projects and the construction of nuclear power plants have triggered critical debates over what truly qualifies as "green." For instance, a Four Major Rivers Restoration Project to which the government allocated the largest budget and from which the highest number of new jobs is expected (about 280,000) has come to the fore of opposition from citizens and environmental groups.⁶ Opponents criticised the government's dismissive attitude towards their concerns on the hasty project planning process, including the environmental impact assessment. Some academics and media outlets pointed out that most jobs were unskilled labour in construction and civil engineering works that would not fundamentally solve the recent high unemployment rate and that of the young people in particular who tend to cling to white-collar jobs. The government stressed that such job creation was commonly seen in "new deal" policies in other countries like the U.S. and the U.K., and insisted that the government also support human resource development for the research and development (R&D) sectors.

The green stimulus package, in conjunction with income and corporate tax cuts, has so far performed well and contributed to the economic revival of the country in the short-term, resulting in a sharp annual GDP growth upturn from 0.2% in 2009 to 6.2% in 2010. Concerning the need to recover a declining growth rate after the Asian economic crisis in the late 1990s, these green projects stimulated the revival of momentum in promoting growth for the long-run by helping the transformation into a more advanced knowledge-based economy.

3.2.2 Institutional and policy development

To manage and further strengthen the momentum of the new green growth initiative, the government initiated a process to launch the legal and institutional basis for green growth in the month following the President's announcement. To handle this process, the Presidential Committee on Green Growth (PCGG)⁷ was established in February 2009 to coordinate government works and discuss diverse issues related to pursuing green growth, including setting national strategies on climate change, sustainable development and international cooperation in the area. In the same month, the Cabinet decided to pass a bill entitled "Framework Act on Low Carbon, Green Growth" to be deliberated by Parliament.

In the policy making process, the government announced a Five-Year Plan for Green Growth (2009-2013) in July 2009 as the near-term plan to carry out a long-term National Strategy for Green Growth (2009-2050) and as the highest-level government plan to implement the Framework Act. The Five-Year Plan outlines three core components of the new growth strategy: measures for climate change and energy independence, creation of new growth engines, and improvement of quality of life,⁸ supported with 10 policy directions and 50 corresponding projects. The plan absorbed the aforementioned Green New Deal projects and calls for spending 2% of GDP per annum from 2009 to 2013, amounting to USD 86 billion (KFW 107 trillion) in total.⁹ The vision and responsibilities were shared with local governments and they were required to develop their own green growth action plans which needed to be approved by the PCGG. However, the numerical GHG mitigation target was included in neither the National Strategy nor the Five-Year Plan, although they mentioned the necessity of such a target.

After a year-long launching process and repeated deliberations in the Diet, the Framework Act on Low Carbon, Green Growth was enacted in April 2011. The Framework Act created a comprehensive implementation system for measures pursuing green growth, climate change and energy issues towards a low carbon sustainable future by allocating responsibility for actions by the state, local government, private entities and citizens.

3.2.3 Setting NAMAs

In September 2009, the PCGG decided to reduce GHG emissions by 30% from the business-as-usual scenario by 2020 (which was estimated to be equal to a 4% reduction from 2005 levels). The government took almost a year to determine the target after consideration with less-intense target options of a 27% reduction (return to 2005 emission levels) or a 21% reduction (8% increase from 2005 levels). The selected 30% target is the highest level of mitigation efforts recommended by the Intergovernmental Panel on Climate Change (IPCC) for non-Annex I Parties in order to contribute to stabilising a global temperature rise under 2 degrees Celsius. Although ROK's target was voluntary and not internationally legally-binding, the mid-term GHG reduction target and implementation processes was set in the Framework Act (Article 42) and would be implemented regardless of international agreements and support. These mitigation efforts are also expected to create a more conducive atmosphere for engaging other developing countries and securing further commitments from developed countries.

3.2.4 Aligning green growth support: Achievement in the past three years

Although private companies criticised the 30% reduction target as too ambitious, they were generally supportive to the green growth initiative because they regarded it as a

good opportunity to advertise their green products to the world market. One of the most promising signs is seen in the increased volume of investments in the environmental sector. Investment in green technology by the top 350 Korean companies marked 34% growth between 2008 and 2009 (PCGG 2010). The recent report by the Ministry of Knowledge Economy (MKE) indicates that sales of green products marked a remarkable increase from KRW 1.25 trillion (USD 1 billion) in 2007 to KRW 8.08 trillion (USD 6.7 billion) in 2010 (MKE 2011). Much of these investments have been directed to energy efficiency improvement and renewable energy development with a long-term perspective.

The ROK now has several international gateways which it can utilise to disseminate its green growth actions and support to a broader range of beneficiaries in developing countries. The establishment of the Global Green Growth Institute (GGGI) by the President as a non-profit laboratory is a symbolic achievement in the country's promotion of green growth. The GGGI currently supports partner countries for national- and business-led progress on climate change and other environmental priorities within the green growth strategy. Moreover, the ROK is currently hosting the newly-established United Nations Office for Sustainable Development, the UN research and training facility.¹⁰ Although the short-term goal of the Office is to support developing countries and major groups in their preparation towards Rio+20, providing this support as they pursue sustainable development to accelerate economic growth while improving quality of life and protecting the environment is in line with ROK's green growth slogan. Those efforts should be aligned to support efforts in greening growth over the long-term.

ROK has demonstrated its notable leadership by devoting massive financial assistance to implement the green projects under the Five-Year Plan, and setting ambitious GHG emissions reduction targets and other goals. It remains debatable, however, if the government's low carbon and green growth initiative will yield environmentally and financially sustainable results to achieve GHG mitigation targets (NAMAs) through the implementation of sector-wide individual projects and proposed emission trading scheme.

3.3 India

Considering the developmental objectives of India and the need to pursue environmental responsibilities, the concept of the green economy is of great significance as it can guide the country along the long-term sustainable path where environmental health is secured with the achievement of economic targets. The green economy approach attributes critical importance to the key pillars of sustainable development—economic, environment and social factors. While the government of India has recognized the importance of inscribing green economy principles into its development policies, it is widely recognized that for the green economy to be effective and legitimate it must capture the underlying differences in the scale and scope of the economies of developed and developing countries.¹¹ It further points to the stance that common but differentiated responsibilities and respective capabilities need to be the guiding force behind this.

3.3.1 *Mainstreaming the green economy concept in India*

Being one of the highest populated countries in the world, a significant policy thrust on the economy is specifically outlined in the domestic development plans in India. However, being a developing economy, it faces a multitude of challenges in terms of balancing its economic growth with environmental health. While close to a double digit GDP growth is important for India, a sustainable development path is necessary to ensure inter-generational equity of natural resources and environmental health. But the commitment to ensure intergenerational equity of natural resources is often put on the

back burner as immediate economic benefits take priority in government policies. This eventually undermines the necessity to balance environmental health and economic targets. Moreover for India, as a growing economy, there is often strong resistance seen in sacrificing economic growth for the sake of protecting the environment for the future.¹²

While these cautious approaches to a green economy exist, the green economy concept is receiving growing attention in India. The concept means different things to different sections of society, and is sometimes regarded as similar to earlier ideas of sustainable development. However, the new ingredient may be that the green economy is an “idea whose time has come” with financial and political opportunities for real change in response to the twin crises of economic decline and of climate change.¹³ In India, the green economy is perceived to aim at well-being, in the context of pursuing and achieving the Millennium Development Goals, as it promotes equity in common but differentiated responsibilities, as an expanded policy space for diverse sustainable development, and as providing a win-win economic-environmental model that ensures that economic and environmental synergies prevail over trade-offs.¹⁴ Moreover, the green economy concept is ushering in the perception that environmental management responsibilities are not limited to the conventional role of government but necessitates the larger commitments of various sections of society including industry, business sectors and the people. The transition to the green economy is not only an academic theme for intense debate but is also seen as a potential policy element for the country to address socio-economic and environmental challenges, such as unemployment, energy, poverty, balancing economic development and protecting natural capital, and ensuring stable environment health.

3.3.2 Climate mitigation actions in India and the green economy

Despite its relatively low per capita GHG emissions in the world, India has made remarkable progress in cutting down its own emissions. The National Action Plan for Climate Change (NAPCC) set forth by the Prime Minister’s Council and the communication made by the country to UNFCCC subsequent to the COP15 on voluntary pledges to cut down emission intensity by 20-25% from that of 2005 levels, are key pillars of climate change mitigation actions. The NAPCC lays out strategies not only to address climate mitigation but also to aim at sustainable growth for the country. The eight missions of NAPCC proposed actions in areas such as solar energy, energy efficiency, sustainable habitat, water, Himalayan ecosystem, green India, sustainable agriculture, and strategic knowledge for climate change, to run through to 2017 with an aim to support the country’s actions towards climate change mitigation, while also keeping in view long-term economic development. The mission plans have brought in a range of policies and guidelines for time bound action in various key sectors such as solar energy, energy efficiency, urban habitat, and agriculture.

The climate mitigation action plans under NAPCC have aimed to take care of long-term developmental objectives. These policies provide ample scope for the inscription of green economy principles. According to the NAPCC, to have an ecologically sustainable development pathway, India envisions the creation of a prosperous, but not wasteful society, an economy that is self-sustaining in terms of its ability to unleash the creative energies of the people and is mindful of its responsibilities to both present and future generations.¹⁵

However, it is important to note that the mission plans are specifically targeted to two points: first, addressing the long-term energy security concerns by enhancing renewable energy generation and improving energy efficiency in the country, and second, addressing GHG emission related issues. Interestingly, these targets are broadly defined

as long-term, low carbon policies rather than branded as green economy initiatives. The Solar Energy mission under NAPCC keeps a target of installing 20 gigawatts of solar power generation facilities by 2022, while the Enhanced Energy Efficiency mission targets various energy efficiency concerns in the country. Similarly, other missions also are designed to address specific areas and issues in India. Apart from specific targets, the current climate change policy in India does not have a comprehensive approach towards promoting green economy.

The term “low carbon development” has been used more frequently than “green economy” in literature and government documents that describe policies towards sustainable development in India. It is important to note that although the government position towards adopting green economy policies has not been negative, a cautious approach is visible in including this term in policies. For India, as poverty eradication and economic growth override development priorities, the country perceives that enabling mechanisms such as financial, technological and capacity building support are a must for embarking on the road to a green economy.¹⁶ A similar cautious perception was also highlighted by the former Environment Minister, Mr. Jairam Ramesh, who stated that India is on the highway to economic growth but a green economy that does not generate 8-10 million green jobs each year is not sustainable.¹⁷ Despite these differences the country has been pursuing low carbon strategies as the guiding concept for its economic growth, and ensuring significant reductions in greenhouse gas emission intensity in the years to come.

3.4 China

The issue of climate change has never been a stand alone issue in the national policy agenda in China. The government recognized the close link of this issue to other problems related to energy consumption, economic growth, and environmental protection. While the overall consistency of climate change mitigation with national sustainable development goals was recognized, there remained concerns about the negative impact of GHG emissions reduction on economic growth in China because of the coal dominant energy structure and the role of the energy intensive sector as a driving force for the country's growth. These facts had led to the government's reluctance to conduct significant proactive climate change policies. However, the direction of such public policy has changed in recent years.

3.4.1 Sustainable development in the Chinese political context

For the Chinese Government, the overriding concern is the maintenance of the Chinese Communist Party's (CCP) rule. Economic growth, poverty elimination, and social stability are all critical to maintaining that rule: rapid economic growth creates jobs, alleviates poverty, improves living standards, and thereby strengthens public support for the CCP. Since the free market reforms of the late 1970s, export-oriented industrialization served as the engine to help support this goal. However, over the last decade, there have been a number of unintended consequences of fast-paced, export-oriented growth. These include widening income disparities that fuelled a steady increase in social unrest. They also include a raft of serious environmental problems that provided an outlet for these rising social tensions.

When President Hu Jintao and Premier Wen Jiabao took power in late 2002, they were all too aware of the potentially volatile mix of regional disparities, resource scarcities, and environmental stresses confronting China. It was hence decided to shift the focus of the national development policy from single-minded economic growth to a broader concept

of development-social harmony (Fewsmith 2008). Toward this end, in January 2004 Hu Jintao introduced the Scientific Development Concept referring to “comprehensive, coordinated, and sustainable development,” which was incorporated in the 11th Five-Year Plan (2006-2010) in 2005 and was also included in the revised Party Constitution in October of 2007.

On face value, the Scientific Development Concept was a practical policy response to the deepening crisis of faith in China’s economic-first development strategy. It was a deliberately broader formulation that encompassed social and ecological dimensions of development and complemented that reframing with the international language of “sustainability.” On a deeper level, however, the concept could be seen as “broader reaction to perceived challenges to the legitimacy of CCP rule” (Holbig 2009). In particular, in the domestic context, the “scientific” nature of the concept was emphasised, thereby indicating the CCP’s top-down decision to formulate and implement a strategy to tackle perceived problems from growth. Thus, the Scientific Development Concept not only pointed the way to sustainable development in China, but also offered a normative justification for CCP playing the lead role in this process.

Importantly for the chapter’s main argument, the Scientific Development concept not only established a link between sustainable development and political legitimacy, it created conditions ripe for energy efficiency and climate policy reforms. As mentioned previously, the 11th Five-Year Plan adopted the Scientific Development Concept. Under this high profile normative guideline, the Hu-Wen administration was able to make a strong commitment to tackle energy conservation and environment problems. The 11th Five-Year Plan featured compulsory targets to reduce energy intensity and pollution from their 2005 levels by 20% and 10% respectively. Other similarly directed targets, albeit not compulsory, included increasing the share of renewable energy in the energy mix to 10% from 7% by 2010 and to 15% by 2020.

It is also worth pointing out that national institutional reforms occurred in a direction toward enhancing a climate-energy tie. Perhaps the most important of these reforms was the 2003 decision to create the National Development and Reform Commission (NDRC) out of the two key energy and economic commissions and give it the climate portfolio. The NDRC, as a single, powerful national agency, played a pivotal role in implementing domestic energy saving measures and establishing systems for monitoring and reporting the effects of these measures. In addition, the creation of an incentive mechanism to promote energy-saving measures by the local governments was key to successful implementation (Tamura 2011). The 20% energy intensity target of the 11th Five-Year Plan was subsequently delegated to sub-national officials, and compliance with the allocated target became the key criteria for personnel evaluation of local officials. This created a strong incentive for local leaders to attain the allocated target of energy efficiency. While the linking of the evaluation system with the energy efficiency goals created some perverse incentives—on occasion sub-national officials cut off energy supplies from residential users to achieve the targets (*The Guardian*, 19 September 2010)—they are largely credited with efficiency gains that brought China very close to the 20% target.

3.4.2 *Low carbon development and green economy in China*

Emphasizing a climate-energy tie, it was natural that in the context of climate change debate in China, the idea of low carbon development began to gain currency. As a group of prominent scholars regards the concept as “a development pathway that has highly energy efficiency, low energy consumption and low emissions” (CAS Sustainable

Development Strategy Group, 2009), the concept lies in an energy-climate nexus. The Standing Committee of the 11th National People's Congress in August 2009 adopted the "National People's Congress Standing Committee Resolution on Actively Tackling Climate Change" as the first resolution concerning climate change by China's supreme authority and legislature. In this resolution, coping with climate change was regarded as a long-term mission for the realization of sustainable development, and the development of a "low carbon economy" was specified in an official document for the first time (Li 2009). Subsequently, at the State Council's Executive Meeting in November of the same year a binding domestic target to reduce carbon emissions per GDP by 40-45% by 2020 compared with 2005 was adopted and a carbon intensity target was incorporated into the 12th Five-Year Plan (2011-2015).

Furthermore, in China, the idea of low carbon development has begun to be discussed widely and explored as a means of solving resource, energy, and environmental challenges in the rapid industrialization and urbanization process. Macroeconomic consequences of a low carbon development have been examined with the expectation that it may also have positive side effects such as stabilizing growth, creating jobs, and developing competitive advantages (Hallding, Han et al. 2009). It also dovetailed with another feature of the Scientific Development Concept that called for making China into an "innovation society." An innovation society was seen as a prerequisite for maintaining competitiveness in the global marketplace. In practice, this meant that the Chinese leadership sought to move the economy from low-end assembly industries toward higher indigenous technology and higher value-added products; otherwise, it would be locked into the most polluting and least profitable segment of the international value chain (Lieberthal and Sandalow 2008). Low carbon development therefore matched nicely with the intention of making China a global player in innovative, clean energy industries (Hallding, Han et al. 2009; Bradley 2010; Busby 2010).

Attention to positive macroeconomic effects of low carbon development is consistent with a key element of a green economy: growth in income and employment is driven by public and private investments that reduce carbon emissions and enhance energy efficiency, while limited attention is paid to other environmental issues such as biodiversity and ecosystem services. Indeed, the Chinese government also became the biggest player in green stimulus packages during the world economic slowdown after 2009. HSBC estimated that countries were spending more than USD 500 billion on green projects as part of their stimulus packages for 2009, and China alone set aside USD 211 billion for green energy projects in its domestic stimulus spending (HSBC 2009). The Center for Strategic and International Studies, using a narrower definition of green spending, estimated about USD 350 billion in green spending, out of which China set aside USD 177 billion for green projects (excluding water/waste investments) (Ladislaw and Goldberger 2010). This episode indicates how China has tried to tackle climate change by promoting the green energy sector and linking with industrial and economic policy.

4. Market mechanisms for climate policy: Lessons learned from the CDM and implications for low carbon development and green economy

This chapter looks at the experience of implementing the CDM in the context of sustainable development, LCDS and green economy while reviewing the development of the institutional framework for implementing the CDM, in order to present proposals to increase sustainable development benefits through changes in governance. A case study on the use of CDM in the context of sustainable development reviews various approaches to promote sustainable development and indicates that the certification

approach has an advantage over other approaches as it can fully utilize the original function of a market mechanism, which is an efficient allocation of resources through an internalization of sustainable development benefits into certified emissions reduction (CER) prices. Therefore, it is recommended that the certification approach be fully utilized both domestically and/or internationally, in addition to the use of CERs with certification made compulsory or treated favourably in emission trading and carbon offsetting schemes. These changes in the governance of CDM could effectively increase the benefits of sustainable development within the current form of CDM and keep a fair balance between cost-efficiency and its contribution to sustainable development.

4.1 CDM as a market mechanism and actual consequences: Unequal distribution

As CDM is a voluntary market-based mechanism, private sector investment tends towards countries and projects where transaction costs and investment risks are low. As of July 2011, China accounts for 45% of total registered projects, followed by India with 21% and Brazil with 6% of the total (IGES 2011a). Among the top ten countries, eight are in Asia, which accounts for 79% of the total projects. The other two countries are in Latin America, accounting for 17% of the total. Africa, the Middle East and Near East regions have only a tiny 3% share of the projects. In terms of issued CER,¹⁸ as of July 2011, China is also the dominant country. As for registered projects, India ranks second, while the Republic of Korea and Brazil account for most of the remaining projects. In terms of regional distribution, Asia has 86% of total issued CERs. Therefore, it is clear that CDM projects are intensively concentrated in two Asian countries, namely China and India.

4.2 Case study in Asian countries

In this section, the actual measures that aim to ensure sustainable development benefits at both national and international levels are summarised. Such measures can be categorised as assessment, fund, and certification schemes as shown in Table 4.2. Measures taken in host countries are summarised in Table 4.3.

Table 4.2 Three categories for promoting sustainable development benefits from CDM

Category	Description
Assessment Scheme	DNA evaluates proposed projects based on sustainable development and its indicators
Fund Scheme	CERs from specific projects are earmarked for activities related to sustainable development, such as research, or raising public awareness
Certification Scheme	If a proposed project is certified by fulfilling a sustainable development standard, the project is assumed to contribute to sustainable development and the CERs would be value added.

Source: Authors.

Table 4.3 Summary of each host country's scheme

	Countries	Category	Document submitted related to SD	Presence of monitoring of SD	Number of approved projects by DNA or Organization	Reference
Domestic	China (DNA)	Assessment	NO	NO	3,051	NCCCC (2005)
	China CDM Fund Management Measures	Fund	NO	YES	16 (2008)	China CDM Fund (2007)
	India	Assessment	NO	NO	1,561	CDM India (2005)
		Fund	NO	-	-	UNFCCC (2004a) UNFCCC (2004b)
	Indonesia	Assessment	NO	NO	133	NCCCI (2010)
	Philippines	Assessment	YES	NO	86 (as of 1 November 2010)	Goco (2006)
	Thailand (DNA)	Assessment	YES	NO	131	Seresathiansub (2008)
	Thailand (Crown Standard)	Certification	YES	YES	17	TGO (n.d.)
	Cambodia	Assessment	YES	NO	7	CCD (2011)
	Lao PDR	Assessment	YES	NO	5	WREA (2008)
Mongolia	Assessment	YES	NO	6	CDM National Bureau (2010)	
International	UNFCCC	Assessment	NO	NO	10	UNFCCC (2011)
	Gold Standard	Assessment	YES	YES	187	The Gold Standard (2009)
	Community Development Carbon Fund	Assessment	NO	YES	29	World Bank Group (2011)
	SouthSouthNorth	Assessment	NO	NO		SouthSouthNorth (n.d.)

Source: Authors.

4.2.1 Domestic measures

(i) Assessment schemes: Cambodia, China, India, Indonesia, Lao PDR, Mongolia, Philippines, Thailand

An assessment scheme to determine if a CDM project contributes to sustainable development is used in all the countries surveyed, i.e., Cambodia, China, India, Indonesia, Lao PDR, Mongolia, the Philippines, and Thailand, if only because the DNA approval criteria contain sustainable development indicators or criteria. In China, the DNA approval criteria include a requirement for "Contribution of Sustainable Development" (NCCCC 2005). For example, India has a requirement for "Contribution of Sustainable Development" (CDM India 2005) and Indonesia has set "Sustainable Development Criteria and Indicators" (NCCCI 2010) as an essential requirement for the evaluation of proposed projects. In the Philippines, project participants must submit a "Sustainable Development Benefits Description (SDBD)" as an application document to request host country approval of DNA (Goco 2006). In Thailand, the Thailand Greenhouse Gas Management Organization (TGO) Board evaluates proposed projects

based on sustainable development criteria and indicators by using a scoring system (Seresathiansub 2008). In Cambodia, Lao PDR and Mongolia, DNA approval criteria include checklists to assess the sustainable development criteria (CCD 2011; WREA 2008; CDM National Bureau 2010).

These processes are designed to ensure CDM projects contribute to sustainable development. Notably, in the Philippines, Thailand, Cambodia, Lao PDR, and Mongolia, project participants have to submit a specific document which certifies that their projects ensure sustainable development (Goco 2006; Seresathiansu 2008; CCD 2011; WREA 2008; CDM National Bureau 2010). This means that the DNAs of these countries can check on the extent of a CDM project's contribution to sustainable development. This does not guarantee, of course, that the projects will actually contribute to sustainable development, but is better than having no procedure in place.

(ii) Regulatory approach (Fund schemes): China and India

If there is no guarantee that the CDM project itself will contribute to sustainable development, earmarking part of the funding received by selling the CERs for specific sustainable development activities is an additional safeguard. Fund schemes are partially used in China and India. In China, a varying percentage of CER revenues by project type is allocated to the China CDM Fund. In India, at least 2% of CERs from large-scale projects must be earmarked for sustainable development.

China's CDM Fund is governed by the Board of China CDM Fund and managed by China CDM Fund Management Centre and offers grants and investments for development activities (China CDM Fund 2007). It uses grants to support activities such as policy research and academic activities, international climate cooperation activities, training programmes for climate change capacity building and promotion of public awareness. The Fund invests mainly in industrial activities addressing climate change. One of the main sources of the Fund is national revenue from CDM—65% of CERs from HFC and PFC projects, 30% of CERs from N₂O projects, and 2% of CERs from other priority areas and afforestation projects are allocated to the Fund. Project participants have to report their issued CERs to the National Development and Reform Commission (NDRC) within 10 days after issuance. If participants do not submit a report, they are forced by NDRC to pay an administrative penalty (NCCCC 2005). In this way, the types of CDM projects which are usually criticized for their minimal contribution to, or violation of, sustainable development objectives could contribute indirectly to sustainable development. For example, 65% of CER revenues from HFC projects in China are given to the Government to support its "Sustainable Development Facility." Of the project design documents (PDDs), 8 out of 11 Chinese projects explicitly mention this contribution to sustainable development.

HFC projects in India contribute to sustainable development in a different way—two out of six projects are operated by companies which have set up funds for investing in sustainable development activities using their own rules. For example, Gujarat Fluorochemicals Limited (GFL) has expressed its strong commitment to sustainable development activities by committing a total fund of approximately Rs. 70 million (Euro 1.375 million) from the revenues received during the entire project period if the project is approved and once there is a stream of revenue from sale of CERs (UNFCCC 2004a). These funds will be used for development activities such as education; vocational training; employment; agriculture; sanitation, hygiene and environment; water management; and medical and animal health. Another example is that SRF Ltd. committed a total fund of INR 100 million from the revenues received during the entire CDM project period if the project is approved and once there is a revenue stream from

sale of CERs (UNFCCC 2004b). These funds will be used for projects such as HIV/AIDS awareness, rainwater harvesting, education and livelihoods promotion.

While contributing to the amelioration of climate change should be viewed as a contribution to sustainable development in its own right, these earmarked funds provide a double dividend for sustainable development.

(iii) Certification schemes: Thailand's "Crown Standard"

A certification scheme to ensure sustainable development is relatively unusual and at a national level, only Thailand has adopted this scheme. The Crown Standard in Thailand is valid for three years from the issuance date (TGO, n.d.). To keep the certification, a DOE has to update and report their sustainable development activities to the TGO (Thailand Greenhouse Gas Management Organization). In addition, each project is closely monitored by TGO's network to ensure that it contributes to sustainable development in society and the environment and that maximum benefits are delivered to local communities according to the requirements of the Crown Standard.

4.2.2 International measures

(i) Assessment scheme: UNFCCC CDM Executive Board (e.g., capacity building, loan scheme, and simplification of rules)

The UNFCCC Secretariat selects CDM projects which contribute to improvement of people's lives and achieve sustainable development more broadly. This is referred to as CDM Development Benefits. Such co-benefits include contributions to local employment, freeing up financial resources for households and making other essential services available (UNFCCC 2011). The methodology of the UNFCCC Secretariat is to set criteria as case-based assessments with sustainable development related factors such as economic, social, empowerment and environmental factors.

UNFCCC also automatically excludes grid-connected power projects and macro-economic benefits projects. In order to ensure that there are no controversial activities or claims, they conduct web-based reviews and collect other available information on the project activity, site, project participants and communities where the project is taking place (Kirkman 2011). Through these activities, they verify the community benefit claims in Project Design Documents and whether these projects could be considered as attributable and additional to what would have happened without the project, thereby contributing to sustainable development.

(ii) Assessment scheme: World Bank Community Development Carbon Fund

Different from domestic schemes, the Community Development Carbon Fund (CDCF) established by the World Bank has its own assessment process. Their assessment process includes a check of CDCF criteria by a committee of Bank staff and fulfillment of 10 questions to review the extent to which a project contributes to sustainable development (Ramin, n.d.). Their criteria review whether a project maintains quality of water, improves health conditions, and creates jobs for women, as much as it is an investment in clean technologies that help reduce GHG emissions and mitigate climate change. CDCF mandates submission of an annual progress report as a self evaluation function so as not to lose the sustainable development perspective in their projects (World Bank Group 2011a).

(iii) Certification scheme: Third-party certification system (e.g., Gold Standard)

The Gold Standard Foundation registers projects that reduce GHG emissions in such a way that contributes to sustainable development and certifies their carbon credits for

sale on both compliance (e.g., Europe's Emission Trading Scheme) and voluntary offset markets. When the Foundation evaluates CDM projects, they use three methodologies: a sustainability matrix, an Environmental Impact Assessment and a stakeholder consultation (The Gold Standard 2009). The Gold Standard mandates a site visit in the first two years after the start of project operation, and by default once every three years after that, unless a DOE provides a convincing case for less frequent visits as part of their verification plan.

4.2.3 Comparison between three approaches: Assessment, fund and certification

For comparison between the three approaches, Table 4.4 shows the advantages and disadvantages of each measure to ensure that sustainable development benefits are derived from CDM projects. Since the assessment approach is employed by the DNA of each CDM host country, it is able to assess the situation and sustainable development needs which are specific to each country. In addition, the sustainable development criteria for assessment of a project are usually made for the three pillars of sustainable development (social, environmental, and economic), and therefore it ensures a holistic assessment. However, this measure could be subjective since the criteria are developed mainly by the DNA, which may be under pressure to approve a large volume of CDM projects, so other independent assessments such as environmental impact assessment (EIA) and public input may also be needed.

The main advantage of a fund scheme is that it is a simple and automatic process in terms of guaranteeing a source of grants and investments for activities contributing to sustainable development. However, the influence of such activities and their long-term contribution to sustainable development cannot be known unless an effective monitoring and evaluation system is established. The certification approach seems to have an advantage over the other two schemes in that it promotes a high standard of contribution to sustainable development, because certification is given to projects with extra consideration of the sustainable development objective. It also provides additional value to a certified project, which can be an incentive to project developers.

Moreover, the certification approach can internalise the benefit of sustainable development as added-value in CER prices in the carbon market by the certification of CERs. This is an original function of this approach which is different from the other two approaches. In order to increase the contribution of CDM to sustainable development, this certification approach surpasses other approaches since it directly utilizes the function of a market mechanism which is originally built into the CDM. However, it does not necessarily ensure the involvement of a sufficient number of projects since it has been normally implemented as a voluntary scheme. This implies that a compulsory use of CERs associated with the certification or at least giving preference to such CERs in emission trading and carbon offsetting schemes can create a powerful incentive to internalise the benefits of sustainable development in the carbon market. The actual attempt has already been observed in the EU-ETS directive for its 3rd phase after 2012 (EC 2009).

Table 4.4 Advantages and disadvantages of each scheme

Measure	Advantages	Disadvantages
Assessment	<ul style="list-style-type: none"> • Holistic • Country-specific situation is taken into consideration 	<ul style="list-style-type: none"> • Subjective and possible conflict of interests if the DNA has achievement targets set • Other assessments such as EIA and public participation input are also needed.
Fund	<ul style="list-style-type: none"> • Automatic • Simple 	<ul style="list-style-type: none"> • Lack of a system to check the sustainable development outcomes
Certification	<ul style="list-style-type: none"> • Promotion of high standard of contribution to sustainable development and mandatory site visits to check on outcomes • Added value is given to certified projects 	<ul style="list-style-type: none"> • If voluntary, not powerful enough and lower volume of projects

Source: Authors.

4.2.4 Growing market readiness in developing countries

In addition to the efforts to enhance contributions to sustainable development through existing market mechanisms, preparation for development of a new market mechanism has started in some Asian countries, particularly ones with rapidly increasing GHG emissions.

In China, such movement will begin from the provincial or regional level through low carbon pilot projects in five provinces and eight cities. One of the main strategic goals of this project is to study the feasibility of utilizing market mechanisms in helping achieve emission reduction objectives (World Bank Group 2011b). Under this project, the first regional emissions trading system is expected to be established in Guangdong province and research to determine the design of the system is being conducted (IGES 2011b).

In India, the Perform, Achieve, and Trade (PAT) scheme is going to be introduced as a component which deals with the market based mechanism of the National Mission on Enhanced Energy Efficiency (NMEEE) under the National Action Plan on Climate Change (NAPCC). It aims at improving the energy efficiency in energy-intensive large industries and facilities in eight sectors through certification of energy savings which can be traded (Energy Efficiency Services Limited 2010).

In the Republic of Korea, the Greenhouse Gas and Energy Target Management System (TMS) will start from 2012 and run through 2014. It is meant to build emissions monitoring, verifying and reporting capacities in preparation for a future national emissions trading scheme (Environmental Finance 2011). ROK also initiated a pilot emission trading system, a GHG cap-and-trade programme, in 2010 for the purpose of capacity building and learning-by-doing for entities who are required to reduce GHG emissions (Korea Environment Corporation 2011a). Table 4.5 provides more information about these three schemes.

Table 4.5 Examples of relevant measures as new market mechanisms in Asian countries

Countries	Relevant scheme/project as a new market mechanism	Objective	Target sector and potential participants	Excerpt of scheme/project	Target year of implementation	Expected outcome	Reference
China	Pilot low carbon projects in five provinces and eight cities	To study the feasibility of utilizing market mechanisms in helping achieve emission reduction objectives.	Sector(s) to be decided. Participating provinces include: Guangdong, Liaoning, Hubei, Shanxi, and Yunnan. Cities include: Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang, and Baoding.	To be decided	2013 in Guangdong province	To be decided	IGES (2011b), World Bank Group (2011b)
India	Perform, Achieve, and Trade (PAT) Scheme	To improve the energy efficiency in energy-intensive large industries and facilities through certification of energy savings which can be traded.	Large energy-intensive industries and facilities notified as Designated Consumers (DCs) in the following 8 sectors: thermal power, fertilizer, cement, pulp and paper, textiles, chlor-alkali, iron and steel, aluminum.	<ul style="list-style-type: none"> Specific targets will be set for each DC to reduce energy consumption to a certain level (Specific Energy Consumption - SEC) according to their baseline levels within three years DCs shall comply with targeted SEC DCs can buy Energy Saving certificates (ESCerts) if targets are not met 	First cycle of commitment period: 2011 - 2014	Saving of about 10 million metric tonnes of oil equivalent (mMtoe) by 2013-14.	Energy Efficiency Services Limited (2010), IGES (2011c)
Republic of Korea	Greenhouse Gas and Energy Target Management System (TMS)	To promote efficient achievement of the national goal (30%, compared with BAU in 2020) by appointing a GHG energy consuming business of a certain scale or larger.	About 500 energy users notified as "controlled entities" in a certain amount in industry, building, waste, and agriculture sectors. They altogether account for about 60% of the total GHG emissions.	<ul style="list-style-type: none"> Target was set based on base-year (2007-09) emissions, prospective growth rate, and negotiation between each controlled entity and a competent ministry. Controlled entities submit implementation plan Controlled entities report mitigation performance and prepare statements for GHG emissions and energy consumption Fines will be levied if failure to meet targets 	2012-2014	Emission reduction of about an aggregate 1.4% from BAU in 2012	Korea Environment Corporation (2011b), Virtual Center for Korea Environmental Technology Exchange (2012)

Source: Compiled by authors

5. Conclusion and recommendations

This chapter has argued that carbon governance in Asian countries varies and each country has a distinct nature in terms of the adoption of the concepts of low carbon development, green economy and sustainable development. In Japan, discussions on how to achieve the Kyoto targets and the early stages of discussions on mid-term emissions reduction targets did not adequately consider the idea of a green economy. The concept of a green economy came under discussion only when the policy debate on a mid- and long-term roadmap for global warming measures began. This implies the importance of preparation of long- and mid-term strategies for mitigation actions. Drastic changes in the industrial structure are essential for the emergence of a green economy. However, such changes could be controversial because consideration needs to be paid to politically powerful energy-intensive industries, such as electric power companies and steel companies.

In the Republic of Korea, the leadership of President Lee Myung-bak was important. Arguably due to his background as a business man he assessed draft proposals for climate change mitigation in terms of the degree to which such plans could contribute to Korean economic growth and job creation.¹⁹ In addition, the Korean case highlights the importance of legal frameworks to support the green growth initiative.

In India, the concept of a green economy has been cautiously adopted, since there are concerns that such a concept may put constraints on economic development. However, there is a strong belief that domestic mitigation actions should be designed and implemented in the context of sustainable development. Due to priority given to rural development and poverty reduction in farming areas, the agricultural sector was not included in the scope of India's NAMAs.

In comparison to India, the idea of a green economy is more widely accepted in China. Like ROK, Chinese leadership also shared clear intentions to ensure future energy security, to make an effort to reduce domestic pollution, and to establish China as a key global player in the green energy business sector. The country's flagship initiative was energy intensity targets, and institutional reforms were made to create an incentive mechanism for local leaders to pursue their allocated energy intensity targets. This mechanism worked well, but simultaneously posed new challenges when looked at from the social dimension of green economy. Local leaders pursued their energy intensity targets without due consideration to the local community, causing a series of rolling blackouts and forcing industries to alter their production schedule to keep up with the energy intensity targets. This implies the importance of proper incentive mechanisms. Here, the term "proper" means that all the dimensions of sustainable development (economic, environment and social dimensions) are addressed in a balanced manner.

Given these observations, the following measures should be considered to further promote the greenness of domestic mitigation actions.

First, in the short term, policymakers in Asia should become more aware of the linkage between sustainable development, a green economy and low carbon development. For example, though a green economy is a means to attain sustainable development, there is still a concern or misperception that pursuing a green economy would constrain economic growth and social development. This misperception needs to be addressed quickly. Information sharing on good practices and policies, as well as capacity development, could help address this perception problem.

Second, domestic institutional frameworks and long-term planning to attain sustainable development through a green economy are also needed in the short- to medium-term. The idea of a green economy could clarify how long-term structural changes toward a green economy could economically, environmentally and socially benefit industries and citizens. Indeed, under the Cancun Agreements, developed countries agreed to develop low carbon development strategies or plans, and developing countries are encouraged to develop low carbon development strategies or plans in the context of sustainable development. The Agreements also decided to establish the Green Climate Fund to scale up the provision of long-term financing to developing countries. The provision of such finance should be done in a stable and predictable manner so that developing countries may make long-term plans.

Third, incentive mechanisms should be introduced to allow main actors to pursue a green economy and domestic legal frameworks to support such incentive mechanisms. While such incentive mechanisms should be designed to reflect national circumstances, it is important for any incentive mechanisms to strike a proper balance among the three dimensions of sustainable development. Legal frameworks are essential to ensure and promote effective implementation only if they are aligned with proper incentive mechanisms.

