



Greening Integration in Asia



How Regional Integration Can
Benefit People and the Environment



IGES White Paper V

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How Regional Integration Can Benefit People and the Environment

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ISBN 978-4-88788-187-7

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Printed and bound by Sato Printing Co. Ltd.

Printed in Japan

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Foreword

The fifth IGES White Paper takes a look at regional integration in Asia and the Pacific, and provides recommendations on how efforts could be better aligned with sustainable development. This is a timely topic given the recent upsurge in integration initiatives in this region. The establishment of the ASEAN Community by the end of 2015 will be an important milestone, and new trade and investment agreements, such as TPP, could have significant implications for participating countries.

There is a growing awareness in Asia-Pacific of the need for new approaches to development that are compatible with ecological limits and generate more benefits for those who face the greatest challenges. It is increasingly recognised that current development patterns do not fully address such a need and often threaten to undermine future socio-economic development and human wellbeing. But individual countries are finding it difficult to change direction—partly due to concerns over economic competitiveness.

Regional initiatives and agreements can strengthen countries in their effort to make development more sustainable. However, without significant reform to the way countries in the Asia-Pacific work together at the regional level, it will be challenging for individual countries to achieve sustainable development.

The goal of writing this publication is to stimulate a more active discussion on how regional integration processes in Asia-Pacific influence countries' development patterns and their sustainability performance. Our objective is to raise awareness of how regional integration can be a catalyst for a shift to sustainability, and to provide ideas on reforms that can be taken in this direction.

The White Paper covers a wide range of issues where regional integration intersects with sustainable development, from trade in forest products and e-waste to air pollution policies and water governance in the Mekong region. The analyses presented in these chapters form the basis for recommendations on how regional integration can provide greater long-lasting benefits for the Asia-Pacific countries. The recommendations address both how trade and investment promotion can contribute more towards sustainability objectives, and ways in which strengthened and refocused regional institutions can more effectively underpin a sustainability transition. In this context, increased emphasis needs to be placed on capacity strengthening.

Our gratitude goes to all those who assisted in developing this White Paper. In particular, we would like to thank the peer reviewers who provided expert advice and insight, and the senior advisers for their guidance throughout the production process. Producing a high quality and meaningful publication would not have been possible without contributions from those working in the sustainable development policy community who willingly shared their valuable knowledge and engaged with our researchers. This exchange of ideas is vital when developing innovative approaches to sustainable development. As the Asia-Pacific region continues on its path towards integration and sustainable development, the

IGES White Paper is expected to contribute to the policy discussions that are an important part of the process.

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



Acknowledgements

The fifth White Paper synthesises IGES studies on sustainable development policies related to regional integration. The topics covered are broad and diverse, and this publication has benefited from advice from wide range of experts.

We are especially grateful for the many useful suggestions and the encouraging comments received from the following external reviewers: Prof. Shunji Matsuoka and Prof. Akihisa Mori (Chapters 1 and 2), Mr. Apichai Sunchindah and Prof. Jörn Dosch (Chapter 3), Prof. Koh Kheng Lian and Ms. Moe Thuzar (Chapter 4), Dr. Kerstin Canby and Mr. Chen Hin Keong (Chapter 5), Mr. Pascal Leroy and Dr. Sunil Herat (Chapter 6), Ms. May Ajero and Dr. Supat Wangwongwatana (Chapter 7), Dr. Do Nam Thang and Dr. Le Anh Tuan (Chapter 8), Dr. Venkatachalam Anbumozhi and Prof. Seiji Ikkatai (Chapter 9), Dr. Mia Mikic and Dr. Susan Prowse (Chapter 10).

We also acknowledge the invaluable advice from Prof. Akio Morishima, Prof. Kazuo Matsushita and Dr. Peter King during the whole production process, as well as the guidance and encouragement from Prof. Ryokichi Hirono.

This publication has also benefited from discussions at two meetings of the International Forum for a Sustainable Asia and the Pacific (ISAP) in July 2013 and 2014. In particular, we are grateful for valuable comments from Dr. Ella Antonio and Dr. Rae-Kwon Chung.

I appreciate all the hard work of IGES' staff to prepare this publication, which was coordinated by Magnus Bengtsson and Satoshi Kojima. Editorial support by Thomas Hamilton, Emma Fushimi and Eiko Kitamura and administrative assistance by Saeko Kadoshima are also gratefully acknowledged.

Hideyuki Mori
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Abbreviations and Acronyms

ABR	ASEAN Baseline Report
ACC	ASEAN Coordinating Council
ACFTA	ASEAN-China Free Trade Agreement
ACIA	ASEAN Comprehensive Investment Agreement
ACPMS	ASEAN Community Progress Monitoring System
ACTWG	Anti-Corruption and Transparency Experts' Working Group
ADB	Asian Development Bank
ADB I	Asian Development Bank Institute
AEC	ASEAN Economic Community
AfT	Aid-for-Trade
AFTA	ASEAN Free Trade Area
AHSOM	ASEAN Heads of Statistical Offices Meeting
AIFS	ASEAN Integrated Food Security
AIT	Asian Institute of Technology
AMAF	ASEAN Ministerial Meeting on Agriculture and Forestry
AMME	ASEAN Ministerial Meeting on Environment
AMRO	APT Macroeconomic Research Office
APEC	Asia Pacific Economic Cooperation
APSC	ASEAN Political-Security Community
APSCC	ASEAN Political-Security Community Council
APT	ASEAN Plus Three (ASEAN+3)
APTERR	ASEAN Plus Three Emergency Rice Reserve
APTIAD	Asia-Pacific Trade and Investment Agreements Database
AQG	Air Quality Guidelines (World Health Organization)
ARCMDG	ASEAN Regional Centre of Excellence for MDGs
ARIC	Asia Regional Integration Centre
ARTNeT	Asia Research and Training Network on Trade
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
ASEAN-WEN	ASEAN Wildlife Enforcement Network
ASEPs	ASEAN Environmental Programmes
ASOEN	ASEAN Senior Officials on the Environment
ASOF	ASEAN Senior Officials on Forestry
ASPEN	ASEAN Strategic Plan of Action on Environment
B2B	Business to Business
B2F	Business to Funding institutions
B2P	Business to Policymakers
BEBC	BIMP-EAGA Business Council
BIMP-EAGA	Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation

CAA	Clean Air Asia
CAREC	Central Asia Regional Economic Cooperation
CBTD	Capacity Building Task Force on Trade, Environment and Development
CEC	Commission for Environmental Cooperation
CEN	Customs Enforcement Network
CENELEC	European Committee for Electrotechnical Standardisation
CEP-BCI	Core Environment Programme and Biodiversity Conservation Corridors Initiative
CEPEA	Comprehensive Economic Partnership for East Asia
CIMT	Centre for IMT-GT Subregional Cooperation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLI	Country-Led Initiative
CMAAs	customs mutual administrative assistance agreements
CMIM	Chiang Mai Initiative Multilateralisation
CO	carbon monoxide
CO ₂	carbon dioxide
COP	Conference of the Parties
CPR	Committee of Permanent Representatives
CRT	cathode ray tube
CSTs	climate smart technologies
CTCN	Climate Technology Centre and Network
CTNF	Climate Technology Network and Finance
DMC	domestic material consumption
DS	detailed studies
EAFTA	East Asia Free Trade Area
EANET	Acid Deposition Monitoring Network in East Asia
EAS	East Asia Summit
ECSC	European Coal and Steel Community
EEA	European Environment Agency
EEC	European Economic Community
EGILAT	APEC Expert Group on Illegal Logging and Associated Trade
EGS	environmental goods and services
EIA	environmental impact assessment
EMEP	European Monitoring and Evaluation Programme
ENs	European Standards
EPR	extended producer responsibility
ESCAP	(United Nations) Economic and Social Commission for Asia and the Pacific
ESM	environmentally sound management
ETB	Economics and Trade Branch
EU	European Union
FDI	foreign direct investment
FLEGT	EU Forest Law Enforcement, Governance and Trade
FS	feasibility studies
FTAAP	Free Trade Area of the Asia-Pacific
FTAs	free trade agreements
GCC	Gulf Cooperation Council
GDP	gross domestic product