It is a fact that CDM has enhanced additional investment of USD 1.3 billion over the past decade (UNFCCC 2011) in developing countries as a pioneer of a market-based mechanism under the UNFCCC. However, at the same time, it has created a substantial level of unequal distribution of CERs generated to particular types of projects. Although it can be considered a natural consequence of a market-based mechanism sacrificing for equity, this unequal distribution of CERs has generated strong criticism that CDM does not really contribute to assisting developing countries to achieve their sustainable development objectives as much as initially intended by the Kyoto Protocol.

Given this situation, there are three types of approaches—assessment, fund and certification—which have been implemented in various countries as measures aimed at ensuring sustainable development benefits. Although each approach has its own advantages and disadvantages, it is concluded that the certification approach surpasses others for several reasons. The most significant advantage of the certification approach is that it has an original function that added-value of benefits for sustainable development can be internalised in the price of CERs. Then, the market mechanism, namely CDM, can allocate CERs, as expected in theory, cost-efficiently, but with consideration of sustainable development in developing countries hosting the CDM projects. On the other hand, both the assessment and fund approaches are a re-allocation of sustainable development benefits through governmental function, rather than market mechanism, which often suffers from “government failure” causing a less-efficient allocation of resources in comparison to a market mechanism. Therefore, recommendations based on the above observations can be summarised as follows:

Firstly, it is recommended that at least one of the above three approaches be applied (assessment, fund and certification) as a measure to address the unequal distribution of CDM projects so that the benefits of sustainable development generated by CDM can be increased. Secondly, it is recommended that the certification measure be employed domestically and/or internationally since, in contrast to other approaches, it has a remarkable advantage of being able to utilise the original function of a market mechanism—an efficient allocation of resources—through an internalisation of sustainable development benefits into CER prices. Thirdly, in order to further reinforce such internalisation of sustainable development benefits in the demand side of the

carbon market, it is also recommended that the use of CERs associated with the certification be made compulsory, or treated favourably, in emissions trading and carbon offsetting schemes. These changes in the governance of CDM could effectively increase the benefits of sustainable development within the current form of CDM and ensure a fair balance between cost-efficiency and contribution to sustainable development.

5.1 Proposal for the establishment of regional institution to assist the low carbon development platform in Asia and the Pacific

Finally, this chapter proposes the establishment of a regional institutional platform as an instrument to promote low carbon development in Asia and the Pacific. This chapter revealed that the proliferation of effective mitigation actions across the region requires better understanding of low carbon development strategies and green economy policies. It was also pointed out that many Asian countries have just started to embark on the establishment of domestic market mechanisms to tackle energy security and climate change. At this early stage of policy initiatives, information sharing and capacity building play a critical role. The main function for this proposed platform is to create an enabling environment for capacity building and knowledge transfer of different policy tools and market mechanisms available between multiple levels of governing systems (e.g., central government, local government, and other stakeholders). Figure 4.3 shows the schematic design of this platform. While further elaboration of its institutional design is necessary, in principle this platform should be designed to facilitate useful information sharing and effective and accessible capacity development with regard to low carbon development strategies and green economy policies among various stakeholders. The main function for this platform is to create an enabling environment for capacity building and knowledge transfer of different policy tools and market mechanisms available between multiple levels of governing systems (e.g., central government, local government, and other stakeholders).

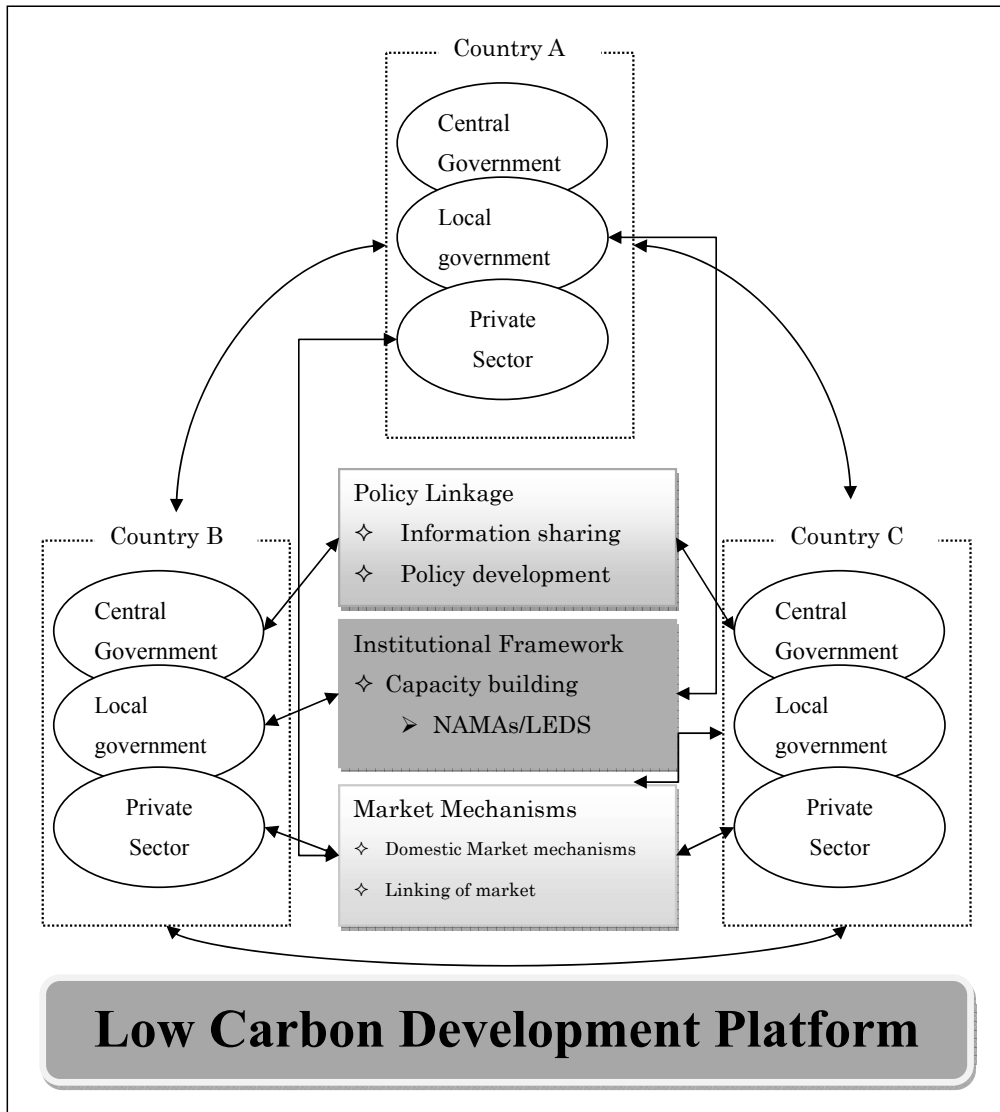
The following elements will need to be addressed by the regional platform.

- (1) Policy coherence (SD, Low Carbon Development, Green Economy)
- (2) Support of national policy making (NAMA, National Climate Policy, Energy Policy)
- (3) Financial mechanisms (Promotion of domestic carbon market, Regional linking of domestic carbon market)

Those elements mentioned above could be achievable through following measures and depicted as follows:

- (1) Information sharing
- (2) Capacity building
- (3) Facilitation of financial mechanism

Figure 4.3 Low carbon development platform for capacity building and knowledge



Source: Authors.

Notes

1. Information on "Regional Green New Deal Fund" is available at the website of the Ministry of Environment. <http://www.env.go.jp/guide/budget/h21/h21-hos/02.pdf> (in Japanese, accessed 20 November 2011).
2. Information on "New Growth Strategy (Basic Policies)" is available at the website of the Cabinet Office. http://www.kantei.go.jp/foreign/topics/2009/1230strategy_image_e.pdf (in English, accessed 20 November 2011).
3. Information on "The Bill of Basic Law on Climate Change" is available at the website of the Ministry of Environment <http://www.env.go.jp/press/press.php?serial=12257> (in Japanese, accessed 20 November 2011).
4. Information on "Roadmap" sub-commission is available at <http://www.env.go.jp/council/06earth/yoshi06-11.html> (in Japanese, accessed 20 November 2011).
5. Information on "Subcommittee to discuss policy measures after 2013" is available at "Subcommittee to discuss policy measures after 2013" (in Japanese, accessed 20 November 2011).

6. Kim (2011) quotes the survey results of some Korean newspapers which revealed that as high as 70% of Korean people opposed the project when the plan was first announced.
7. PCGG consists of co-chairs by the Prime Minister and a leading scholar, Dr. Kim Hyung Kook, as the representative of private sector. The other 47 members are from relevant Ministries and private sector stakeholders. The creation of PCGG is provided for in the "Basic Act on Low Carbon Green Growth," which is a comprehensive legal foundation to implement the green growth vision.
8. The Plan was developed as a revival of the past practices of the five-year plan which had been very promising during the early economic development era from 1962 to the mid-1990s.
9. The amount is twice as large as the one recommended by the Green Economy Initiative led by UNEP (UNEP 2010).
10. The Office was established jointly with the UN, the ROK's Ministry of Environment, Incheon city and Yonsei University and is managed by the UN Department of Economic and Social Affairs (DESA).
11. Statement made by Mr. A.R. Ghanashyam, Joint Secretary (UNES), Ministry of External Affairs, Government of India, during the session on "Green Economy in the context of sustainable development and poverty eradication" at the 2nd PrepCom of Rio+20 on 7 March 2010, New York.
12. "Green economy: policy framework for sustainable development." *Current Science*, Vol. 100, no. 7, 10 April 2011, p-961.
13. "Climate and Environment Mainstreaming and the Green Economy to Achieve the Millennium Development Goals," <http://www.povertyenvironment.net/files/PEP15-ActionPoints.pdf>, accessed 19 September 2011.
14. Tishya Chatterjee, Secretary, Ministry of Environment and Forests, Government of India. "GREEN ECONOMY PERSPECTIVES," delivered at the CII meeting organized for the visiting Executive Director UNEP, and Minister for Environment and Forests, India.
15. National Action Plan on Climate Change, Government of India
16. Op.cit 2.
17. UN Press release on India's green economy for the future will need to meet the challenge of adding 8-10 million jobs each year, 3 June 2011.
18. Each CER is equivalent to 1 tonne of carbon dioxide (CO₂), often referred to as tonnes of CO₂ equivalents (t CO₂ eq).
19. Interview with a Korean professor, Poznan (Poland), December 2009.

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Chapter 5

Community Forest Management
and REDD+: Opportunities and
challenges

Chapter 5

Community Forest Management and REDD+: Opportunities and challenges

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1. Introduction

Community forest management (CFM) plays a key role in the green economy by contributing to the well-being of society and the livelihoods of millions of people through the provision of raw materials, food and medicinal plants, and securing the supply of environmental services, such as watershed and biodiversity protection, and carbon fixation and storage, all of which are crucial for the attainment of climate change mitigation goals (UNEP 2011).

Forests have traditionally been managed for a variety of purposes including timber production, water and soil protection, and biodiversity conservation. In the case of communities, additional uses must be accounted for such as food and medicinal production, and cultural, aesthetic and spiritual uses. With deforestation thought to be responsible for approximately 17% of anthropogenic greenhouse gas (GHG) emissions, climate change mitigation has been added to this list and has given forests increased global relevance. Parties to the United Nations Framework Convention on Climate Change (UNFCCC) are in the process of agreeing on a global mechanism known as REDD+ that would provide incentives to developing countries to manage forests for climate change mitigation. REDD+ stands for “reducing deforestation and forest degradation (REDD), and maintaining and enhancing

Key Messages

- Community forest management (CFM) programmes can contribute to REDD+ and the green economy, but they need to fulfil framework conditions such as appropriate qualification conditions for communities, flexibility to include local institutions in management and decision-making processes and clear and secure user rights. CFM programmes can promote the efficient use of forest resources to maintain and restore natural capital, and target not only climate change mitigation, but also adaptation and poverty alleviation through the enhancement of social equity.
- CFM can position itself as a source of knowledge and ideas for the development of REDD+ as it can show a wealth of experience on issues dealing with models of legislation and regulations supportive of local actors, benefit sharing arrangements and dispute management mechanisms.
- CFM programmes need to be strengthened; investment in capacity building of government agencies to act as facilitators rather than monitors of CFM is required, and contradictory norms must be removed to strengthen the legal basis for CFM.
- Institutional reform of CFM programmes may be needed to avoid elite capture.
- Processes that respect Free Prior and Informed Consent (FPIC) must be followed to uphold environmental and social safeguards (i.e., ensure that communities have a thorough understanding of REDD+, of their roles and responsibilities as well as the potential benefits, costs and risks that REDD+ may entail). REDD+ can be strengthened through processes that respect FPIC relationships between communities and other actors involved in REDD+.

forest carbon stocks (+).” The parties to the UNFCCC are involved in negotiations on a range of environmental and social safeguards that should accompany the implementation of REDD+ (UNFCCC 2010, Appendix 1). In this context, CFM can play a relevant role in the design and implementation of REDD+.

This chapter examines the recent evolution and characteristics of state-sponsored CFM programmes in six countries of the Asia-Pacific region: India, Nepal, Cambodia, Viet Nam, the Philippines and Indonesia. These countries were selected on two grounds: they represent a wide geographical span, and they illustrate different government-sponsored CFM programmes in diverse stages of development that range from the relatively progressive, for example, in terms of access to forest resources and ownership rights (Nepal, Cambodia and the Philippines), and programmes trying to address issues of indigenous and traditional forest dwellers (Indonesia and India with its Forest Rights Act), to programmes where legislation is in place but CFM is being developed on a pilot basis before a national CFM programme is put in place, such as in Viet Nam.

The main questions this chapter takes up relate to whether and how CFM can make a significant contribution to REDD+. This is done by looking into recent reforms of the legal frameworks as well as the characteristics of the different CFM programmes on issues crucial for forest governance such as qualification requirements for communities, space given to local forms of decision-making and the extent and security of property rights (Ostrom 1999). These criteria are deemed relevant for the following reasons: rigid qualification requirements may exclude legitimate claimants to forest land and resources; rigid models will not be able to accommodate local variants of forest management that communities have developed over many generations and will thus impose “unnatural” institutions on them; and forest rights that are overly limited and insecure will not provide enough incentives for communities to invest their efforts in forest management over the long-term. The chapter draws on this analysis to assess the potential contribution of state-sponsored CFM models to REDD+. Throughout this chapter it is assumed that CFM’s contribution to REDD+ also has a positive impact on the green economy insofar as it enhances forest resources, their associated environmental services, and contributes to improve human well-being.

The chapter is divided into five sections. The second section looks briefly at the context in which recent legal reforms to CFM programmes have been undertaken. In the third section, through the selection of examples found in the literature, the strengths and weaknesses of these CFM programmes are observed. This is done by examining the contents of the laws and regulations (*de jure* approach) and how these are actually applied (*de facto*). However, an exhaustive analysis of the spirit of the norms and regulations and how they are really applied is beyond the scope of this chapter.

The fourth section takes up the questions of whether and how REDD+ could be implemented through state-sponsored CFM programmes. This requires an understanding of the origins, strengths and weaknesses of these models, as well as an understanding of REDD+ activities and its requirements. Based on this analysis, the chapter sets out policy recommendations in the last section for implementing REDD+ through community forestry.

2. Recent evolution of CFM in Asia-Pacific: CFM as a legal innovation

CFM can be traced back many centuries in various parts of the world (Sam and Shepherd 2011). The colonies established in Asia and Southeast Asia and their state-

dominated systems of natural resource exploitation systematically deprived indigenous communities from accessing resources that underpinned their livelihoods, eroding these customary forest management systems and sometimes even vanquishing them. As different countries gained their independence and laid claim to colonial forest lands through nationalization processes,¹ community forest management was further undermined as forest lands were given to state enterprises or in concession to private investors—often through deep-rooted corruption networks (Poffenberger 2006; Noordwijk et al. 2007; Walpole and Annawi 2011).

The technocratic approach to forest management through the concession system in Southeast Asia was already deemed unsustainable in the 1970s by many academicians and practitioners, who argued that local communities needed to be involved in the management of forests in order to explore alternatives that would reduce social unrest and make forest management more environmentally friendly (Fisher et al. 2007). Governments' attitudes towards communities as forest stewards, though still not without contradictions, began to change from the 1970s. The World Forestry Congress held in Jakarta in 1978—driven by forestry professionals concerned with mounting environmental and social concerns—brought forward a number of ideas that strongly supported the involvement of local communities in forest management, mostly for the restoration of degraded areas (Sam and Shepherd 2011). The Congress marked a milestone in the way community forestry was observed in Southeast Asia; in the years to come, it would experience increased support. Thus, governments began to design community forestry models that gave some forest rights to communities, though often in degraded, logged-over forests, with the aim of growing industrial timber. Over the following decades, these models evolved through trial and error and the focus shifted more towards land rehabilitation and community wellbeing, resulting in the situation we have in the region today in which millions of hectares of forest land are now managed by communities for multiple purposes (Poffenberger 2006).²

Contrary to the early scholarly assumption that community-managed natural resources would lead to their depletion due to resource users' mishandling of resources for their own self-interests (Hardin 1968; Hardin 1982), research in the last two decades has emphasized communities' capabilities in managing forests (common pool resources), provided the policy framework is compatible with local conditions, enables communities to devise their own governance arrangements, and communities perceive the benefits of managing forest resources as higher than the expected costs (Ostrom 1990; Dietz et al. 2003; Chhatre and Agrawal 2008; Ostrom 2009).

Table 5.1 presents an overview of statistical data for the countries discussed in this chapter. It suggests that the Philippines has come a long way in its efforts to promote CFM, allocating more than 35% of its total forest land area. Nonetheless, the increased support of CFM, as well as the recognition of indigenous rights and devolution of ancestral lands, coincides with the period in which the country has become a net importer of timber and native forests are no longer commercially viable. A similar process can be observed in Cambodia (Heng and Sokhun 2005), where forests underwent heavy exploitation before being earmarked for community forest management. Indonesia continues to have a large expanse of forests, of which more than 33% are allocated to concessions. Unfortunately the process experienced by the Philippines and Cambodia seems to repeat itself in Indonesia, as the first areas that the government allocated for community forest management—under the programme of community forest, HKm—were logged over forests that were once given to concessions.

Table 5.1 Forests, population and CFM

Forest statistics ⁱ	Cambodia	Indonesia	Philippines	Viet Nam	India ⁱⁱⁱ	Nepal ^v
Total land area (ha)	18,100,000	181,100,000	30,000,000	33,000,000	328,730,000	14,300,000
Total forest land	10,500,000	135,900,000	15,880,000	19,000,000	77,470,000	5,500,000
Total forested area	9,300,000	104,700,000	5,490,000	11,000,000	67,830,000	3,636,000
Area under CFM, % (relative to total forest land)	720,000 7%	590,000 0.43%	5,900,000 37%	2,350,000 12%	22,000,000 ^{iv} 28%	1,653,000 ⁱ 30%
Area under concessions	4,200,000	49,000,000	-	-	-	-
Average annual deforestation rate (1990-2005) ⁱⁱ	1.4%	1.8%	2.6%	-2.2%	-0.4%	1.9%
People statisticsⁱⁱ						
Total population	14,000,000	226,000,000	88,000,000	85,000,000	1,125,000,000	28,000,000
Rural population	11,060,000	113,000,000	31,680,000	62,050,000	798,750,000	23,240,000

Notes: ¹ See: http://www.dof.gov.np/index.php?option=com_content&view=article&id=95&Itemid=121

Sources: ⁱ Asia Forest Network; ⁱⁱ World Bank Little Green Data Book 2009; ⁱⁱⁱ Saigal et al. (2008); ^{iv} Pai and Datta (2006); ^v Acharya (2002)

CFM is not a true innovation since in many parts of the world it has been practiced for hundreds—if not thousands—of years (Sam and Shepherd 2011). Innovation here refers rather to the re-thinking by states of laws and regulations to recognize the rights of indigenous communities to manage forests, and the importance of their role in forest management. This section briefly describes the existing state-sponsored models of CFM found in the countries listed in Table 5.2 in terms of their legal basis and the national programme that implements CFM in each country.

Table 5.2 Legal basis of selected CFM programmes

Country	Name of CFM programme	Legal basis	Responsible government agencies
India	Joint Forest Management (JFM)	• National Forest Policy (1988)	State Forest Departments
	Forest Rights Act (FRA)	• Forest Rights Act (2006) ¹	
Nepal	Community Forest User Groups (CFUGs)	• Forest Act (1993) • Forest Rules (1995)	District Forest Office
Philippines ²	Community Based Forest Management (CBFM)	• Constitution (1987) • Executive Order 192 (1987) • EO 263 (1995) • Indigenous Peoples Rights Act (1997)	• Department of Environment and Natural Resources (DENR) • Local Government Units (LGUs)
Cambodia	Community Forest Management (CFM)	• Forestry Law (2002) • Sub-decree on CFM (2003)	Forestry Administration
Viet Nam	Community Forest Management (CFM, pilot phase)	• Forestry Protection and Rehabilitation Law (1991) • Land Law (2003)	• District Government • Commune
Indonesia	Community Forest (Hutan Kemasyarakatan, HKm)	• Forest Law (1999) • Ministerial Decree: SK 677/1998 ³ • Government Regulation PP 6/1999 ⁴	• District Government (Kabupaten) • Ministry of Forestry (MoF)
	Village Forest (Hutan Desa, HD)	• Forest Law (1999) • Regulation MoF P.49/Menhut-II/2008	• Village Government (Desa) • District Government • Provincial Government • Ministry of Forestry (MoF)

Notes: ¹ Full name: The Scheduled Tribes and Other Traditional Forest Dwellers Act

² See: <http://caraga.dentr.gov.ph/CBFM%20Program.htm>

³ Right to control these community forests.

⁴ Timber harvesting rights in production forests.

Source: Authors

India

In India, the National Policy of 1988 gave strong support to the empowerment of local communities in the protection and development of forests, leading to the adoption of what is known as Joint Forest Management (JFM). This is a government programme designed to share benefits with local communities in exchange for their limited involvement in forest management (Pathak and Kothari 2010). According to Pathak and Kothari (2009: 20), "JFM continues to be implemented in project mode without institutionalising participation in forest management." Nonetheless, after 1990 every state in India approved JFM resolutions and by 2006, 106,482 Joint Forest Management Committees (JFMCs) were protecting over 22 million hectares of forests in 28 states (Pai and Datta 2006). In 2001, a central government order amended JFM and due recognition was given to Self Initiated Forest Protection Groups (formed in the early 1990s). However, administrative hurdles remain as the order failed to specify the procedures to be followed to assess these groups (Mittra and Bhattacharya 2008; Bhattacharya et al. 2010).

In 2006, India released the Scheduled Tribes and Other Forest Dwellers Bill (also known as the Forest Rights Act, FRA), which seeks to address the historical injustices done to communities whose forest rights have not been legally recorded and have thus been denied their traditional rights to forestlands and their resources. The Act recognises and grants forest-related rights to scheduled tribes³ and other communities who have

traditionally been living in, or depending on, forestlands for their legitimate livelihood needs (Kothari et al. 2011a). The approval of the Act has been controversial. Whereas conservationists and the Ministry of Environment argue it will lead to more deforestation and forest degradation, social groups argue it will lead to conflicts between forest dwelling scheduled tribes and other traditional forest dwellers (Walpole et al. 2009). Moreover, the Council for Social Development reports that the implementation of the FRA is being undermined by faulty operationalization, leading in some cases to further denial of the rights of tribal and other traditional forest dwellers, contravening *de facto* the spirit of the FRA.⁴

Nepal

Nepal formally established the concept of participatory forest management in 1978, when the operating rules for the Panchayat Forest and the Panchayat Protected Forest were adopted. A strong impetus was given to CFM by the adoption of the Master Plan for the Forestry Sector in 1989 which empowered Community Forestry User Groups (CFUGs) to take over substantial portions of government-owned forests. Probably the most significant regulatory developments in Nepal have been the enactment of the Forest Act in 1993 and the formulation of the Forest Rules in 1995, as they institutionalised CFUGs as independent and self-governing entities, and provided the grounds to further expand community forestry nationwide (Kanel 2007).⁵ Nonetheless, the traditional use rights of landless and seasonal forest users have been negatively affected (particularly those from the high mountains) as their traditional rights are not recognized (Walpole et al. 2009: 95). Moreover, persistent patron-client relations (between the government and local elites) have produced a lack of empowerment of poor individuals and communities with little to no political power, producing uneven access of communities to forest resources (Malla 2001).

Philippines

The Philippines, like Nepal, is counted as a pioneer in the implementation of community forestry in Asia (Hartanto 2007). In 1982, it established the Integrated Social Forestry Programme, giving communities access to forest lands for periods of 25 years (Rebugio et al. 2010). In 1995, after a decade of experimentation with community forestry projects and schemes, a community-based forest management policy was launched aiming towards a more decentralized, participatory and people-oriented scheme, followed by the release of the Rules and Regulations for the Implementation of a Community Based Forest Management Strategy, which established the responsibilities of communities, local governments and state agencies (Poffenberger 1999; Pulhin et al. 2007). This policy transition took place in the aftermath of a logging boom, where the Philippines went from being one of the main suppliers of tropical timber in the world, to a net importer of timber, with most old growth forests heavily impacted or destroyed (Pulhin et al. 2007; Rebugio et al. 2010).

In 1997, the country approved the Indigenous Peoples Rights Act (IPRA), providing an additional legal basis to further develop community forestry, as the state acknowledged its responsibility to secure the rights of indigenous communities to their ancestral domains, as well as to ensure their economic, social and cultural wellbeing. Nonetheless, the implementation of the IPRA has at times contributed to the exacerbation of pre-existing conflicts among communities over land disputes or access to resources such as water.⁶

Cambodia

Before the 1970s, Cambodia's forests were not under severe threat. The civil war and political instability during and after the 1970s helped prevent any form of commercial forest management. But by the 1990s, forest concessionaires had become the main users of forest resources. The logging ban imposed by China in 1998, by Thailand in 1989, and the depletion of forests in Viet Nam, considerably increased the pressure on Cambodian forests. The damage caused by concessions was such that by 2001, the country had declared a logging moratorium and cancelled most concessions (Heng and Scheyvens 2007).

In the mid-1990s, partly as a result of the pressure from donors and the international community, community forestry was adopted by the government as a measure to tackle corruption in the forest sector, recognizing that communities are an essential element for the protection and management of forests (Callister 1999; Heng and Shigeru 2002; Heng and Sokhun 2005). Since then Cambodia has taken steps towards the institutionalisation of community forest management. The Forest Law of 2002 recognizes community titles, in line with the Land Law of 2001 (Heng and Scheyvens 2007), and the Sub-Decree on Community Forest Management lays out the roles, duties and rights of communities and their organizational structure as well as the roles of governmental organizations regarding supervision and technical assistance for communities. However, the implementation of CFM is hampered by a tendency to give priority to the government, the military and concessionaires in the appropriation of timber rents, a trend that has also been observed for Viet Nam (Sunderlin 2006).

Viet Nam

After two decades of war (1955-1975) the state nationalized large tracts of forests and became directly involved in the administration, exploitation, processing and distribution of forest resources. It established state forest enterprises to manage industrial timber production as well as a variety of social organizations, including farmer associations, a women's union and youth brigades to replace traditional institutions. Logging, halting swidden agriculture and encouraging permanent settlements amongst ethnic minorities were prioritized.⁷ Community forestry was not prevented and thus continued to exist, but since the commune is the lowest legally recognized administrative unit, forest management by villages or hamlets was not legalized (Sam et al. 2007). The establishment of production quotas, based on state needs instead of sustainable yields, resulted in the rapid degradation of forests. In response, the state made a fundamental change to its forest policy from "state forestry" to "household forestry" (Sikor 1998), as the state sought to give households stronger participation in forest management by allocating land to collectives, households and individuals to establish and rehabilitate forests.

Under the Forest Protection and Rehabilitation Act of 1991, use rights for production forests could be allocated to households and other non-state bodies, but it was not until 2004 that community forestry was formally recognized. Nonetheless, the development of community forestry is now being approached through pilot projects. It is expected that a formal national programme will be developed after the piloting phase (Wode and Huy 2009). The Land Law of 2003, which regulates the administration and use of land, created the legal basis for community forestry by including communities amongst its types of land users. The legality of community forest tenure was recognized in 2004, when the Law on Forest Protection and Development was approved. These laws are very important to community forestry in Viet Nam because they allow for the recognition

of traditional (local) forest management institutions, they strengthen the position of villagers in defence of their forests against external threats, and they attract support from development agencies (Nguyen et al. 2008).

Indonesia

In Indonesia, forest resources have been consistently allocated to elites with close ties to political figures (Barr et al. 2006). Besides the award of concessions to political clientele, between 1979 and 1984 the state also actively promoted migration—notably from Java—to forest regions in the outer islands (Arnold 2008). These forms of land allocation often turned indigenous communities into squatters on their own lands (Kusumanto and Sirait 2000; McCarthy 2000). Exclusion and eviction of local communities has led to social unrest that in many occasions has taken the form of violent conflicts in which the state has traditionally sided with actors with whom it has converging economic interests (Colfer and Resosudarmo 2002). Even though Indonesia's Forest Law of 1999 has a chapter on customary law (Chapter IX) that states that communities have a right to undertake forest management, this right is undermined by restrictions on communities whose traditional uses are recognized by the government, and by the provision that it only applies, as long as such traditional uses do not contravene the Forest Law.⁸

Since the mid-1980s, partly in response to the mounting problems of forest degradation and social conflicts around forests, the government began experimenting with collaborative forms of forest management with communities. One of the first forms of such collaboration was allowing intercropping on state forest plantations in Java. However, it produced disappointing results in terms of increasing forest cover and improving local livelihoods (Kusumanto and Sirait 2000). Local participation in this system only improved after communities received increased benefits from timber profits from state forest plantations (Adi et al. 2004). According to Colchester (2002), Indonesia's serious efforts to develop CFM only really began in the 1990s. In this next chapter, two government CFM programmes will be discussed: the community forestry programme (Hutan Kemasyarakatan, HKM) and the village forestry programme (Hutan Desa).⁹

3. Key content of laws regulating community forestry

This section discusses the qualification requirements of CFM programmes, their institutional arrangements—with particular attention to the space given to local forms of organization and decision-making—and the extent and security of property rights envisaged by CFM programmes.

The contents of laws regulating CFM set out important elements that support the green economy. Qualification requirements and institutional arrangements that are inclusive of local communities and provide spaces for local forms of organizations in decision-making processes contribute to creating an environment of social equity. By enhancing local ownership of CFM, the content of laws regulating CFM can also improve forest governance. The extent and security of property rights are also supporting factors of the green economy inasmuch as they contribute to the allocation of the benefits of forest use to communities and enhance their well-being.

3.1 Qualification requirements

Qualification requirements for CFM are important to assess how inclusive different CFM models are and to gain a sense of whether CFM programmes target legitimate claimants.

As stated in the introduction, rigid qualification requirements tend to marginalize rightful claimants to forest areas (Table 5.3).

Table 5.3 Basic qualification requirements for state-sponsored CFM programmes

Country	Name of CFM programme	Residency requirements	Other requirements
India	JFM	Local communities living in forest areas	Vary according to state regulations
	FRA	General conditions: ¹ <ul style="list-style-type: none"> • Primarily reside in forests or forest lands; • Livelihood depends on forests and forest lands Differentiated conditions: <ul style="list-style-type: none"> • Scheduled tribes: reside in the area before December 13, 2005 • Traditional forest dwellers: reside in the area at least for 75 years prior to December 13, 2005 	Claimed areas—by either an individual, family or community—cannot exceed 4 hectares per community ²
Nepal	CFUGs	Local communities living in forest areas	-
Philippines ³	CBFM	<ul style="list-style-type: none"> • Till parts of the area to be awarded, or • Traditionally use the resource for all or substantial livelihood maintenance, or • Reside in or near the areas to be awarded 	-
Cambodia	CFM	Residents of a village that share common social, cultural, traditional and economic interests	-
Viet Nam	CFM	Reside in the same hamlet or village that share the same habits, customs and ethnicity	-
Indonesia	HKm	Reside in an area selected by the MoF or the Regency	Support from the Regency (Bupati)
	HD	Forest must be administratively part of the village	Support from the Regency (Bupati)

Notes: ¹ See: <http://www.forestrightsact.com/what-is-this-act-about>

² See FRA, Chapter III, 4(6): <http://www.forestrightsact.com/the-act/item/download/1>

³ See: <http://forestry.denr.gov.ph/primer.htm>

Source: Authors

In different CFM programmes, some common qualification requirements can be observed, such as demonstration of habitation over a certain period of time and nationality. Residency requirements vary widely from simply residing in an area or demonstrating some form of land use (as in the Philippines, Nepal and India in the case of JFM), to more specific traits such as sharing customs, traditions and ethnic origin, which is the case for Cambodia and Viet Nam. In the case of these last two countries, specifications of ethnic origin and shared customs provide for the possibility of ethnic minorities to have their claims to community forests recognized. In India,¹⁰ the FRA establishes different qualification requirements for “other traditional forest dwellers” and scheduled tribes, requiring the former to demonstrate residence over 75 years prior to December 13, 2005, whereas scheduled tribes must only demonstrate that they resided in the area prior to December 13, 2005 (Kothari et al. 2011b). It is plausible that this differentiated requisite puts other traditional forest dwellers at a disadvantage for claiming rather small areas, and that is likely to act as a disincentive for their engagement. Although the FRA intends to target forest dwelling communities, the Act also stipulates that individuals and families can claim forest areas limited to a maximum of four hectares.

In Indonesia, community forestry programmes gloss over the ongoing conflict created by the lack of recognition of customary (*adat*) rights in the Forest Law (1999)—which can be traced back to the Basic Agrarian Law of 1960 (Kleden et al. 2009)—that limits the acknowledgment of customary rights to their recognition by the legislation itself, and only when there is no conflict with national interests. The awarding of forestry concessions has been regarded by the state as a matter of “national interest,” thus villages can only qualify to engage in either form of CFM (HKm or Hutan Desa (HD)) if their area has no overlap or conflicts with forest concessions. In the case of HKm, conflicts are unlikely to arise since these areas are previously earmarked by the local government with the approval of the Ministry of Forestry.¹¹ Other qualification requirements for traditional (*adat*) communities to participate in CFM are that they continue to live in their ancestral lands and that their presence is officially acknowledged by local legislation (Kleden et al. 2009). Probably, the reason why explicit support from the local government is a qualification requirement is to demonstrate that a local community is officially acknowledged by the local legislation. Nonetheless, these last requirements remain very contentious and are an ongoing source of conflict, documented in a large body of literature.

It is a rather straightforward conclusion that the less stringent qualification requirements are, the more inclusive they can be for rightful claimants. The establishment of differentiated requirements for groups of customary users can result in lengthy bureaucratic processes that demand resources and know-how that the allegedly targeted beneficiaries often lack, not to mention it can also enhance the opportunities for bribery. When a qualification requirement depends on the acknowledgement by a government body of the existence of a customary group, this opens space for arbitrary decisions and marginalization of rightful users of forest resources. Therefore, without strong government commitment to support customary users and ensure they have access to resources granted to them by existing regulations, low rates of participation and marginalization are likely outcomes.

3.2 Institutional arrangements: Administrative procedures, the role of government agencies and spaces for local organizations in decision-making

Institutional arrangements are an essential element in the implementation of CFM as they lay out the norms and rules through which forest resources can be used as well as how decisions about their use can be made. Thus they establish procedures for CFM that include not only the devising of forest management plans and the fulfilment of a number of bureaucratic procedures, but also determine the acknowledgement/inclusion of specific—local and governmental—organizations in those decision making processes (Table 5.4). The more difficult/elaborate technical and bureaucratic procedures are, the more they will prevent communities from engaging in CFM. Such problems will be exacerbated to the degree that local communities lack the means to undertake those procedures and external support is scarce. Likewise, the more institutional arrangements allow for local forms of organization and decision-making, the more likely they are to harness local interest and ownership of CFM, thereby improving forest governance.

Table 5.4 Roles foreseen for community organizations and government agencies in CFM programmes

Country	Name of CFM programme	Role of community organizations	Role of government agencies
India	JFM	<ul style="list-style-type: none"> • Create Joint Forest Management Committee (JFMC) • Self-initiated Forest Protection Groups (SIFPG) 	State Forest Department: <ul style="list-style-type: none"> • Acknowledge and formalize agreement with JFMCs • Studies SIFPGs before giving them JFMG status. However, there are no procedures to assess these groups prior to the creation of a JFMG¹
	FRA	<ul style="list-style-type: none"> • Gram Sabha (village assembly): consolidates and verifies the claims of each individual village 	Recognition of rights takes place through: <ul style="list-style-type: none"> • Sub-district and district committees: verify and maintain claim records • State: monitors implementation at state level
Nepal	CFUGs	CFUGs <ul style="list-style-type: none"> • Letter of interest to the DFO • Identify traditional forest users • Draft Constitution of CFUG • Submit formal application to the DFO 	District Forest Office (DFO) <ul style="list-style-type: none"> • Support CFUGs throughout the identification of traditional forest users • Provide technical support throughout the process of establishment of a CFUG • Endorse CFUGs and issue registration certificates
Philippines	CBFM	Peoples' Organizations (POs) <ul style="list-style-type: none"> • Represent communities • Prepare Community Resource Management Framework (management plan) 	DENR & LGU <ul style="list-style-type: none"> • Identify potential sites, plan forest uses with communities, • Organize and prepare communities for Community Based Forest Management Agreements (CBFMA) • Endorse and issue CBFMA • Provide technical assistance and skills • Monitor progress and environmental impact of CBFM activities
Cambodia	CFM	<ul style="list-style-type: none"> • Letter of interest to the Forest Administration • Establishment of Community Forest Management Committees (CFMC): Participation of at least 60% of the community in the formation of the CFMC (women must be encouraged to participate) • CFMC drafts by-laws and CFM regulations with assistance of the FA or NGOs • Participate in (GPS) demarcation of forest boundaries • Prepare forest management plan 	Forestry Administration: <ul style="list-style-type: none"> • Establishes facilitation team that selects CFM site • Analyses land use history and tenure, community organization, indigenous management systems and land conflicts • Performs workshop to disseminate information on the chosen CFM site • Mapping of the targeted forest areas • Supports the formation of the Village Forest Committee and the preparation of forest management plan Forest Administration Cantonment: <ul style="list-style-type: none"> • Approves CFM agreement between CFMC and FA. Agreement outlines the roles of each actor

Country	Name of CFM programme	Role of community organizations	Role of government agencies
Viet Nam	CFM (pilot)	<ul style="list-style-type: none"> • Develop rules on forest protection and development • Develop forest management plan 	Districts: <ul style="list-style-type: none"> • Authorises timber harvesting • Provides legal support Communes: <ul style="list-style-type: none"> • Liaise with districts • Provide logistical organization for planning and reporting
Indonesia	HKm	Application can then be undertaken by either: <ul style="list-style-type: none"> • Farmer groups • Farmer cooperatives 	MoF <ul style="list-style-type: none"> • Approval of logging licenses Regencies <ul style="list-style-type: none"> • Approval of license for NTFP
	HD	<ul style="list-style-type: none"> • Letter of interest to the district government • GPS zoning of the forest • Prepare management plan 	Letter of support from the Regency

Notes: ¹ See Mitra and Bhattacharya (2008).
 Source: Authors

Although CFM programmes show different levels of flexibility to accommodate local forms of organization, these are always under the supervision of government organizations, making the local organization for CFM programmes subject to pre-established governmental schemes. This in some cases may take the form of a more or less functional working partnership between government agencies and community organizations, whereas in others it results in less effective and/or flexible arrangements. In general, we conclude that CFM programmes in the region are designed in such a way that communities cannot participate without external support from either the government, NGOs or both.

For example, in Cambodia, regulations require participation of at least 60% of the community in the election of the CFMC, which should work with the Forestry Administration towards the establishment of CFM (Sokhun et al. 2005). In spite of governmental efforts towards building its own institutional capacity and awareness about CFM, the programme remains heavily dependent on donors and NGOs to support communities. This pattern has also been observed for Cambodia, Viet Nam and Laos (Sunderlin 2004, 2006). Likewise, in the Philippines, the DENR and LGUs should work with People’s Organizations (POs) to establish forest management frameworks (CFMF), but these partnerships are not always effective, often leaving the bulk of work and the costs to the POs (Pulhin et al. 2007). Even though POs can determine their own goals and management strategies, the technical and bureaucratic requirements are such that POs cannot move forward on CFM without strong external assistance, in the absence of effective support from the DENR and LGUs (Walpole and Annawi 2011).

Viet Nam and Nepal’s regulations are not specific on how communities should make decisions. Nevertheless, Nepal’s regulations¹² aim at promoting participatory and inclusive decision- and rule-making processes at the village level under the supervision of the DFOs (Kanel and Kandel 2004; Ojha 2009), and communities have to devise rules specifically designed to address their needs (Karmacharya et al. 2003; McDougall et al. 2008). Moreover, Nepal’s CFUGs are acknowledged as self-governing entities with a right to perpetual succession (Kanel 2007). Notably, Nepal has invested in building the capacity of government officials to change their behaviour away from their traditional role of dominant, decision-making authorities towards a role more in tune with a participatory

approach (Acharya 2002). However, lack of legal awareness and large numbers of users overwhelm DFOs in achieving their tasks (Kanel 2007), a hurdle that has also been observed in the case of India's JFM programme (Sarin 2008; Vemuri 2008). In Viet Nam, it is expected that norms on community organization will be released once the piloting process is finished (Nguyen et al. 2009).

Indonesia's CFM programmes involve long and cumbersome approval procedures (Colfer et al. 2008; Akiefnawati et al. 2010). In the case of the first (and to date only documented) HD case in Lubuk Beringin, Jambi, Akiefnawati et al. (2010) report that approval took two years. Although the HD model allows villages to develop their own regulations, it requires them to prepare annual work plans that must be approved and monitored by the district government. Despite communities having the right to decide on their own rules and regulations, it is the drafting of technical work plans that—without strong external support—communities cannot undertake (Akiefnawati et al. 2010). In the case of the HKm programme, even though it was established to encourage farmer groups to undertake CFM, in reality it is focused on the creation of cooperatives, a business model criticized for having little grounding in traditional forms of local organization—as well as for decades of failed efforts in agriculture—while promoting a commercial approach to managing forest resources under the same rules as logging concessions (Campbell 2002; Safitri 2006).

In India, while the FRA reaches to village assemblies (*gram sabha*) as the basic local institution through which land claims are verified, the actual recognition of land rights takes place through a multi-layered process of government authorities (Kothari et al. 2011b). A report from the Council for Social Development finds that village assemblies have often been ineffective because their role has frequently been ignored by state governments who have empowered officials to replace the assemblies. This has resulted in a rather weak implementation of the FRA, producing continued interference from forest departments in the recognition of customary rights.¹³

From these examples, it can be seen that that government-sponsored CFM programmes seek in varying degrees to include local institutions in the processes of determining the use of forest resources. Nepal, Cambodia and the Philippines provide good examples where CFM programmes seek to create participatory decision making processes, whereas in Viet Nam there is uncertainty that these spaces will be provided (until the pilot process is finished and a national CFM programme is launched). These CFM programmes may be more likely to obtain representative outcomes and stable operating conditions, than programmes that have a top-down approach and that do not seek to accommodate local institutions—as is the case with Indonesia's HKm—or where governmental authorities supersede local forms of organization—as seems to be the case in India's FRA.

Whereas participatory processes can be considered a strength of these programmes, it is often the role of government agencies that needs to be improved. Without state support, communities may not be aware of or have the capacity to take advantage of the opportunities presented by CFM programmes. In many local communities, traditional leadership has been eroded through outside influences, and investment in institution building may be required before they can participate successfully in community forestry programmes. Additionally, elite capture at the local level as well as corruption at higher levels continue to challenge the implementation of CFM programmes.

3.3 Extent and security of forest rights

The extent and security of use rights are both indicators of the potential contribution of CFM to people's well-being. The extent of use rights refers to the range within which forest resources can be used (e.g., subsistence, commercial or both) and the security of rights entails not only the use rights communities have, but also the external factors that can challenge those rights.

Extent of use rights

The extent of use rights is determined by how completely property rights are recognized and respected. Complete property rights have three main characteristics: (1) comprehensiveness, where the asset is allocated to a specific actor who can use it at will, that is, obtain units or products and determine the use patterns or even transform the resource; (2) exclusivity, where all the benefits and costs accrue to the owner, who can also determine who can access the resource; and (3) transferability, where the owner can transfer the asset to another actor in a voluntary exchange.¹⁴ Moreover, these rights (1, 2, and 3) cannot be held in the long-term without assurance that they will be enforced by the state (Wang and van Kooten 2001: 13).

A common characteristic of these CFM programmes is that they do not confer complete property rights as the allocated forest areas are not transferable (Scheyvens et al. 2007; Dahal et al. 2011). India's FRA, on the other hand, gives tenure rights to claimants in a perpetual fashion as community members receive land titles, which can be inherited but not sold (Kothari et al. 2011b). States maintain ownership of forest lands and bestow use rights in the form of licences and/or leases over limited—although renewable—periods of time (see Table 5.5). There is no available explanation of how these use periods are determined, for example, why they are limited to 15 years in Cambodia and go as far as 50 years in Viet Nam. In the case of Indonesia, apparently the use periods were determined by following rotation periods usually used in plantation forestry.¹⁵ Likewise, a hypothesis for the case of Cambodia is that the use period was established according to the rotation of fast growing tree species. In theory, longer use periods will make communities amenable to planning in the long-term, but assurance of continued access to forest resources will determine their willingness to engage in long-term forest management. This will be discussed in further detail in the next section.

All CFM programmes grant subsistence use rights and some expressly acknowledge traditional use rights (e.g., in Nepal, India, the Philippines and Cambodia). The comprehensiveness and exclusiveness of use rights is extended insofar as CFM programmes grant commercial use rights, with varying levels of specificity. Although in principle most CFM programmes allow the use of forest resources for commercial purposes (except in protected areas), once technical requisites have been fulfilled, conditions on the use of such resources can limit benefits and even become an access barrier. For example, in the Philippines, harvesting and selling trees is allowed, but a cumbersome approval process to transport timber outside CFM areas acts as a deterrent for communities to comply with established procedures, making them engage in illegal logging (Hartanto et al. 2003; Walpole and Annawi 2011). Similarly, in Nepal although CFUGs are allowed to fix the prices of forest products and transport them anywhere in the country, they must clear paperwork with the district forest office (Kanel 2007). In India, under JFM, villages can take over degraded lands with the objective of raising valuable timber species. Thus plantations are established and forests regenerated, and even though communities have the right to determine how benefits will be shared, they must share benefits with forest departments (FD). The proportion to be shared with FDs

is determined by each state (Apte and Pathak 2003; Pathak and Kothari 2010). In the case of the FRA, although forest areas of up to four hectares can be claimed, logging is allowed only if the area does not exceed one hectare, tree felling does not exceed 75 trees and the harvesting is recommended by the *gram sabha* (Kothari et al. 2011b), suggesting that the potential benefits a community can obtain from forestry are very limited.

Exclusivity is also observed in different degrees of specificity. Some regulations endow communities with rights, such as deciding whether to allow the use of resources by other communities, how to share benefits internally, and even the right to apprehend, confiscate tools and fine violators of community rules (e.g., Nepal, Cambodia and the Philippines). Nonetheless, allowing local institutions the right to determine exclusion rights may not always be congruent with a CFM model that aims at improving the general well-being of local actors. This holds true in cases where local elites can influence the making of local rules and capture benefits. This has been observed in Indonesia, India and Nepal (Komarudin et al. 2008). In the cases of India and Nepal, power continues to be distributed along the lines of caste, gender and religion, hampering the involvement of large groups of forest-dependent poor in the implementation of community forestry. This power distribution often results in community forestry groups being dominated by elites instead of representative organizations of all community sectors (Kapoor 2001; Karmacharya et al. 2003; Sarin 2003; Nayak 2006; McDougall et al. 2007).

Exclusiveness can also be restricted through taxation of activities related to CFM, and here differences can also be found across countries. In the case of Cambodia, the amount of taxation is apparently subject to consultations between the government and communities.¹⁶ A less flexible system is found in Indonesia, where both programmes (HKm and HD) must pay taxes and fees like any forest concession (Campbell 2002; Safitri and Bosko 2002; Akiefnawati et al. 2010). Two outstanding features of Nepal's CFM programme are that user groups¹⁷ have control over the commercial earnings from forest products, and that instead of being taxed, 25% of all cash income must be invested in collective development activities (Agrawal and Ostrom 2001).

The extent of use rights influences communities' discount rates (Ostrom 1999). This means that CFM programmes in which communities can have specific benefits over long periods of time are more likely to engage in the sustainable management of the resource than when these benefits are limited and are for short periods. The experience of CFM programmes of Nepal, Viet Nam and the Philippines suggest that they have the potential to influence communities into managing forest resources with a long-term time horizon (adopting low discount rates). In the case of the FRA, although communities have, in principle, indefinite access to the forest resources, the rather small size of the area suggests that the benefits are likely not significant beyond subsistence purposes. The other element that influences community forestry discount rates is the security of rights (addressed below).

Table 5.5 Extent of use rights

Country	CFM programme	Comprehensiveness	Exclusiveness
India	JFM	<ul style="list-style-type: none"> • Collect and commercialize specific resources • Financial powers (e.g., maintain accounts and incur expenses) 	<ul style="list-style-type: none"> • Benefit distribution from conservation and regeneration (benefits are shared with State Forest Departments; extent and conditions vary across states) • Define rules governing forest management • Administrative powers to summon meetings of the Management Committee • Voting rights in Management Committees • Punitive powers (e.g. impose fines) • Membership cancellation of recalcitrant affiliates
	FRA	<ul style="list-style-type: none"> • Traditional community use rights • Own, collect and use minor forest products • Convert leases or grants—issued by any local or state government authority on state forest lands—into titles • Convert forest villages, old habitations and un-surveyed villages into revenue villages¹ • Protect, regenerate, conserve or manage any community forest reserves used traditionally by individuals or communities • Access to biodiversity and community rights to intellectual property rooted in traditional knowledge • Any other traditional rights (except hunting or trapping any wildlife) 	<ul style="list-style-type: none"> • Hold and live in forest land under individual or communal occupation
Nepal	CFUGs	<ul style="list-style-type: none"> • Traditional community use rights • Plant short-term cash crops, including NTFPs 	<ul style="list-style-type: none"> • Fix prices for forest products under their jurisdiction • Transport forest products to anywhere in the country (in the case of timber, the DFO must be informed of the details)
Philippines	CBFM	<ul style="list-style-type: none"> • Occupy, possess, utilize and develop forest lands in designated areas • Develop agroforestry farms and sustainable agriculture <p>CFM in protected areas:</p> <ul style="list-style-type: none"> • Logging not allowed 	<ul style="list-style-type: none"> • Claim ownership of introduced improvements • Apprehension of violators • Confiscation of illegally extracted forest products as well as their conveyances • Imposition of penalties
Cambodia	CFM	<ul style="list-style-type: none"> • Acknowledgement of customary user rights • Manage forests according to regulations and management plan: harvest, process, transport and sell forest products and NTFPs • Practice swidden agriculture 	<ul style="list-style-type: none"> • Share benefits from CFM • Participate in monitoring of CF • Appeal decisions that impact CF community rights • Payment of any required royalties or premiums on forest products or NTFPs (except for customary user rights). Royalties and premiums should be set after consultation with communities.

Country	CFM programme	Comprehensiveness	Exclusiveness
Viet Nam	CFM	<ul style="list-style-type: none"> • Enjoy benefits of labour and investments from the assigned forest areas • Exploit and use forest products for public and individual use • Conduct combined forestry and agricultural-fishery production 	<ul style="list-style-type: none"> • The pilot phase foresees that communities can define and institute proceedings about any breach of the laws on the land. • Compensation from the state in case the state recovers a CF (e.g., security and development purposes)
Indonesia	HKm	<ul style="list-style-type: none"> • License granted to farmer groups or cooperatives in production, protection and conservation forests to use timber (in production forests) and NTFPs (in protection forests), area use, environmental services 	<ul style="list-style-type: none"> • Pay taxes and fees: annual tax, stump fees, afforestation tax
	HD	<ul style="list-style-type: none"> • Management rights of forests: timber use (in production forests) and NTFPs (in protection forests), area use, environmental services 	<ul style="list-style-type: none"> • Pay taxes and fees: annual tax, stump fees, contribute to the reforestation fund

Notes: ¹ These are villages that have shifted from subsistence farming towards the establishment of cash-crops.

Source: Authors

Security of rights

As illustrated in Table 5.5, security of use rights (in this case comprehensiveness and exclusiveness) depends on the assurance that user rights are enforceable and guaranteed by the state. It is through the state's assurance that communities will have continued and stable rights granted to them in the norms and regulations of CFM programmes that their engagement may be ultimately harnessed (Table 5.6).

Table 5.6 Use rights stability given through CFM programmes

Country	CFM programme	Period granting use rights (years)	Rights stability
India	JFM	Indefinite	*
	FRA	Permanent	*
Nepal	CFUGs	Permanent	***
Philippines	CBFM	25	*
Cambodia	CFM	15	**
Viet Nam	CFM	50	**
Indonesia	HKm	35	*
	HD	35	*

Notes: * Weak

** Stable

*** Very stable

Source: Authors

Saigal (2007) observes that India's JFM programme lacks a solid legal basis, as it is based on administrative orders that can be changed unilaterally at any time. Thus, the terms of partnership between communities and forest departments lack long-term security because of frequent changes to JFM resolutions. In the case of the FRA (besides the flaws that have been identified earlier), Kothari et al. (2011b) observe that the state

itself violates the Act as it has undertaken evictions of potential rightful claimants. An additional hindrance to the empowerment of forest dwellers and scheduled tribes has been a shortage of information about the Act. In the Philippines, a rather unstable policy environment weakens use rights stability as it has often led to the cancellation of resource use permits (Pulhin et al. 2007). In this regard, Walpole and Annawi (2011: 90), report that “many (...) mineralized areas are in ancestral domain forests, and are ridden with environmental and IP’s rights violation issues.” Furthermore, they report that the simplification of the process of “free prior informed consent” (FPIC) foreseen in the Indigenous Peoples Rights Act of 1997 has allowed the weakening of indigenous peoples’ forest use rights when stronger economic interests are at play. Similar observations regarding the violation of customary rights by mining companies and plantations are documented for Indonesia (e.g., EoA 2009). Rights stability provided by Indonesia’s CFM programmes are deemed weak because the regulations themselves are weak. In the case of HKM, the programme offers weak tenure security since it operates under Ministerial decrees and regulations—which can be changed at any time—and in the case of HD, the Ministerial Regulation of 2008 is also considered an insecure and weak legal instrument (Dahal et al. 2011).

A characteristic shared by India, Cambodia, Viet Nam and Indonesia is that their laws allow the state to withdraw use rights whenever “higher interests” are claimed. For example, in most states of India the forest department can dissolve forest protection committees, with communities having the right to “appeal only to a higher official of the FD” (Saigal et al. 2007). Similarly, in Viet Nam, the state can re-claim community forests in a number of situations (e.g., for security and developmental purposes). Communities have the right to demand compensation from the state, but this may not always be effective. However, Nguyen et al. (2009) conclude the Land Law of 2003 does strengthen communities’ ownership rights. Likewise, in Cambodia and Indonesia, community forestry areas can be dissolved by the government if those areas are thought to provide higher, alternative public benefits (Colchester 2002; Sokhun et al. 2005), and it is not clear whether communities have effective legal ways to appeal such decisions, although in Cambodia communities have, in principle, the right to appeal decisions that impact their rights.¹⁸

The extent to which user rights in CFM programmes are secured by the state brings forward these programmes’ imperfections. On the one hand, one could argue that CFM programmes grant—in varying degrees—a number of significant use rights to communities. But on the other hand, this significance is eroded by either contradicting policies, weak laws and regulations, or even the undermining of their implementation by the authorities themselves, all of which contribute to weak forest governance.

To the extent that different countries may be able to improve the stability of community use rights, it may increasingly be possible to harness community engagement in CFM. In such a context, one could assume that communities engaged in CFM programmes have low discount rates. To be sure, some CFM programmes show strengths in terms of the comprehensiveness and exclusiveness they grant to communities, but the role the state plays in ensuring the stability of those rights needs to be improved. A noteworthy example of ensuring the stability of use rights is given by Nepal, which, in spite of financial and human resources shortcomings, provides a strong and stable legal foundation for CFM, as use rights are granted in a permanent fashion and supported by an apparently enduring institutional framework. The relevant point is that as long as the state cannot fulfil its role as guarantor of use rights for communities, those rights may be challenged, making it increasingly difficult to create confidence among communities to engage in the long-term management of forest resources.

4. CFM and REDD+

Many countries in the Asia-Pacific region are undergoing decentralization processes that have given community forest management (CFM) a stronger role as an instrument to sustainably manage forest resources and alleviate poverty. In this context, CFM has potential to contribute to the empowerment of local communities and to the enhancement of their well-being. CFM can also be instrumental in addressing climate change mitigation and adaptation through the maintenance and enhancement of forest resources and their corresponding carbon stocks. The inclusion of CFM in climate change mitigation efforts may have the potential to provide additional financial benefits to local communities in the long run, provided it can secure access rights of communities to forest resources and establish fair benefit-sharing mechanisms (Chhatre and Agrawal 2009), both elements considered necessary to reduce poverty in Asia (Mahanty et al. 2006; Sunderlin 2006). Ensuring the inclusion of CFM in the efforts to mitigate climate change is also in line with the Cancun Agreement on Reducing Emissions from Deforestation and Forest Degradation (REDD+) and the UNFCCC which calls for “ensuring the full and effective participation of relevant stakeholders, *inter alia* indigenous peoples and local communities,” respecting their rights and knowledge, without threatening food production, and enabling sustainable development (UNFCCC 1992; 1/CP.16, Nr. 72). CFM programmes need also consider that they will play a role not only in climate change mitigation efforts but in climate change adaptation as well. Recognizing the value of local knowledge on forest management to design adaptation strategies can prove an effective strategy to address adaptation in a proactive manner and in a way that measures are tailored to the local circumstances to ensure their viability (Innes et al. 2009; Roberts et al. 2009).

4.1 CFM and the challenges towards the implementation of REDD+

Over four decades, a regional movement towards greater state recognition and support for community forestry has been observed. The area of forest land, albeit often degraded and sometimes without forest, under community forestry has expanded significantly over this period. CFM programmes and models have been strengthened, and while the shortcomings and challenges that remain are substantial, the environmental, social and economic benefits discussed above indicate that progress is being made.

As mentioned in the introduction, climate change mitigation is now a top global priority for forest management, and some developing countries have prioritized their forest sectors in their nationally appropriate mitigation actions (NAMAs). That community forestry is now an important policy initiative within the region and that the area under community forestry has been expanding begs the question, can community forestry contribute to climate change mitigation through REDD+ and, if so, how? To answer these questions, we must first understand what REDD+ is and its requirements. We can then consider whether community forestry meets these requirements and what roles communities would or could play in REDD+. We are then in a position to consider how state-sponsored community forestry programmes need to be strengthened for REDD+.

4.2 What is REDD+ and what does it require?

In principle, REDD+ foresees a performance-based payment mechanism through which developed countries compensate developing countries for the reduction of CO₂ emissions associated with deforestation and forest degradation. Thus, any form of compensation that takes place through REDD+ requires the measurement of emissions that have occurred over a period of time against a baseline. A baseline determines the emissions

that would have taken place in the absence of any measures (a business-as-usual scenario). In this regard, forest conservation and restoration, and sustainable forest management play a key role in REDD+, as these activities avoid emissions through the maintenance and enhancement of carbon stocks, not to mention that they also deliver a host of other environmental goods and services of crucial importance for the livelihoods of communities.

Payments under REDD+ can take place either through a mandatory mechanism (i.e., compliance with emission reduction targets agreed within the UNFCCC, and over which there is still no final agreement for REDD+), or through the voluntary market. A discussion of the advantages or disadvantages of either regime is beyond the scope of this section, but their existence is worth mentioning, and that at the moment, under the voluntary market mechanism, carbon certification standards have been created to ensure that voluntary activities on REDD+ are credible.¹⁹ Some demonstration activities (i.e., REDD+ activities being undertaken under the UNFCCC framework) are already using voluntary certification standards.

Annex 1 of the Cancun Agreement (UNFCCC 2010), states that REDD+ should be implemented along with a set of seven social and environmental safeguards:

- (a) Actions that complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements;
- (b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;
- (c) Respect for the knowledge and rights of indigenous peoples and members of local communities, taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;
- (d) Full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities;
- (e) Actions consistent with the conservation of natural forests and biological diversity, ensuring that actions not be used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;
- (f) Actions to address the risks of reversals;
- (g) Actions to reduce displacement of emissions.

For the purpose of determining the requirements to implement REDD+, safeguards “c” and “d” are of particular relevance because they have a direct bearing on CFM programmes. Safeguard “c” makes particular mention of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The relevance of the UNDRIP is that it calls for the engagement of indigenous peoples in any project that takes place on their territories through processes that respect the right of communities to give or withhold their “free prior informed consent” (FPIC) to proposed developments.²⁰ Furthermore, it must be noted that the right to FPIC in REDD+ goes beyond indigenous peoples. The framework of the UN-REDD programme and of some voluntary standards (e.g., Community and Biodiversity Alliance (CBBA) and the Verified Carbon Standard (VCS) to some extent) call for respect of all communities that will be affected by proposed REDD+ developments.

FPIC is of utmost importance for the implementation of REDD+ because through it, safeguards “c” and “d” can be guaranteed. Respect for the right to FPIC means that communities must not be coerced or manipulated at any time, that their input should be

sought well in advance of any planning or implementation decision taking place on their territories, that sufficient information should be disclosed to them in a language that is accessible to them about the nature of the activities related to REDD+, and that they should be able to understand the reasons for activities related to REDD+, their duration, and their potential implications for their livelihoods (UN-REDD 2009). Governments need to understand that respecting the right of communities to FPIC is not a one-off event, where a “yes” from a community leader is obtained. Respecting the right to FPIC entails ongoing negotiations and agreements, where communities have the right to express concerns about the design and implementation of a project and have the right to withdraw their consent and stop the project if re-negotiations are not satisfactory. Governments also need to respect the fact that the onus is on them, not communities, to carry out consultations and seek consent, and that communities also have the right to receive independent advice at any time (Anderson 2011).

From the CFM programmes that have been reviewed here, it can be seen that many of them draw upon legislation that upholds respect for the knowledge and rights of indigenous peoples and that expressly promotes participatory processes. Such are the cases of India’s FRA, the community forestry frameworks in the Philippines, Nepal and Cambodia. Nonetheless, a distinction must be made between what is found *de jure* and *de facto*. India’s FRA is a good example of this, as the Act, although it seeks to improve the livelihoods of those who are worse-off, in reality it is constrained by factors that hinder its proper implementation, hampering the respect of the rights of those groups it seeks to protect. Similarly, in the Philippines, in spite of legislation making direct reference to FPIC, the rights of indigenous peoples are not always upheld as the law demands. Indonesia is a case where the respect of the rights of indigenous and local communities remains a very contentious issue, particularly within the context of REDD+. ²¹

Currently, three of the countries discussed in this chapter (Nepal, Cambodia and Indonesia) are part of the REDD+ countries of the World Bank’s Forest Carbon Partnership Facility (a global partnership focused on assisting financially developing countries in their efforts towards REDD+), and FPIC is found only in Cambodia’s Readiness preparation proposal. ²² Nepal’s document does mention that consultations with communities have been undertaken, but this does not necessarily guarantee that a process that respects FPIC has taken place.

4.3 What role can CFM play in REDD+

One of the potential synergies between REDD+ and community forest management (CFM) lie in the fact that both are suitable to degraded forests. Ostrom (1999) observes that CFM is more likely to function where forest lands are degraded but not significantly devoid of trees, and where communities have low discount rates. This suggests that CFM programmes that are successful in providing significant use rights of forests to communities and are able to guarantee those rights have good framework conditions to engage in REDD+.

Skutsch and McCall (2010) argue that CFM can be instrumental for the implementation of REDD+ in cases where forests have a relatively low value (regarding timber) and where the opportunity costs of land are also relatively low. Research suggests that such communities can participate in measuring and monitoring carbon stocks in an effective and cost-efficient way without compromising their livelihoods and benefits obtained from forests (Chhatre and Agrawal 2009; Skutsch 2010). Therefore, effective community participation in REDD+ is conditioned to (i) allowing communities’ continued access to forest products that underpin their livelihood strategies; and (ii) ensuring that REDD+

contributes to the diversification of income communities are already obtaining from CFM (Karky and Rasul 2010; Zahabu and Malimbwi 2010).

It seems that, under certain conditions, state-sponsored CFM models could make an important contribution to some of the REDD+ activities, but consideration must be given to whether these models meet the basic requirements of REDD+. For community forestry, these would appear to be: communities that are able to understand and accept the concept of REDD+ and can participate in the design of REDD+ activities to suit their land use plans and vision; community forestry institutions that exist to ensure good management of the forest resource; communities that have legal rights of sufficient security and duration to ensure that climate benefits are achieved and are long-term (the requirement for “permanence”); trusting relationships with outside actors who will organise the necessary financial and technical inputs exist or can be developed; community financial systems that exist (or can be developed) and are capable of handling a new source of revenue equitably; and community forestry models that are supportive of the REDD+ safeguards. Reflecting on the discussion in part two, Table 5.7 considers whether the community forestry models meet these requirements.

Table 5.7 Implementation requirements for REDD+ and community forestry models

Requirements for REDD+ to be implemented through community forestry models	Strengths and weaknesses of community forestry in meeting these requirements	
	Strengths	Weaknesses
Sufficient understanding of REDD+ concept	Communities may be well-disposed to receiving new concepts because of previous training on community forestry.	Potential for confusion and misunderstanding because concept is complex and abstract
Organisations / institutions to implement REDD+ activities	Existence of community forestry groups, committees, plans and regulations developed through consensus processes	Elite capture: domination by more powerful groups (men over women, ethnic majorities over ethnic minorities, upper class over lower class) possible
Sufficiency of rights	Strong legal basis for community forestry in some countries	Weak legal basis in some countries; Weak rule of law; Legal basis needs to be developed; Length of rights under some models would have to be extended; Lack of clarity on carbon rights; Legal rights to trade in carbon may need to be elaborated
Trust relationships	In some cases good relationships between communities, district forestry offices, donors, NGOs, etc. have been established.	Risks exist where external actors make false promises or otherwise purposefully mislead the community for their own gain.
Community financial management	Under some CF models, communities are trained in book keeping.	There is potential for misappropriation of funds or inequitable distribution when institutions are weak, or where elite capture is probable.
Safeguards	Social safeguards more likely to be implemented as communities directly participate in REDD+	No standard processes of FPIC

Source: Authors

4.4 An example of integration of CFM and REDD+: Demonstration activity in Oddar Meanchey, Cambodia

A host of actors—government, NGOs, communities and private actors—have come together to design and implement a REDD+ activity in Oddar Meanchey.²³ The project is envisaged to be implemented within a timeframe of 30 years, and aims at creating an income stream that contributes to enhancing livelihoods and natural resource management. The benefit sharing agreement between the project developers, the government and the forest communities is that communities will receive 50% of the revenues after project costs.²⁴

The project has made an effort, with the help of the Buddhist Monk Community Forestry Association and the Children's Development Association, to involve communities in the design and implementation of the project and consultations are ongoing. It has involved communities not only in the accounting of carbon stocks, but also through training on bookkeeping, project management and the creation of micro finance groups.

Within the existing CFM framework, the project is implementing a number of activities such as:²⁵

- Reinforcing the status of community land tenure: taking advantage of the legal framework provided by the sub-decree on community forestry
- Developing sustainable forest management and land use plans with the communities, and using these tools to promote forest protection to prevent illegal logging (and reduce the risk of deforestation and forest degradation being displaced to areas outside the project, i.e., leakage)
- Supporting assisted regeneration and enrichment planting to enhance carbon stocks
- Reducing forest clearing through agricultural intensification
- Distributing fuel-efficient stoves and mosquito nets to reduce the consumption of fuelwood²⁶
- Enhancing the production, processing and marketing of NTFPs
- Fire prevention as fire is often used for hunting, shifting cultivation, collection of resin and the establishment of human settlements

The REDD+ demonstration activity in Oddar Meanchey shows that implementation of CFM, and its inclusion, in REDD+ is challenging but the problems are not insurmountable. The process needs to be envisaged in the long-term, and enough resources—both human and financial—need to be made available for design and implementation through a process that respects the right of communities to FPIC.

5. Conclusions

Existing CFM models are by no means perfect. The rights assigned to communities are in some cases too limited, some models may be too rigid to accommodate local specifics, and in some cases state efforts and resources to build community awareness and capacity are inadequate. Moreover, implementation of CFM models can be hampered by built-in attitudes of bureaucrats towards their own citizenry, resulting in paternalistic, suspicious and/or authoritative attitudes. Nevertheless, community forestry is now broadly formally accepted as an essential part of the way forward to better forest management in the region, and the lessons learned hitherto through trial and error offer instruction for other countries and regions where governments remain reluctant to engage communities in forest management, and where REDD+ activities are being planned.

In view of the weaknesses and contradictions observed in CFM programmes, care must be taken that REDD+ does not worsen them by overshadowing the importance that forests have for communities' livelihoods. Thus, it must be ensured that REDD+ is implemented as an additional activity to CFM, and not as one that restricts actual uses communities make of forests. The fact that CFM is often promoted on degraded lands gives communities an entry point in REDD+, particularly in the activity of enhancing carbon stocks, which in turn can be combined with adaptation activities. But it must be ensured that communities understand what REDD+ is, and the potential benefits and risks it may have for them. To improve the likelihood of good forest governance in REDD+, policy makers should be wary of building decision-making arrangements on existing, well-functioning local institutions, rather than imposing new, artificial ones on communities. In this regard, respecting the right of communities to "free prior informed consent" will contribute to improving the feasibility of REDD+.

The management of forests by communities under state-sponsored CFM programmes appears to be a practical prelude to REDD+ under certain conditions. These conditions include both the biophysical conditions discussed earlier, and the framework conditions that encourage communities to engage in CFM. This chapter suggests that CFM programmes conducive to REDD+ are those where governmental qualification conditions are easily met, programmes provide flexibility—or are inclusive of—local forms of decision-making, communities have access to a wide range of goods and services, and their access (property) rights are not easily challenged by third party actors.

It is fairly obvious that REDD+ offers a new mechanism for forest-dependent communities to access another source of revenue—funds associated with carbon credits. But in most cases it is not clear how they will access such funds and what their potential incomes from these funds may be. Even though REDD+ has raised the expectation of financial benefits, in most countries there is no clarity as to who is the owner of carbon rights. If there is a wish to engage communities in REDD+ through CFM programmes, this question must be cleared in advance. Otherwise, the creation of false expectations may cause the whole endeavour to run astray, and outside interests may gain the rights to forest carbon without the involvement or agreement of affected communities.

On the other hand, CFM models can show many years of experiences and lessons learnt on issues over which REDD+ provides yet little guidance. REDD+ provides an opportunity for CFM programmes to position themselves as a source of information for the design and implementation of REDD+. CFM programmes can provide valuable information on issues including benefit sharing arrangements, community involvement, complaint and dispute management mechanisms, as well as models of legislation and regulations that are supportive of local actors.

Notes

1. Viet Nam and Cambodia are partial exceptions to this. As communist regimes took over in the 1970s, forests in these countries were indeed claimed by the state but were run by state enterprises.
2. Nonetheless, other regions, e.g., Latin America, are more advanced than Asia-Pacific in the process of the devolution of rights over forest lands (Sunderlin et al. 2008).
3. The scheduled tribes and scheduled castes are two traditionally disadvantaged groups that are given recognition in India's Constitution.
4. See: <http://www.forestrightsact.com/component/k2/item/15>
5. See also: [http://lnweb90.worldbank.org/oed/oeddoelib.nsf/DocUNID/viewForJavaSearch/F98AB17A1743B72F85256B120070162D/\\$file/217_Nepal_Forestry.pdf](http://lnweb90.worldbank.org/oed/oeddoelib.nsf/DocUNID/viewForJavaSearch/F98AB17A1743B72F85256B120070162D/$file/217_Nepal_Forestry.pdf)
6. See: http://www.adb.org/Documents/Reports/Indigenous_Peoples/PHI/chapter_4.pdf
7. Many governments in developing countries (in this case, Viet Nam) see swidden agriculture as a cause of deforestation and not as a form of forest management, contrary to the view of many practitioners and academicians.

8. For a detailed discussion on the recognition of customary laws and communities in the Forest Law, see Wollemborg and Kartodihardjo (2002).
9. The Ministry of Forestry (MOF) argues that it has a third CFM scheme called “partnership between communities and concessionaires” that seeks to promote the involvement of concessionaires in community development, not the involvement of communities in forest management. It thus has little (if nothing) to do with community forestry. Additionally, whereas there are other forms of community forestry such as “hutan adat” (recognition of traditional forest management and rights), these are recognized only by regencies, not by the MOF. For further details on Hutan Adat, see: <http://www.worldagroforestrycentre.org/sea/Publications/files/policybrief/PB0013-10.PDF>
Moreover, the MOF is currently working on a revised version of the KPH system (Kesatuan Pemangkuan Hutan/ Forest Management Unit), allegedly seeking to accommodate communities within a larger, holistic scheme of forest management, along with other actors, such as concessionaires, against which communities have been traditionally at a disadvantage. Since the KPH scheme is not specifically designed for CFM—as is the case of HKm and HD—it is not discussed in this chapter.
10. The Act applies to most of the Indian territory. Exceptions include the state of Jammu and Kashmir, and those states which have declared that the Act will not be implemented because all forestland is privately owned or there are no resident traditional forest dwellers.
11. Agus Setyarso, personal communication, 19 September 2011.
12. See: Forest Act (1993) and Forest Rules (1995).
13. See: <http://www.forestrightsact.com/component/k2/item/download/51>
14. For a similar approach, see Agrawal and Ostrom (2001: 489).
15. Agus Setyarso, personal communication, 19 September 2011.
16. See Sub-Decree on Community Forestry Management, Article 13. Available from: <http://faolex.fao.org/docs/pdf/cam81979.pdf>
17. Which, as mentioned before, also suffer from elite capture.
18. See Sub-Decree on Community Forestry Management, Article 11. Available from: <http://faolex.fao.org/docs/pdf/cam81979.pdf>
19. Some of the most well-known voluntary carbon certification standards include the Climate, Community and Biodiversity Alliance (CCBA), the Verified Carbon Standard (VCS), and the Plan Vivo standard.
20. Governments (such as the United States) and multilateral institutions (e.g., the World Bank) are speaking now of “free prior informed consultation” processes. FPIC has been criticized on the grounds that it seeks to consult with local communities, but not to obtain their consent.
21. See, for example, the comments of Sawit Watch to Indonesia’s R-Plan to the FCPF under: http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/AMAN_on_Indonesia_R-Plan_0.pdf
22. See:
 - (a) Nepal’s Readiness Preparation Proposal (2010-2013) http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/Oct2010/R-PP_Nepal_revised_October.pdf
 - (b) Cambodia’s Readiness Preparation Proposal (2011) <http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/Mar2011/Cambodia%20R-PP-Final%20Track%20Change%20Version-%20March%205%2C%202011.pdf>
 - (c) Indonesia’s Readiness Plan (2009) http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/Mar2010/Indonesia_Rplan_May2009_with_disclaimer.pdf
23. These include the Forestry Administration of the Royal Government of Cambodia, PACT, the Children’s Development Association, the Buddhist Monk’s Community Forest Association, Terra Global Capital, the William J. Clinton Foundation, the Technical Working Group on Forests and the Environment Cambodia, and Community Forestry International.
24. Amanda Bradley, PACT Cambodia, personal communication, 2010.
25. See: http://www.climate-standards.org/projects/files/cambodia/CCB_PDD_Oddar_Meanchey_NORMAL_RES.pdf
26. Fuelwood is traditionally burned to produce smoke to repel mosquitoes around cattle.