GEC	Global Environmental Centre foundation
GEF	Global Environmental Facility
GFEI	Global Fuel Economy Initiative
GHG	greenhouse gas
GMS	Greater Mekong Subregion
GMS-EOC	GMS Environmental Operations Centre
HSAP	Hydropower Sustainability Assessment Protocol
ICT	International Coordination Team
IF	Integrated Framework
IGES	Institute for Global Environmental Strategies
IMF	International Monetary Fund
IMT-GT	Indonesia-Malaysia-Thailand Growth Triangle
IPR	intellectual property rights
ISDS	investor state dispute settlement
ITC	International Trade Commission
JCM	Joint Crediting Mechanism
JICA	Japan International Cooperation Agency
LATF	Lusaka Agreement Task Force
LCTT	transfer and application of low carbon technologies
LDCs	least developed countries
LMB	Lower Mekong Basin
LRTAP	Convention on Long Range Transboundary Air Pollution
MDGs	Millennium Development Goals
MERCOSUR	the Southern Common Market Treaty
MRC	Mekong River Commission
MRV	monitoring, reporting and verification
NAAEC	North American Agreement on Environmental Cooperation
NAFTA	North American Free Trade Agreement
NBI	Nile Basin Initiative
NEAC	Northeast Asian Conference on Environmental Cooperation
NEASPEC	North-East Asian Sub-regional Programme on Environmental Cooperation
NO ₂	nitrogen dioxide
NOWPAP	Northwest Pacific Action Plan
NTBs	non-tariff trade barriers
O ₃	ozone
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
PIF	Pacific Islands Forum
PLS	progressive learning strategy
PM	particulate matter
PNG	Papua New Guinea
ppm	parts per million
PPP	polluter pays principle
QITEP	Regional Centre for Quality Improvement of Teachers and Education
R2	Responsible Recycling
RCEP	Regional Comprehensive Economic Partnership
RETs	renewable energy technology
RHAP	Regional Haze Action Plan

RILO A/P	Regional Intelligence Liaison Office for Asia and the Pacific
RoHS	restricted use of certain hazardous substances
ROO	rule of origin
RSAT	Rapid Basin-wide Sustainability Assessment Tool
RSPO	Roundtable on Sustainable Palm Oil
RTA	regional trade agreement
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asia Free Trade Area
SAPP	Southern African Power Pool
SASEC	South Asia Subregional Economic Cooperation Programme
SCCP	APEC Sub-Committee on Customs Procedures
SCSC	APEC Subcommittee on Standards and Compliance
SDGs	Sustainable Development Goals
SEA	strategic environmental assessment
SEAMEO	Southeast Asian Ministers of Education Organisation
SEAMEOLEC	SEAMEO Regional Open Learning Centre
SEARCHA	Southeast Asian Regional Centre for Graduate Study and Research in Agriculture
SIDA	Swedish International Development Agency
SIEPAC	Central American Electrical Interconnection System
SMEs	small and medium-sized enterprises
SO ₂	sulfur dioxide
SPARTECA	South Pacific Regional Trade and Economic Cooperation Agreement
SPREP	Secretariat of the Pacific Regional Environment Programme
SPS	sanitary and phytosanitary
SPWPs	secondary processed wood products
SREZ	Subregional Economic Zone
SVLK	Sistem Verifikasi Legalitas Kayu (Timber Legality Assurance System)
TAA	technology availability assessment
TEMM	Tripartite Environment Ministers Meeting
TFFP	Trade Finance Facilitation Programme
TNA	technology need assessment
TPP	Trans-Pacific Partnership
TRCB	trade-related capacity building
UEEE	used electrical and electronic equipment
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNFCCC	United Nation Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
VOCs	volatile organic compounds
VPA	voluntary partnership agreements
WCO	World Customs Organization
WEEE	waste electrical and electronic equipment
WHO	World Health Organization
WTO	World Trade Organization
WWF	World Wide Fund for Nature



Executive Summary

Regional Integration in Asia is about to enter a new phase. The Association of Southeast Asian Nations (ASEAN) – the oldest and most comprehensive integration framework in the region – is planning to launch the ASEAN community by the end of 2015. At the same time, many Asian countries are involved negotiations towards the Regional Comprehensive Economic Partnership (RCEP) and the Trans-Pacific Partnership (TPP).

This book, written by researchers at the Institute for Global Environmental Strategies (IGES) underscores that the benefits of these integration processes need to be lasting and shared. Regional integration pursued in a conventional way, mainly emphasising increased economic growth, could accelerate Asian countries' development along unsustainable trajectories, undermining the region's natural resource base and deepen inequalities. However, regional integration also offers opportunities for countries to collaborate and to jointly make development more inclusive, resilient and long-lasting. The authors are hopeful that Asian countries will be wise enough to reap these opportunities.

Shifting to Sustainability – The Role of Green Integration

Asia is developing rapidly but unsustainably. The region's explosive growth is harming its environment and undermining its natural resource base. Examples abound. Asia Pacific has emerged as the highest consumer of natural resources in the world and is currently responsible for some 45% of the global emissions of carbon dioxide. Southeast Asia holds only 5% of the world's forest but experienced 25% of global forest loss in the first decade of this century. In 2013, the Asian Development Bank warned that more than 75% of Asia-Pacific countries face an imminent water crisis and classified 80% of the region's rivers as not healthy. Without significant changes, continued strong population increase, combined with rapid economic growth and structural economic changes from subsistence and small-scale agriculture to resource extraction and industrial production, would further worsen the region's pressure on the environment.

The region's development is also unequal – it provides fewer benefits for those with the greatest needs. Over the last twenty years, in a number of major Asian countries, the income shares of the poorest 20% have fallen behind the income shares of the wealthiest 20%. While the lives of many poor have improved over the last few decades, there are still disturbingly high numbers of people living in chronic poverty, and high incidences of malnourishment and child mortality in several countries. In addition, soaring resource demand and environmental degradation are further compounding social issues. Many of the region's low-income households see their livelihoods threatened by the increasingly felt effects of climate change, many indigenous people and small-holder farmers have seen their land expropriated for resource extraction and infrastructure development, and many poor people across Asia drink polluted water and eat unsafe food.

Looking at this situation, it is easy to realise that there is a need for a change of direction towards a development that is environmentally sustainable, prioritises the needs of the

poor, and provides equal opportunities for all – both within the current generation and for the future. In this context, contrary to what is often the case, environmental protection needs to be understood as a prerequisite for human wellbeing, successful poverty alleviation, and lasting prosperity.

Countries in Asia are also becoming increasingly interdependent and are facing a number of issues that need to be dealt with jointly. The growing economic interdependence among countries can be seen in the expanding trade and foreign investments, and in the proliferation of regional value chains. The intraregional trade share of the ASEAN+6¹ countries increased from 35% in 1990 to 45% in 2012. However, the tightening linkages among countries can also be observed in relation to environmental issues that extend beyond national borders, such as transboundary air pollution, climate change, water use in international river basins, and trade in endangered species and hazardous waste. Issues like these are difficult or impossible for individual countries to effectively deal with; they require international cooperation.

This book introduces the concept of Green Integration and makes the case that countries in Asia should make sustainability the main objective of their integration efforts. It proposes that regional integration could support countries in their efforts to develop more sustainably. However, it finds that this potential is currently utilised only to a limited extent. While the region already hosts a large number of mechanisms for international cooperation and integration, the most influential initiatives are mainly focused on promoting more trade, investments and growth. In Asia's integration processes, environmental protection and social safeguarding are generally given far less attention. This fails to recognise the potential synergies, such as the ample opportunities to generate green jobs and the role of environmental protection in poverty alleviation. This priority setting is also short-sighted and not in the long-term interest of the region and its people.