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Chapter 6

Achieving Environmentally
Sound Development in Asia
through the Transfer of Low
Carbon Technology

Chapter 6

Achieving Environmentally Sound Development in Asia through the Transfer of Low Carbon Technology

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1. Introduction

Developing countries in Asia, led by China and India, are among the fastest growing economies in the world today. According to the International Energy Agency's (IEA) Outlook, economic growth in the region in the coming 20 years will exceed the average level of the world economy, boosting a continuous increase in primary energy demand (IEA 2009). While such economic development offers great opportunities for poverty eradication in the region, it would sharply increase greenhouse gas (GHG) emission levels unless properly designed in line with sustainable development. A sharp increase in GHG emission levels would result in a climate change outcome seriously endangering the future environmental quality and human well-being of the region and, eventually, of the earth. Climate change is already a tangible threat for Asian countries. As many as 1.2 billion people in the Asia-Pacific region face the prospect of freshwater shortages by 2020, while crop yields in Central and South Asia could drop by half by 2050 (ADB 2009). Many key coastal cities could also see increasingly serious flooding. Thus, achieving environmentally sound development in Asia is an important policy issue.

The chapter's clear message is that the transfer¹ of low carbon technologies to, and within, Asia can play a key role in achieving environmentally sound development in the region. It emphasizes that the deployment and diffusion of low carbon technologies to, and within, the region should be scaled up, since they are major contributors to CO₂ emission abatement. The chapter's objective is to provide several strategies on how to promote this process.

Key Messages

- The transfer of low carbon technologies, to and within, Asia can play a key role in achieving environmentally sound development in the region.
- Government and companies should focus more on promoting the deployment and diffusion of commercially available technologies which are associated with fewer barriers. This does not mean that R&D and demonstration of new technologies are not important, but emphasizes that deployment and diffusion are more urgent actions given the risk associated with current global environmental and economic conditions.
- Considering the shortcomings of current centralized mechanisms and bi/multi-lateral initiatives, three strategies are proposed to promote the deployment and diffusion of low carbon technologies to, and within, Asia including rewarding projects with low carbon technology transfer with credits, supporting the proactive involvement of the private sector and by promoting low carbon foreign direct investment (FDI) to, and within, the region.

Promoting low carbon technology transfer is widely considered a determinant factor to reduce GHG emissions that would contribute to climate change mitigation. At the global level for example, according to IEA's "Energy Technology Perspective," if governments worldwide introduce no new energy and climate policies, energy-related CO₂ emissions will increase from 28.8 Gt in 2007 to 34.5 Gt in 2020, and may reach 57 Gt in 2050. In contrast, through deployment and diffusion of existing and new low carbon technologies this amount may be reduced to about 14 Gt by 2050 (IEA 2010).

At the regional level for example, as indicated in Table 6.1, technologies related to energy efficiency are a major potential contributor to CO₂ emission abatement in the ASEAN region (Olz and Beerepoot 2010). They could contribute to a 319 Mt reduction in CO₂ by 2030. Technologies related to renewable energy (especially in power generation) are the next major contributors to possible CO₂ emission abatement in the ASEAN region, contributing to a 121 Mt CO₂ reduction by 2030.

Table 6.1 Energy-related CO₂ emission reduction by source in the 450 Scenario² relative to the reference scenario: ASEAN region

Measures	2020	2030
Efficiency	84	319
- End-use	82	308
- Supply	1	11
Renewable energy	2	121
Biofuels	9	20
Nuclear	3	33
Carbon capture and storage (CCS)	1	18

Note: Emission reduction is measured in Mt CO₂

Source: Olz and Beerepoot (2010)

The transfer of low carbon technology sounds simple, but in reality it is a process that is quite difficult to quantify. It is a highly complex process of sharing physical assets, technical knowledge and skills, influenced by domestic and international factors that hinder the application even of the most promising technology. Barriers and challenges to, and instruments for this process are very different depending on the level of maturity of the transferred technology. Thus, looking for the most appropriate strategies that could promote the transfer of low carbon technology to, and within, Asia will be addressed in the rest of the chapter.

The remainder of the chapter is arranged as follows. The second section defines the concept of low carbon technology transfer, and outlines the results of discussions on this issue under the United Nations Framework Convention on Climate Change (UNFCCC) process. The third section reviews the main current mechanisms and multilateral and bilateral initiatives regarding low carbon technology transfer. The fourth section proposes new and improved strategies on how to promote the process of low carbon technology transfer. The last section draws conclusions and provides several policy recommendations.

2. Technology transfer

2.1 Definition

The Intergovernmental Panel on Climate Change (IPCC) defines technology transfer as "...a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organizations (NGOs) and research/education institutions" (IPCC 2000: 7).

In this chapter, technology transfer refers to the horizontal flow of technologies that enable GHG emissions reduction to Asian countries (north-south) and within developing Asian countries (south-south). The flow may involve materials and products, technical knowledge (theoretical ability) and technical skill (practical ability to execute technical knowledge). It is a process that occurs via a variety of pathways (foreign direct investment (FDI), direct purchases, government assistance programmes, licensing, joint ventures/collaboration, cooperative research agreements, public-private partnerships, etc.), and involves various stakeholders who play different roles including developers, owners, suppliers, buyers, recipients and users of technology, as well as financiers, donors, governments, international institutions, NGOs and community groups, among others.

It is possible to transfer a technology at any stage of its life cycle³ from one geographical location to another, and several specific barriers can be associated with each stage of maturity of technology (Table 6.2). Technologies which are at their deployment and diffusion stage may be much less affected by intellectual property right (IPR) issues compared to technology at earlier stages of development. Their environmental and economic impacts can easily be measured, reported and verified, and they are often less expensive than those which are still at the demonstration stage.

Table 6.2 Stage of technological maturity and barriers to technological transfer

Type of barrier	Stage		
	Research and development	Demonstration	Deployment and diffusion
Proof of concept	○	X	X
Intellectual property rights	○	○	X
Measuring, Reporting, Verification (MRV)	○	○	X
Financial	○	○	○
Social	○	○	○
Institutional	○	○	○

Note: ○: Technologies are affected by the barrier

X: Technologies are not or less affected by the barrier

Source: Authors, based on UNFCCC (2009)

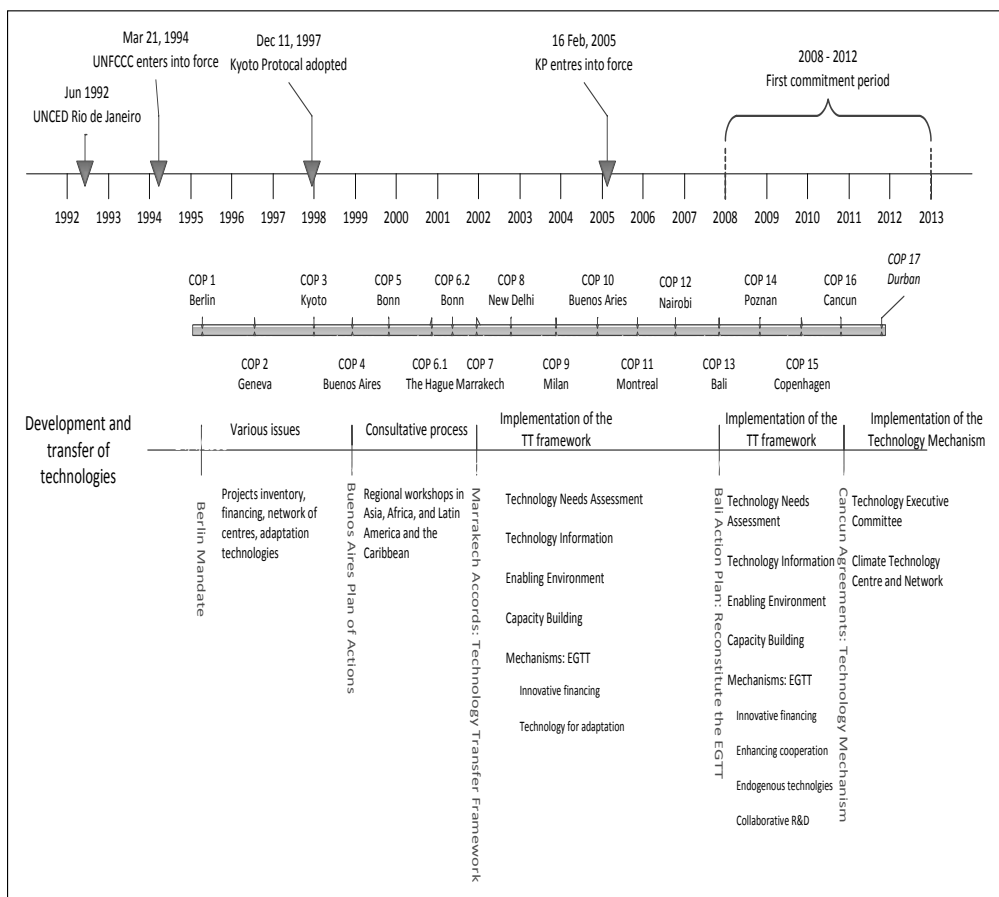
The technology transfer process may be evaluated as successful if the recipient of technology can effectively utilize the transferred technology and eventually assimilate it. This definition is valuable because it clarifies that technology transfer is not simply about the supply and shipment of technology: it is about the complex process of selecting the most appropriate technology available in the supplying country and adapting it to local conditions in the recipient country. It is a process of integrating several stakeholders to

overcome various economic, social, and institutional barriers related to the differences between the two countries. Hence, it is a process of technology application rather than simply technology transfer.

2.2 Review of discussion about technology transfer under UNFCCC processes

Since 1994, at each session of the Conference of the Parties (COP), parties have taken decisions on the development and transfer of environmentally sound technologies. Furthermore, the development and transfer of technologies is a standing agenda item of both the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA). The evolution of the issue over time and key decisions taken are illustrated in Figure 6.1.

Figure 6.1 Development and transfer of technologies under the UNFCCC process



Source: Technology Executive Committee (2011)

The negotiations on technology development and transfer under the UNFCCC did result in multiple areas of convergence. While this is certainly a significant step forward, these areas were where consensus among parties was relatively easy to reach (Table 6.3). The more challenging components of negotiations have not yet been settled and a number of areas of substantial disagreement still remain. Disagreements over the role

and treatment of IPR stand out in particular. Finance and the provisions for MRV and compliance with respect to technology transfer are other areas of contention. Evidence points to the likely continuation of these disagreements among UNFCCC parties for the near future.

Table 6.3 Result of negotiations on technology development and transfer under UNFCCC

Areas of agreement	Areas of controversy
■ Establishment of a technology mechanism	■ IPR
■ Enhanced strategic planning on technology and improved cooperation	■ Finance
■ Addressing the full technology cycle	■ MRV and compliance with respect to technology transfer
■ Creating enabling environments for private investment	
■ Overall efforts needed	

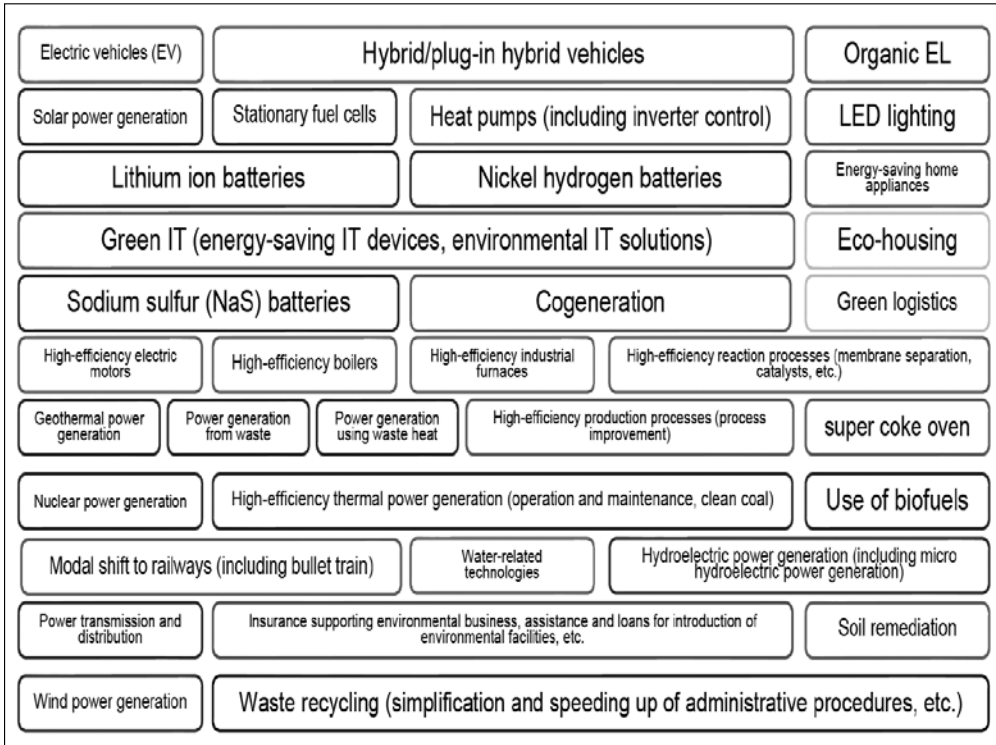
Source: Marcellino et al. (2010)

While the discussion among UNFCCC parties is ongoing, perhaps the most urgent action is to focus on promoting the horizontal transfer of low carbon technologies which are at their deployment and diffusion stage. These technologies are associated with fewer barriers, as explained above, in particular, the controversial barriers currently under UNFCCC discussion, namely IPR, MRV and finance. By focusing only on the deployment and diffusion of proven and commercially available low carbon technologies, a considerable amount of energy saving and CO₂ emissions reduction can be achieved. As indicated above, IEA (2010) estimated that through the deployment and diffusion of existing and new low carbon technologies, global CO₂ emissions from the energy sector may be reduced to about 14 Gt by 2050 compared to emissions levels in 2007.

Based on research conducted by The Energy and Resources Institute (TERI) in 2008, the technologies most relevant for Asia and the Pacific are related to clean coal technologies, energy efficiency technologies, fuel cells, geothermal, micro-hydro, small wind turbines, and solar power (Srivastava 2010). Most of these technologies are at their deployment and diffusion stage of maturity and should be promoted in Asia and the Pacific.

Keidanren⁴ has listed various Japanese technologies according to their maturity stage. Those which have widespread practical introduction in Japan and have overseas expansion phases are shown in Figure 6.2 below. These technologies form the base of those that can be deployed and diffused to developing countries in the region.

Figure 6.2 Key technologies which have widespread practical introduction/ overseas expansion phases



Source: Nippon Keidanren (2010)

Focusing on the deployment and diffusion of technology does not mean that R&D and demonstration are not important, but emphasizes that deployment and diffusion are more urgent given the risks associated with current world environmental and economic conditions. The mechanisms that should be used to promote this transfer process are addressed in the following sections.

3. Main mechanisms and initiatives focusing on low carbon technology transfer

This section reviews the main extant mechanisms and initiatives, focusing on low carbon technology transfer in order to draw lessons and assess the extent to which they can be used to deploy and diffuse low carbon technologies to, and within, Asia.

3.1 Main mechanisms and funding sources for technology transfer

3.1.1 Global Environment Facility (GEF)

To date, the GEF has been one of the most significant external funding mechanisms for accelerating the deployment and diffusion of climate-friendly technologies in developing countries. GEF has allocated USD 2.5 billion for climate-friendly technologies in more than 50 developing countries since its inception in 1991, generating roughly USD 15 billion in co-financing (Marcellino et al. 2010). About USD 250 million is invested each

year in projects related to renewable energy, low-carbon energy-generating technologies, energy efficiency, and sustainable urban transport (Marcellino et al. 2010). Compared to the magnitude of the technology transfer challenge posed by climate change, however, the efforts by GEF are still of modest significance (Sudo et al. 2006). GEF's technology transfer efforts have exhibited significant weaknesses and face continuing challenges. According to a study done by Porter et al. (2008), the key weaknesses identified in GEF climate-related work include: (i) its complex project cycle, particularly lengthy approval periods; (ii) its slow response to new opportunities; and (iii) its need for additional funding. According to the same study, the long and complex project approval process has been found to pose difficulties for recipient countries and discourages private sector participation. Also, the need to remedy legal and institutional rigidities has been emphasized in order for the GEF to become more adaptable, flexible and innovative.

Box 6.1 key conclusions to improve GEF's technology transfer efforts

GEF projects—especially those first approved—have struggled. Many have been cancelled or have remained for many years at the early stages of completion. The reasons for this disappointing performance have been examined in several formal reviews. The GEF's Scientific and Technical Advisory Panel (STAP) issued a report in March 2004 that included the following key conclusions:

1. Projects should focus more on creating an enabling environment for technology transfer rather than simply buying and shipping hardware to recipient country.
2. GEF should develop partnerships with the private sector and with developed and developing countries, as the challenge of commercializing new technologies is too great to be undertaken alone.
3. GEF needs to make longer-term commitments to country and private sector partners to provide the stability needed for investment and market development.
4. GEF should support a broader range of technologies, including smaller-scale applications and energy efficiency.
5. GEF should further analyze why so many projects have experienced lengthy delays, and set tighter deadlines to avoid continued slippage.

Source: Miller (2007)

The GEF experience suggests several important lessons for future efforts to promote the deployment and diffusion of low carbon technologies in developing countries (Miller 2007). First, the provision of subsidized funding, while helpful and even necessary in some cases, is insufficient to promote the deployment of new technologies. Second, strong local partners are important, preferably with a financial interest in the success of the programme and the capacity to replicate and learn from the project. Third, a portfolio approach with a range of partners, countries, and technologies may be advantageous. Finally, given the risks and uncertainties associated with long-term technology commercialization, a decision to make a relatively greater share of investment in near-term technologies and markets may be understandable.

3.1.2 Clean Development Mechanism (CDM)

CDM projects were not originally envisioned to be technology transfer projects. They were one of the flexibility mechanisms for international emissions trading under the Kyoto Protocol. In spite of the various criticisms of CDM, there are strong indications that CDM projects have contributed positively to technology transfer. CDMs are among

the strongest mechanisms for technology transfer under the UNFCCC, contributing to the transfer of both equipment and know-how. Table 6.4 presents findings from a recent study of technology transfers associated with CDM projects, showing international technology transfers in 29 of the 63 projects investigated, with such transfers being especially common in hydropower and landfill gas projects (Brewer 2008).

Table 6.4 Technology transfer in CDM projects

Technology	Number of projects	Number of projects with technology from outside country	Country origin of technology
Biogas	6	0	China, India
Biomass	10	0	India
Energy efficiency	1	0	South Africa
Fuel switching	1	1	Germany, USA
HFC-23	3	2	Germany, Japan, UK
Hydropower	22	12	China, Australia, France, India, Japan, Panama, Brazil, Peru, Spain, Sri Lanka, Switzerland, USA
Landfill gas	10	8	Belgium, Netherlands, Japan, France, Brazil, USA
Methane capture	3	0	Chile
Nitrous oxide destruction	2	2	France
Wind energy	5	4	Spain, Denmark
Total	63	29	

Source: Brewer (2008)

Box 6.2 includes the findings of another recent study on technology transfer associated with CDM projects. It indicates that roughly 36% of the 2,100 registered CDM projects claim to have involved technology transfer (Arquit et al. 2011). This technology transfer involves knowledge and equipment, and is more common for larger projects and projects with foreign participants. The pricing of GHG emissions was regarded as an efficient measure to facilitate the development and diffusion of low carbon technologies through CDMs (Sudo et al. 2006).

Box 6.2 Impact of CDM on technology transfer and investment

Analysis of the experience to date suggests that the CDM has stimulated additional low-carbon investment and technology transfer. Although the CDM does not have an explicit technology transfer mandate, it may contribute to technology transfer by financing emission reduction projects using technologies currently not available in the host countries. A study commissioned by the UNFCCC secretariat (Seres and Haites 2008), which analyzed the claims of technology transfer made by project participants in the project design documents, found that:

- Roughly 36% of the projects accounting for 59% of the annual emission reductions claim to involve technology transfer.
- Technology transfer is more common for larger projects and projects featuring the participation of foreign stakeholders. Technologies originate mostly from Japan,

Germany, the United States, France, and Great Britain. For most project types, project developers appear to be able to choose from among a number of domestic and/or foreign technology suppliers.

- Technology transfer is very heterogeneous across project types and usually involves both knowledge and equipment.
- The rate of technology transfer is significantly higher than average for some host countries (including Bolivia, Ecuador, Guatemala, Honduras, Indonesia, Kenya, Malaysia, Mexico, Pakistan, South Africa, Sri Lanka, Thailand and Viet Nam) and significantly lower than average for Brazil, China, and India.
- As the number of projects increases, technology transfer occurs beyond individual projects. This is observed for several project types in China and Brazil.

Source: Arquit et al. (2011)

Factors that have been singled out as decisive for the technology-transfer content of CDM projects include (i) the country's general institutional framework; (ii) capacity to adopt new technologies and/or produce them domestically; and (iii) investment condition in the recipient country, the project's size and the particular technology (Schneider et al. 2008).

If implemented well, CDM projects should promote low carbon technology transfer. However, the administrative complexity of a project-based mechanism seems to restrict the inherent ability to bring about major change (Bell and Drexhage 2005). In the Asian context, the predominance of unilateral CDM projects and their limitation to specific projects that produce a large amount of certified emission reductions (CERs) (especially biomass, hydropower, and wind power projects) indicate limited prospects for the transfer of a greater number of low carbon technologies to, and within, the region through CDMs. Furthermore, the skewed distribution of CDM projects toward a small group of developing host countries (China and India) also indicates limited prospects for the transfer of low carbon technologies toward a wider number of countries in the region through CDMs (Table 6.5).

Table 6.5 Number of CDM projects in pipeline in selected Asia-Pacific countries

Type \ Country	Biomass	Coal bed/ mine methane	Geo-thermal	Hydro	Landfill gas	Solar	Tidal	Wind	Total projects
Bhutan	0	0	0	3	0	0	0	0	3
China	138	96	1	1231	107	78	0	1097	3311
India	381	0	0	191	31	59	0	764	1998
Indonesia	20	1	11	21	19	1	0	0	165
Lao PDR	1	0	0	6	0	0	0	0	10
Malaysia	45	0	0	5	15	0	0	0	170
Nepal	0	0	0	1	0	0	0	0	9
Philippines	14	1	2	9	8	0	0	3	96
South Korea	3	0	1	26	7	42	2	14	123
Thailand	37	0	0	6	8	13	0	4	181
Viet Nam	13	0	0	200	7	0	0	1	251

Source: Authors (based on data from UNEP Risoe Centre on Energy, Climate and Sustainable Development as of 1 February 2012)

3.2 Multilateral and bilateral initiatives for low carbon technologies transfer

Table 6.6 lists several multilateral and bilateral initiatives focusing on low carbon technology transfer. Asian countries, in particular China, India, Indonesia, Japan and Republic of Korea, are participants in many of these initiatives.

Table 6.6 Example of initiatives focusing on development and transfer of technologies

	USA	EU	Japan	China	India	Indonesia	S.Korea
Gleneagles Dialogue (2005)	○		○	○	○	○	○
G8 Gleneagles Plan of Action (2005)	○	○	○				
Asia-Pacific Partnership for Clean Development and Climate (APP) (2005)	○		○	○	○	○	
Methane to Market (M2M) Partnership (2004)	○		○	○	○	○	○
Carbon Sequestration Leadership Forum (CSLF) (2003)	○	○	○	○	○	○	○
International Partnership for the Hydrogen Economy (IPHE) (2003)	○	○	○	○	○	○	○
World Bank Global Gas Reduction Flaring Reduction Partnership (CGFR) (2002)	○	○				○	
Generation IV International Forum (GIF) (2001)	○	○	○				○
Climate Technology Initiatives (CTI) (1995)	○		○				○
International Renewable Energy Agency (ERINA) (2009)	○	○	○		○		○
Greenhouse Gas R&D Programme (1991)	○	○	○		○		○
Clean Coal Centre (1975)	○	○	○	△	△		○

△ indicates Industrial Sponsors

Source: Authors (based on Table 5.2 in Sudo et al. 2006)

Some of these initiatives could provide Asian participants with valuable opportunities to shift their development towards a low carbon approach. They have significant potential for facilitating technology transfer by promoting private participation in the technology transfer process. For example, private sector participation in the M2M Partnership in Table 6.6 above is promoted through a mechanism called the Project Network, which is considered essential to build capacity, transfer technology and promote private direct investment. Through the M2M Partnership (of which all the major GHG emitting countries in Asia, namely China, Japan, India, and Republic of Korea, are members), an American company secured a USD 58 million contract to supply all the power generation equipment for a 120 MW coal bed and coal mine methane power plant in China (Sudo et al. 2006). In addition, through the APP in Table 6.6 above, eight public-private sector task forces were established, covering (i) cleaner fossil energy; (ii) renewable energy and distributed generation; (iii) power generation and transmission; (iv) steel; (v) aluminum; (vi) cement; (vii) coal mining, and (viii) buildings and appliances. As climate change has become an agenda item for the Group of Eight (G8) summit, the 2005 summit adopted the Gleneagles Plan of Action on Climate Change, Clean Energy, and Sustainable Development in order to promote the deployment of cleaner technologies and to work with developing countries, in Asia and elsewhere, to enhance private investment in, and the transfer of, clean technologies.

Though the listed initiatives have significant potential for facilitating technology development, transfer and deployment, implementation is more complicated. The levels of bilateral and multilateral ODA to fund international technology transfers are still modest. Technology-oriented cooperation, which is usually seen as the most feasible option for U.S. international leadership, is not immune to the credibility problem of its international commitments (Tamura 2006). Similarly, the G8 summit has launched many new initiatives only to abandon them later (Tamura 2006). Too many initiatives focus only on collecting and sharing information relevant to technology transfer (i.e., acting as an information hub) and not on knowledge and capacity building and feasibility assessment. Thus, while these initiatives may enable Asian countries to access low carbon technologies, it is important to first demonstrate the value of such centralized initiatives by effective implementation.

3.3 Foreign direct investment (FDI)

The FDI in low carbon technologies is already large. According to the United Nations Environment Programme (UNEP), private investment in energy efficiency and low carbon technologies has increased rapidly from USD 33.2 billion in 2004 to USD 148 billion in 2007, and asset financing (i.e., investment in new renewable energy, energy efficiency and low-carbon energy technology assets) has increased from USD 12.4 billion in 2004 to USD 84.5 billion in 2007 (UNEP 2008). In addition, private investment in clean energy in developing countries has also grown rapidly, reaching USD 22.3 billion in 2007 (UNEP 2008).

The potential of FDI in low carbon technologies is also huge and an appreciable share of it will be borne by the private sector (Box 6.3). The continuing transition to a low carbon economy requires huge additional investments in all sectors. By 2030, additional investments to maintain GHG emissions at current levels are estimated to be about USD 1 trillion per annum (Zhan 2010), and a large share of these additional investments will be carried by the private sector, and more specifically, by trans-national companies (TNCs) in low carbon investment abroad. In the Asian context, China is considering pouring USD 1.7 trillion into the so-called "strategic sectors" over the coming five years. Targeted sectors include alternative energy, biotechnology, new-generation information technology, high-end equipment manufacturing, advanced materials, alternative-fuel cars and energy-saving and environmentally friendly technologies. Foreign firms were assured of the same opportunities as Chinese firms to take part in the growth of these sectors (Buckley 2011).

Box 6.3 Public and private role in promoting low carbon FDI

Stern (2006: 60) states, "Most of the development and deployment of new technologies will be undertaken by the private sector; the role of governments is to provide a stable framework of incentives." The World Bank also indicates that "the large amounts of financing that will be required for an effective transition to a low-carbon economy will only be available via efficient mobilization of private capital" (WB 2006: 28). However, the necessary investments will not take place without a supportive enabling environment; "Unless the policy framework changes and appropriate instruments are in place to facilitate investments in new technologies, developing countries are expected to follow a carbon intensive development path similar to that of their developed country counterparts" (WB 2006: 16).

Low carbon technologies are projected to cover 36% of the energy demand of Southeast Asia, with the most spectacular increases for solar, wind and geothermal technologies which together could satisfy almost 11% of regional energy demand by 2030 (Olz and Beerepoot 2010). In this regard, many governments in the region have introduced various favourable policy frameworks and targets to fully benefit from the potential FDI to promote low carbon technology to, and within, the region. However, substantial hurdles continue to be a major impediment to achieve this potential (Box 6.4).

Box 6.4 Major impediments to promote low carbon FDI

Governments in the region⁵ have introduced various favorable policy frameworks and targets to promote low carbon technologies penetration into the market. However, investment certainty is affected by a widespread absence of specific regulations to flesh out these frameworks.

Furthermore, maintaining non-cost reflective energy prices and substantial fossil fuel subsidies in the region dampens the enthusiasm of prospective private sector investors to finance the necessary expansion of the energy sector generating and transmission capacity. As well, information needs to be disseminated on the available and most appropriate technologies and the direct environmental economic and social benefits they can offer.

Source: Olz and Beerepoot (2010)

Drawing on various observations, these hurdles can be categorized into those that are (i) relevant to corporate capability in the recipient country; (ii) relevant to the operating environment in the recipient country; and (iii) relevant to the provider of technology in the supplying country.

Issues for corporate capability in recipient countries

- Limited information about what alternative technologies are available.
- Lack of visible and committed top management support for adopting new low carbon technology (corporate governance).
- Inability to adopt new low carbon technology due to financial, technical and industrial restrictions.
- Absence of incentive systems for investigating new technologies.
- Language barrier which inhibits effective communication between personnel and restricts effective transmission and assimilation of relevant information.

Issues in operating environment

- Low and poor physical infrastructure.
- Weak and inadequate institutional infrastructure to provide support in terms of finance, information, skill development, and technology brokering.
- Inadequate investment policies which are not developed according to specific needs and situations, but rather adhere to conditions of an external entity in order to receive aid funding.
- Ineffective policies supporting overseas investment in low carbon production (such as IPR protection, tax holidays, tariff adjustments, and industry parks to promote technology transfer).
- Bureaucratic delays at various levels of government in obtaining approvals and clearances for finalizing technology transfer agreements.
- Excessive government intervention and regulation.

- Foreign exchange restrictions.

Issues for providers of technology in supplying country

- Limited information on the needs of recipients.
- Lack of trust in the technology recipient, especially regarding IPR for technologies which are considered to be cutting-edge.
- The technology often needs considerable adaptation to suit local conditions in the recipient country.
- High cost of technologies to be transferred.
- Language barriers that inhibit effective communication.

4. Proposal of new strategies to promote low carbon technology transfer

4.1 Which technology has to be transferred?

One of the messages of this chapter is that the focus should be on the horizontal transfer of low carbon technologies which are already at their deployment and diffusion stage. These technologies are associated with fewer barriers, especially those which continue to be controversial under the UNFCCC process (namely IPR, MRV and finance). These technologies are also easier modified to local conditions in recipient countries. Special focus should be on low carbon technologies that match the needs of recipients; this is a process of technology application, not only a process of technology transfer. Furthermore, the focus should not only be on transferring hard technologies, but should also include transferring technical knowledge and skills.

4.2 Through which mechanism?

4.2.1 Rewarding technology transfer with emission reduction credits

The CDM process seems to be more effective compared to other centralized mechanisms, such as the GEF, and bilateral and multilateral initiatives focusing on technology transfer, probably because it generates financial incentives through CER credits. Thus, the first option to promote low carbon technology transfer to, and within, Asia could be through generating financial incentives by rewarding low carbon technology transfer with credits, for example, Technology Transfer Credits (TTC). Projects which result in low carbon technology transfer could receive such credits, which could be used for payment of IPR holders. Of course, this is a challenging process which necessitates worldwide agreement on various issues, for example, the selection of the agency to implement this reward scheme, determining the format for registering projects, and methods for MRV.

This proposed mechanism could be discussed under the Ad Hoc Working Group on the Durban Platform for Enhanced Action established at the COP17. However, while waiting to finalize this new mechanism, it may be possible to start with the currently existing CDM process under UNFCCC (which will still run for a few more years). It suggests that, in addition to the CERs, any CDM project should be rewarded with TTCs if it results in low carbon technology transfer. This strategy will lead to the dissemination of currently available low carbon technologies throughout developing countries faster than a business-as-usual case, while also generating credits. In addition, the TTC value should vary according to the transferred low carbon technology and recipient country. This measure will help promote the transfer of various types of low carbon technologies, as well as towards a wider number of countries, hence, overcoming some of the current criticisms to CDM projects mentioned earlier.

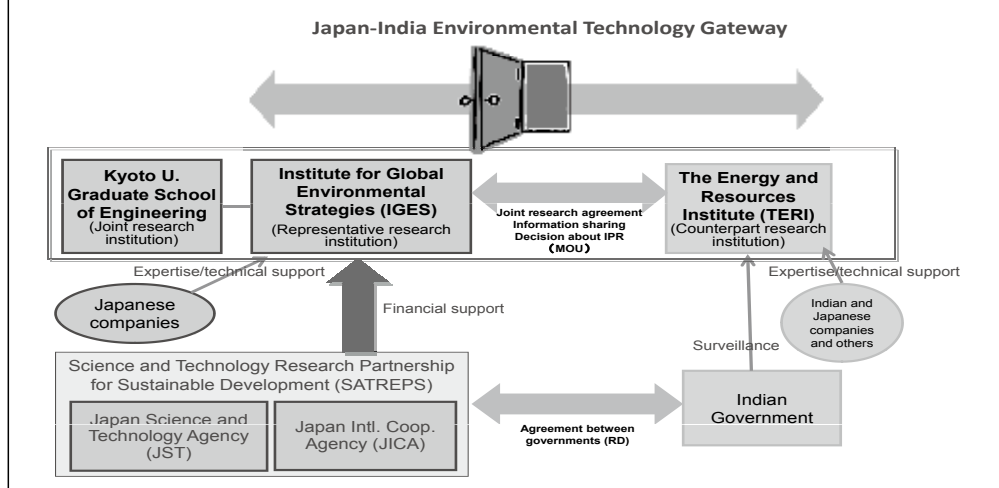
MRV of a project to determine if it resulted in low carbon technology transfer is a challenging task, especially if the transfer process is in the form of technical knowledge and skills, or if the technology is still in an early stage of maturity. To overcome this challenge, as a first step, it would be better to start by rewarding the transfer of hard technologies which are at their deployment and diffusion stage, since these technologies can more easily be quantified.

4.2.2 Enhancing private sector participation in bilateral and multilateral initiatives

The participation of the private sector in several bilateral and multilateral initiatives focusing on technology transfer has contributed to their effectiveness. Thus, a second option to promote low carbon technology transfer to, and within, Asia could be through more proactive involvement of the private sector in bilateral and multilateral initiatives. Participation of the private sector is crucial since they are the main providers of technology. The mobilization of human capital and financial capital from the private sector is a determinant factor in the low carbon technology transfer process. For instance, private sector experts can help in the evaluation and analysis of the feasibility and applicability of a specific technology in specific conditions. They can also analyze the benefits (environmental and economic) that can be generated from applying a particular technology in a specific site (Box 6.5).

Box 6.5 Importance of private sector participation in projects related to technology transfer

On 17 May 2010, the Kansai Research Centre of the Institute for Global Environmental Strategies (IGES-KRC) officially launched an international joint research project with TERI and Kyoto University to promote the application of Japanese low carbon technologies in India. The project is being implemented as a Science and Technology Research Partnership for Sustainable Development (SATREPS) project in collaboration with the Official Development Assistance (ODA) programme by the Japan Science and Technology Agency (JST) and Japan International Cooperation Agency (JICA). The joint research also involves private sectors in both countries. It covers a variety of aspects, including identification of promising low carbon technologies, implementation of pilot projects to measure, monitor and demonstrate the effects of technology application, capacity building of technical experts and managers, and establishment of a cooperation framework between the public and the private sectors.



Private sector participation in this research partnership is tremendously important. Experts from private Japanese companies have participated in various meetings to identify promising Japanese low carbon technologies to be transferred to India, and were dispatched to identify potential candidate sites where these technologies could be implemented. Private sector experts also analyzed data and provided reports about the potential benefits (energy saving, CO₂ emissions reduction and cost savings) and the feasibility of implementing selected technologies in India. A preferential price for their technologies was provided to encourage implementation in India. Of the proposed technologies, the gas heat pump for industrial use was one type of Japanese low carbon technology investigated under this project. Based on a preliminary assessment by experts from the company manufacturing gas heat pumps, the benefits from implementing this technology in three Indian candidate sites (namely A, B, and C) are indicated in the table below:

Site \ impact	A	B	C
Primary Energy Saving	547 MWh/year (56%)	742 MWh/year (50%)	1,684 MWh/year (58%)
CO₂ Emission Reduction	116 t-CO ₂ /year (57%)	158 t-CO ₂ /year (51%)	356 t-CO ₂ /year (59%)
Cost Saving	451,335 INR/year (32%)	275,855 INR/year (15%)	1,419,671 INR/year (35%)

Source: Authors

The success of this option largely depends on what incentives have to be provided to enhance private sector participation in bilateral and multilateral initiatives. Although many of the largest private companies and multi-national corporations (MNCs) are voluntarily contributing, the participation of others still needs to be encouraged with appropriate incentives. A stable framework of incentives should be provided by governments, as well as from regional and international organizations, to leading companies willing to play a more proactive role in transferring low carbon technology. These incentives should include material incentives (financial, IPR protection, increase in market share, etc.) as well as non-material incentives (honorariums, public awards, etc.).

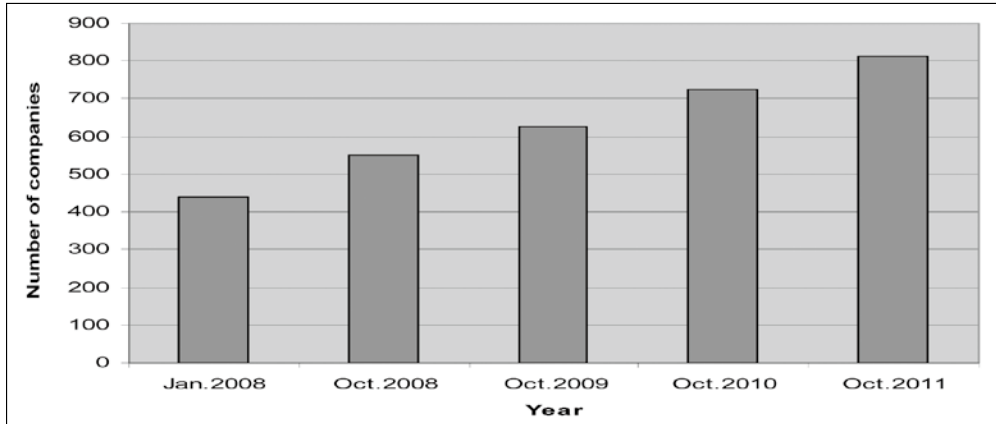
4.2.3 Promoting low carbon foreign direct investment (FDI)

As low carbon FDI in Asia is already soaring, the potential for further low carbon FDI is huge. Furthermore, additional FDI is most likely to be redirected to the region given the risk associated with the ongoing economic and financial crises in the U.S. and Europe. As the Japanese economy is strained by its soaring national currency, it is possible that a number of Japanese companies may move outside Japan and relocate to other Asian countries (Figure 6.3). This additional FDI should not encourage exports of highly polluting “brown” sectors to the region, but should be oriented to low carbon technologies in order to ensure sustainable economic development. Thus, a third option to promote low carbon technology transfer in Asia could be through promoting low carbon FDI in the region.

The effectiveness of this decentralized mechanism largely depends on the willingness and commitment of various stakeholders to attain certain emission targets (under Nationally Appropriate Mitigation Actions (NAMAs)), as well as to overcome the main hurdles that continue to impede the transfer of low carbon technology to the region.

More specifically, it depends on the willingness and commitment of various stakeholders to shift from current governance mechanisms toward green governance. Green governance should be streamlined at company and government levels. Regional and international organizations should provide the necessary support to private companies and governments in the region to make this transition.

Figure 6.3 Number of Japanese companies present in India



Source: Authors (Based on data from Embassy of Japan in India 2012)

Green governance at the corporate level: Companies in technology receiving countries should develop green governance. For example, top managers should attend, and enable other workers to engage in, various education and training programmes relevant to low carbon technology. They should continually search for alternative low carbon technologies available in the market, and assess the co-benefits of applying them in their companies. They should encourage initiatives regarding energy saving and low carbon emission reduction in their company by developing a specific rewarding system for good initiatives of workers. They should also respect their commitments to national regulations and standards, as well as their commitments in term of IPR. Furthermore, these activities should be disseminated through environmental and corporate social responsibility reports (CSR) to attract socially and environmentally responsible investors. Top managers in developed countries should also continuously search for opportunities for low carbon FDI, and assess the co-benefits of applying their low carbon technologies overseas.

Green governance at the government level: Capacity building and awareness raising activities for top managers in supplying and recipient countries may be not enough to engage them in corporate green governance processes needed for low carbon FDI. Further supporting activities and incentives from the government may be needed. This will be among other initiatives that can be included as part of government green governance to promote low carbon technology transfer through low carbon FDI.

Technological advances alone likely will not be sufficient to ensure the transfer of low carbon technology through low carbon FDI. Political will for large scale economic transformation toward green governance to create a rewarding enabling environment will be equally crucial. Green governance at the government level should be promoted and may include the following measures.

- Governments of recipient countries should assess local technology needs in terms of low carbon technologies. They should establish a supportive institutional infrastructure as well as introduce investment policies that respond to country's specific needs and situation (such as strengthening IPR, tax holidays, tariff adjustments, industry parks, making markets more transparent, etc.) to stimulate markets for low carbon technologies.
- Governments of recipient countries should reduce or eliminate subsidies for fossil fuels as well as include environmental costs in the overall price of energy services.
- Furthermore, governments should develop product standards, instituting industry codes and certification procedures. In addition, they should foster research in low carbon technologies as well as adapting technologies transferred from other countries to suit local needs.
- Governments of recipient countries also should introduce low carbon technologies in state-owned companies, through public procurement, which will provide a showcase for the private sector to follow.
- These governments should also create a public database on low carbon technology investment potential and foster dissemination of such information, e.g., through a national low carbon technology development plan.

Box 6.6 Efforts of the Government of Thailand to collect and disseminate technology information

Thailand places emphasis on awareness-raising and information support, establishing publicly accessible databases on renewable energy potential and equipment manufacturers on the Ministry of Energy website. The Ministry has also founded a one-stop service centre for renewable energy and energy efficiency to provide information and guidance to investors, companies active in these sectors and private individuals.

Source: Olz and Beerepoort (2010)

Promoting low carbon transfer through FDI is not the responsibility of governments of recipient countries alone. A lack of willingness and awareness in supplying countries is also considered a fundamental reason for the limited progress of technology transfer. Governments of supplying countries should develop and introduce appropriate policies and incentive measures to support the deployment and diffusion of available and promising low carbon technologies overseas.

Support measures from regional and international institutions: Current national and international policy frameworks are not effective in promoting low carbon technology transfer in Asia. Low carbon technology transfer to the region can be better leveraged through the support of regional and international organizations. While their support should include financing, they have a more important role in information sharing and knowledge building and technical assistance. Financial support can be ensured through efficient mobilization of private sector funds by promoting private sector participation in bilateral and multilateral initiatives, explained in the second option above, and by promoting green governance at the corporate and government level. Information sharing and knowledge building, however, is quite difficult without the support of regional and international organizations with experience in the field. These organizations should collect and disseminate the information available from each country regarding low carbon FDI, build knowledge within countries and provide technical assistance, where necessary. Comprehensive technology needs and feasibility assessments/technology availability

assessments are quite difficult to develop without their participation and support.

Information sharing: National preferences for low carbon technologies vary among countries in Asia reflecting economic size, developmental stage, and geographical location. For example, energy conservation technologies can play a greater role in China, while in India, biomass technologies may offer more significant potential. Thus, information about the needs of each country should be compiled and disseminated. Similarly, available and promising low carbon technologies vary among countries. Thus information about the available technologies in each country should also be collected, listed and disseminated. To this end, the Durban Platform process for information dissemination regarding technology transfer, established at COP17, should develop and disseminate a comprehensive database relevant to technology transfer that will be useful for both recipient and technology-supplying countries. This database should provide an overview of the global status on low carbon technologies as well as country specific profiles, which will meet the increasing demand from policy makers, researchers, investors, and the general public for accurate, timely, and easily accessible information on low carbon technology transfer policies and measures. The importance of information sharing is explained further in chapters 2 and 3.

Knowledge building: Regional and international support should be provided for conducting technology needs and feasibility assessments, technology availability assessments, identification of risks and opportunities for technology transfer, and capacity building of various stakeholders involved in the technology transfer process, rather than focusing on technology development and transfer. They should match “seeds” (technology available) with “needs” (technologies needed). In this regard, they can focus on:

- i) analyzing the perspectives of businesses and government, both in recipient and supplying countries regarding the opportunities, risks, and obstacles relating to technology transfer;
- ii) listing the candidate low carbon technologies for transfer, from the perspective of businesses and governments of both recipient and supplying countries, and assess their GHG reduction potential; and
- iii) drawing a map (matrix) that best matches “seeds” with “needs.” Sharing, and facilitating access to this map will help investment decision makers effectively allocate low carbon FDI, and hence, minimize the risks and maximize the benefits (environmental, social and economic) of transferring low carbon technologies.

5. Conclusion and recommendations

Asia is the world's fastest growing economic region. This gigantic economy will require increasing amounts of natural resources, particularly energy and raw materials for production and urbanization. Thus, energy demand and CO₂ emissions in this region are expected to increase sharply. Unless economic development in the region is properly designed and targeted at sustainable development, it will seriously endanger the future environmental and human resources of the region and, eventually, of the earth. The main message of this chapter is that achieving environmentally sound development in Asia can be assisted by promoting the transfer of low carbon technologies to, and within, the region.

However, the transfer of low carbon technology is not an easy task. It is a highly complex process influenced by domestic and international factors that hinder the application even

of the most promising low carbon technology.

Given the risks of the current global environmental and economic situation and the need for urgent action, governments and companies should focus on promoting the horizontal transfer of proven and commercially available technologies which are at their deployment and diffusion stage of maturity. These technologies can be relatively easy to transfer since they are associated with fewer barriers. Special focus should be on low carbon technologies which match the needs of recipients and which have large local spillovers. A process of *technology application* is needed, not only a process of *technology transfer*. Furthermore, the focus should be on transferring combined packages of hard technologies, technical knowledge and skills. Technology transfers should not be limited to north-south but also carried out within the south, where widely different capacities exist.

Given the shortcomings of current centralized mechanisms under the UNFCCC, as well as bilateral and multilateral initiatives focusing on technology transfer, several decentralized mechanisms to promote the deployment and diffusion of low carbon technologies in Asia are proposed as follows:

1. Through rewarding low carbon technologies transfer with technology transfer credits (TTC);
2. Through enhancing a more proactive involvement of the private sector in bilateral and multilateral initiatives; and
3. Through promoting low carbon FDI in the region.

Each of these options is a challenging task unless other complementary measures are taken. For the first option, it may be best to start with using the currently existing CDM process under UNFCCC. In addition to the CERs, any CDM project should be rewarded with TTC if it results in low carbon technology transfer. This strategy will lead to the dissemination of currently available low carbon technologies throughout developing Asian countries faster than business-as-usual, while also generating credits. In addition, it is better to start by rewarding technologies which are at their deployment and diffusion stage, since these technologies can more easily be quantified.

For the second option, a stable framework of incentives should be provided by governments as well as regional and international organizations, to leading companies willing to play a more proactive role in transferring low carbon technology in Asia. This stable framework of incentives should include material incentives as well as non-material incentives.

For the third option, green governance processes should be streamlined at company and government levels to attract low carbon FDI. Regional and international organizations should provide the necessary support to private companies and governments in the region in this regard. Their role should not be limited to information sharing, but should be extended to knowledge building and technical assistance.

Notes

1. The horizontal flow of technologies that are at their deployment and diffusion stage of maturity.
2. The IEA's ambitious 2009 World Energy Outlook 450 Scenario analyses measures to force energy-related CO₂ emissions down to a trajectory that—taking full account of the trends and mitigation potential for non-CO₂ greenhouse gases and CO₂ emissions outside the energy sector—would be consistent with ultimately stabilizing the concentrations of all greenhouse gases in the atmosphere at 450 ppm of CO₂ equivalent.

3. During its life cycle, technology moves from the research and development (R&D) stage to the demonstration stage and then to deployment and diffusion stages, respectively. This is also known as vertical technology transfer. The R&D stage is when the basic science of a problem is understood, but the associated technologies are at their testing and laboratory stage. The demonstration stage refers to the stage when technologies are gradually implemented in a limited number of commercial facilities or research institutions. The deployment and diffusion stage refers to the stage where technology is generally competitive with alternative ones (Marcellino et. al 2010).
4. Keidanren (Japan Business Federation) is a comprehensive economic organization established in May 2002 by a merger between Keidanren (Japan Federation of Economic Organizations) and Nikkeiren (Japan Federation of Employers' Associations).
5. The region here refers to ASEAN+6. ASEAN countries include Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam. The other six countries are China, Japan, South Korea, Australia, New Zealand and India.

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Chapter 7

Networking Cities for Better
Environmental Management:
How networking functions can
enhance local initiatives

Chapter 7

Networking Cities for Better Environmental Management: How networking functions can enhance local initiatives

Toshizo Maeda

1. Introduction

Global environmental challenges, such as climate change, not only need international negotiation and national legislation but also local actions as the consequences eventually, and indifferently, affect the life of every citizen. In fact, in response to emerging global issues, a number of new development concepts have appeared recently at the local level: sustainable urban development, environmentally sustainable cities, low carbon cities, liveable cities, green cities, resilient cities, smart cities, green growth and green economy, among others. Obviously, cities are the focus of increasing attention, especially in the climate change regime. Considering these challenges and demands posed to cities, this chapter reviews intercity networking functions in order to facilitate sharing of useful knowledge and lessons, which will boost more voluntary local actions to deal with the range of global challenges.

As more than half of the global population is now living in urban areas and the population influx from rural to urban areas will continue to rise in the coming decades, particularly in developing regions including Asia (UN 2007), cities need to learn

how to cope with the consequent challenges. These challenges include provision of housing, jobs, education and health services, as well as maintenance of an acceptable living environment and related services, such as adequate solid waste management, clean water supply, sanitation, air quality management, pollution control, and so on. Infrastructure development, including buildings, roads, bridges, public transportation,

Key Messages

- Rapid urbanisation is a global trend, particularly in growing Asia. By mid-2020, it is estimated that more than half of the population in Asia will be living in urban areas.
- 80% of the region's wealth is produced in cities, but this requires significant resources, water and energy to sustain growth; consequently, they generate significant amounts of solid waste, wastewater and greenhouse gases—and many challenges for local governments.
- There is high demand for investment in infrastructure and capacity development of local officers in order to manage a liveable environment with sustainable growth, especially for small to medium sized cities.
- An effective approach to improve the capacity of local governments is networking between cities for knowledge sharing and mutual learning. The Kitakyushu Initiative for a Clean Environment, CITYNET, and Clean Air Initiative for Asian Cities have been successfully employed by a wide range of organizations.
- This chapter studies the functions, achievements and impacts of intercity networks, as well as the evolution of their management and operational strategies in response to the needs of network members and emerging global environmental challenges.

river and sea dykes, and sewerage and drainage systems, is also a pertinent challenge. The “to-do” list additionally covers energy management, including the promotion of energy efficient measures for buildings and industries and use of under-utilised and renewable energy. Greenhouse gas (GHG) emissions accounting in the city, as well as a strategy development for reducing emissions, is also required. The list also includes land-use planning and greenery management, as well as adaptation to climate change and disaster preparation and management so as to reduce risks caused by natural disasters. In fact, in the 20th century, more than 90% of all deaths and about 50% of all damage as a result of natural disasters occurred in Asia; as well, 18% of the urban population in Asia lives in low-lying coastal zones subject to future sea level rise, tsunamis, and storm surges (UN-HABITAT 2010).

At the international climate change negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), it has become clear that reaching an international consensus, or setting caps, on national GHG reduction targets may require many more years of continuous negotiation, in part due to different national backgrounds and interests. In contrast, many mayors have voluntarily committed their cities to reduce GHG emissions by setting ambitious targets and forming city alliances to influence the decisions made by international negotiations. This cooperative spirit has been seen in the formulation of a Local Government Climate Roadmap in Bali, Indonesia in 2007, a Global Cities Covenant on Climate (The Mexico City Pact) at the World Mayors Summit on Climate in Mexico City in 2010 (WMSC 2010), and the Regional Greenhouse Gas Initiative implemented to reduce GHG emissions in nine north-eastern and mid-Atlantic states in the United States (RGGI 2012), among others.

It is apparent that quite a few local governments are moving ahead of national governments in combating climate change challenges and enhancing local level efforts is becoming more important for finding a sustainable development path globally. Consequently, the tasks and demands for local governments in incorporating such new concepts and demands into city development plans and developing pertinent new strategies, policies, regulations and work plans are increasing. However, many local governments lack adequate capacity to deal with these new demands—as even traditional environmental challenges have not been tackled effectively in many places—and accordingly, there is a huge demand for capacity building of local government officials.

Networking cities for knowledge sharing and expansion of good practices and policies is one simple and effective way to improve such capacities and enhance local actions, which have been facilitated and supported by various external supporting organizations for many years. This chapter focuses on such efforts and examines how these networking activities have contributed to the capacity improvement of local government officers and looks at how these network programmes have been modified and transformed in response to the demands of member cities in the context of global trends. Lessons derived from this experience are summarised in view of further improving networking functions and boosting more local actions.

2. Networking functions

Networking modes can be categorised into three types according to size and the number of members: (i) open networks in the form of seminars and forums which invite many participants mainly for information sharing among participants; (ii) networks with a limited number of members designed for more intensive information exchange; and (iii) bilateral, or city-to-city, cooperation arrangements for learning directly from each other.

Often, networking organizations embody these three networking modes as they grow and respond to the demands of their members, and some networks possess these three modes from initial setup. In addition, city awards programmes which often result in the formulation of a new network by selected cities have also been added as a derivation of these three types.

This section looks into the functions of these four types of networks mainly focusing on selected networks in Asia which deal with urban environmental issues, have ten years or more of operational experience and involve more than 30 cities. These include the Kitakyushu Initiative for a Clean Environment, CITYNET (the Regional Network of Local Authorities for the Management of Human Settlements), Clean Air Initiative for Asian Cities (CAI-Asia), and ICLEI – Local Government for Sustainability. Among them, ICLEI is the largest and most extensive global network of cities, extending beyond Asia, with over 1,200 local government members supported by 200 staff in 14 offices around the world. Features of these four intercity networks are summarised in Table 7.1 and highlights of their activities and strategies adopted are summarised in section 3.

Table 7.1 Features of selected intercity networks in Asia

Features	Kitakyushu Initiative for a Clean Environment	CITYNET ⁱ	Clean Air Initiative for Asian Cities (CAI-Asia)	ICLEI – Local Governments for Sustainability
Establishment	2000 – 2010	1987 –	2001 –	1990 –
Budget source	ESCAP ⁱⁱ , Ministry of the Environment (Japan), Kitakyushu City, project funds from partners	Yokohama City, membership fee, project funds from partners	Grants for ADB ⁱⁱⁱ projects (core fund from ADB ceased in 2007), membership fee from private companies	Membership fee, project funds from partners
Secretariat	IGES ^{iv} , Kitakyushu City; 4 – 10 staff	Based in Yokohama City; about 10 staff; Regional Training Centre in Kuala Lumpur, Malaysia	CAI-Asia Center in Manila, Philippines, with offices in India and China; about 19 staff	14 offices around the world; 200 staff; World Secretariat in Bonn and International Training Centre in Freiburg, Germany
Members	More than 170 cities in 19 countries	More than 70 cities in 23 countries, NGOs, community based organizations, municipal associations, development authorities, research institutions, and private companies	45 cities in 11 countries, 8 country networks, 32 government agencies, 104 NGOs and academe, 17 international development agencies and foundations, 33 private companies	Over 1,200 local government members in 68 countries
Platform meetings	Network Meeting (every few years)	Congress (every 4 years), Executive Committee (almost every year)	Better Air Quality (BAQ) Conference (every 2 years)	Council (every 3 years)

Features	Kitakyushu Initiative for a Clean Environment	CITYNET ⁱ	Clean Air Initiative for Asian Cities (CAI-Asia)	ICLEI – Local Governments for Sustainability
Objectives, main activities and programmes	Promotion of urban environmental improvement through local level actions; Thematic Seminars; workshops and trainings for transferring good environmental practices	A network for helping local authorities improve the lives of its citizens and create the urban sustainability across Asia-Pacific and beyond; 4 Clusters (Infrastructure, Disaster, Millennium Development Goals, Climate Change), city-to-city cooperation, capacity building, knowledge sharing	Promotion of better air quality and liveable cities by reducing air pollution and GHG emissions from transport, energy and other sectors. Clean Air Scorecard, Clean Air Portal, Blue Skies Asia Exchange Program, Clean Fleet Management Toolkit, Walkability Survey	An international association of local governments for sustainable development; Cities for Climate Protection Campaign, Resilient Cities, Local Agenda 21, Sustainable Procurement Program, Water Program, Local Action for Biodiversity
Notes	After closing of the Kitakyushu Initiative in March 2010, Kitakyushu City and IGES continue maintaining the network with some members	Established with support of ESCAP, UNDP ⁱⁱ , UN-HABITAT; Granted consultative status with the UN ECOSOC ^{vi} in 1995 and the Habitat Scroll of Honour of UN-HABITAT in 2002	Founded by ADB, USAID and World Bank; Registered UN Type II Partnership	Close linkages with the United Nations, including UNCSO ^{vii} , UNFCCC ^{viii} , UNCBD ^{ix} and UNEP ^x

ⁱ CITYNET: *The Regional Network of Local Authorities for the Management of Human Settlements*

ⁱⁱ ESCAP: *United Nations Economic and Social Commission for Asia and the Pacific*

ⁱⁱⁱ ADB: *Asian Development Bank*

^{iv} IGES: *Institute for Global Environmental Strategies*

^v UNDP: *United Nations Development Programme*

^{vi} UN ECOSOC: *United Nations Economic and Social Council*

^{vii} UNCSO: *United Nations Commission on Sustainable Development*

^{viii} UNFCCC: *United Nations Framework Convention on Climate Change*

^{ix} UNCBD: *United Nations Convention on Biological Diversity*

^x UNEP: *United Nations Environmental Programme*

Sources: Kitakyushu Initiative for a Clean Environment: <http://kitakyushu.iges.or.jp/> (accessed 25 January 2012), CITYNET: <http://www.citynet-ap.org/> (accessed 25 January 2012), Clean Air Initiative for Asian Cities, Annual Report 2010: <http://cleanairinitiative.org/portal/index.php> (accessed 25 January 2012), ICLEI: <http://www.iclei.org/> (accessed 25 January 2012)

2.1 Open network: An information sharing platform

2.1.1 Horizontal and vertical networks for policy changes

A typical type of network function is provision of an information sharing platform for members in the form of conferences, seminars, forums and meetings. For example, the Kitakyushu Initiative for a Clean Environment (2000-2010), an intercity network managed by the Institute for Global Environmental Strategies (IGES) which engaged a total of more than 170 cities in 19 countries in Asia and the Pacific, organised network meetings every few years to exchange knowledge and experiences on effective environmental practices at city levels. Specific thematic seminars were also held in parallel once or twice a year on select environmental topics such as solid waste management, water supply and sanitation, urban air quality management, and use of information and communication technologies (KI 2010).

CITYNET organises a major Congress every four years to decide on a four-year medium term plan and convenes Executive Committee Meetings almost every year for organizational decision-making and information exchange and discussions among members on various environmental topics. The last Congress held in Yokohama, Japan in 2009 convened about 2,000 participants from over 30 countries (CITYNET 2009). Its members include local governments, non-governmental organizations (NGOs), research institutions and private companies. CITYNET has also expanded its network by establishing linkages with the United Cities and Local Governments Asia-Pacific Regional Section (UCLG-ASPAC) in 2008.

CAI-Asia invites not only local government officers but also central government officials, international and regional organizations, donors, academia, research institutions and private companies to its Better Air Quality (BAQ) Conference, held every two years. For example, the BAQ Conference 2010 held in Singapore convened about 550 participants from 39 countries and 25 partner organizations, and had a total of 33 breakout sessions (CAI-Asia 2010).

These platforms are originally designed for information exchange among members but often gradually expand to involve other stakeholders including ministries and national agencies, international and regional organizations, supporting organizations, academia and research institutions, NGOs and private companies as the networks grow and respond to the demands of members.

The secretariat of the Kitakyushu Initiative, IGES, has also followed a similar path after the closing of the programme in 2010 and being appointed as the secretariat of a new platform, the High Level Seminar on Environmentally Sustainable Cities (HLS ESC), developed under the framework of the East Asia Summit Environment Ministers Meeting, in which central and local governments as well as other international, regional and supporting organizations are invited to exchange information and activities towards the development of environmentally sustainable cities. Three HLS ESC held in the last three years have seen the participation of national and local government representatives from the 16 East Asia Summit member countries, as well as other organizations.

In this way, networking functions tend to expand not only horizontally but also vertically, connecting various types of organizations in multiple layers and facilitating knowledge sharing and dialogues in expectation of driving actual policy changes in each country. Obviously, this is one of the functions and advantages of networks which can in turn attract more members to participate in the network.

Some forums and city summits are designed in such a way from the beginning: involving not only city representatives, but also representatives from central governments and international, regional and supporting organizations. These examples include the Asia-Pacific Urban Forum (APUF) organized by the United Nations Economic and Social Council for Asia and the Pacific (ESCAP) since 1993, the World Cities Summit organized by the Centre for Liveable Cities in Singapore since 2010, the Asian Urban Forum by the Asian Development Bank (ADB) since 2011, and others. Obviously, there have been many recent forums organized by various organizations primarily targeting cities and reflecting the importance of their roles and the demand for local actions.

2.1.2 Providing opportunities to present local achievements

Another key function of intercity networks is giving an opportunity to best-performing cities to present their activities and achievements in front of many other cities and

various organizations, which gives recognition and encouragement for them to perform even better. In fact, some well-performing cities are repeatedly invited to present their achievements and initiatives in a number of forums and seminars. Recognition for good performance can also attract external support from central governments, as well as from other supporting organizations, as has been observed in some cities (Box 7.1). Some far-sighted cities are not only willing to give the usual presentation but also independently hold seminars and workshops in their city to visibly showcase their achievements.

Taking advantage of this willingness provides an opportunity for network secretariats to promote good practices and policies effectively, as well as save costs. For example, CITYNET and CAI-Asia are able to share costs with host cities and national governments when organizing meetings and events; as well, the Kitakyushu Initiative organized a variety of workshops in a number of cities in the same way.

Box 7.1 Voices from cities: Nonthaburi, Thailand

Nonthaburi, a neighbouring city to Thailand's capital Bangkok, with a population of about 300,000, participated in the Kitakyushu Initiative from its beginning in 2000 until its closure in 2010. Throughout this period, Nonthaburi City attended various meetings and seminars and was motivated to be a more environmentally friendly city by learning from, and being inspired by, other cities' practices. As the city implemented a number of environmental measures and projects during this period, including setting up a composting centre, environmental education centre, septage treatment (bio-fertiliser) facility and wastewater treatment plant in city hall, distributing designated transparent waste collection bags and tracking waste collection vehicles with a global positioning system (GPS), Nonthaburi has become one of the most well-known environmental cities in Thailand, today receiving thousands of visitors annually.

The Director of the Environment Department, Ms. Pornsri Kitcham, who was in this position throughout this period and acted as a driving force behind the city's transformation, recalls that she learned something whenever she attended meetings and seminars, and started implementing projects in the city every year. Ms. Kitcham adopted a strategy to start with a small-scale pilot project first, observed the outcomes, resolved the problems, and then scaled it up and expanded the project to other areas in the city.

The way she marketed the compost produced from the septage treatment facility illustrates her management skill. First, she gave compost free of charge to farmers to allow them to see the actual results. Then, she asked the farmers how much they would pay for the compost. Initially, the rate offered by farmers was THB 1,000 (USD 30) per tonne of compost, but as the effect was recognized and demand increased, it is now sold at THB 3,000 (USD 90) per tonne, which supports the operation of the facility. She was also successful in branding the vegetables produced using the compost by at first allowing school children to eat the produce and then promoted the approach to other people.

Her good management records attracted external support for project implementation, including the construction of a composting plant by the European Commission, a septage treatment facility guided by the Royal Development Project, and a wastewater treatment plant by the Government of Denmark.

Source: Presentation on 'Environment Management, Nonthaburi Municipality', by Pornsri Kitcham, Municipal Secretary, Nonthaburi City, at a Networking Seminar on KitaQ System Composting in Asia, 29 June – 1 July 2011, Kitakyushu, Japan. http://www.iges.or.jp/en/kuc/pdf/activity20110628/Nonthaburi_Thailand.pdf (accessed 25 January 2012).

2.1.3 *Sending consolidated messages from cities to international meetings*

Establishing linkages with important international meetings to deliver the messages of member cities, and thus influence decisions made by these meetings, is another strategy adopted by some networks, in particular, ICLEI which consolidates messages from member cities and delivers them to Conferences of the Parties (COPs) for UNFCCC and the United Nations Convention on Biological Diversity (UNCBD).

This cooperative spirit is also seen in the formulation of the 2007 Local Government Climate Roadmap and the World Mayors Summit on Climate in Mexico City in 2010, mentioned earlier, which attracted signatures from 147 mayors around the world on the Global Cities Covenant on Climate (the Mexico City Pact) (WMSC 2010). These commitments are registered in the carbon Cities Climate Registry as a global mechanism for reporting local actions on GHG emissions reduction efforts.

ICLEI, together with Aichi Prefecture, Nagoya City and other partners, also organised a City Biodiversity Summit in 2010 in conjunction with COP10 of UNCBD in Nagoya, Japan in 2010 with participation of more than 180 local governments from 30 countries (Aichi 2010). The Summit adopted the Aichi/Nagoya Declaration on Local Authorities and Biodiversity, a document which affirms city awareness about biodiversity and establishing partnerships among citizens, businesses, academia and local governments.

2.2 **Networks with limited members: More intensive information exchange**

As networks grow, the number of member cities also increases, and as a result, functions tend to become diluted and more generic. In order to address these challenges, networks often formulate sub-networks, clusters or internal programmes which cater to a limited number of members to ensure the effective use of limited resources.

This development approach is a common feature for intercity networks. For example, the Kitakyushu Initiative organised a series of workshops and trainings in various cities to assist the replication of successful composting practices from Surabaya City to other cities, inviting only the cities that showed initial interest and commitment later on. In this way, a group of concerned cities was formulated for further information exchange, facilitated by the secretariat (KI 2010).

CITYNET has set up four clusters, namely infrastructure (transport and land use planning), disaster (disaster risk reduction), Millennium Development Goals (MDGs), and climate change (adaptation and mitigation), to induce more active participation of its members. Member cities and organizations select the topics which match and contribute to their interests. Training programmes on water and sanitation, solid waste management, and sustainable transport held at the Kuala Lumpur Regional Training Centre (KLRTC), which was developed in cooperation with the city of Kuala Lumpur, Malaysia, United Nations Institute for Training and Research (UNITAR) and others, also invites only interested cities and requires them to pay participation fees, thus resulting in an automatic screening of cities with serious intentions to participate. CITYNET has also set up national chapters in Bangladesh, Indonesia, Nepal and Sri Lanka and works closely with municipal associations in Indonesia, India, Nepal, Philippines, Thailand and Viet Nam to facilitate further information exchange among member cities and organizations in the same country in line with its decentralisation policy (CITYNET 2010).

CAI-Asia has also established eight country networks in China, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka and Viet Nam. Each of these country networks has

their own members composed of multiple stakeholders representing cities, national governments, NGOs, academe and the private sector (CAI-Asia 2010).

Similar approaches are also taken by other network programmes. For example, C40 Cities Climate Leadership Group (C40) and the Clinton Climate Initiative target only large and capital cities for intensive information exchange. In contrast, Clean Air for Smaller Cities, an ASEAN regional programme implemented by German International Cooperation (GIZ), selects a maximum of two cities each from seven countries, which have populations between 200,000 and 1.5 million, to take part in the programme. The Ecological Cities as Economic Cities (Eco2 Cities) programme funded by the World Bank also targets a few cities in select country for project implementation. These programmes screen only a few cities using various criteria, including past performance, preparedness, commitments and reputation based on interviews with and recommendations by national ministries and agencies, as well as other organizations.

The approaches taken by these networks and programmes are reasonable in efficiently using the often limited resources that, in return, demand member cities' commitments for effective implementation. Targeting cities with similar sizes and backgrounds is also another feature of these approaches which works to best apply the experiences and policy tools to similar types of cities. In this way, these cities tend to stimulate, as well as learn from each other relatively easily.

2.3 Bilateral cooperation: Learning directly from each other

When resources are most effectively used, it generally involves city-to-city cooperation on a one-on-one basis. Some cities assist other cities in transferring some knowledge and management skills based on request or by facilitation of a third party, such as a city network.

For example, Kitakyushu City has assisted Dalian, China, in improving the air quality and other environmental management skills; Surabaya, Indonesia, in solid waste management (see Box 7.2); and Phnom Penh, Cambodia, in improving the water supply system, in addition to other vast examples of other cities in environmental management (Kitakyushu 2009).

Box 7.2 Voices from cities: Surabaya, Indonesia

Surabaya City, Indonesia, has received technical assistance from Kitakyushu City, Japan, in various ways over the last two decades. Since the implementation of solid waste management studies in 1993 and 2002, respectively, followed by relevant research and projects in Surabaya City, many city officers have visited Kitakyushu City for training and in return, experts from Kitakyushu City have visited Surabaya City.ⁱ

After establishing a long partnership, Kitakyushu City and Surabaya City signed a joint statement on a strategic environmental partnership toward creation of a resource-efficient and low-carbon society in March 2011, which has further propelled the implementation of new studies and projects in a variety of areas, including wastewater treatment, energy efficiency and measurement of GHG emissions.ⁱⁱ

The long partnership has nurtured a mutual trust between the two cities and some of the Surabaya City officers who were once trained in Kitakyushu City have been promoted as directors and director generals, which further helps consolidate the partnership. One notable example is Ms. Tri Rismaharini, Director of the Public

Cleansing and Landscaping Department in 2006-2008, who was the driving force of the successful composting and waste reduction achievements and greening efforts in the city (achievement of 30% waste reduction and 10% increase in city parks areasⁱⁱⁱ), who was elected as mayor of the city in 2010.^{iv}

Sources:

- i. Presentation by Kitakyushu City on exporting recycling industries, "*Kitakyushu-shi ni okeru jomyakusangyou kaigaitenkai no torikumi ni tsuite*," on 3 August 2011, <http://www.jesc.or.jp/info/jyomyaku/forum01/02.pdf> (accessed on 25 January 2012)
- ii. "Kitakyushu's Challenge to Promote the Development of Green Industry," presentation by Kitakyushu City, http://www.unido.org/fileadmin/user_media/PCOR/Kitakyushu,%20Mr.%20Kitahashi%20111116final_Eng.PDF (accessed on 25 January 2012)
- iii. "Low carbon in Surabaya City, approaches and challenges," presentation by Surabaya City at the 3rd International Forum on Sustainable Asia and the Pacific on 27 July 2011, http://www.iges.or.jp/en/kuc/pdf/activity20110727/3_zaky.pdf (accessed on 25 January 2012)
- iv. "Risma elected as Surabaya's first female mayor," *The Jakarta Post*, <http://www.thejakartapost.com/news/2010/06/08/risma-elected-surabaya039s-first-female-mayor.html> (accessed on 25 January 2012)

CITYNET has facilitated mutual cooperation between Seoul, Republic of Korea, and several other cities including Palembang and Jakarta, Indonesia on sustainable transport. CITYNET has also implemented Integrated Environmental Education in Asian Cities (AWAREE) and Post-AWAREE programmes in selected cities including Yokohama (Japan), Da Nang and Ha Noi (Viet Nam), Phnom Penh (Cambodia), Colombo (Sri Lanka), Dhaka (Bangladesh) and Makati (Philippines) (see Box 7.3). CITYNET and Yokohama Water Works Bureau have been organising an annual water supply training programme since 1999 which has led to further exchanges between Yokohama and participating cities, including the agreement with Banda Aceh (Indonesia) following the 2004 tsunami, mainly in the form of city-to-city cooperation.

Box 7.3 Voices from cities: Phnom Penh, Cambodia

Phnom Penh City was one of the beneficiaries of the Awareness on Environmental Education in Asian Cities (AWAREE) programme in 2004-2007, funded by Japan International Cooperation Agency (JICA) and managed by CITYNET, which linked Yokohama City and six other Asian cities to promote environmental education. Various activities were carried out in selected schools in Phnom Penh under the programme, including environmental education campaigns, waste segregation, recycling, composting, greenery management, creation of biotopes and others. High level commitments, as well as resource input were obtained from counterpart agencies. As a side effect of the programme, and through facilitation by CITYNET, the two focal point departments, namely the Department of Environment and Department of Education, Youth and Sport, nurtured a good cooperative relationship by sharing resources and jointly implementing the projects.

Phnom Penh City also benefited from implementing biogas projects by a technical assistance extended by Sri Lankan experts through facilitation by CITYNET. A total of six biogas plants of 6, 8 and 22 cubic meters, were installed for farmers, where the gas is used for the cooking and lighting in ten households and the residue is used as fertiliser. Observing the benefits, Phnom Penh City further replicated the project by installing an additional five plants with a size of 22 cubic meters for the slaughterhouses and there are plans to implement more.

Source: Interview with Bernadia Irawati Tjandradewi, Programme Director, CITYNET, on 25 January 2012

Notably, these city-to-city cooperation projects are usually supported by funding agencies, including the Japan International Cooperation Agency (JICA) Grassroots Technical Cooperation Programmes, Council of Local Authorities for International Relations (CLAIR), Japan Fund for Global Environment (JFGE), Global Environment Centre Foundation (GEC), and others, as those cities usually do not have funds budgeted to assist other cities. Therefore, these kinds of supporting funds are essential to facilitate bilateral cooperation projects.

One unique example of a city-to-city cooperation model is demonstrated by Santo Tomas City in the Philippines, where the city has assisted more than 20 cities in the region in replicating a solid waste management model which has successfully reduced the amount of daily solid waste disposed at the landfill as much as 80% by strictly implementing a “no segregation, no collection” policy. Santo Tomas City charges other cities relevant fees for extending such services for dispatching city officers for lectures and training, but demand still continues to increase. Notably, the National Solid Waste Management Commission in the Philippines supported this activity by promoting the Santo Tomas model as a role model for other cities to copy (Santo Tomas 2009).