Around the globe, countries are competing ever more strongly to attract investor money and industrial production. This competition has made it increasingly difficult for individual countries to effectively protect their environment and the health of their labour force, to effectively collect taxes from corporations and to provide robust welfare systems. Many policy makers and politicians believe that stricter policies and better enforcement will scare away investors and drive much-needed job opportunities abroad. This belief, although not well-supported by evidence, can have a chilling effect on policies that would be in the public interest.

Dealing with this dilemma requires international cooperation, ideally at the global level. This book argues that also regional cooperation and integration have the potential to strengthen countries' efforts to improve environmental and social policies and regulations. Introducing such reforms in a coordinated manner across the region, while paying attention to specific circumstances in each country, can help reduce fears of losing competitiveness and associated resistance from stakeholders. In addition, regional integration with the objective of enabling a more sustainable development could also be a stepping-stone to stronger international agreements, especially since Asia is playing an increasingly important role in global policy processes.

Countries in Asia are currently ambivalent to regional integration. On the one hand, they are actively engaged in a large number of regional cooperation and integration processes and are keen to produce common strategies and declarations. On the other hand, they are generally reluctant to enter binding agreements and many of the regional activities have little impact at national and subnational levels. Despite this, the authors

expect that Asia will continue to deepen its regional integration in the decades ahead, to gradually strengthen its regional institutions and to harmonise more rules and standards. Such a development is already envisaged, for example in the ASEAN Charter. This deepening of Asia's integration will admittedly be a long-term process but the growing interdependencies among countries, and the aggravation of many of the associated challenges, make improved coordination at the international level almost unavoidable. The authors argue that countries in Asia should take proactive steps to make the most of the opportunities that exist at the regional level.

Steps to Greening Integration

The book presents studies in seven areas where regional integration intersects with sustainable development and where there is potential to strengthen synergies between the two. It includes chapters on forest conservation and timber trade, air pollution standards, technology transfer, capacity building for sustainable trade, management of e-waste trade, and water resource management in an international context. It also features a study of how ASEAN could effectively support its member countries in achieving the Sustainable Development Goals (SDGs). All chapters analyse the current challenges and provide recommendations on how regional integration could help addressing these more effectively. This section summarises some of the recommendations under three headings: (i) Make trade and investment work for sustainable development, (ii) Strengthen and repurpose regional institutions, and (iii) Build capacity at national and sub-national levels.

(i) Make trade and investment work for sustainable development

Trade liberalisation is at the vanguard of existing and emerging regional integration efforts. The book underscores the importance of ensuring that these processes contribute as much as possible to sustainable development. This involves two main tasks: (i) reaping the sustainability opportunities of increasing trade and investments – for example through facilitating trade in more sustainable products, and (ii) safeguarding against the sustainability risks associated with greater volumes of trade and investments. A general recommendation related with sustainability safeguarding is to take a precautionary approach to market liberalisation for countries with deficiencies in governance effectiveness and issues with transparency and accountability. Failure to do so could cause serious and irreparable harm.

These are examples of specific recommendations presented in chapters of the book:

- Make it mandatory to conduct Sustainability Impact Assessments of new or revised trade and investment agreements. This is still not regular practice in Asia and many countries may lack the capacity needed to anticipate the effects, including both benefits and risks, of market liberalisation. Pooling capacity and expertise regionally could prove beneficial.
- Facilitate trade in goods and services with high sustainability performance, for example by introducing preferential tariffs for environmental goods and services (EGS). Using the list of EGS developed by the Asia Pacific Economic Cooperation (APEC) could be a good start.
- Establish regional information tools such as labelling schemes for sustainably sourced materials and goods, and certification schemes for safe recycling.

- Ensure that trade agreements allow for, or even encourage, sustainable public purchasing. Trade rules that would prevent public bodies from using environmental and social criteria for its purchasing should be avoided.
- Make it mandatory for all major businesses to publish periodic reports on their environmental and social performance.
- Require banks and other financial institutions to establish and apply environmental and social criteria for lending.

(ii) Strengthen and repurpose regional institutions

Several chapters of the book identify a need for strengthened and more capable institutions equipped with adequate resources, appropriate staff and broader mandates that allow them to play a more proactive role in agenda-setting, coordination, and monitoring and evaluation. Furthermore, regional institutions need to have environmental protection and social progress made part of their objectives and mainstreamed into their work programmes. In addition, strengthening the region's institutional architecture calls for a consolidation of existing bodies in order to reduce duplication and fragmentation. Finally, the book stresses that the region should make more efforts to take ownership of its institutions, gradually becoming less dependent on donors initiatives. Partnerships between regional institutions, with detailed knowledge on the specific conditions in Asia, and global organisations with high levels of technical expertise and knowledge of other world regions, could be models with significant potential.

The book identifies a number of roles to be played by regional institutions and where a strengthening of capacities and mandates is needed, including the following:

- Monitoring and evaluation of key sustainable development indicators, including improved environmental monitoring systems and better surveys on social conditions. Strengthened capacity for data analysis would also be beneficial.
- Regional research programmes on sustainability issues and intensified knowledge brokerage to facilitate exchange between decision-makers and the research community.
- Funding mechanisms, such as targeted funds for sustainable business models and technologies, and a regional fund to support achievement of the Sustainable Development Goals.
- Capacity building and practice-sharing on a regional basis, especially to strengthen countries' capacity for enforcement of laws and regulations.
- Leadership in initiating negotiations on new regional agreements and common standards.

(iii) Build capacity at national and sub-national levels

Limited capacity at country level, especially of governments and public institutions but also of other actors, is a major obstacle to Green Integration. These capacity constraints need to be addressed as a matter of urgency, although it will take time to ensure that appropriate capacity is in place across the region. The book identifies four broad areas where governmental and public institution capacity needs to be bolstered:

- To effectively engage key stakeholders at national and sub-national levels, to formulate and implement appropriate policies, and to monitor and evaluate policy outcomes.
- To mainstream environmental protection into all major policy areas.
- To work in an integrated fashion with planning and policy-making across traditional policy areas and economic sectors.
- To actively participate in regional and global policy processes, thereby realising the potential benefits of these processes more effectively.

Where is regional integration in Asia heading? Invitation to dialogue

This book makes the case for Green Integration and provides ideas on how it could be pursued, but it does not offer definitive answers. Its chief goal is to stimulate the discussion on regional integration and sustainable development in Asia. It raises questions about what kind of development model is underpinned by the current regional integration processes, and how such processes could help realising a future of shared human wellbeing and harmonious coexistence with nature.

The themes mentioned above will gain more relevance in Asia with the launch of the ASEAN Economic Community in the end of 2015 and in the light of TPP, RCEP and other initiatives. At the same time, governments are negotiating a set of global Sustainable Development Goals, expected to guide global development in the period 2016-2030. This offers an opportunity for countries to ponder on the direction in which they are headed, to formulate new objectives and to undertake reforms of policies and institutions.

While all these processes may seem technical and mainly a concern for specialists and government officials, they will affect everyone in the region. Everyone needs to know what governments negotiate and commit to on their behalf. There is a need for increased transparency of these processes, for more active news media that scrutinises those in power and informs the public, and for more participatory decision-making. In conclusion, there is a need for broader democratic deliberation on what regional integration should deliver. The authors of this book hope to have contributed to this discussion and are looking forward to the continued conversation on how regional integration can truly benefit people and the environment, both today and in the future.

Notes

1. The ASEAN+6 Member Countries include: Australia, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, New Zealand, Philippines, Republic of Korea, Singapore, Thailand, and Viet Nam.

Chapter 1

Greening Asia's Integration: An Urgent Challenge

Satoshi Kojima and Magnus Bengtsson



Chapter 1

Greening Asia's Integration: An Urgent Challenge

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1. Regional integration and sustainable development

1.1 Current integration efforts: achievements, opportunities and challenges

Regional integration is attracting increasing attention in the Asia-Pacific region, especially East Asia. The Association of Southeast Asian Nations (ASEAN) is launching the ASEAN Community in December 2015, and the 10 participating countries are now gearing up for this new stage in their decades-long regional cooperation.¹ Other regional initiatives have also been launched recently—negotiations on the Trans-Pacific Partnership (TPP) agreement are ongoing, involving five Asian countries, and discussions on a new major economic partnership involving 16 nations in the Asia-Pacific region, the Regional Comprehensive Economic Partnership (RCEP), were launched in May 2013.