In 2008, the United States Agency for International Development (USAID), the Asian Development Bank (ADB) and the International Water Association (IWA) established a network called WaterLinks to promote improved and expanded access to safe water and sustainable sanitation in Asia-Pacific cities by facilitating bilateral, or “twinning,” partnerships between urban water and wastewater service providers, including water utilities, companies and government departments. In a typical twinning arrangement, a model service provider serves as a mentor to its counterpart by sharing practical knowledge and proven methods to improve operations and management, and build overall institutional capacities (WaterLinks 2010). Since 2008, WaterLinks has facilitated more than 60 twinning partnerships across the region that resulted in over one million urban residents having better access to water supply and sanitation services. It has also trained 2,500 practitioners and leveraged USD 10,000,000 in capital and capacity investments by service providers.¹ The WaterLinks secretariat provides assistance in facilitating the partnerships, as well as organizing regional trainings, developing toolkits and promoting knowledge sharing to help the providers achieve higher performance. Each partnership generally lasts for 12-18 months and costs around USD 50,000.¹ The results show that this kind of peer-to-peer learning approach based on partner needs is effective in building the capacities of recipient cities and delivering tangible outputs in a short period of time. However, it also requires a strong facilitator and supporting budget, as well as partner commitments (see Box 7.4 for a practical example).

Box 7.4 Voices from cities: Palembang, Indonesia

The water operator partnership (WOP), or “twinning,” between PDAM Tirta Musi in Palembang, Indonesia, and Perbadanan Bekalan Air Pulau Pinang (PBAPP), Malaysia, started in December 2009 with facilitation by USAID under the WaterLinks programme. Through its 22-month partnership, more than 200,000 residents of Palembang City benefitted from the improved service.

Before the establishment of the partnership, PDAM Tirta Musi, the only water supplier in Palembang with 1.5 million residents, had high water losses due to historically poor management of its distribution network. More than 70% of its customers had intermittent supply of 10 to 12 hours per day.

After a diagnostic field visit in Palembang by PBAPP staff, partners agreed to focus first on a pilot area called Cempaka Dalam, where the service was 12 hours per day and the non-revenue water (NRW) rate was above 36%.

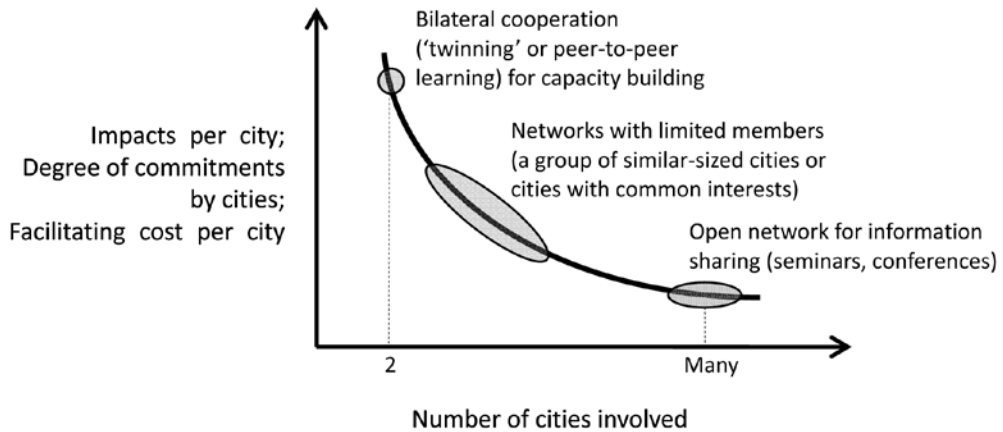
With support from PBAPP, PDAM Tirta Musi effectively isolated the Cempaka Dalam area by installing flow meters at all inlet points, divided the area into smaller areas, or steps, took flow meter data at each step and analyzed it, and pinpointed the location of the losses. More than 40 staff of PDAM Tirta Musi has also visited Penang to learn PBAPP's practices and to participate in tailored capacity building programmes.

After a 10-month intensive partnership, PDAM Tirta Musi successfully reduced the NRW rate in the Cempaka Dalam area by about 50% by replacing 309 meters and 300 meters of pipeline and identifying 12 unauthorised connections in cooperation with neighbourhood groups. As a result, all 1,400 households received 24-hour water supply service with adequate pressure and the revenue generation from the area increased by 95%.

The Cempaka Dalam success encouraged PDAM Tirta Musi to scale-up the practice in other areas, which resulted in a total of 36 areas covering over 200,000 residents. PDAM Tirta Musi now also works as a mentor for other water suppliers in other cities to share their experience which is facilitated by ADB under the WaterLinks programme. Learning from the PDAM Tirta Musi's success, the Indonesia Water Supply Association (PERPAMSI), which also joined a training event in Penang during one of the twinning activities, initiated its own water operator partnership programme in early 2011 to let larger water service providers support smaller ones by sharing practical knowledge and good practices. As of June 2011, PERPAMSI had established 13 water operator partnerships.

Source: "Delivering Continuous Waste Supply for the First Time in Palembang, Indonesia," field notes from Water Operator Partnerships in Asia, 2011, Waternotes, WaterLinks, USAID, IWA, ADB.

In general, learning directly from a tutor rather than with many others in a classroom is more effective in delivering results as more resources can be concentrated and commitments from recipients can also be expected. Thus, it could be said that the smaller the number of cities involved—with two being the smallest—the larger the impacts delivered per city by a networking arrangement, although facilitating costs may increase accordingly, as shown in the following figure.

Figure 7.1 Relationship of impacts and number of cities involved in a network

Source: Author

2.4 Awarding cities: Let cities emulate each other

Giving awards to best performing cities is another way to stimulate local actions. Recognition in such a way gives more incentive to cities to perform even better and encourages other cities to emulate these actions. In fact, a large number of visitors usually flow into awarded cities, which gives a sense of pride to city officers and citizens, and ushers in economic benefits as a result of expenditures by visitors. Furthermore, these awards often lead to additional funding offers for implementing national pilot projects or other demonstration projects and studies funded by donors and other organizations, as the awards underscore the good governance and management systems in place in these cities in order to deliver expected outputs. This is often a precondition for funding agencies to screen partner cities.

There are a number of national award programmes in the region including Adipura Award in Indonesia, Liveable Cities Award in Thailand, Bandar Lestari Award in Malaysia, Clean and Green Programme and Galing Pook Award in the Philippines, Eco-model Cities in Japan and so on. Cities selected through these award programmes sometimes formulate a network of cities to further exchange useful knowledge and information among themselves.

For example, 13 awarded Eco-model Cities in Japan, together with other cities and ministries, research institutions and private companies, formed a Promotion Council for the Low-Carbon Cities (PCLCC) in 2008, where members share useful knowledge, activities and barriers in the implementation of projects and policies and are developing knowledge products, including a collection of recommendable good practices and standardized GHG emissions measuring tools (RRB 2011).

Learning from this successful model, IGES, as the secretariat of the High Level Seminar on Environmentally Sustainable Cities (HLS-ESC), designed an ESC Model Cities programme in cooperation with the Association of Southeast Asian Nations (ASEAN) Working Group on ESC and the ASEAN Secretariat as an output of the Seminar to invite each ASEAN member state to develop a national ESC programme. Currently, a total of 14 cities from eight ASEAN countries have been selected through national programmes and proposed activities are being implemented to achieve individual targets (IGES 2011b).

Naturally, this ESC Model Cities programme has close linkages with existing city awards programmes, as well as leagues of cities and municipalities in each country. For example, in Indonesia, the ESC Model Cities programme was linked to the existing Adipura Environment Awards, where two top-performing cities, Surabaya and Palembang, were selected as Model Cities and given incentives to implement pilot projects for a new national initiative called Clean Indonesia 2014. In Lao PDR, Xamneua was selected as a Model City based on a nomination by the Ministry of Public Works and Transport out of a list of environmentally best cities from each province. In Malaysia, the award winner of the national Bandar Lestari Sustainable City Awards, North Kuching, was selected (Box 7.5). In the Philippines, two cities, Puerto Princesa (Box 7.6) and Palo, Leyte, were selected as Model Cities from the top environmental cities in 16 regions. It is expected that all 16 regions will be involved in the second year. In Thailand, the three selected Model Cities, Maehongson, Muangklang and Phitsanulok, were winners of ongoing national Thailand Liveable Cities Awards programme (IGES 2012). It is also expected that the programme will eventually merge with the existing ASEAN Initiative on ESC Awards to form an integrated regional programme.

The ESC Model Cities programme also functions as a platform for collaboration with other ASEAN-related programmes and activities. For example, one of the selected cities, North Kuching, Malaysia, seconded their city officers to Nonthaburi, Thailand and Kitakyushu and Sasebo, Japan, through facilitation by IGES, for training and site visits to solid waste management facilities. Officers of water supply facilities in Yangon, Mandalay, Nay Payi Taw and others in Myanmar visited Penang Water Supply Company, Malaysia, for a capacity building training programme based on a recommendation by USAID and WaterLinks. JICA Kyushu set up a training course on low-carbon city planning and technologies in 2011, which was announced to relevant countries, and North Kuching was given a seat from Malaysian Government for the training. ESCAP extended support in organising the inception workshop of the ESC Model Cities programme in June 2011 in conjunction with the 5th Asia-Pacific Urban Forum, and CAI-Asia provided support in organizing the preparatory meeting in November 2010 in conjunction with the 2010 Better Air Quality Conference.² Incidentally, these cities and supporting organizations were all invited to the 3rd High Level Seminar on ESC in Siem Reap in March 2012 as resource persons and for information sharing.

In this way, city awards programmes not only stimulate cities to emulate each other but also has a potential to formulate a new network of cities, as well as to be a platform for collaboration of multiple organizations.

Box 7.5 Voices from cities: North Kuching, Malaysia

With a population of about 200,000, North Kuching is a modern mid-sized city located in the State Capital of Sarawak, Malaysia. The city's foray into regional and international sustainable city activities began with its involvement in a World Health Organization (WHO) Healthy Cities project in 1994. Subsequently, it hosted the first ASEAN Healthy Cities General Assembly in 2002, which led to the city undertaking the Chair of the Steering Committee for the Alliance for Healthy Cities, an international network of aspiring sustainable cities formed in 2004. Guided by the framework of Healthy Cities, North Kuching implemented a wide range of innovative initiatives which garnered awards under the Alliance.¹

North Kuching's outstanding efforts have also won the recognition of the national government, by twice winning the Bandar Lestari Sustainable City Awards Programme

(for 2006/07 and 2010/11) organized by the Department of Environment (DOE) under the Ministry of Natural Resources and Environment. As a result, DOE, which is the national focal point for the ASEAN Working Group on Environmentally Sustainable Cities (AWGESC) and the ASEAN ESC Model Cities Programme, nominated North Kuching to receive the ASEAN ESC Awards in 2011,ⁱⁱ as well as to represent Malaysia in the Model Cities Programme.

Waste reduction is a priority for North Kuching. Through a series of community-based 3R initiatives, the city has achieved a recycling rate of 11.6% and the current daily waste generation per capita is 0.6kg as compared to the national average of 1.0-1.5kg. It has further committed to reduce daily per capita waste by 50% to 0.3kg by 2020, and a major strategy is to scale up composting with financial and technical support via the Model Cities programme. Encouraged by its experiences with city networks and awards, the city has recently turned its attention to low-carbon city development after being selected to attend a JICA training on low-carbon city planning and technologies in October 2011 and is keen to be a model for other cities in Malaysia.ⁱⁱⁱ

Contributed by Teoh Wei Chin, IGES

Sources:

- i. Abdullah, Haji Onn. 2011. "Engaging Private-Public Participation Towards Sustainable City Development." Presentation made at the 2nd High Level Seminar on Environmentally Sustainable Cities, 15-16 March 2011. http://www.hls-esc.org/Presentations/Thematic%20Session%20C/03-2HLS_T2C_EngagingPPPTowardsSustCityDev_TuanHajiOnnAbd.pdf (accessed 24 January 2012).
- ii. ASEAN Secretariat. 2011. "ASEAN Celebrates the 2nd ASEAN Environmentally Sustainable Cities Award." <http://www.aseansec.org/26743.htm> (accessed 24 January 2012).
- iii. Interview with Rudzaimir Malek, Head of Environmental Health Division, North Kuching City Hall, 16 December 2011.

Box 7.6 Voices from cities: Puerto Princesa, Philippines

In the Philippines, Puerto Princesa, a city of about 160,000 in the Province of Palawan, is blessed with bountiful natural assets famed for eco-tourism. With its successful forest conservation and urban greening policies, the city was recently recognized by the Intergovernmental Panel on Climate Change (IPCC) as a carbon-negative city (sequestering more carbon than it emits) in South East Asia.ⁱ

Under the leadership of Mayor Edward Hagedorn, the city established itself as one of the country's most well-known sustainable cities. Puerto Princesa has won various local awards for good governance and best practices and was an active member of ICLEI's Cities for Climate Protection Campaign as well as the Kitakyushu Initiative Network. Similar to North Kuching, its good reputation led the national government to select it as one of Philippines' Model cities under the ASEAN ESC Model Cities Programme last year. The city had undertaken serious waste reduction initiatives, and composting has been intensively implemented since 2009. As a result, current waste generation was reduced by about 50% from projected figures.ⁱⁱ Currently, it is mentoring the other selected Model City (Palo, Leyte) on community-based composting, and is often invited by various organizations to share its knowledge and experience in many regional and global seminars.

Contributed by Teoh Wei Chin, IGES

Sources:

- i. Juancho, Mahusay. 2011. "Puerto Princesa first 'carbon-neutral' city in SE Asia." *The Philippine Star*. <http://www.philstar.com/nation/article.aspx?publicationsubcategoryid=67&articleid=714039>. (accessed 23 January 2012).
- ii. Interview with Jovenee Sagun, City Planning and Development Coordinator, Puerto Princesa Municipality, 18 November 2011. Puerto Princesa's projected daily waste generation for 2011 is 120 tonnes, compared to current generation at 70-75 tonnes. From this, about 25 tonnes are diverted from final disposal via composting and recycling.

3. Strategies adopted by intercity networks

What strategies have been adopted by intercity networks, or by the secretariats of the networks, for their survival and expansion? One common and prominent strategy is involvement of, and establishing linkages with, other organizations to supplement their functions. For example, these measures include engaging links with national ministries and agencies to influence national policies; inviting donors, banks and supporting organizations to mobilise funds and technical expertise; working with academia and research institutions to provide objective and cross-cutting analysis on successful models; and inviting private companies to learn cutting-edge technological options.

3.1 Kitakyushu Initiative for a Clean Environment (IGES)

The main activities of the Kitakyushu Initiative in the first half of its ten-year history were the organization of three network meetings and seven thematic seminars, mostly for information exchange among the member cities. Through this, many good environmental practices at the local level were collected and shared and success/enabling factors were discussed. However, dissemination and replication of such practices and policies did not appear as expected. Because of that, the focus in the second half was shifted to replication of good practices to see actual changes and impacts on the ground. In line with that, three study tours and nine workshops were held to learn directly from good practices on-site in host cities where only interested cities were invited. As a result, Surabaya's composting practices for waste reduction—one of the good practices recognized by other member cities—were disseminated and replicated in many other cities through facilitation by the secretariat (KI 2010; Maeda 2009). Even after the conclusion of the Kitakyushu Initiative in 2010, the cities carrying out composting practices continue to meet up through facilitation by IGES and Kitakyushu City using support from JICA, ESCAP and others (IGES 2010; IGES 2011a). In other words, the Kitakyushu Initiative in name has ended, but actual linkages and collaboration with member cities have been sustained without the use of a core fund.

IGES serves as the secretariat of the Kitakyushu Initiative and the HLS-ESC which was established under the framework of the East Asia Summit Environment Ministers Meeting. This seminar, first held in Jakarta, Indonesia in 2010 followed by the second in Kitakyushu in 2011 and the third in Siem Reap, Cambodia in 2012, has convened national government officials from 16 East Asian countries as well as a total of more than 80 cities, including some of the Kitakyushu Initiative member cities, to discuss the ways to realise environmentally sustainable cities.

An ASEAN ESC Model Cities programme developed based on the recommendations made at the first High Level Seminar on ESC has been implemented in eight ASEAN countries since 2011, for which IGES also serves as a secretariat together with the ASEAN Secretariat.³ As some Kitakyushu Initiative member cities were also selected as ESC Model Cities in select countries, IGES continues to maintain the network with these cities together with other cities to disseminate good environmental practices and facilitate mutual learning opportunities. In addition, IGES became a member of CITYNET in 2011, which also has a number of Kitakyushu Initiative member cities, to collaborate with CITYNET and make use of its network rather than maintaining a separate one.

3.2 Kitakyushu City

It is also worthwhile to see the international cooperation strategies adopted by Kitakyushu City which include acting as the host city for the Kitakyushu Initiative, among

others. Kitakyushu City's international cooperation has a 30-year long history with the establishment of the Kitakyushu International Techno-cooperative Association (KITA) in 1980. Since then, Kitakyushu City and KITA with close collaboration with JICA's Kyushu International Center, located near the KITA building, organized a number of technical trainings for environmental management and dispatched more than 100 experts worldwide. The total number of trainees is more than 6,000 from 138 countries.

Kitakyushu City also strategically established strong partnerships with select cities. Among them are Dalian (China), Phnom Penh (Cambodia) and Surabaya (Indonesia). The partnership with Dalian started in 1979 when the two cities became friendship cities. Since then, a number of environmental technical cooperation projects were implemented and city officers and experts have participated in study tours to both cities. The series of technical cooperation facilitated environmental improvement in Dalian, especially in air quality, which resulted in Dalian being awarded a Global 500 Award by UNEP in 2001—the first city in China (Kitakyushu 2009). The Waterworks Bureau of Kitakyushu City contributed to improvement of the water supply management system in Phnom Penh through extensive technical cooperation since 1999. The rate of NRW of Phnom Penh Water Supply Authority (PPWSA) improved from 72% in 1993 to 8% in 2006, for which Kitakyushu City also contributed (Chan 2011). Environmental cooperation with Surabaya started in 1993 through a JICA-funded study on solid waste management. Since then, many Surabaya City officers have trained in Kitakyushu and who are now key liaison persons with promotions to managerial positions. As a result of these technical trainings, Surabaya City has achieved about a 30% reduction in waste disposal over the past five years (Surabaya 2011).

3.3 CITYNET

CITYNET, the Regional Network of Local Authorities for the Management of Human Settlements, is one of the largest and oldest intercity networks in Asia with more than a 25-year history. It was established in 1987 with the support of ESCAP, the United Nations Development Programme (UNDP) and United Nations Human Settlements Programme (UN-HABITAT) and the Secretariat was set up in Yokohama in 1992 with the support of the city government. Since then, the number of members has increased from 26 to over 100 in 23 countries. Four countries adopted national chapters, namely Bangladesh, Sri Lanka, Nepal and Indonesia, in line with the decentralisation policy and focus on national level activities.

One of the highlights of CITYNET activities is the establishment of a Regional Training Centre in Kuala Lumpur (KLRTC), Malaysia in 2003 in cooperation with Kuala Lumpur City, United Nations Institute for Training and Research (UNITAR), Veolia Environment and others. A number of training programmes have been held there including on sustainable urban transport, integrated urban planning, sanitation improvement, solid waste management, financing, and climate and disaster resilience. The Congress held every four years is a well-recognized networking opportunity for the international community as the last one held in Yokohama in 2009 saw about 2,000 persons from over 30 countries participate. CITYNET's extensive partners include ADB, JICA, United Nations University (UNU), World Bank, Yokohama City, IGES and many other Japanese institutions. CITYNET has further expanded its network by establishing a linkage with the United Cities and Local Governments Asia-Pacific Regional Section (UCLG-ASPAC) in 2008. The hosting city of UCLG-ASPAC, DKI Jakarta (Special Capital City District of Jakarta), is now a member of CITYNET.²

CITYNET's activities are supported by membership fees which range from USD

600-10,000 per year for full members (local governments within Asia-Pacific region) depending on the city's population and income level. As for NGOs from developing countries, membership fees are only USD 100 per year. The secretariat has about ten staff, which is supplemented by interns recruited throughout the year and the staff seconded from member cities through an exchange programme. Fund raising and project development are also a task for the secretariat to boost networking activities. A JICA-funded city-to-city cooperation project called Awareness on Environmental Education in Asian Cities (AWAREE) and post-AWAREE, which connect Yokohama City and six other cities in five countries, were also developed by the secretariat. The secretariat is moving to Seoul, Republic of Korea, in 2013 which is expected to result in new inputs to the CITYNET activities.

3.4 CAI-Asia

The Clean Air Initiative for Asian Cities (CAI-Asia) was established in 2001 by the Asian Development Bank (ADB), the World Bank and the United States Agency for International Development (USAID) as an informal network of international agencies, governments, academic institutions, NGOs, and private companies to support improved air quality management in Asia. ADB hosted CAI-Asia and its secretariat and provided core funding through its regional technical assistance projects until 2007. Since then, CAI-Asia has been registered as a UN Type II Partnership and its Center, where the secretariat is located, was incorporated in the Philippines as a non-stock, non-profit corporation. This means CAI-Asia operates without receiving core funds from the ADB anymore but undertakes ADB's air quality-related projects as a consultant on a competitive basis, and in this way, saves the necessary funds to manage network activities. CAI-Asia also receives grants from other donors, including private companies, to carry out specific projects.

The flagship of CAI-Asia activities is the bi-annual Better Air Quality (BAQ) Conference. Since the first meeting held in Hong Kong in 2002, the number of participants has increased from around 200 to over 1,000 in 2008 in Bangkok, Thailand and over 500 in 2010 in Singapore. Now, it is widely recognized as a good networking opportunity in relation to air quality management in the international community as 25 partner organizations supported BAQ 2010 and 33 breakout sessions were held. Fund raising from private companies is also a unique feature of CAI-Asia as BAQ 2010 had seven corporate sponsors and donations from private company members accounts about 5% of the annual income. The number of secretariat staff increased from three or four in 2001 at its inception to 19 in 2011, including the Center in the Philippines and offices in China and India. Interns are accepted throughout the year to supplement the work force and a staff exchange programme with network partners is in place funded by Fredskorpset Norway, a private company.

The assets of CAI-Asia include their extensive network in Asia, especially the national networks in eight countries (China, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka and Viet Nam), and their domestic networks with national ministries and agencies, research institutions, academia and NGOs. Their network with international organizations and donors is also extensive, and includes ADB, the World Bank, German International Cooperation (GIZ), Swedish International Development Cooperation Agency (SIDA) and others. The air quality database in 300 cities and other air quality-related toolkits and research outputs are also additional strengths of CAI-Asia. The Initiative also conducts perception surveys on their activities evaluated by their partners and other stakeholders to reshape their strategies by understanding strengths, weaknesses and expectations (CAI-Asia 2004, 2011). The remaining challenge is sustainability as the core fund from

ADB was terminated in 2007 and necessary funds for sustaining networking activities are not guaranteed. As a large portion of donor funds has recently shifted to climate change projects, CAI-Asia has also shifted its focus accordingly to co-benefits approaches pertinent to air quality management to attract more funds.³

Box 7.7 Voices from cities and national governments: Achievements by CAI-Asia

The work by CAI-Asia has resulted in actual policy changes in some countries. For example, Sri Lanka banned the importation of two-stroke engine three wheelers from 2008, which emit ten times as much air pollution compared to the four-stroke engine. The decision was made after the then Minister of Environment and several other officials attended the Better Air Quality (BAQ) Conference in Yogyakarta, Indonesia in 2006.ⁱ Before that, no restrictions were in place for three-wheelers in Sri Lanka. CAI-Asia also supported Mandaluyong City, Philippines to set up a revolving fund for drivers to replace two-stroke tricycles with four-stroke engines using interest-free loans.ⁱⁱ Funding is provided by the Petroleum Institute of the Philippines and supported with funds by Mandaluyong City.

In the Philippines, the Department of Environment and Natural Resources (DENR) mandated Euro IV emission limits for all new passenger and light duty motor vehicle types from January 2016. This regulation was released in September 2010 almost ten months after the National Workshop for Clean Fuels and Vehicles organized by the Department of Energy, CAI-Asia and others,ⁱⁱⁱ which discussed an action plan for moving from the Euro II to Euro IV standards citing the experience in Thailand where Euro IV emission standards for new light duty vehicles and gasoline vehicles will be adopted in 2012.^{iv}

Similarly, in Viet Nam, the Prime Minister approved new motor vehicle emission standards in September 2011 which require automobiles to comply with Euro IV emission standards by January 2017, with further tightening to Euro V emission standards by January 2022.^v

In this way, CAI-Asia works with national and local governments, as well as local partners and international organizations, in inducing policy changes for better air quality management which has actually been achieved in some cities and countries as described above.

Sources:

- i. "Smoke 'Em Out!" *The Sunday Times Online*, February 4, 2007, Vol.41 – No. 36, <http://sundaytimes.lk/070204/News/112news.html> (accessed 30 January 2012).
- ii. "Mandaluyong Tricycle Upgrading Program gets P1M boost," 2011-11-14, <http://cleanairinitiative.org/portal/node/7835> (accessed 30 January 2012)
- iii. "Philippines Issues Euro 4 Vehicle Emission Standards," 2010-09-16, <http://cleanairinitiative.org/portal/node/6362> (accessed 30 January 2012)
- iv. "Philippines National Workshop on Clean Fuels and Vehicles (2009)," 2009-11-16, <http://cleanairinitiative.org/portal/node/964> (accessed 30 January 2012)
- v. "Vietnam sets vehicle emissions standards and fuel quality roadmap," 2011-09-07, <http://cleanairinitiative.org/portal/node/7530> (accessed 30 January 2012)

4. Expected roles of facilitators

There are many types of intercity networks, but one common salient fact is that these networks are all managed and facilitated by the secretariat. Network secretariats function as manager, facilitator, coordinator, inter-mediator, broker, core and hub to facilitate

exchange of information among members. Without a secretariat, networks cannot function. In other words, well-functioning networks usually have capable managers and efficiently functioning secretariats which cater to the demands of its members and manage the network efficiently within a limited budget. This is an essential element for any network to function, and deserves more recognition and evaluation.

As seen in previous sections, the main expected facilitating roles of network secretariats are the following:

- Provision of a platform for information exchange among members, and for presenting and showcasing members' achievements, through the organization of seminars and conferences, and disseminating related information through internet media and paper publications.
- Connecting city officers with other organizations including central government ministries and agencies, international and regional supporting organizations, donors and others by highlighting their achievements and accountability.
- Dissemination of useful information to members through objective analyses of case studies and sieving from an ubiquitous supply of information.
- Sending consolidated messages from cities to international meetings to influence meeting outcomes and decisions.
- Fund raising and project development to sustain network operations, including organising seminars and workshops, facilitating knowledge sharing and technical cooperation, and implementing pilot projects.

In fact, one advantage of a network secretariat is its externality and neutrality. Network secretariats can evaluate performances of local governments' activities objectively through comparisons with other cities and disseminate useful knowledge using various channels. Cross-cutting policy analysis by a network secretariat can also influence policy changes in different cities and countries. Access to multiple stakeholders is another advantage which allows a network secretariat to coordinate multiple ministries and national agencies, donors, international and regional organizations, NGOs and local governments, which local governments cannot do.

5. Conclusion

Networking cities is an effective way to stimulate local actions and facilitate the exchange of useful knowledge and information among members. These practices and provision of peer-to-peer learning, as well as competing opportunities can also improve the capacity of local government officers.

One notable fact is that the performance of network functions largely depends on the management skills of the network secretariat. In other words, poorly performing networks do not last long and often cease operations when core funding ends. It also implies that long-lasting networks are led by capable managers who modify the programmes and expand the networks and scope of the activities continuously to meet the demands of its members and in response to global trends, as well as attracts new funds. Thus, capable network secretariat provide not only useful information and knowledge sharing opportunities, but they also raise funds and recruit capable staff using various means to sustain and expand their operations.

On the other hand, the risk of all intercity networks is their sustainability, particularly for those managed by a small budget and a few staff in the secretariat. Without enough

core funds and human resources, networks dwindle unless other funding sources can be secured. Usually, maintaining a network incurs major costs unless members pay membership fees and self-finance their attendance at meetings. Another risk is the hub function of a network. Networks are not a substance but a person-to-person connection built upon and entrusted over a long period of operation. This hub function often belongs to a person, or a few persons, who work in the secretariat. Therefore, there is a risk that a network may lose its “hub” when a key person leaves. To avoid this, there must be a strategy to retain these key persons, or institutionalise the hub functions among several staff by devolving and sharing tasks and responsibilities. Often, long-lasting networks have such a system in place and that is why these networks deserve recognition and commendation.

Enhancing voluntary local actions and capacity development of local government officers are imperative to address emerging and extensive global environmental challenges. For that, networking cities is a conventional but an effective and proven approach. To further enhance existing intercity networks functions or redesign new networks in view of dealing with emerging challenges and realizing various city-related new concepts, recognition and revision of long-lasting and well-performing networks is worthwhile to avoid duplication of similar networks developed from scratch by multiple organizations.

Another hidden function and advantage of networking activities is screening and identification of cities which have credible management and governance records. Often, well-performing cities appear in multiple networks, voluntarily or by invitation, and that improves the city officers’ mindset and capacities as well as expanding the opportunities to attract funds for further developing and implementing projects. Considering all these points, intercity networks, particularly the performances of secretariats who are responsible for the operation and management of the networks, deserve more analytical revision to make better use of their functions more effectively.

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Notes

1. Interview with Saengroaj Srisawaskraisorn, Program Development Specialist, Regional Environment Office, USAID/RDMA, on 4 May 2010.
2. Interview with Bernadia Irawati Tjandradewi, Programme Director, CITYNET, on 31 January 2012.
3. Interview with Glynda Bathan-Baterina, Policy & Partnership Manager, CAI-Asia, on 26 January 2012.

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Chapter 8

Policy Framework for
International Collaboration
Towards Sustainable Resource
Circulation and Management in
Asia

Chapter 8

Policy Framework for International Collaboration Towards Sustainable Resource Circulation and Management in Asia

Yasuhiko Hotta and Satoshi Kojima

1. Introduction

This chapter highlights the need for further bilateral and multilateral collaborative efforts to increase resource efficiency and sustainable resource management in developing Asia. In this chapter, the term “international collaboration” covers both bilateral and multilateral collaboration either at the regional level or in the context of global environmental cooperation in Asia.¹

As Asia more or less functions as the “world’s factory,” there will be an increasingly greater need to utilize solid waste generated from used consumer products made of composite materials, hazardous industrial waste, and the by-products and solid waste from business establishments as resources. The potential for the recovery of metal resources, in particular, from the increasing number of waste electrical and electronic products has led to renewed interest from Asian countries on the 3R concept of reduce, reuse and recycle and the circulation of materials. This waste, it should be noted, contains a variety of substances that are characterized by both hazard and utility.

To develop sustainable circulation of materials in Asia, improved policy implementation capacity on the part of Asian developing countries is considered necessary to ensure sound waste treatment streams and the healthy commercialization of recycled

Key Messages

- Political support for a green economy is only one of the first steps for sustainable development. A political framework starting at the international level is needed for many sectors, in particular sustainable resource circulation and management, to avoid the risk of a global resource crisis.
- There is an increasing need to promote sustainable resource circulation and management as Asia is leading the increases in global resource demand as a major production centre.
- Priority challenges for developing countries related to institutional capacity, industrial capacity, and market stability have been identified to improve the operation (or governance) of 3R and materials circulation systems.
- Different countries face different challenges in the management of waste and materials. Programmes should be country-specific and reflect the level of economic development, recycling industry implementation capacity and enforcement of regulations in policies and actions.
- International policy collaboration is crucial to ensure coordination and harmonization, as unilateral or unstructured approaches may raise unintended economic and transboundary environmental outcomes. The quantitative modeling analysis conducted in this chapter supports this argument.
- Reflecting resource efficiency/productivity with pollution prevention measures to existing climate-related financial mechanisms and project appraisal by multilateral aid agencies would be a practical approach for international collaboration for sustainable resource management. An international fund is proposed to stimulate the evaluation of resource efficiency criteria to assist in socioeconomic development with a lower material burden and environmental pollution.

resources, as sustainable circulation embodies the two aspects of being both hazardous and useful at the same time. In the wider context of continuing economic growth and increasing resource demands in Asia, countries in Asia will urgently need to focus and invest more on integrating economic development and environmental conservation, and decoupling economic growth and resource use.

A recently published report by the United Nations Environmental Programme (UNEP) showed that the Asia-Pacific region has clearly shifted from a less resource intensive to a highly resource intensive economy (UNEP 2011a). Until the mid-1980s, per capita material consumption in the Asia-Pacific region was about one-third (four tonnes per capita) of the world average (about 13 tonnes per capita). However, in 2005, per capita material consumption in the region reached approximately nine tonnes per capita, almost the same level as the global average. This heralded a warning that material consumption in the Asia-Pacific region could triple by 2050 as compared with 2005 figures, under the business as usual (BAU) scenario. The UNEP report also observed that the amount of resources required to generate one unit of gross domestic product (GDP) in the Asia-Pacific region is on the rise, resulting in a shift towards a less resource efficient economy over the last two decades, indicating the need for more policy attention on promoting a resource efficient development pattern. This would not only be beneficial in terms of environmental objectives, but for economic competitiveness and sustainable economic development of the region as well as globally.

A report by the Asian Development Bank (ADB) and the Institute for Global Environmental Strategies (IGES) on resource efficiency outlined the multiple benefits of resource efficiency approaches for national economies (ADB and IGES 2008). The list includes solving local environmental problems, mitigating climate change, preserving natural capital, minimizing disposal costs, improving national competitiveness, developing new business opportunities, pursuing social benefits, ensuring energy security, and avoiding resource conflicts (ADB and IGES 2008). UNEP (2011a) also elaborated on the necessity of serious policy intervention and investment efforts to initiate innovation in social and economic systems so as to avoid regional crises associated with resource shortages. In this context, although the Green Economy—a low carbon, resource efficient, and social inclusive economy (UNEP 2011b)—can be an important policy slogan for this region to direct investment to synergize economic development and environmental conservation (in other words, expansion of markets for environmental technologies and products), serious policy attention is needed to promote international efforts to position sustainable resource circulation and management to avoid a resource crisis, looking as well to the global issues of climate change and the creation of a low carbon society. In other words, in the context of increasing resource demands and associated environmental impacts in Asia, increasing resource efficiency and decoupling of economic development and resource use would be an important focus for the transformation of socio-economic systems towards sustainable consumption and production, in addition to achieving a low carbon society.

Since the launch of the 3R Initiative in 2005, the Government of Japan and international organizations such as ADB, Organisation for Economic Co-operation and Development (OECD), United Nations Centre for Regional Development (UNCRD) and UNEP, as well as many bilateral aid agencies, have promoted various forms of assistance and conducted policy dialogues with a view to helping Asian countries develop more coherent waste management and 3R policies. Asian countries are also making serious efforts on their own to build and develop the legal frameworks and policies related to waste management and materials circulation.

Improving resource efficiency has always been a key objective of 3R promotion in Asia. Indeed, since 2005, key policy dialogues of the 3R Initiative in Asia including the Asia 3R Conference in November 2006, the 2nd Asia 3R Conference in March 2008, and the Inaugural Meeting of the Regional 3R Forum in Asia in November 2009, have continued to emphasize improved resource efficiency as a key objective of the 3R Initiative. These objectives go hand-in-hand with the globally advocated policy agenda of OECD's sustainable materials management (SMM), UNEP's sustainable resource management, and the concepts of green growth, green innovation, and green economy being widely discussed in the Rio+20 process.

While the development of legal frameworks and international cooperation for improving resource efficiency in Asia are moving forward, challenges remain with respect to policy implementation and systems operation, which can be categorized as governance issues. As well, it is increasingly being pointed out that the pursuit of resource efficiency alone cannot reduce the total environmental impact from industrial/production/consumption activities as discussed in Section 4 below. To achieve decoupling through sustainable consumption and production, it is necessary to consider policy packages that take the whole life cycles of resources, materials, products and wastes into consideration. Such material life cycles have expanded beyond national borders, which has led to the necessity of considering innovative, international collaborative measures to supplement and maximize the positive effects of domestic and local actions.

Based on the following flow of argument, this chapter discusses the future direction of international collaborative efforts for sustainable resource circulation/management in Asia, especially those of developed economies, which will need to gradually shift from a resource efficiency approach into "material reduction" or absolute decoupling.

First, we show that there has been significant progress in policy development for resource circulation and management in developing Asia both at the national and international level, and in particular, at the end-of-life stage of material and product use.

Second, by arguing the needs for developing Asia to promote further efficient use of resources and sound waste management, we identify four priority challenges related to institutional capacity, industrial capacity, and market stability to be addressed to improve the operation (or governance) of 3R and materials circulation systems in Asian countries. The limitations of resource efficiency approaches is noted, along with the need for strong policy intervention for material reduction or absolute decoupling, in particular to allow developed economies to form a model green economy, envisaging the urgent need of leapfrogging for sustainable resource management in the region.

Third, a phased approach for introducing policies for increasing resource efficiency according to developmental stage of recycling market and economy is briefly introduced. The issues surrounding a gradual shift of focus from end-of-life to the upper stream of production are discussed to initiate practical improvements for resource efficiency in developing Asia.

Finally, the potential benefits of international collaboration for sustainable resource circulation and management based on quantitative analysis are outlined. Policy recommendations are presented, including the establishment of an international fund for sustainable resource management, as one possible approach to institutionalise sustainable resource circulation and management, and maximize regional benefits for policy interventions in the region.

2. Progress in policy development for resource circulation and efficiency in Asia

As shown in Table 8.1, Asian countries began to emphasize 3R and materials circulation policies in the latter half of the 2000s. The significant progress in domestic policies is credited to increasing interest in recyclables as a cheaper alternative to virgin materials due to rapidly increasing resource prices, and environmental concerns from increasing product consumption, increasing waste generation, and environmentally-unsound waste management practices such as water and soil contamination from open dumping, air pollution from open burning, loss of life from landslides in waste dumping sites, and increasing public opposition to final treatment sites (Kojima, ed. 2008). Thus, governments in this region are under strong pressure to reduce wastes going to final treatment sites and to prevent environmental pollution resulting from recycling activities. At the same time, developed economies such as Japan, Republic of Korea and Taiwan have increased exports of recyclable materials due to high resource demands in emerging economies such as China.

Against this background, national legal systems concerning the 3Rs, materials circulation, and international cooperation have been strengthened and are being promoted in Asia. For example, China have positioned the concept of a “circular economy” as one of the key concepts under its overall national development plans: both the 11th (2006-2010) and 12th (2011-2015) five-year development plans and framework law to promote the circular economy in 2009. As well, Japan proposed the launch of the 3R Initiative at the G8 Summit in 2004 to facilitate policy dialogue and international cooperation on the 3Rs. This international initiative was not limited to G8 countries, but is inclusive of developing Asian countries as well.

On the other hand, developing countries face increasingly complicated challenges with regard to the effective implementation and systems operation for resource circulation policies. For example, among the countries shown in Table 8.1, the authority and responsibility for municipal waste management, industrial hazardous waste management, and promotion of recycling policies are scattered among different governmental ministries, agencies and departments in China, Malaysia, Indonesia, Thailand, and Viet Nam.

Even countries with legislation for resource circulation may not be able to clearly identify proper business sectors and facilities carrying out the collection, management and recycling of recyclable resources due to the informal nature of recycling markets. This identification is necessary to ensure the proper implementation of related policies.

Table 8.1 Formulation of 3R and materials circulation policies in Asian countries

Japan	<p>Fundamental Law (2000) and Fundamental Plan (2003, revised in 2008) for Establishing Sound Material Cycle Society</p> <p>Japan developed a framework law to give overall direction to the country's resource circulation policy by enacting a fundamental law for establishing a sound material cycle society. The Fundamental Plan sets targets and indicators to monitor the overall progress of Japan's Policy for Sound Material Cycle Society, including those related to resource efficiency. It also specifies the expected roles to be played by different stakeholders.</p>
	<p>Product-specific recycling legislation</p> <p>Based on the concept of Extended Producer Responsibility (EPR), Japan developed five product-specific recycling laws: Container and Packaging Recycling Law (1995, revised in 2006), Electric Home Appliance Recycling Law (1998), Construction Material Recycling Law (2000), Food Waste Recycling Law (2000, revised in 2007), and End-of-life Vehicle Recycling Law (2002).</p>

<p>Japan</p>	<p>Eco-town programmeⁱ From 1997 to 2007, the eco-town programme was jointly implemented by the Ministry of the Environment (MOEJ) and the Ministry of Economy, Trade and Industry (METI) as a subsidy programme for local planning to develop recycling businesses or facilities. The programme generated a recycling capacity of 5.89 million tonnes and contributed to 20% of the average annual increase in national recycling capacity.</p>
<p>Chinaⁱⁱ</p>	<p>Circular Economy Promotion Law (enacted in January 2009) The advancement of a circular economy has been established as a major policy task.</p> <p>Rules on the Administration of the Recovery and Disposal of Discarded Electronic and Electrical Products (promulgated in 2009, effective in 2011) These rules tightened the management of waste electronic products.</p> <p>Eco-Areas Approx. 50 areas (provinces, cities, towns) were designated as model Eco-Areas. Twenty model cities were designated for the promotion of a local level circular economy (as of February 2011).</p>
<p>Malaysiaⁱⁱⁱ</p>	<p>2007 Solid Waste and Public Cleaning Management Act (2007) Responsibility for solid waste management was transferred from local governments to the central government and the 3R principles were introduced. This Act encourages the privatization of waste management.</p> <p>The Five-year Plan “Malaysia 2011 - 2015” The Five-year Plan calls for a raise in the rate of resource recovery from household waste from 15 to 25% by 2015.</p>
<p>Philippines^{iv}</p>	<p>Ecological Solid Waste Management Act (2001) This Act introduced the 3R principles. All municipalities were required to achieve 25% diversion of solid waste (recycling and reduction) by 2006. The recycling rate in Manila was 33% in 2010.</p> <p>National Solid Waste Management Commission (inaugurated in 2001) This body coordinates the ministries and other related parties at the national level to improve solid waste management.</p> <p>National Framework Plan for the Informal Waste Sector in Solid Waste Management in the Philippines (2009) This framework plan was established as a result of support for the formulation of a 3R national strategy. It features an action plan to improve the conditions of the informal sector engaged in solid waste management.</p>
<p>Republic of Korea^v</p>	<p>Green Growth National Strategy The Republic of Korea has set the concept of “Green Growth” as its national strategy, which also includes the following key terms: “Mitigation of Climate Change and Energy Independence,” “Creation of New Engine of Economic Growth,” and “Improvement of Quality of Life and Enhancement of International Standing.”</p> <p>Reduction and recycling of food waste This strategy resulted in an increase in recycling rates (1997=9.8%, 2000=45.1%, 2007=92.2%), and prolonged the remaining useful life of landfill sites from seven to 11 years.</p> <p>Volume-based municipal waste charges As a result of these charges, the per capita solid waste generation declined 26% in the 13 years from 1994 to 2007.</p> <p>Extended producer responsibility system This system raises the recycling rate of used products (waste home appliances, end-of-life vehicles) covered by the EPR system.</p>
<p>Thailand^{vi}</p>	<p>Take-back programme for used products The take-back programme began with containers and packaging, used lead-acid batteries, mobile phones and batteries, in cooperation with manufacturers and retailers. Fluorescent lamps have also been included in cooperation with the Japan External Trade Organization (JETRO).</p> <p>Initiation of a recycling-oriented society This programme resulted in the implementation of the 3Rs in more than 200 communities. In some communities, a 30 to 50% reduction or more in waste generation was achieved.</p>

Thailand ^{vi}	Industries Waste Exchange Program This programme registered over 450 firms by 2005.
Viet Nam ^{vii}	3R-related laws and policies Under the 2005 Law on Environmental Protection, 14 decisions were newly taken related to the 3Rs and solid waste management, including Decree No. 57 on integrated solid waste management in 2007 and Decision No. 1440 on the planning of solid waste management in three central economic regions by 2020 in 2008.
	3R National Strategy (approved by the Prime Minister) This strategy sets targets for the year 2020: 30% recycling of collected waste; 30% separation-at-source rate for households and 70% for firms.
Taiwan ^{viii}	Resource Recycling Fund Currently, ad valorem fees are collected from firms for 14 kinds of recyclable products and are pooled in the Fund. Recycling operators and treatment contractors become entitled to a subsidy from the Fund if they conform to environmental and quality standards. The Fund is also used to adjust for any volatility in the recycling market.

Notes: ⁱ For the effects of the eco-town programme, see METI's report: (http://www.meti.go.jp/policy/policy_management/14fy-jigohyouka/14fy-5.pdf)

ⁱⁱ See the official website of the Sino-Japan Friendship Centre for Environmental Protection (<http://www.china-epc.cn/japan/CNE/CNE.htm>). For model Eco-Areas in China, see: http://kjs.mep.gov.cn/stgysfyq/m/200807/t20080718_125900.htm

ⁱⁱⁱ For Malaysia's 2007 Solid Waste and Public Cleaning Management Act, see: <http://faolex.fao.org/docs/texts/mal74261.doc>. For solid waste targets in Malaysia's Five-Year Plan 2011- 2015, see Charts 6 - 16 in Chapter 6: <http://www.epu.gov.my/html/themes/epu/html/RMKE10/img/pdf/en/chapt6.pdf>.

^{iv} See: <http://emb.gov.ph/nswmc/pdf/iec/R.A.%209003.PDF>. The recycling rate in Manila is based on presentation materials from the Executive Director of Philippine's National Solid Waste Management Commission, as presented at the Second Meeting of the Regional 3R Forum in Asia held in October 2010 in Kuala Lumpur, Malaysia. http://www.uncrd.or.jp/env/3r_02/presentations/BG2/2-5%20Philippines-2nd-3R-Forum.pdf

For National Solid Waste Management Commission, see: <http://emb.gov.ph/nswmc/Default.aspx>. National Framework Plan for the Informal Waste Sector in Solid Waste Management in the Philippines, see: [http://www.3rkh.net/3rkh/files/Final_IS_Report_07152009_\(NSWMC\).pdf](http://www.3rkh.net/3rkh/files/Final_IS_Report_07152009_(NSWMC).pdf).

^v Presentation by a delegate of Korea to the October 2006 meeting of the Regional 3R Forum in Asia: http://www.env.go.jp/recycle/3r/en/asia/02_03-3/09.pdf and the official website of Korea's Ministry of Environment http://eng.me.go.kr/content.do?method=moveContent&menuCode=pol_rec_pol_rec_food

http://eng.me.go.kr/content.do?method=moveContent&menuCode=pol_rec_pol_system

^{vi} For take-back programme for used products, see: http://www.uncrd.or.jp/env/3r_02/presentations/BG1/RT1_04_Thailand_rev.pdf. For initiation of a recycling-oriented society, see: http://www.chem.unep.ch/mercury/Sector-Specific-Information/Docs/waste/S1_10_Thailand.pdf. For Industries Waste Exchange Program, see: http://infofile.pcd.go.th/waste/waste_Thai3RsPortfolio.pdf?CFID=3567354&CFTOKEN=18170873.

^{vii} For 3R-related laws and policies, see UNCRD, UNEP/RRCAP, and IGES: National 3R Strategy Development—A Progress report on seven countries in Asia from 2005 to 2009— (IGES 2009), and http://www.uncrd.or.jp/env/3r_02/presentations/BG1/1-5%20Vietnam.pdf. For 3R National Strategy, see: http://www.moc.gov.vn/site/moc/cms?cmd=4&portionId=88&articleId=38547&portalSiteId=6&language=en_US

^{viii} Interview with an official of the Taiwan Resource Recycling Fund, conducted by the author in December 2010.

Source: IGES (2011).

Along with the efforts by the Government of Japan under the 3R Initiative launched in 2005 as well as international collaborative efforts, a number of policy dialogues and project-based initiatives have emerged since the mid-2000s to facilitate international collaboration for sustainable resource circulation and management. Table 8.2 presents an outline of the major international cooperation programmes and frameworks in Asia, or where Asian countries are actively involved, that have been established to address the international issues of waste management and recycling, as well as the need for capacity development of each country. At the core of these programmes and frameworks are the various policy dialogues and international cooperation measures that were triggered by the 3R Initiative. Asian countries are thus engaged in regular information exchange and discussions on waste and recycling issues, as well as resource efficiency questions from a regional perspective. However, with the exception of policy dialogues and bilateral technical cooperation, more concrete mechanisms, including financial incentives, have yet to be developed. Another critical issue of concern is the lack of technologies and the lack of access to or slow pace of diffusion of required 3R technologies in line with the 3R laws and policies enacted by developing countries in Asia.

Table 8.2 Selected international cooperation programmes on 3R and materials circulation policies

Regional 3R Forum in Asia ⁱ	Inaugurated in November 2009, this regional forum holds periodic policy dialogues, promotes 3R projects in collaboration with donor organizations, and cooperates with 3R research networks, among other activities. The Tokyo 3R Statement agreed upon by Asian countries at the inaugural Regional 3R Forum provides the necessary political and institutional framework for the promotion of the 3Rs in Asia.
TEMM and policy dialogues on the 3R/circular economy ⁱⁱ	Following an agreement at the Tripartite Environment Ministers Meeting among Korea, China and Japan (TEMM), working-level officials of the three countries meet every year to exchange information at seminars and from time to time, and conduct bilateral policy dialogues on wastes/recycling and the 3R/circular economy. The sharing and exchange of information are thus progressing at the working level.
Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes ⁱⁱⁱ	Officials of Asian countries in charge of the Basel Convention meet to form a network for information sharing among countries. The network has been active since 2004.
Asia Pacific E-Waste Project ^{iv}	The pivotal role played by the Basel Convention Secretariat is to build up an E-waste inventory, offer training and hold local workshops in Asian countries.
Partnership on Computing Equipment (PACE)	The Partnership for Action on Computing Equipment (PACE) was established at COP9 of the Basel Convention in 2008 to tackle the management of obsolete and used computers. PACE brings together the Secretariat of the Basel Convention, industries (through several industry associations) and civil society to establish methods to divert used and obsolete computers away from land disposal and burning into commercial recovery operations.
Thematic Working Group on Solid and Hazardous Waste of the Regional Forum on Environment and Health in South-East and East Asian Countries ^v	WHO and UNEP serve as the secretariat of the Regional Forum on Environment and Health in South-East and East Asian Countries. Under its umbrella, government officials and experts gather and analyse the best practices and challenges concerning urban waste and medical waste.
UNEP International Panel for Sustainable Resource Management ^{vi}	UNEP launched this international panel in November 2007, inviting world-renowned scientists and experts. The panel collects the latest information on sustainable resource management and is building a knowledge base on the use of natural resources and environmental impacts, in addition to developing policy recommendations.

Notes: ⁱ http://www.uncrd.or.jp/env/spc/regional_3r_forum.htm

ⁱⁱ <http://www.env.go.jp/earth/coop/temm/project/3r.html>

ⁱⁱⁱ http://www.env.go.jp/en/recycle/asian_net/

^{iv} http://www.env.go.jp/recycle/3r/en/asia/02_03-4/02.pdf

^v <http://www.environment-health.asia/twg.cfm?themeid=3>

^{vi} <http://www.unep.fr/scp/rpanel/>

Source: IGES (2011).

3. Priority challenges for developing Asia: Increasing resource efficiency and policy implementation

In parallel with this progress in sustainable resource management both domestically and regionally, it is becoming increasingly clear that there are governance challenges to be addressed in relation to the implementation of pertinent policies and the effective application of systems and programmes. Important policy documents such as the Singapore Recommendations agreed at the 3rd Regional 3R Forum in Asia in October 2011 and submitted to the Rio+20 Process by the Government of Singapore, for example, shows that policy makers are well aware of these challenges. The Singapore

Recommendation calls for “a holistic approach for resource management and resource efficiency” and “mainstreaming and integrating the 3Rs into the policies and programmes of relevant ministries and agencies”.

The challenges for effective policy implementation can be grouped into three categories: (i) government capacity and interagency coordination, (ii) industrial infrastructure and technology transfer for recycling, and (iii) a well-organized recycling market for local economy and green jobs. Of course, to overcome these challenges, it is not enough to set the appropriate policy incentives, such as economic instruments for establishing a sound market for recycling including collection of recycling fees or landfill levies. These incentives should be backed by embedding the 3Rs into a country’s socio-economic system through public awareness, mass media, school education programmes, eco-clubs, NGOs and the like.

3.1 Government capacity and interagency coordination

For effective collection and treatment of recyclable materials, it is necessary to enforce environmental and labour standards, and clarify role sharing between local and central governments, as well as among different governmental agencies/departments and establish a mechanism to facilitate collaboration.

To set recycling policies that contribute to sustainable resource management and the concept of a “green economy,” it is essential to prevent collected recyclable materials from flowing into environmentally-unsound treatment processes. Adequate environmental and labour standards should be enforced effectively through improved collaboration between central and local governments in order to lower socio-economic incentives to carry out strong acid treatment, open-air burning and other environmentally high-risk and low-cost treatments and recycling methods. To this end, the 3Rs and materials circulation should be given a high priority in the national strategy so as to facilitate collaboration between the central and local governments, as is done in Japan’s enactment of the fundamental law for a “Sound Material-Cycle Society” and China’s national policy of a “Circular Economy.”

In the absence of a comprehensive law or policy to promote resource circulation, there is a tendency for central governments to miss the opportunity to issue general and coherent directions for policies to be implemented by local governments. Under such circumstances, what is often observed are only scattered cases of local good practices. In other words, the purpose of legislation for resource circulation should be to clarify the roles of central and local governments as well as set out a national direction and specific milestones in policy implementation.

The development of national legislation and strategies for resource circulation cannot be separated from budget allocation for infrastructure to enable the operation of mechanisms for resource collection and treatment. For example, although Viet Nam has developed the “National Strategy of Integrated Solid Waste Management to 2025, vision to 2050,” by Ministry of Construction (MoC) and Ministry of Natural Resource and Environment (MoNRE) governmental officials expressed that it was better to also have the Ministry of the Finance involved in the policy making process in order to secure the necessary budget for implementation of the strategy.²

Therefore, in terms of improving governance, it is important to secure the involvement of relevant stakeholders from initial planning stages right through to the final review stage for various policies and strategies. Ensuring the involvement of relevant stakeholders from the outset would help improve the feasibility of policy implementation after its formulation.

More importantly, there is a need for effective cooperation and collaboration among the key line ministries and between government, private and research/scientific institutions in order to mainstream resource efficiency in overall policy, planning and development. In other words, sectoral policy approach in 3R promotion is a challenge. Conventionally, the 3Rs is seen as mainly the responsibility of environment agencies, i.e., Department of Environment or Ministry of Environment, whereas efficient promotion of 3Rs depends on how it is addressed or practiced in key development sectors, such as industry (including small- and medium-sized enterprises (SMEs)), energy, trade and commerce, agriculture, water resource, tourism, and other relevant areas. It is imperative that the responsible line ministries or agencies lay out policies and programmes to mainstream the 3Rs in these sectors so that there is a nationwide consensus on the beneficial aspects of the 3Rs.

3.2 Industrial infrastructure and technology transfer for recycling

Industrial infrastructure, i.e., the systematic construction of facilities and development of technologies for treatment and recycling of collected recyclables, is equally important for effective resource circulation. Industrial waste expelled as by-products during manufacturing processes accounts for a large proportion of the solid waste generated. More often than not, such waste is hazardous, but at the same time, it is potentially useful as a resource. In economically growing Asia, the increase in the generation of industrial waste and by-products, as well as waste discharged by business establishments, is expected to pose problems for the generators of such waste, as they often find it difficult to treat the waste themselves. Thus, it is also necessary for this reason to promote the growth of a reliable industrial sector consisting of waste management contractors and recycling operators.

Japan's eco-town programme is an example of putting policy into action to develop industrial and technical infrastructure to sustain the development of a sound material cycle society. The Government of Japan is now working to transfer this experience to China, Thailand, Malaysia and India.

In terms of international cooperation to develop such industrial infrastructure in Asia, facilitating technology transfer or foreign direct investment for recycling from developed to developing countries is not enough. Technology transfer should be associated with and supported by the development of environmental and resource circulation policies. Thus, to ensure effective technology transfer, institutional and policy mechanisms for resource circulation are prerequisites.

3.3 A well-organized recycling market for local economy and green jobs

The promotion of resource circulation is feasible only if it is accompanied by activities to collect and transport recyclable resources to treatment facilities and activities to make use of the post-collection recyclable resources. A recycling economy with an effective supply/demand balancing function should be established that, together with the industrial infrastructure and technological base, would help make feasible the sound circulation of the collected materials in compliance with the regulatory regime. The ambivalent nature of recyclable resources is in many cases not properly considered in recycling markets, which only look at the economic value of a used product and treat it as such. The markets pay attention to its potential utility as a resource, but much less to its attribute of being a potential pollutant. Sole attention to the utilitarian aspect of used products and recyclables as resources could result in an incentive to ensure cost recovery by adopting inappropriate and low-cost treatment methods. In addition, as was observed during the period of volatile resources price fluctuations in the latter half of the 2000s, reliance on

market adjustment mechanisms of supply/demand balancing alone sometimes leads to the malfunctioning of materials circulation, since recycling activities are transferred from developed countries to developing countries in periods of resource price hikes and these activities stagnate in periods of market softening.

Accordingly, Asian countries are faced with the need to shift focus from the formulation of legal systems to the construction of schemes that could support the effective integration of regulations, development of the required industrial infrastructure, and establishment of a stable recycling market and economy. Thus, recycling mechanisms that use economic instruments such as Extended Producer Responsibility (EPR) for specific end-of-life products would help shift the underlying economic concept from that of informal, “dirty” recycling to a well-organised market with stable job opportunities.

To improve resource efficiency at the global level, further international collaboration would require overcoming the above challenges faced by rapidly industrializing and urbanizing Asia. International/regional collaboration to promote the 3Rs must encourage countries to construct such schemes to develop the capacities needed for their implementation in terms of regulatory regimes, industrial development and stabilization of the recycling market and economy.

3.4 Upcoming challenges: Limitations of resource efficiency approach and needs for decoupling

Throughout the 1990s and 2000s, increasing resource efficiency has been considered an effective approach, especially among OECD countries, to realize sustainable resource circulation and decoupling (OECD 2008). Japan has utilized resource productivity as a nationwide indicator for Japan’s national policy to realize a sound material cycle society. Indeed, advancement of a resource circulation system in Japan has coupled with an increase in resource productivity at the national level. In emerging/industrializing Asia, resource efficiency policies (efficiency at industrial facility level and product level) shall be pursued further by promoting resource circulation.

However, there are several reasons for reconsidering the policy paradigm of resource efficiency and productivity, especially for developed economies. Firstly, the limitations of the eco-efficiency/resource productivity approach for sustainable resource management are becoming apparent. Pursuit of efficiency in the industrial sector and products would minimize the environmental impact at unit-level of production and consumption activities, but increasing efficiency does not necessarily reduce the total environmental impact of the whole product life cycle. It is known that efficiency gains either in energy use or material use are generally offset by higher demand in such resources (Ayers 2005; Herring 2008). By comparing 65 countries from 1960 to 2003, Jorgenson and Clark (2011) concluded that there is no evidence of a relative decoupling of ecological footprint and economic development. Jorgenson and Clark (2011: 240) suggest that we cannot assume that “improvements in eco-efficiency equate to environmental sustainability when it corresponds with increases in the scale and intensification of production.” Also, on the concept of resource productivity, some argue that improvement in resource productivity is the flip-side of economic growth and is not representative of decoupling of material use and economic development (Steinberger and Krausmann 2011).

More practically, there is an increasing recognition of the limitations of recycling to fulfil increasing resource demands. Over the years, there has been a continuous growth in resource demands from emerging economies, and new demands have emerged for rare-metals and rare-earth metals for low-carbon technologies (Halada 2010; Halada 2011).

However, because of the increasing demand for metal, some suggest that it is crucial to maintain less than 1% annual growth in metal demands to fill supply and demand gaps with metal recycling in the near future (Grosse 2010).

Increasing needs for new technology for low carbon development may increase hidden environmental risks associated with extraction, mining, and importing of metal resources. Halada (2010) warns that discussions on low carbon technologies and society lack a perspective on resource management. For example, according to estimates by Halada (2010), if half the number of Japanese automobiles were replaced with fuel-cell vehicles, the current technology would require 250 tonnes of platinum. This figure can be re-calculated as 300 mega tonnes of mining ore, thus requiring a “reduction” of residues (or hidden flow) from such vast mining activities.

To respond to these limitations and achieve absolute decoupling of resource use and economic development, policies for resource use reduction should be considered in addition to developing resource efficiency approaches. The necessity of reduction policies such as a natural resource tax has been the focus of discussion by select national governments, and a number of countries including Australia have already decided to introduce a natural resource tax (proposed Mineral Resource Rent Tax) (Australian Government Policy Transition Group 2010). Moreover, this requires a systematic change for decoupling and dematerialization. In the wider context of transforming the current practices of resource use and socio-economic situations, this challenge corresponds to those responding to climate change and the needs of a low carbon society.

4. Phased approach for improving national policy implementation

To overcome the priority challenges mentioned in section 3.1-3.3 above, we propose a phased approach for improving domestic policy implementation aiming at sustainable resource circulation.

If the industry’s capacities for environmentally sound resource circulation remain insufficient and the activities of a recycling economy, based only on the market adjustment mechanisms of supply/demand balancing, continue uncorrected in developing Asia, numerous problems associated with solid waste could be aggravated in future. Accordingly, Asian countries are faced with the need to shift their focus from the formulation of legal systems to the construction of schemes that could support the effective integration of regulatory regimes, development of required industrial infrastructure and stabilization of the recycling economy.

In Japan, the policy and industrial strategy of increasing resource efficiency or making use of waste as a resource received public attention in the mid-1990s, mainly through the initiative of manufacturing industries in what was called the “Zero-Waste Factory” campaign (Mitsubishi 2000). In addition, through the enactment of various product-specific recycling laws and the introduction of the Fundamental Law for the Establishment of a Sound Material-Cycle Society, as well as the ensuing formulation of the Fundamental Plan, phased policy steering was accomplished from the appropriate collection and management of “garbage” to the reorientation of the socio-economic system toward the efficient use of resources.

Japan’s experience in creating a sound material-cycle society that may be useful as a reference for 3R promotion in Asia includes: i) involvement of stakeholders in the development of product-specific recycling laws and clear definitions of their respective

roles; ii) evaluation of the implementation progress of specific policy measures in light of the basic plan and the continual review of policy objectives; iii) collaboration between the central and local governments; and iv) the establishment of the industrial infrastructure required for the operation of materials circulation policies, based on Eco-Town programmes and other measures. It is imperative for the 3Rs and materials circulation in Asia, both nationally and internationally, to provide international aid and policy implementation assistance, while continually bearing in mind that the effective integration of regulatory systems, the appropriate industrial infrastructure and a stable recycling market and economy are prerequisites.

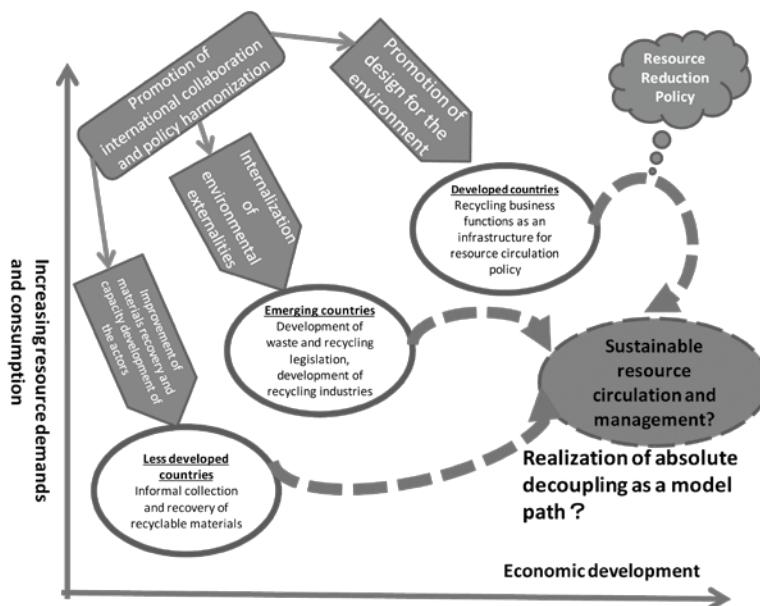
However, there are significant disparities and diversities among and within Asian countries in terms of the growth of the recycling market and economy and the level of development of the associated social systems. Accordingly, the priority tasks in the operation of 3R-related schemes and programmes naturally differ between the developed economies of Japan, Taiwan and Korea, the emerging economies of China and Malaysia, the less developed countries of Cambodia and Laos, and even within a country.

Taking into consideration this diversity in Asia, Hotta (2011a and 2011b) as well as Akenji et.al. (2011) proposed the following phased approach in the case of EPR application to used electronics, in relation to the introduction of 3R policies and the corresponding assistance to be provided in Asia in a flexible manner:

- 1) Improvement of materials recovery and capacity development of the actors
- 2) Internalization of environmental externalities
- 3) Promotion of design for the environment
- 4) Promotion of international collaboration

Figure 8.1 below is a conceptual illustration of the proposed phased approach.

Figure 8.1 Conceptual illustration of the phased approach for the implementation and operation of 3R and materials circulation policies



Source: Modification of Figure 1 in Hotta (2011b).

The first phase, i.e., the improvement of materials recovery and the development of the capacity of the actors involved, is the basis for the successful implementation of 3R-related schemes and programmes. This is the case since the effective operation of 3R and materials circulation policies in Asia requires a core group of industrial sectors and business enterprises for sound recycling that should be identified and nurtured to emerge from the conventional informal recycling market and economy. The organization and recognition of the informal sector is considered particularly important for the improvement of collection (Medina 2007; Atienza 2010). Recognizing high-grade recycling enterprises and extending some form of financial assistance is an effective step toward the improvement of waste treatment. Without some identification and nurturing of these responsible business actors, there can be no improvement in waste management and materials recovery. It is thus important to assign these business actors their due role in local and national 3R policies.

For an emerging economy such as China that is making ongoing efforts to organize a recycling market and economy and is building its legal frameworks for the 3Rs and materials circulation, the proposed process of phase 2, namely, the internalization of environmental externalities into production and consumption would be an effective policy to provide solid economic incentives for more environmentally sound recycling. Mechanisms should be developed to motivate the recycling industry to improve its processes. The setting of adequate environmental and labour standards is also a key to nurturing high-grade recycling industries. One specific example is a scheme, such as the EPR mechanism, whereby the various actors involved share the responsibilities and the associated economic burden of treating end-of-life products as recyclable resources. Based on Japan's experience in formulating and implementing a number of product-specific recycling laws, it is desirable that the central government take the lead in organizing a policy advisory council so as to involve and engage experts, trade associations, large retail chains and importers in discussions to design workable product take-back and cost-sharing mechanisms. The Resource Recycling Fund of Taiwan is a useful reference case (Chung et al. 2009) when considering how to secure the funds required to operate sound resource circulation; in Taiwan, a recycling fund was created by collecting recycling fees from the product manufacturers and importers. Furthermore, if such a fund is combined, for example, with a certification scheme for recycling operators, those that qualify will be entitled to a subsidy from the fund, and thus the introduction of appropriate technologies and training as well as the capacity development required for environment, health and safety compliance will be made easier. The United Nations and regional/sub-regional organizations such as UNESCAP, UNEP, UNCRD, the Association of Southeast Asian Nations (ASEAN), and the South Asia Co-operative Environment Programme (SACEP), among others, could work towards coordinated EPR-related policies across the region.

For countries that have large assembly-type industries and other manufacturing activities, such as Japan and Republic of Korea but also gradually for emerging economies such as China and Thailand, the policy should be focused on phase 3, that is, the promotion of design for the environment and the construction of new 3R-driven business models. Often abbreviated as "DfE," design for the environment represents efforts to promote designs that are conducive to the safe and easy dismantling of products and resources recovery. The creation of a solid industrial base for recycling is effective in encouraging the production of easy-to-recycle products and the construction of more resource-efficient new business models. The concept of design for the environment in products has been positioned as an important objective of EPR in OECD discussions. It is unlikely, however, to be given high priority in less developed countries that, unlike the OECD countries, have no large-scale manufacturing industries. Also, the kind of EPR mechanism

introduced by OECD countries characterized by the sharing of responsibilities within the same industry has had only a limited effect on promoting design for the environment. It is therefore desirable that policies for the promotion of design for the environment be adopted by countries that already have in motion programmes for the nurturing of high-grade recycling operators, systems designs for take-back and financial mechanisms, and large-scale manufacturers. From the perspective of promoting the 3Rs at the level of the whole of Asia, it is desirable to utilize international guidelines for easy-to-recycle designs with a view to encouraging voluntary private-sector activities on an international scale.

It is incumbent on developed economies to contribute to the creation of international cooperation frameworks oriented toward effective policy implementation in developing countries. This is why phase 4, promotion of international collaboration, has been proposed. The arrow suggesting phase 4 cross-cuts with other phases in Figure 8.1 representing the greater importance of policy coordination and collaborative approaches than unilateral assistance by developed countries to developing countries, as will be discussed further in section 5 below.

The phased approach introduced in this section is a hypothetical direction of international collaboration for the 3Rs to introduce resource efficiency/productivity approaches into developing Asia to enable the aspect of sustainable resource circulation and management under the much-debated international agenda of the Green Economy. However, as discussed in section 3.4, the increasing concerns expressed for the simple and gradual pursuit of improving resource efficiency and productivity may not contribute sufficiently to the reduction of ecological footprints or total environmental burden from material consumption. Considering possible global resource crises in the coming decades implied in UNEP's recently published REEO report (UNEP 2011a), gradual reform towards resource efficient economies may not be enough for developing Asia. Thus, some sort of leapfrogging towards decoupling and sustainable resource circulation and management may be required for Asia. Considering the looming resource crisis, developed countries need to take a bold direction with policy and greater responsibility towards dematerialisation and socio-economic reform for a globally less resource-intensive society. This would act as a role model for other economies at lower levels of development to find innovative, less resource-intensive development pathways (see Figure 8.1).

5. Promotion of international collaboration and international fund for sustainable resource management

5.1 Rationale of international collaboration for sustainable resource management

International resource circulation, especially those of secondary materials, is considered to be subject to the existing frameworks of the Basel Convention. It has also been considered a negative phenomenon associated with environmental and health impacts from improper recycling activities and dumping of residues from resource recovery. This is still true to a certain extent. However, the issue of creating a more sound method for international circulation of materials and sustainable resource management discussed in this chapter is not confined to that of the illegal transboundary movement of hazardous waste. As Michida has argued, today's structure for the international movement of resources is no longer the simple flow of recyclable materials from developed countries to developing countries (Michida 2010). In other words, an international division of labour is also progressing in the field of materials circulation and recycling. In this context, the Secretariat of the Basel Convention has started discussions on the need to revisit the

role of the Convention, not only from the perspective of controlling the transboundary movement of hazardous materials, but also from one of securing precious or rare resources and promoting environmentally sound recycling (Kummer Piery 2011). Thus, this policy issue of international resource circulation shall be contextualized under the agenda of sustainable resource management.

As a consequence of globalization of consumption and production, international policy harmonization is necessary to make product-specific environmental policies, including recycling policies, effective. This is because increasingly, the life cycle of materials, products, and end-of-life products spreads over national borders. Terazono (2005) showed an example of an unintended, transboundary spill-over effect of domestic policy by investigating the dynamics of international trade of used polyethylene terephthalate (PET) bottles between Japan and China. Although Japan promoted used packaging recycling policies and establishment of related domestic recycling facilities since the mid-1990s, used PET bottles have been exported to China as a result of increasing demand for used PET bottles as a material resource for manufacturing clothes and toys. This was due to the high cost of domestic recycling systems established for used PET bottles in Japan. A similar situation occurred when Germany introduced the German Packaging Ordinance in 1991. In this case, the amount of collected waste plastics was beyond domestic recycling capacity in Germany. Thus, a significant amount of collected recyclables were exported to other countries and the international price of plastics slumped. This was recognized as “serious internal market problems” by the European Commission (European Commission 1994). One of main objectives of introducing the European Directive on Packaging and Packaging Waste was to “harmonize national approaches across the EU so that market disruptions could be overcome and avoided in the future” (Tyson 2009).

As one of the roles in sustainable resource management for developed economies such as Japan, a country is expected to introduce strong incentive mechanisms to reduce total environmental impacts from material consumption and reduce environmental load related to material consumption in its lifecycle from material extraction to recycling and final treatment. On the other hand, such strong policy incentives such as virgin material tax or taxing for inefficient use of resources in industrial sectors, may raise economic concerns such as decreasing the international competitiveness of the manufacturing sector, increasing dependence on foreign supply of natural resources, or a move by the domestic industrial sector outside the country due to an increased financial burden. There are also several environmental concerns such as increasing incentives for illegal dumping and exports of wastes caused by increasing waste treatment costs and a potential increase in the export of natural resources without the application of an export tax. In addition, as social concerns, there may be increasing unemployment in the mining sector in resource export countries or in the manufacturing sector due to increasing production costs and industrial hollowing out. For example, increasing domestic control and management of rare earth and metals in China caused global concern on resource enclosure (The Parliamentary Office of Science and Technology of UK 2011) and has been the subject of WTO dispute mechanisms. Also, a virgin material tax for aggregates introduced in the United Kingdom (UK) resulted in a reduction of the amount of mining of virgin resources in the UK, but an increase in Ireland because of “an unintended trade-distorting effect, due to the proximity of Northern Ireland, which introduced aggregate tax, to Ireland that does not introduce the tax” (EEA 2008).

To avoid such negative consequences and unintended negative transboundary spill-over effects of a domestic policy for sustainable resource management, it is crucial to continue international efforts for policy coordination and harmonization among Asian countries. Since emerging economies in Asia have begun to move away from their status as

Overseas Development Assistance (ODA) recipients, new models emphasizing mutual collaborative approaches, rather than one-way aid from aid countries to recipients, are needed in such international collaboration efforts. For instance, bilateral cooperation in the future should be promoted as a model project for international cooperation endeavours of emerging countries, thereby positioning these economies under the international effort of developing sound 3R/materials circulation at the Asian regional level.

5.2 Quantitative study on regional policy coordination for sustainable resource management

To demonstrate the potential benefits of such mutual collaborative approaches, a quantitative analysis was conducted on options to reduce natural resource consumption using an economic model of Japan, China, Korea and Australia. The Asian economy is gradually shifting towards a resource intensive structure, and material efficiency has not improved in this region even as the global average has steadily improved (UNEP 2011a). As per capita resource use is still relatively low in this region, without serious efforts to decouple economic growth from resource consumption, Asia will soon face serious resource and environmental constraints (UNEP 2011a; Kojima 2011). Considering this rising need for examining possible policy options for decoupling, the analysis tried to demonstrate the benefits of international collaborative, rather than unilateral, approaches. Thus, a scenario of inaction was not reflected as a base-line. This is partially because of limitations of the model analysis.³

The quantitative analysis was conducted with empirical data focusing on the steel industry just for illustrative purposes and not with an aim to propose reduction policies for steel making. To obtain general implications for typical effects of different materials reduction as well as recycling policies, this sector was chosen mainly because steel is one of the major recyclable materials and this sector is represented in the input-output table with sufficient disaggregation levels necessary for modelling analyses. The four countries selected are major players in the iron and steel industry in the Asia-Pacific region. Australia is one of the world largest iron ore exporters, exporting iron ore to Japan, China and Korea. China also produces large amount of iron ore but most is consumed domestically. Japan and Korea are major steel producers and their iron ore supply is almost totally dependent on imports.