Current regional integration processes in the Asia-Pacific region mainly emphasise market liberalisation (regional economic integration) as a means to increase economic growth. For example, of the three pillars of the ASEAN Community, the only one with a concrete time schedule is 'economic' (ASEAN Economic Community: AEC), for which progress is monitored using a scorecard mechanism (ASEAN Secretariat 2009).² ASEAN real gross domestic product (GDP) almost tripled from 1990 to 2012 — equivalent to an average annual growth rate of 5% (U.S. Census Bureau 2013). The pace of this growth, which outstripped the world average (2.7%) over the same period, has to some extent been fuelled by trade and investment liberalisation through globalisation and regional economic integration (Urata 2013). It has also significantly reduced the number of those below the poverty line (1.25 USD/capita/day) from 40.2% in 1990 to 10.8% in 2011 (World Bank 2013).

However, there are concerns that this narrow focus on regional economic integration is blinkered, as issues of social welfare and the environment have been ignored. This in turn may lead to negative impacts in both these spheres. Trade and investment liberalisation, the major ingredient of regional economic integration, intensifies international competition and could trigger a 'race to the bottom' to attract investment and jobs, and may well also chip away at government regulations concerning environmental and social issues. The cause of this dilemma is not necessarily regional economic integration per se, but globalisation. Whatever the major cause, pursuit of competitiveness under internationally integrated and liberalised markets could result in lax environmental and social controls. It could also add risk to sustainable livelihoods and the environment

through increased pressures on natural resources, aggravated pollution and emissions, social marginalisation, human rights violations and degraded employment conditions (see Boxes 1.1 and 1.2).

Box 1.1 Rana Plaza building collapse in Bangladesh - 24 April 2013

The Rana Plaza was a nine-story commercial building in the Savar district of Greater Dhaka, Bangladesh and housed five garment factories from the floors 3-8 with over 3,500 workers. The building was licensed as a five-story building but four extra floors were added illegally using low-quality construction materials and without proper supporting walls. Further, it was built on weak foundations in a flood-prone former swamp area. One day prior to the accident workers on the third floor heard explosive sounds and cracks through the building were noticed. The industrial police visited the building that day and requested the building owners to close it and suspend all factory operations due to concerns over structural safety. A bank on the second floor immediately suspended all operations and sent the entire staff home, but the owners of the garment factories urged their workers to return to their jobs the next day. Many workers attested that they were threatened with loss of salary if they failed to work. The building then collapsed on the morning of 24 April, soon after factory operations started, killing 1,133 and seriously injuring many others. Large global retailers including Benetton, Walmart and PC Penney had outsourced part of their production to the factories in Rana Plaza (Islam 2014).

In fact several similar accidents had occurred in Bangladesh prior to the Rana Plaza catastrophe. In April 2005 the Spectrum-Sweater factory, a nine-story building in the same district, collapsed with the loss of 64 workers and 70 injured (Maquila Solidarity Network 2006). There are many similarities between the two “accidents” — both involved buildings erected on former swamps, illegal vertical extensions, and most critically, observation of cracks prior to the accidents. The International Labour Rights Forum has asserted that over 1,800 garment workers have been killed in factory fires and building collapses in Bangladesh since 2005, and that these accidents were caused by both increased global price competition and lack of governmental controls over safety standards (International Labour Rights Forum 2013). The garment industry in Bangladesh currently accounts for nearly 80% of national export earnings and has acted as a key driver in the country’s steady GDP growth over the last decade (ILO 2013).

Box 1.2 Unsustainable oil palm plantations

Another example of the current unsustainable development paradigm is the rapidly expanding area of oil palm plantations, which has caused significant social and environmental problems. Global demand for palm oil is on the rise and was forecast to be the world’s most produced, consumed and internationally traded edible oil by 2012 (Marti 2008). The growing demand for biodiesel, driven by climate and energy security concerns, has further accelerated demand (Obidzinski et al. 2012). Indonesia and Malaysia — the two key palm-oil producers — account for 84% of global production and annual sales of USD 11 billion (Augustyn 2007). In Indonesia, mostly Sumatra and Kalimantan, 0.4 million hectares (ha) of oil palm plantations were established annually between 1997 and 2006, and experts predict a further 20 million ha of oil palm plantations will be created between 2010 and 2020 (Obidzinski et al. 2012).

Rapid expansion of oil palm plantations in Indonesia has caused serious environmental and social problems and has been identified as one of the major drivers of rainforest destruction (Marti 2008). Indonesian lowland rainforests represent key biodiversity hotspots, and the impacts of deforestation caused by oil palm plantations on biodiversity are huge — an estimated one third of the Kalimantan orangutan population was lost to large forest fires in 1997, where about 8,000 orangutans either burned to death on the spot or trying to escape the blaze (Augustyn 2007). Clearing forests for oil palm plantations was identified as the largest cause of the 1997 fires, which then also precipitated the Southeast Asian haze crisis that affected around 70 million people in six Southeast Asian countries (Marti 2008), and may even have affected global climate.

Dynamic economic growth, under an environment of severe global competition, has often been fuelled through bypassing occupational health and safety in order to satisfy the need to cut costs and win foreign investors and multinationals. After the Rana Plaza disaster in 2013 (Box 1.1) many criticised the negligence of the government as well as foreign investors for not taking appropriate safety measures, but it was countered that taking such measures would have resulted in failure to attract foreign direct investment (FDI) and consequently failure to provide jobs to many young people (The Guardian 2013).

It is also becoming increasingly clear that in most countries this growth-oriented and export-led development pattern has not only placed enormous pressures on the region's ecosystems and natural resource base but also created large and growing income disparities (Asian Development Bank 2013; United Nations Environment Programme 2012). Asia is also becoming increasingly dependent on imports of natural resources—meaning that its economy is having a stronger negative impact on the environment in the regions it imports from (Giljum et al. 2010). With increasing populations, rapid urbanisation and expectations for continued strong economic growth it is clear that a new development model is needed for Asia—one that respects ecological limits and provides for shared wellbeing and improved equity.

Despite signs of international recognition that a new approach is needed—as witnessed by the new global development agenda and set of Sustainable Development Goals (SDGs)—more needs to be done by national governments in the areas of social and environmental sustainability; in short, it's the model of development that needs overhauling.

Doing this will, however, inevitably involve challenges. With increasingly integrated international markets, individual countries, in particular developing ones, face difficult choices: they can try to increase jobs by lowering standards and production costs via exploiting environmental and social externalities, or run the risk of lowered investor appeal and fewer jobs by adopting stronger labour and environmental protection regulations. Stocking the fire is the competitive vulnerability any one country senses if it unilaterally adopts stronger social and environmental measures. This means concerted and coordinated efforts of all countries concerned are needed to overcome this dilemma.

1.2 Importance of regional integration in implementing coordinated efforts

Against this backdrop this book highlights the importance of regional integration as a means of coordinating efforts and to make it easier for countries to formulate and implement more balanced and sustainable models for development.

The term ‘regional integration’ itself warrants explanation. For example, Mori (2013) proposes four stages (initiative, cooperation, regime and institution), while Yamamoto (2013) offers seven stages (see also chapter 3 for more discussion on the definition). Regional integration in this book is taken to mean the process of increasing the level of interaction among states within a particular region—such interaction taking on various forms. Regional integration includes, for example, both regional *cooperation*, where states maintain full policy autonomy, and a deeper form of integration, in which legally-binding regional mechanisms with corresponding supranational regional authorities are established (Yamamoto 2013). The latter is termed “deep regional integration” in this book to distinguish between regional integration with and without legally binding regional agreements, which is relevant to the Asia-Pacific context as a number of co-existing and partly overlapping regional integration processes are mainly focused on regional cooperation *without* legally binding mechanisms.³ This definition places emphasis on the actions and efforts of states but does not preclude the roles of other actors, such as local governments, the private sector and civil society in regional integration processes.

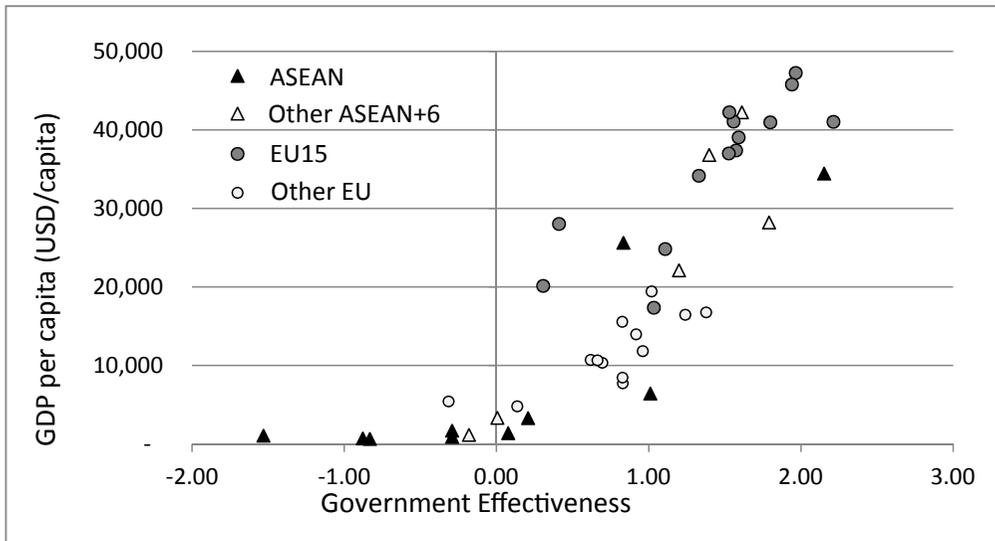
This book argues that regional integration can complement and reinforce efforts to promote more equitable and sustainable development models at global and national levels. The problems discussed in the previous section relate to increased international competition and should ideally be dealt with globally through coordination mechanisms such as the World Trade Organization (WTO). However, WTO negotiations on the Doha Development Agenda have basically been stalled since 2001, illustrating the difficulty of building consensus at the global level (e.g., International Monetary Fund 2011). Such context has enabled further liberalisation of trade and investments to flourish at the regional level, including in the Asia Pacific. This shift to the regional level is arguably a second-best but more feasible option for market liberalisation, and also for establishing mechanisms for addressing adverse impacts of increased trade and economic activity. However, in the current context, where strong global agreements seem more or less out of reach, operating at the regional level might lead to progress. Furthermore, if regional integration can show that it works (delivers results)—as the sum of coordinated efforts of the countries involved—this would serve as a concrete building block for globally coordinated mechanisms in the future.

Regionally coordinated actions can take different forms—identification of common problems, information exchange, setting of common standards, and so on. It is useful to distinguish between actions that require legally binding agreements on the one hand and actions that can be taken on a non-legally binding basis on the other. This distinction is important because implementation of the former is likely to be more effective with deep regional integration, defined as the existence of supranational regional institutions with policy authority. When regional coordinated actions are based solely on non-binding pledges there is a greater risk of countries ignoring these agreements, but establishing regional institutions with authority requires all parties to partially relinquish national sovereignty, something that is politically controversial, challenging in practice, and time consuming.

A rare example of deep regional integration is the European Union (EU), which has a supranational legal system in which the treaties and laws adopted have primacy over the equivalent laws of the member countries (Wallace et al. 2005).⁴ This supranational nature of the EU enables it to implement harmonised policies and measures to safeguard the environment and social welfare with binding commitments from each member country. For example, in 2007 EU set the 20-20-20 target corresponding to the year 2020 (20% reduction in EU greenhouse gas emissions from 1990 levels, rise in share of EU energy consumption produced from renewable resources to 20%, and a 20% improvement in

energy efficiency), and adopted the 2020 climate and energy package in the following year as binding legislation to achieve the target (European Commission 2012). This target is likely to be considerably more stringent than what most European countries would have committed to through purely voluntary efforts. Naturally, it is not the supranational nature of the EU in itself that makes this possible, as there also has to be leadership on sustainability issues and a consensus to use the regional integration framework for 'raising the bar' of ambition rather than protecting the status quo and opting for the least common denominator.

The situation in the Asia-Pacific region is, however, quite different from that in Europe. Regional integration in Asia-Pacific has so far made little progress towards deep integration (Urata 2013). ASEAN has played a leading role in various regional integration processes in the Asia-Pacific region and the main characteristic of ASEAN integration is its emphasis on dialogue and peaceful conflict resolution, with mutual respect of national sovereignty rather than formal institution-building (Yamamoto 2013). This 'soft' integration strategy appears to be the way forward in the process of involving countries with highly disparate backgrounds, political cultures and national interests. A broad comparison of EU and East Asia (ASEAN+6) shows that East Asia is much more diverse than EU in key aspects of economic development, governance structure, effectiveness of governance and religion (e.g., Capannelli et al. 2009).⁵ Figure 1.1 gives a comparison of East Asia and EU diversity in terms of economic development (per capita GDP) and effectiveness of governance.



Source: Governance Effectiveness: The Worldwide Governance Indicators database (www.govindicators.org),⁶ GDP per capita: U.S. Census Bureau, International Database.⁷

Figure 1.1 Member country diversity: East Asia and the EU

The differences between the EU and the ASEAN in terms of diversity are obvious and this has implications for what kind of regional integration is feasible. The core members of the EU (i.e., EU15) are all developed countries with per capita GDPs exceeding USD 17,000 and with relatively high government effectiveness, while the main player of East Asian

integration (i.e., ASEAN) consists of countries that differ hugely in both these aspects. Narrowing the gaps in developmental status and governance capacity among member countries are likely to be enabling conditions for deepening regional integration in East Asia. Since this will take long time, integration efforts in the region are expected to continue to rely mainly on the softer measures.

2. Green integration in Asia

The ongoing regional integration, mainly economic integration to boost economic growth, will at best maintain the current development pattern, which is neither environmentally sustainable nor socially inclusive. It is thus an urgent challenge for the Asia Pacific region to redirect the course of development and to establish a new development model that can provide for shared wellbeing and improved equity without exceeding ecological limits.

The main objective of this book is to promote mainstreaming of social and environmental sustainability objectives in regional integration processes, including both regional initiatives to further liberalise trade and investments and other cooperative efforts on a regional basis. It introduces the concept of 'green integration', which is understood to mean a regional process that facilitates and underpins a reformulation of the current development model. The call for rebalancing regional integration in Asia, from a *de facto* strong focus on economic integration to broader sustainability objectives is fully in line with the findings of a recent study by the Asian Development Bank Institute (ADBI), which concluded that "creation of a borderless economic community must to go hand-in-hand with setting up a region-wide regulatory regime that protects the environment" (ADBI 2012).

The high level of diversity throughout Asia necessitates a flexible step-by-step approach to greening the region's integration processes. Figure 1.2 illustrates such an approach to green integration and, in comparison, the undesirable business-as-usual scenario. There are two main tracks for greening Asia's integration: (1) mainstreaming of sustainability objectives and safeguards into the economic integration processes that are currently taking the centre stage, and (2) separate regional initiatives promoting sustainable development. In the short run, given the established political culture in the region and diversity, such separate initiatives would most likely only be feasible on a non-legally binding basis. However, the ASEAN Agreement on Transboundary Haze Pollution, which was ratified by all the region's member states in 2014, shows that for specific issues countries are actually willing to enter legally binding agreements. Whether or not the haze agreement indicates a collective willingness to more strongly coordinated efforts in general is unclear; however, in the longer-term perspective the authors believe that countries in the region will edge towards stronger regional coordination mechanisms, including legally binding agreements. In the short term, intensified cooperation on a non-legally binding basis is expected to help create enabling conditions for deeper integration in the future.