In this setting, coordinated efforts to reduce total iron ore consumption in four countries with the efforts of single country are compared. Namely, the following three policy scenarios are assessed using a four-country dynamic computable general equilibrium model (see Box 8.1 for a description of the model):

- Single country efforts by Japan (J): Impose a uniform volume-based waste disposal charge on steel scrap on all sectors except for steel (blast furnace and electric arc furnace) and recycling sectors. The collected revenue is used to subsidise the recycling sector.
- Coordinated efforts by Japan and Australia (JA): Japan implements the above policy “J” and Australia imposes a natural resource tax on the sales of iron ore with a lump sum transfer of the tax revenue to households.
- Coordinated efforts by Japan, Australia, China and Korea (JACK): Japan and Korea implement a uniform volume-based waste disposal charge on steel scrap (the same as the policy scenario “J”) and Australia and China impose a natural resource tax on sales of iron ore with a lump sum transfer of the tax revenue to households.

Box 8.1 Model description

Our model is a four-country dynamic computable general equilibrium (CGE) model based on the detailed input-output tables of Japan in 2005, China in 2007, Korea in 2005, and Australia in 2007-2008. The model employs the 23-sector aggregation scheme for all four countries, in which the iron ore mining sector is separated to explicitly treat iron ore consumption. Further, two steel production processes, i.e., blast furnace steel production (of which major input is iron ore) and electric furnace steel (of which major input is steel scrap) are distinguished.

The model is a multi-sectoral Ramsey-Cass-Koopmans type growth model, in which saving is endogenously determined based on dynamic utility optimisation with a unique assumption on households' expectation formation process in which households assume that exogenous variables will stay constant at the current levels (Kojima 2007).

Production technology is specified as Leontief function of intermediate goods (except for steel products) and constant elasticity of substitution (CES) function of factors of production. Production factors are capital, skilled labour, unskilled labour, land and natural resources. Capital and labour are mobile across sectors, while other factors are sector specific. The model introduces substitutability between blast furnace steel and electric furnace steel intermediate inputs through CES function. We assume lower elasticity of substitution for the sectors relying on high quality steel (e.g., automobile, machinery and equipment) than for other sectors.

The model estimates sectoral as well as nationwide CO₂ emissions following the methodology and data of Lee (2008). The iron ore consumption is estimated based on the assumption that the iron ore prices in the four countries are the same.

The scenarios are standardised in terms of reduction in total iron ore consumption of the four countries in 2015 compared with the business-as-usual (BAU) scenario. First, we determine the rates of volume-based waste disposal charges in scenario J such that Japanese iron ore consumption in 2015 is 10% less than BAU. The consequent reduction in total iron ore consumption of the four countries in 2015 becomes 1.29% less than BAU. To achieve this benchmark reduction target, the rates of policy instruments are determined as shown in Table 8.3, considering the balance in iron ore consumption reduction of each country.⁴

Table 8.3 Employed tax and charge rates of each scenario

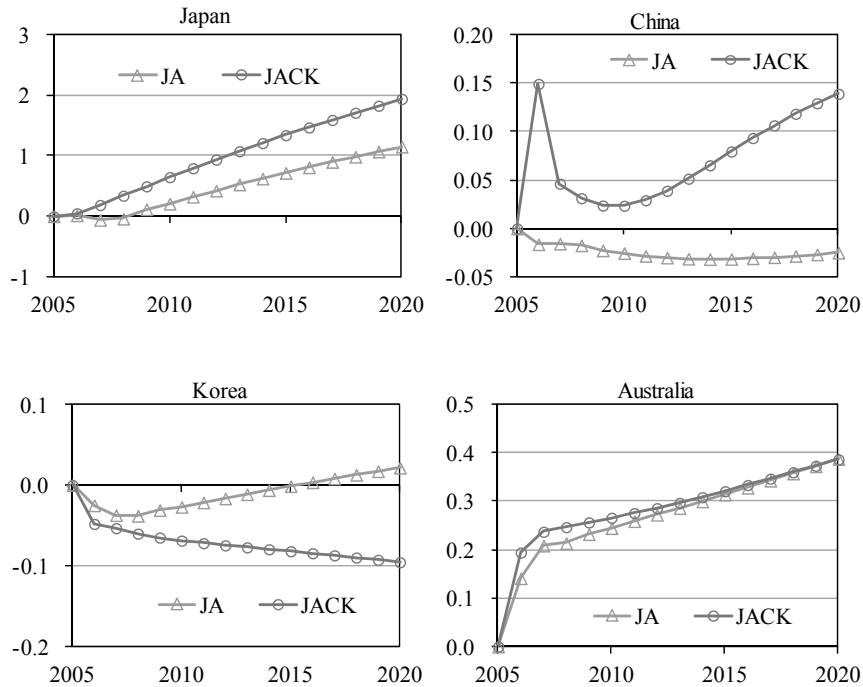
Policy instrument policy scenario	J	JA	JACK
Waste disposal charge in Japan [USD/tonne]	3722	2638	968
Natural resource tax in Australia [%]	0	20	10
Natural resource tax in China [%]	0	0	21.5
Waste disposal charge in Korea [USD/tonne]	0	0	968

Source: Author

Based on the simulation results, we assessed the impacts of coordinated efforts as differences between the results under the coordinated scenarios (JA and JACK scenarios) from those under single country efforts (J scenario).

Figure 8.2 shows the economic impacts of coordinated efforts on the real GDP of individual countries.

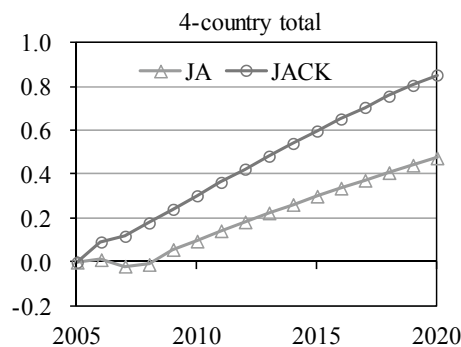
Figure 8.2 Impacts of coordinated efforts on real GDP (%)



Source: Author

The findings indicate that natural resource taxes in resource producing countries (i.e., China and Australia) are economically beneficial in the implementing countries, and coordinated efforts by four countries (the JACK scenario) bring economic benefits not only to Japan, who can loosen resource consumption reduction burdens, but also to China and Australia. Korea slightly reduces real GDP under the JACK scenario, but it seems possible to design proper compensation schemes as the total economic impacts as a whole group are positive (see Figure 8.3).

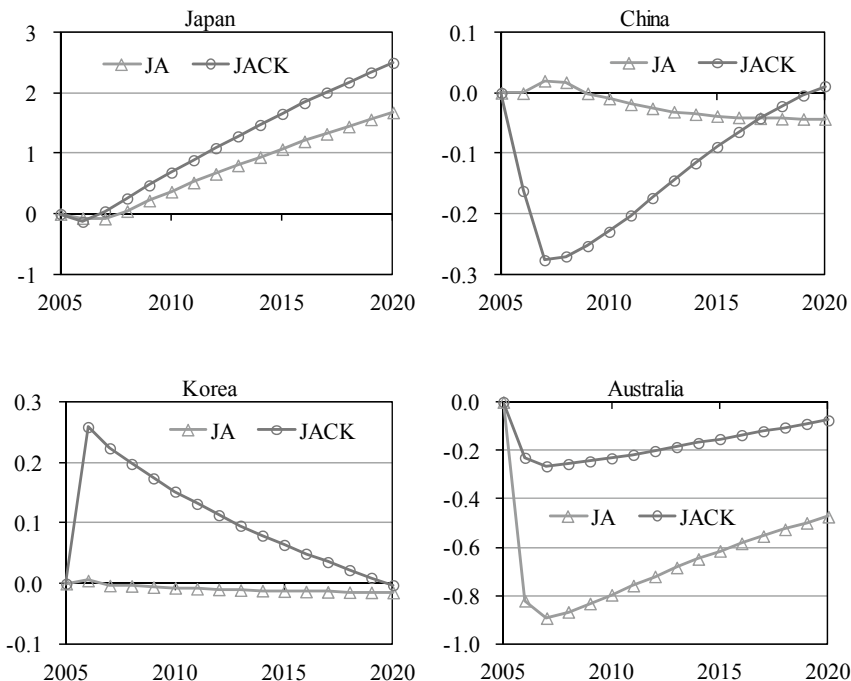
Figure 8.3 Impacts of coordinated efforts on total real GDP of 4 countries (%)



Source: Author

In addition to economic impacts, the impact on CO₂ emissions is assessed, as one of the expected co-benefits of resource consumption reduction policies is greenhouse gas (GHG) emissions reduction.⁵ Figure 8.4 shows the impacts of coordinated efforts on CO₂ emissions of each country.

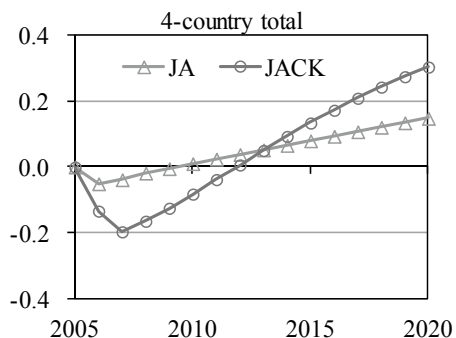
Figure 8.4 Impacts of coordinated efforts on CO₂ emissions (%)



Source: Author

It is found that implementing iron ore consumption reduction measures tends to reduce CO₂ emissions except for the case of Korea. In terms of the total CO₂ emissions of the four countries, coordinated efforts have reduction impacts only at the beginning of the simulation period, but overall impacts are positive (increasing) as shown in Figure 8.5.

Figure 8.5 Impacts of coordinated efforts on total CO₂ emissions of 4 countries (%)



Source: Author

Table 8.4 summarizes the assessment results in terms of overall impacts during the simulation period. The table shows the impacts of coordinated efforts on the net present value (NPV) of real GDP (discounted by pure time of preference in each country) and total CO₂ emissions during the simulation period.

Table 8.4 Summary of assessment results

Region	Indicator	JA	JACK
4-country total	Impact on NPV of real GDP	0.22 %	0.47 %
	Impact on total CO ₂	0.05 %	0.06 %
Japan	Impact on NPV of real GDP	0.47 %	0.95 %
	Impact on total CO ₂	0.73 %	1.16 %
China	Impact on NPV of real GDP	-0.02 %	0.07 %
	Impact on total CO ₂	-0.02 %	-0.12 %
Korea	Impact on NPV of real GDP	-0.01 %	-0.07 %
	Impact on total CO ₂	-0.01 %	0.10 %
Australia	Impact on NPV of real GDP	0.24 %	0.26 %
	Impact on total CO ₂	-0.64 %	-0.17 %

Source: Authors

Our analysis demonstrates that coordinated efforts, particularly by the four countries, can generate tangible economic benefits without significantly increasing total CO₂ emissions during the simulation period. As well as the total positive impact on the four countries, three of the four countries also individually benefit from the coordinated efforts of the four countries (the real GDP of Korea decreases slightly, by 0.07% under the JACK scenario). The assessment results show that resource consumption reduction measures in non-resource producing countries (i.e., waste disposal charges in Japan and Korea) have negative economic impacts, while those in resource producing countries (i.e., natural resource taxes in Australia and China) have positive economic impacts. In fact, Australia and China are interested in introducing natural resource taxes in terms of either profit tax on natural resource providers or export tax on natural resource exports. China has already implemented resource tax on domestic iron ore mining, which accounts for 20% of the mining cost (China Daily, 6 June 2010). Australia decided to introduce the Minerals Resource Rent Tax (MRRT) from July 2012 targeting coal and iron ore mining (Australian Government Policy Transition Group 2010). The results of this analysis illustrate the potential economic reasons behind such political decisions.

5.3 International fund for sustainable resource management

For international collaboration to be consistent and effective, a sustainable source of funding must exist. What, then, can be done to finance international efforts to respond to the internationalization of materials circulation, recycling, and innovative approaches for dematerialization?

Under the current international collaborative scheme, seeking co-benefits between resource circulation and climate mitigation, as well as biodiversity may be effective, in principle. It would be effective, especially for less developed countries considering the lack of finance and technical needs, to promote co-benefits between the 3Rs and other environmental, social and economic benefits, and address challenges to improve organic waste management in these countries. On the other hand, under the current international

collaborative schemes such as the Clean Development Mechanism (CDM), climate co-benefits of waste management or materials management tends to focus on end-of-pipe technical solutions such as methane recovery from landfill-site or waste-to-energy approaches, thus not providing large incentives to promote the 3Rs, efficient use of resources in industrial sector, and source separation. Therefore, it is desirable to further develop an international collaborative scheme, such as new funding mechanisms, in the context of promotion of the 3Rs and sustainable materials management.

Hotta (2011) presents a hypothetical fund that would have the objective of supporting the programmes needed to ensure that the actual existing international flows of recyclable materials have a sounder base and international efforts for efficient use of resources continue. This would be financed by pooling prepaid recycling fee schemes and recycling funds, especially from exported used products. Similar ideas have been proposed by UNESCAP and IGES (2006) and Hotta et al. (2008), as well as by Kojima (2010). The Regional 3R Forum in Asia, with 23 countries attending from Asia and the Pacific as well as various international organizations including ADB, the Basel Convention secretariat, and the United Nations Industrial Development Organization (UNIDO), took up a similar idea and recommended the establishment of a regional, multi-donor 3R fund “for the promotion of the 3Rs to encourage resource efficiency, resource conservation, waste minimization, and recycling projects” (Third Regional 3R Forum in Asia in 2011).

The Government of Japan estimates that approximately 30% of the country’s used home appliances were exported as second hand products in 2006 (Central Environmental Council and Industrial Structure Council 2008). According to this estimate, 7.7 million units of four major kinds of home electrical products were exported in total. Terazono (2010) meanwhile estimates that the quantity of exports was 5.18 million units. In 2010, the OECD recommended that Japan introduce a prepaid recycling fee scheme (OECD 2010). Therefore, this proposal is not one without grounds to support it. If such a scheme were to be introduced, a sum of between around JPY 14.8 billion (calculated from 5.18 million units of Terazono 2010) and JPY 22.0 billion (calculated from 7.7 million units of Central Environmental Council and Industrial Structure Council 2008) (about USD 193 million and USD 287 million as of August 2011) would be collected annually as a recycling fee on exported used products. This policy may result in discouraging the export of used products and directing them to recycling routes within the country. This may result in revitalizing domestic recycling economies for exporting countries and disincentives for environmentally unsound recycling without a command and control type export ban.

It should be recalled, nonetheless, that the above figures are for Japan alone. If other developed economies such as Korea and Taiwan join in, the suggested scheme will have a significant positive impact on international collaboration in role sharing among the countries of Asia for a sounder international circulation of materials. Asian developing countries are also considering introducing systems of recycling fees and recycling funds. If countries came together to use a portion of such funds for international collaboration, it would be possible to create an international fund for the 3Rs, resource efficiency, and sustainable materials management.

The creation of a multi-lateral international fund for the 3Rs and sustainable materials management is not an easy task since it is related, among other issues, to that of the availability of an international organ that would be responsible for the management of such a fund. It is still important to initiate discussions in pursuit of such a multilateral funding mechanism for sustainable resources management and materials circulation, since the existing multilateral funding mechanisms related to international cooperation

in the field of environmental protection, such as the Global Environment Facility (GEF)⁶ and the CDM, are heavily oriented toward the issues of climate change and biodiversity. Considering Asia functions as the “factory of the world” and is leading the increase in global resource demands, international efforts to improve resource management and circulation in the region can play a crucial role.

As a short-term approach to raise international consensus and develop strong incentives for sustainable resource management and circulation, it would be effective for existing climate-related financial mechanisms currently focusing more on co-benefits of downstream waste management to reflect the upstream co-benefits of material recycling, productivity or reduction. In addition, it may be useful to reflect resource efficiency/productivity with pollution prevention measures to project appraisal by multilateral aid agencies such as The World Bank and ADB or bilateral aid agencies. Especially, on this point, one may consider the introduction of planning tools for improving product/service/project-level material footprints, such as the Material Input Per unit Service (MIPS) by Wuppertal Institute (Lettenmeier et al. 2009) or communication tools such as ecological footprint. As a long-term approach to achieve sustainable resource management and circulation, it would be worth examining the possibility of combining various economic instruments and funds for resource management to reduce negative transboundary spill-over effects.

Therefore, if Asian countries could reach an agreement, based for example on platforms such as the Regional 3R Forum in Asia, the promotion of regional cooperation for sustainable materials circulation would be an important step forward in the creation of a global multi-lateral funding mechanism over the longer term that could avail itself of the capacity of existing organizations, including ADB, UNEP and bilateral aid organizations, as well as of the experience of the GEF and other similar mechanisms. It is worthwhile exploring the possibility of directing a certain portion of the recycling fees that the countries involved will collect in order to finance bilateral and multilateral cooperation programmes in the 3R/materials circulation field. If the positive effects of a well-managed international flow of recyclable materials on the development of national recycling economies in both the exporting and importing countries can be readily demonstrated starting from a limited number of participating economies or even by multi-lateral industrial activities, then the significance of international cooperation will be understood by a much larger audience. Part of such a fund may also be used to encourage technological development and equipment investment for material recovery activities with pollution prevention measures to modernize and upgrade the recycling industries of Asian developing countries. The use of such a fund increases the likelihood of establishing a realistic basis for bringing the current international circulation of materials up to a new higher level of capacity and stability through the networking of integrated recycling industry complexes (Hashi and Mori 2005). It is also worth considering the feasibility of creating product information flows from manufacturing processes to recycling counterparts so that, as Mori et al. (2009, 2010, 2011) have proposed, the exact location of useful or hazardous substances within the product components and other information required for their safe and efficient recycling would be passed on to the global society.

The present state of Japan playing a leadership role should act as a springboard to boost international efforts to a higher level that involves policy coordination and partnerships among support programmes in each country. This will contribute greatly to reforming and strengthening sustainable resource circulation and management in Asia.

6. Conclusion

Considering anticipated resource crises with continuation of the current pattern of resource use, it is time to start creating innovative approaches to achieve higher productivity in the use of resources, sounder international materials circulation and reduced total environmental impacts of resource utilization. It is very important that a phased approach should be introduced according to the stage of development of the recycling market and economy, so that the legal frameworks and policies can be implemented effectively. In addition, to enable leapfrogging for sustainable resource management and decoupling for developing Asia, the developed countries need to show a bold policy direction for and a path towards dematerialization and socio-economic reform for less-resource intensive society.

To introduce these measures, the current level of international policy collaboration in Asia needs to be raised to a higher level. This should not be pursued by the initiative of Japan alone.

The specific recommendations for achieving sustainable resource circulation and management discussed in this chapter are summarized into those on 1) governance reform at the national level and 2) governance reform at the international level.

6.1 Governance reform at the national level

From the domestic governance viewpoint, it is important to secure the involvement of relevant stakeholders, including ministries and agencies related to resource use and circulation, from planning stages to the review stage of various policies and strategies for sustainable resource circulation and management.

EPR-based policies can be a good example whereby the various stakeholders involved share the responsibilities and economic burden of treating end-of-life products. The National Resource Recycling Fund can be a useful policy tool contributing to securing the funds required to operate sound resource circulation by collecting recycling fees from product manufacturers and importers.

The systematic construction of facilities and development of technologies for treatment and recycling of collected recyclables is important for the effective operation of resource circulation with less environmental pollution. In line with this concern, Japan's eco-town programme is an example of developing industrial and technical infrastructure to sustain the development of a sound material cycle society.

A recycling economy with an effective supply/demand balancing function should be established together with the industrial infrastructure and technological base. On this point, the existence of the informal recycling economy cannot be ignored. At the same time, for emerging countries with relatively high-grade recycling industries, it is desirable to focus on the promotion of the design for the environment.

If the idea of a National Resource Recycling Fund mentioned above can be combined with a certification scheme for recycling operators, this would help establish appropriate mechanisms to introduce technologies and training as well as capacity development. For effective technology transfer, institutions and policy mechanisms for resource circulation are pre-requisites.

6.2 Governance reform at international level

For developing Asia, improving resource efficiency including promotion of resource circulation will continue to be a priority. Increasing needs for products and infrastructure shall be met with efficient use of resources with less environmental pollution.

Considering diversity of circumstances and challenges related to improving waste and resource management faced by developing Asia, a phased approach for achieving sustainable resource circulation and management is proposed, that is, to gradually develop a recycling economy and markets along with the following phases: 1) improvement of materials recovery and capacity development of the actors, 2) internalization of environmental externalities, and 3) promotion of design for the environment, backed up and facilitated by international collaboration.

Over the short-term, from the perspective of sustainable consumption and production, it is desirable to develop international guidelines for resource-efficient products/services with a view to encourage voluntary private-sector initiatives at the international scale. Such guidelines may be useful to reflect resource efficiency/productivity with pollution prevention to developmental project appraisal by multilateral aid agencies such as the World Bank and ADB or bilateral aid agencies.

Expected increases in resource demands in the future and potential resource crises require serious policy intervention and investment efforts for innovation in social and economic systems aiming for material use reduction and “absolute decoupling,” in addition to resource efficiency improvement (i.e., relative decoupling). Developed economies such as Japan are expected to introduce strong incentive mechanisms to reduce total environmental impacts from material consumption, and reduction of environmental load related to material consumption in its lifecycle from material extraction to recycling and final treatment. At the same time, a unilateral approach may raise unintended economic concerns as well as several transboundary environmental concerns, in other words, unintended negative transboundary spill-over effects of a domestic policy. Thus, it is crucial to have policy coordination and harmonization through international collaborative actions. Our quantitative analysis clearly shows the potential benefits of international collaborative actions over unilateral actions.

Over the long-term, the establishment of international fund for sustainable resource management is proposed as a funding source for financing bilateral and multilateral cooperation programmes in the 3R/materials circulation field, as well as encouraging technological development and infrastructure investment for resource efficiency improvement and decoupling by directing a portion of revenues generated through economic instruments for domestic resource management and circulation, such as virgin material taxes and recycling fees.

The multi-lateral funding scheme for international environmental collaboration has been developed to address climate and bio-diversity issues. It is high time to examine the potential of a financial mechanism contributing to international collaboration in sustainable resource management and resource circulation as well to harmonize the efficient use of resources and environmental protection.

Notes

1. Sections 2, 3, 4, and 5.1 and 5.3 of this chapter are mainly based on a revised argument in a previous publication by one of the authors, Yasuhiko Hotta. Hotta, Y. 2011. *Asia ni okeru jizoku kanou na shigen junkan ni muketa dankai-betsu approach - 3R Initiative no kokusai-tenkai no keiken ni motozuite* (Step-wise Approach for 3R Policy Implementation in Asia: Based on the experience of international promotion of the 3R Initiative-). In *Haikibutsu shigen junkan gakkaiishi* (Material Cycles and Waste Management Research), Vol. 22, 2. Originally published in Japanese.
2. An opinion from a participant at the "In-country Training Workshop-cum-Policy Dialogue on the National Strategy for Integrated Solid Waste Management and the 3Rs," 28 July 2010, Hai Phong, Viet Nam.
3. This model does not reflect costs of inaction such as economic loss due to resource constraints, and does not justify the net benefit of actions (in this case, iron ore consumption reduction policy) based on a comparison with the results under BAU that does not represent a situation in which action is not taken.
4. These rates are applied from 2006 to 2020 to avoid unfeasible solutions in the base year.
5. In fact, efforts by Japan (the J scenario) reduce Japan's total CO₂ emissions during the simulation period by 0.92% from BAU. In terms of the total CO₂ emissions of four countries during the simulation period, the magnitude of the reduction is 0.14%.
6. GEF provides funding for chemicals issues, mainly persistent organic pollutants (POPs), but in the future will also focus on heavy metals.

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Chapter 9

Conclusions

Chapter 9

Conclusions

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Throughout this White Paper a number of important conclusions are drawn. This chapter is intended to consolidate and suggest possible linkages between these findings.

A key question addressed by the White Paper is whether the old governance arrangements that oversaw the failure to operationalize sustainable development over the past two decades are now up to the task of maintaining and accelerating the renewed push for a transition to a low carbon, resilient society, or if a more radical transformation is required.

One clear conclusion is that Asia-Pacific cannot rely on global UN reforms alone, but must generate its own innovative approaches to governance reform to the multiple challenges of a transition to a green economy, climate change, biodiversity loss, sustainable cities, and sustainable production and consumption. In fact, the Asia-Pacific region must provide global leadership in addressing these challenges, not only because the region is most vulnerable to the consequences of inaction but also because of its emerging economic and geo-political dominance on the global stage. The common thread among the cases, analysis, and recommendations in this White Paper is the need for information sharing and capacity development, and that many of the solutions to the identified problems are readily available within the region. What is missing is a well-coordinated regional institutional arrangement for meaningful and useful information sharing and effective and accessible capacity development to address current and emerging challenges facing sustainable development. This paper recommends establishing a platform to address these needs as a first step towards a regional environmental organization.

The transition to a green economy must move from being viewed as a convenient way to kick start economies in cyclical financial crises to become the primary economic and social development paradigm. In the same way that societies moved from their relationship to horses to automotive horsepower, nothing less than a fundamental shift to living within the constraints of natural systems and conserving natural capital is needed.

Such a transition, however, is not a case of moving from “black” to “white” overnight, as countries within this region have already made tremendous progress in sustainable development governance over the past decades, albeit sporadically, and much can be gained by sharing this experience more widely—a primary objective of this White Paper. Simply insisting on better implementation and enforcement of existing agreements, legislation, regulations, and policies already in place would rapidly advance regional progress—again, an implementation gap that is addressed throughout the White Paper.

While the international focus has been on global institutional reform there is no

overarching environmental or sustainable development organization at the regional level in Asia-Pacific, although regional arms of UN agencies such as UNEP attempt to fill this void. The experience of the European Environment Agency and its information collection and dissemination through EIONet suggests, however, a potential way forward provided it aligns with other regional integration efforts on economic and social fronts. Improved environmental information management at the national and local levels is also essential for increased public participation and community-based management of natural resources and could be facilitated by development of a regional information hub and/or a regional agreement on access to information as a first step towards a formalized regional organization or agency similar in function to those found in other regions such as the EU. Currently this function is being served in some areas quite well, but is spread out over numerous networks. The Asia-Pacific Adaptation Network (APAN), Secretariat of the Pacific Regional Environment Programme (SPREP), and the Asian Environmental Compliance and Enforcement Network (AECEN), for example, all serve useful functions for information sharing and capacity development, and although on a limited scale these are important institutions and relevant to the future overarching Asia-Pacific regional institution. Further studies on policies and institutions should be the next step in order to support decision making and planning with sound research. To support this transition we must also understand and build on integration and regionalization efforts made in other sectors and align them with environmental institutions.

National environmental governance in the Asia-Pacific region has improved substantially over the past three decades, but many challenges remain in ensuring effective implementation of national laws, regulations, policies, and action plans. Accordingly, it is heartening to witness the emergence of activist judiciaries and “green benches” in the courts which are attempting to ensure increased environmental justice and holding government agencies to their compliance and enforcement duties. On the other hand, environmental quality continues to degrade and more honest performance reviews and assessments are needed. Assured public access to environmental information, along the lines of the Aarhus Convention, would help to monitor the performance of environmental agencies as well as prompt changes in corporate and individual behaviour that is damaging to the environment.

Possibly of the highest priority for changing governance in Asia-Pacific is the issue of climate change. As greenhouse gas (GHG) emissions are embedded in the fibre of the region’s economic success, nothing less than fundamental change is needed. GHG emissions are influenced by climate-related policies, production and consumption choices, and the development paths along which these policies lead. Several countries, such as South Korea and China, have embarked on significant efforts to control GHG emissions. Many countries, however, still remain concerned that controlling GHG emissions will undermine their prospects for economic growth and poverty reduction and they need strong evidence that greening their economy towards a low carbon, resource efficient, socially inclusive, resilient society is their best policy choice. In this sense, learning and information-sharing are critically important for building further confidence in the region.

At the international level, the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol have been highly influential in changing national governance arrangements. The clean development mechanism (CDM), with its emphasis on promoting sustainable development while achieving emission reductions, has been a key influence on national level governance, especially through the establishment of the designated national authority (DNA), which approves CDM projects and certifies that sustainable development goals are also being achieved. The CDM has enhanced

additional investments of over USD 1.3 billion globally over the past decade. More recent developments include the emergence of nationally appropriate mitigation actions (NAMAs) and the Durban Platform (to adopt a protocol, another legal instrument, or an agreed outcome with legal force applicable to all Parties by 2015, with implementation by 2020). In the meantime, non-Annex 1 parties to the Kyoto Protocol are submitting NAMAs to the UNFCCC Secretariat as voluntary pledges.

Some of the institutional responses in the Asia-Pacific region include the Republic of Korea's Presidential Committee on Green Growth and the Framework Act on Low Carbon Green Growth, creation of the Global Green Growth Institute, as well as hosting the United Nations Office for Sustainable Development. India has issued its National Action Plan on Climate Change, designed to simultaneously address climate change and sustainable development. China is committed to reducing the energy intensity of its economic development, partly through market mechanisms, and in 2009, the National People's Congress adopted a Standing Committee Resolution on Actively Tackling Climate Change. Direct access to various climate change funds, such as the Adaptation Fund and the new Green Climate Fund, may also require governance changes to allow a national implementing entity to be certified.

Despite these many positive signs, unintended consequences of global approaches to climate change, such as emission trading and the CDM, have also influenced national level governance, especially due to unequal distribution of CDM-financed projects across sectors and host countries. A funding mechanism that should have furthered the sustainable development agenda in all developing countries, the CDM has been dominated by China, India and Brazil, with least developed countries left on the margins. Most countries in the Asia-Pacific region have used an assessment scheme, where the DNA evaluates proposed CDM projects based on sustainable development criteria and its indicators. China and India go a step further and require a percentage of the carbon emission reductions revenue to be earmarked for sustainable development. In China, this has required setting up a China CDM Fund and associated Management Centre to provide grants for sustainable development activities. A preferred approach would be for each CDM project to be certified as fulfilling a sustainable development standard (i.e. "gold standard"), an approach which has been adopted by Thailand's Greenhouse Gas Management Organization. This would create a powerful incentive to internalize the benefits of sustainable development in the carbon market.

Observing the achievements and limitations to enable sustainable development in the region through the international framework as well as institutional reforms progressed at the domestic level, the chapter argues the necessity to create a "regional platform" as a complimentary role to international and domestic institutions to facilitate the information sharing for policy linkages and capacity building for NAMAs/LEDS and the market mechanisms to realize the low carbon development and towards the Green Economy in the region.

Climate change is also providing renewed attention to the forest sector in Asia-Pacific, both for mitigation and adaptation, and the role of community forest management (CFM). Under the UNFCCC, Parties are negotiating a global agreement on reducing deforestation and forest degradation, while maintaining and enhancing forest carbon stocks (REDD+). For many years, CFM has been important for the wellbeing and livelihoods of many forest-dependent communities and now REDD+ offers a potential way to internalize the economic value of this form of forest management and provide a sustainable source of revenue. There is a concern that community managed forests may become more valuable under REDD+ and currently weak forms of CFM governance

could be overtaken by new state institutions and/or elite capture. It should be possible, however, to design more robust forms of governance of CFM explicitly targeted at capturing the benefits of REDD+.

Climate change is also driving renewed interest in low carbon technology transfer to, and within, Asia, as these technologies can play a key role in achieving sustainable development in the region. Deployment and diffusion of existing and new low carbon technologies could reduce projected GHG emissions to about half the 2007 levels by 2050. Technology transfer from one country to another involves not only physical assets but also technical knowledge and skills. This form of technology transfer can be regarded as successful if the recipients can not only effectively use the technology but over time assimilate and possibly improve on it.

Technology transfer provisions under the UNFCCC have made some progress but agreement has yet to be reached on intellectual property rights, financing, and measurement, reporting and verification. These negotiations are likely to drag on, and given the need for urgent action to respond to the risk associated with current world environmental and economic conditions there is scope for promoting the deployment and diffusion of commercially available technologies which are associated with fewer barriers. Some of the most relevant technologies for Asia and the Pacific are clean coal technologies, energy efficiency technologies, fuel cells, geothermal, micro-hydropower, small wind turbines and solar power, many of which are already at their deployment and diffusion stage of maturity.

Currently, various mechanisms and initiatives are focusing on low carbon technology transfer. For instance, the Global Environment Facility (GEF) has been particularly influential as a funding mechanism for technology transfer to developing countries, allocating more than USD 2.5 billion for climate-friendly technologies in more than 50 countries since 1991, along with about USD 15 billion in co-financing. Although not originally envisaged as a technology transfer funding mechanism the CDM has also contributed positively to technology transfer. Of the 2,100 registered CDM projects, about 36% claim to have involved technology transfer. In addition, there has been a wide range of bilateral and multi-lateral initiatives on technology transfer, such as the Methane to Market Partnership, International Partnership for the Hydrogen Economy, and the Asia-Pacific Partnership for Clean Development and Climate, among others. Foreign direct investment in low carbon technologies is also large, with private investment in clean energy in developing countries already reaching more than USD 22 billion by 2007.

Compared to the magnitude of the technology transfer challenges necessitated by climate change, however, the above mentioned strategies, mechanisms and initiatives are still of modest significance. It may be particularly effective to promote the deployment and diffusion of low carbon technologies through new strategies such as a crediting mechanism, enhancing the proactive involvement of the private sector, and promoting low carbon foreign direct investment in the region. These are challenging strategies unless other complementary measures are taken. For example, the first strategy can build on the existing CDM approach. The second strategy necessitates a stable framework of incentives, material and non-material measures, to leading companies willing to play a more proactive role in transferring low carbon technology in Asia. The third strategy requires that green governance processes be streamlined at company and government levels to attract low carbon foreign direct investment.

As urbanization continues at a rapid pace in the Asia-Pacific, cities are developing so fast that those responsible for environmental management are struggling to cope while urban

environments continue to degrade. An effective approach to improve the capacity of local governments is networking between cities to enable knowledge sharing and mutual learning. Examples in this region have included the Local Government for Sustainability (ICLEI), Kitakyushu Initiative for a Clean Environment, CITYNET, and Clean Air Initiative for Asian Cities. While climate change negotiations drag on at the global level, many city mayors have chosen not to wait and are making voluntary commitments to address global warming.

The main type of city networks are those open to many participants, more limited membership, and bilateral arrangements. Award programmes for the best performing cities also stimulate improved local actions. An Environmentally Sustainable Cities (ESC) Model Cities programme with links to existing city awards schemes is being promoted by the Association of Southeast Asian Nations (ASEAN) Working Group on ESC. A key factor in all such networks is to maintain relevance and develop a sustainable financial arrangement, possibly through membership fees. Recognition and revision of existing well-performing networks is needed to avoid duplication and overlap of multiple organizations.

Among the many management problems for the rapidly growing urban areas in Asia-Pacific is dealing with huge volumes of solid waste. Turning this “problem” into a new source of raw materials (sometimes referred to as “urban mining”) or “reduce, reuse, recycle” (3Rs) not only requires local action but also international collaboration towards sustainable resource circulation and management. Developing and developed countries need to simultaneously increase resource efficiency and decouple economic growth and resource use, in order to achieve a low carbon economy.

Fortunately, there has been progress recently in policies promoting resource circulation and management in developing Asia at the national and international levels. At the same time, it has been realized that there are limitations in pursuing the resource efficiency approach, and stronger policy intervention is now needed to achieve absolute decoupling or material reduction. Such a transition, however, cannot be achieved suddenly and therefore a phased approach is needed moving from end of life recycling to improved product design and reduced material use.

The governance challenges in achieving such transitions should not be underestimated. These challenges can be grouped as follows: (i) government capacity and interagency coordination; (ii) industrial infrastructure and technology transfer; and (iii) a well-organized recycling market, supporting local markets and green jobs. A national resource recycling fund, collecting fees from product manufacturers and importers, could be a useful policy tool to implement sound resource circulation. At the international level, increased collaboration may also require a new funding mechanism to promote the 3Rs and sustainable materials management.

Final words

This White Paper has examined innovative approaches to environmental governance that have emerged from Asia-Pacific and produced recommendations for improving governance arrangements and policies in the region in order to achieve sustainable development. Recommendations were made for accelerating the transition to a green economy and the necessary changes in governance arrangements and policies that must be carried out over the next few decades. As mentioned in the first chapter and demonstrated throughout this publication, the likelihood of achieving global sustainability

goals clearly depends on successful reform in Asia-Pacific. Without significant governance reform in Asia-Pacific we argue that global sustainable development will remain an under-implemented ideal rather than a new and persistent reality.

A trend among the cases and recommendations, and a major message of this publication overall, is the need for improved mechanisms for information sharing and capacity development and better coherence and coordination among the many policies and networks in the region. The solution proposed in this White Paper is to establish a regional environmental organisation, similar to other regions such as the EU, in a step-by-step process starting with a formalized centre for information sharing and capacity development.

Along with many other organizations around the world IGES was very active in the Rio+20 process, in particular in the Asia-Pacific region. Regardless of international level outcomes our message remains that regional action will be the critical factor for sustainable development and new institutions with a regional mandate will be necessary. Ultimately, it is what we do after Rio+20 that will make a difference.

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