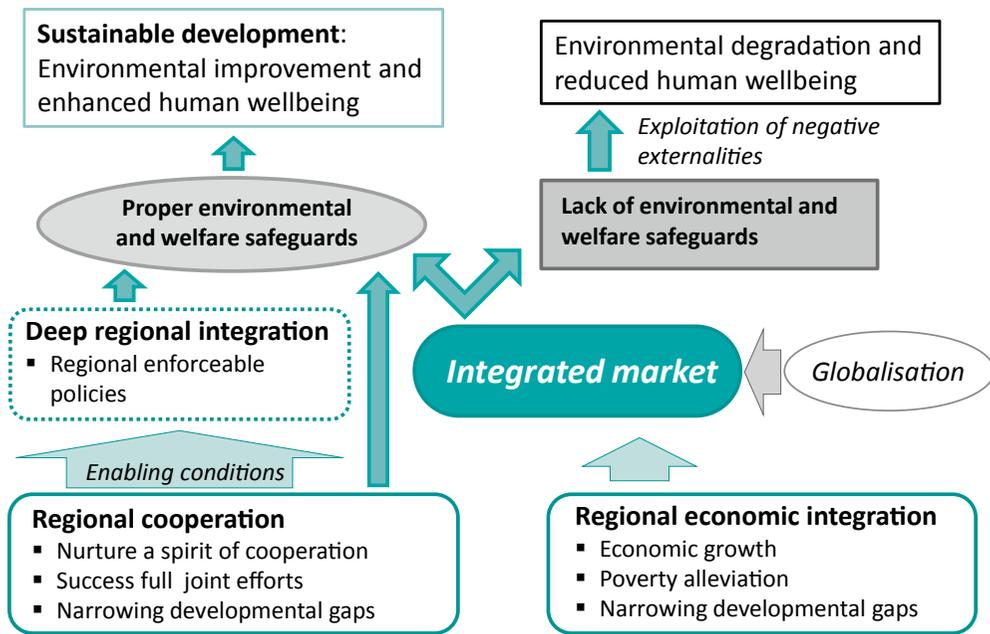


Figure 1.2 Green integration versus business as usual

Once governments realise the need to change the conventional development model and have the will to make their development pathways more sustainable, regional integration processes could boost such governmental efforts. However, green integration, which can play such a role, requires a step-by-step and multi-track approach. Initially, efforts need to focus on: (i) mainstreaming sustainability objectives into regional economic integration processes and establishing effective sustainability safeguards to minimise adverse effects of increasing cross-border trade and investments, and (ii) strengthening and streamlining the existing regional cooperation mechanisms for environmental and social issues in order to enhance their efficacy.

Successful implementation of green integration requires countries in the region to trust each other, something that needs to be nurtured over the long term. Initially it may be wise to focus joint initiatives on relatively uncontroversial issues in order to foster a cooperative spirit, build confidence in the benefits and efficacy of regional cooperation, and strengthen the capacity of member countries to effectively engage in regional cooperation and to implement agreed-upon policies domestically. Regional cooperation along these lines is also likely to contribute to narrowing the development gaps among the countries in the region, something that would improve the long-term prospects for deep regional integration with some degree of delegation of authority to regional entities.

3. The aim of this book

The current regional integration processes in the Asia-Pacific are primarily focused on economic integration, with only limited attention to environmental and social issues. A number of regional initiatives addressing environmental and social issues exist

but they are generally weak and insufficiently funded, and not strongly linked to the economic integration efforts (Elliott 2003; Horiuchi et al. 2013). This book argues that the current mode of regional integration squanders the chance for each country to shift its development pathway to one that is more robust and inclusive. In this context, the chapters of the book address the following two key questions:

- How can regional integration enable better coordinated and stronger efforts in pursuit of sustainable development?
- How can social and environmental sustainability objectives be effectively mainstreamed into existing and emerging regional integration schemes in the Asia-Pacific?

These are indeed big questions, answers for which cannot be simply offered on a plate; however, the issues they deal with are real and urgent. This book therefore aims at kick-starting discussion on what kind of regional integration could help; it strongly asserts that we must move away from the short-term, national-interest stance and embrace the bigger picture, the goal of which is sustainability.

The book presents the results of a number of studies undertaken recently by the Institute for Global Environmental Strategies (IGES) related to regional cooperation and integration in Asia and the Pacific, with particular focus on East Asia including both Northeast Asia and Southeast Asia.⁸ This focus is motivated by the fact that countries in East Asia are currently most actively engaged in regional integration processes. As an environmental institute the research it conducts naturally focuses on the environmental dimension of sustainable development, but always with due consideration to national contexts, both in terms of development and legitimate aspirations for a better life.

The remainder of the book is organised as follows:

Chapter 2 reviews the current situation and trends in Asia regarding sustainable development with a special emphasis on the environment. It highlights a number of key trends that together portray what a business-as-usual scenario for Asia's development could look like. It provides a rationale for why the region's development needs to change. Chapter 3 briefly reviews linkages between trade and investment liberalisation, environmental and social impacts and regional cooperation and integration. It takes stock of Asian integration efforts to date and shows how current patterns of cooperation and integration fail to deliver sustainability.

Chapters 4 to 10 present cases illustrating how green integration could be infused in the short to medium term. Chapter 4 discusses the implications of the upcoming Sustainable Development Goals for the ASEAN Community and provides recommendations on how ASEAN could support member countries in implementing this new global agenda. Chapter 5 analyses regional economic integration in the wood-based products sector and provides ideas on how to conserve forest values. Chapter 6 deals with waste management and resource circulation issues, with a focus on e-waste. It illustrates the benefits of regional cooperation in establishing a recycling certification system. Chapter 7 deals with air pollution and regional economic integration, and argues that stricter standards would be both beneficial and feasible. Chapter 8 illustrates the need for an integrated approach to the water-energy-food nexus in order to promote green development for both upstream and downstream countries of international river basins. Chapter 9 highlights the importance of low carbon technology transfer to promote sustainable development and illustrates the opportunities provided by regional integration. Chapter 10 discusses

the role of capacity building in making regional economic integration greener. To end, Chapter 11 synthesises the major findings of previous chapters and provides overall policy recommendations towards green integration.

Notes

1. ASEAN currently consists of the following 10 countries: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.
2. The remaining pillars are ASEAN Political-Security Community (APSC) and the ASEAN Socio-Cultural Community (ASCC).
3. Here, 'deeper integration' should not be construed as always being the better or the more effective; in some cases effective measures require deep regional integration but in others regional cooperation or even national efforts may be more relevant.
4. The members of EU must accept the *Acquis Communautaire*, which is the accumulated body of EU treaties, law and obligations from 1958 to date (Grabbe 2002). The European Court of Justice has ruled out the principle of the primacy of the *Acquis Communautaire* over national law of member countries (Grabbe 2002). It must be noted that the principle of subsidiarity assures the member states of EU their right to legislate wherever the national intervention can act more effectively than the intervention at the EU level (Barton 2014).
5. ASEAN +6 consists of 10 ASEAN member countries and Australia, China, India, Japan, New Zealand and Republic of Korea.
6. This indicator reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (The World Governance Indicator database).
7. Luxembourg (EU15) has very high GDP per capita (86,000 USD), excluded from this figure. Governance Effectiveness of Luxembourg is 1.66.
8. In this book, East Asia basically refers to ASEAN+3 (ASEAN, China, Japan, and Republic of Korea), but in some cases also refers to ASEAN+6.

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Chapter 2

Where Is Asia Heading?
Trends and Issues for Regional
Integration and Sustainability

Satoshi Kojima and Magnus Bengtsson

Chapter 2

Where Is Asia Heading? Trends and Issues for Regional Integration and Sustainability

Satoshi Kojima and Magnus Bengtsson

Key Messages

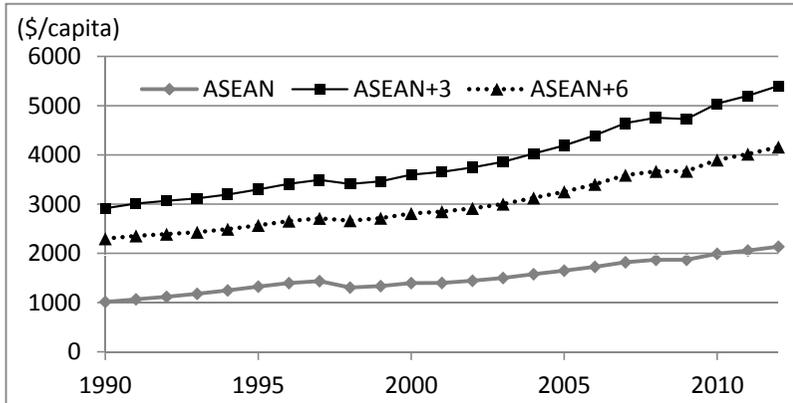
- East Asia has achieved more economic growth and reduced poverty faster than any other region of the world over the past two decades—which has been partially realised by market integration via globalisation and regional economic integration.
- Much of the area has experienced growing inequality in income distribution, a sign that the current development model is neither equitable nor inclusive. Partly to blame is the current mode of economic development, which tends to favour the owners of capital over the labourers, as well as coastal cities over rural inland areas.
- High economic growth has been linked with serious environmental problems—booming carbon dioxide (CO₂) emissions and resource/material consumption. Severe air pollution, water scarcity and deforestation are also rife.
- The current development paradigm in East Asia, i.e., economic growth and market integration, will only aggravate socio-environmental risks of increased inequality and environmental degradation.
- Countries can more effectively address such risks through pursuing regional integration centred on sustainable development.

1. Rationale to focus on East Asia

This chapter reviews the current situation and past trends in the Asia-Pacific region with regards to sustainable development and regional integration. The trends in selected key economic, social and environmental indicators show a likely future scenario for the region under the current development model, which underscores the need for a green development model. Indicators related to economic integration such as trade volume and foreign direct investment (FDI) flows are also given in order to visualise the potential role of liberalised trade and investment in the current development patterns. This chapter focuses on East Asia (ASEAN, ASEAN+3 and ASEAN+6) where both economic development and regional integration processes have been dynamically evolving.¹ For the purposes of this chapter, ASEAN+6, which includes all the major economies in the Asia-Pacific region, can be regarded as representing the region in general.

2. Rapid economic growth and poverty reduction in East Asia

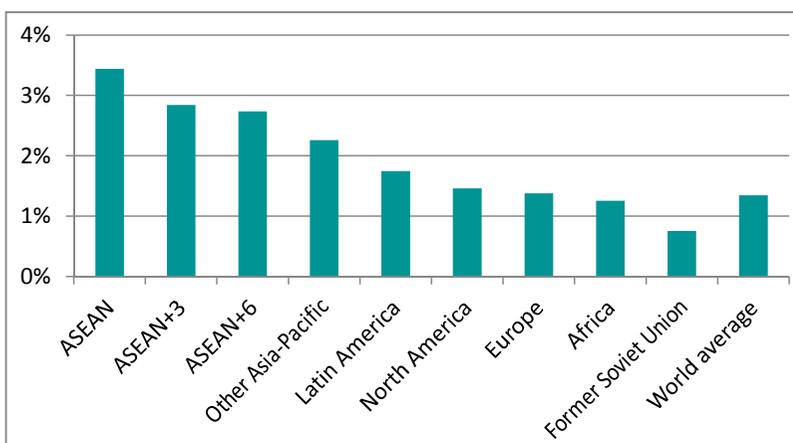
The strong economic growth in East Asia during the 1970s and 80s amazed the world enough to earn it the appellation of “East Asian miracle” (World Bank 1993). Growth has also been maintained throughout the two most recent decades as well. Figure 2.1 shows how real gross domestic product (GDP) per capita in East Asia has increased; robust economic growth was sustained since 1990 except for two brief recessions—the Asian financial crisis in 1997 and Lehman shock in 2008.



Source: U.S. Census Bureau (2013)

Figure 2.1 Real GDP per capita (2005 USD per capita)

East Asia’s strong economic growth is unique in terms of global perspective; the region recorded its highest annual growth rate of real GDP per capita of all major world regions in the last two decades (see Figure 2.2).

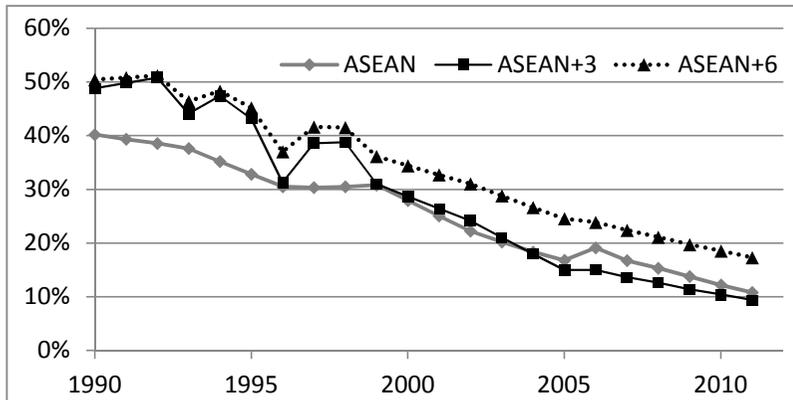


Source: U.S. Census Bureau (2013)

Note: “Other Asia-Pacific” is the aggregate of all Asia-Pacific countries except for ASEAN+6 countries.

Figure 2.2 Annual growth rate of real GDP per capita for 1990–2012

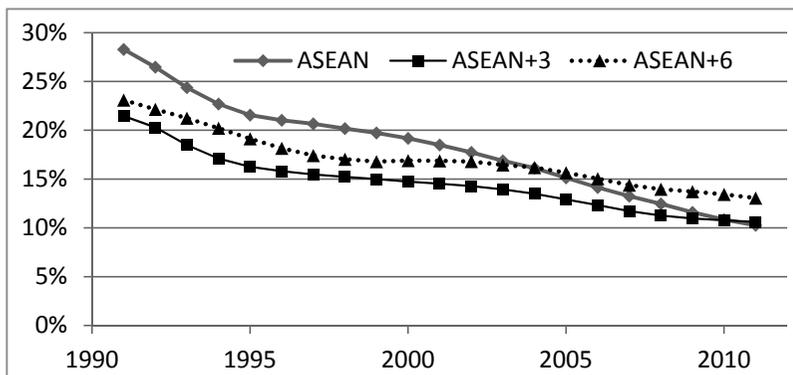
Rapid GDP growth has significantly reduced poverty in East Asia. In 1990 the poverty rate (defined as the ratio of population spending less than 1.25 USD/capita/day) was 40% in ASEAN and nearly 50% in ASEAN+3 and ASEAN+6. These rates have dropped very markedly to around 10% in ASEAN and ASEAN+3 and to less than 20% in ASEAN+6 in just two decades—a remarkable achievement (see Figure 2.3).



Source: World Bank (2013)², U.S. Census Bureau (2013).

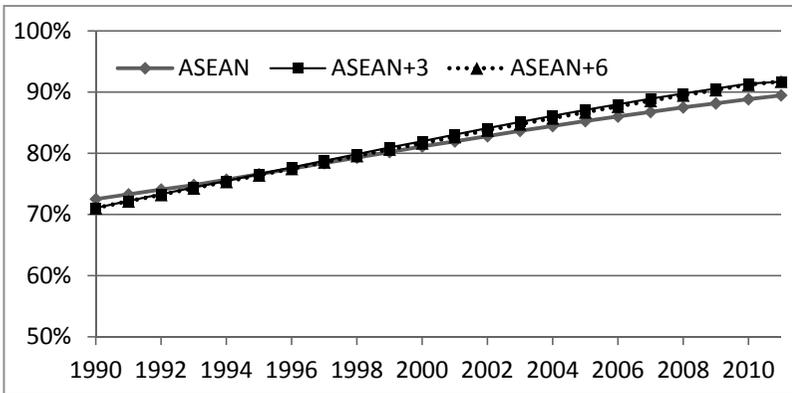
Figure 2.3 Poverty rate (less than 1.25 USD/capita/day)

Significant poverty reduction in East Asia is also observed in other dimensions of poverty, including undernourishment, lack of safe water access and lack of access to improved sanitation (see Figures 2.4, 2.5 and 2.6, respectively). The region has made tremendous progress in this respect also.



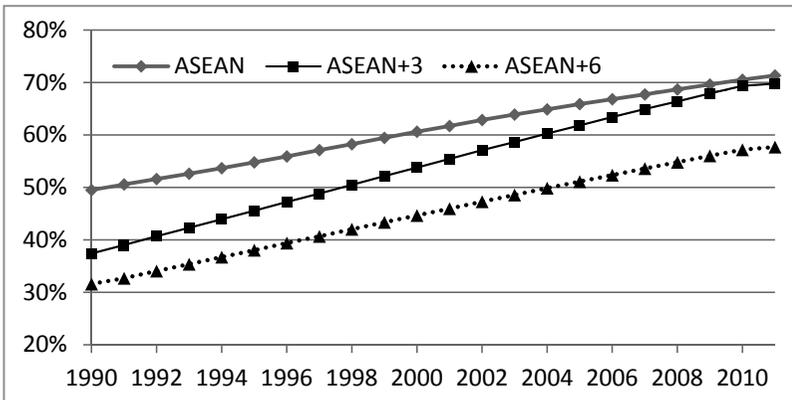
Source: World Bank (2013), U.S. Census Bureau (2013)

Figure 2.4 Percentage of undernourishment in population



Source: World Bank (2013), U.S. Census Bureau (2013)

Figure 2.5 Safe water access rate



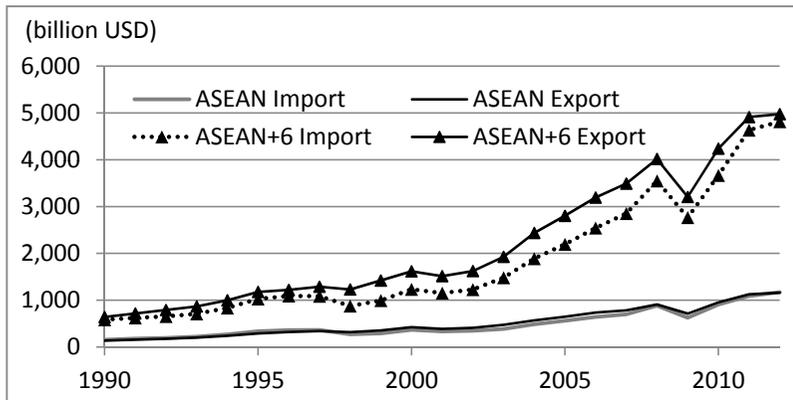
Source: World Bank (2013), U.S. Census Bureau (2013)

Figure 2.6 Improved sanitation access rate

East Asia has reduced poverty faster than any other region of the world over the past two decades (Zhuang et al. 2014). Concurrently it also made the greatest progress in increasing the middle class population. Chun (2010) estimated that East Asia increased the population of the middle class—defined as the group with daily consumption of USD 2–20 (in 2005 purchasing power parity)—by 1.27 billion (equivalent to 33.8% increase) from 1990 to 2008. Needless to say, the degree of success in poverty reduction differs widely across East Asia and some countries still face serious challenges, including sub-national imbalances. In 2011, the ratio of undernourished was over 27% in Lao PDR and around 17% in India, Cambodia and Philippines. More than 30% of the population in Lao PDR and Cambodia lack access to safe water, and more than 60% of the population in India and Cambodia lack access to improved sanitation in 2011, according to World Development Indicators (World Bank 2013).

3. Market integration in East Asia

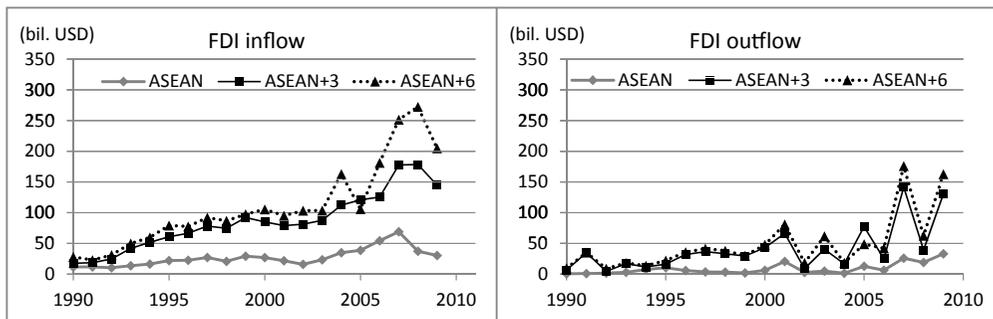
Market integration through globalisation and regional economic integration has played an important role in achieving fast economic growth and poverty reduction (Asian Development Bank 2012). The trade volume of East Asia has grown at an average annual rate of around 10% (see Figure 2.7)—much higher than that of GDP growth in the region. The sharp decline in trade volume in 2008 also indicates that the U.S. Lehman shock seriously affected East Asia’s economy through the globally integrated market.



Source: RIETI-TID2012 database

Figure 2.7 Trade volumes of ASEAN and ASEAN+6

Foreign direct investment (FDI), both inflow to and outflow from East Asia, has also drastically increased during the last two decades, as shown in Figure 2.8.

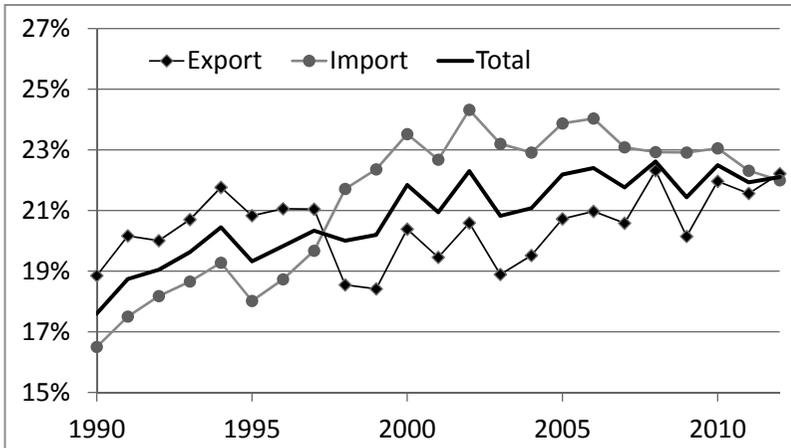


Source: Asia Regional Integration Center database (<http://aric.adb.org/integrationindicators>).

Figure 2.8 FDI volumes

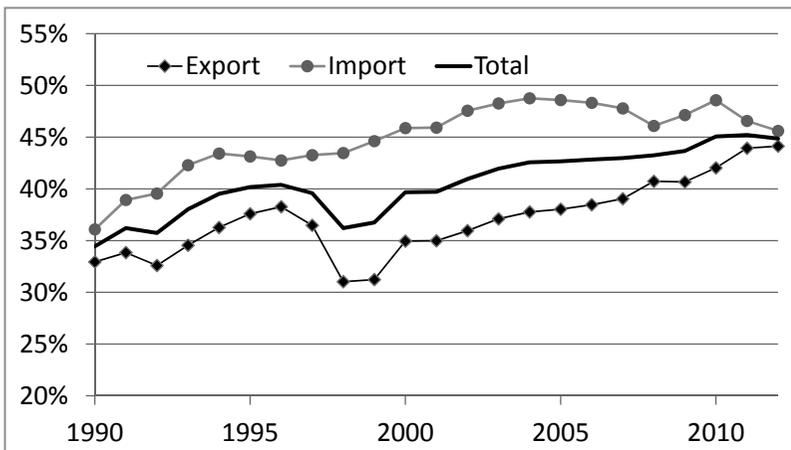
Figure 2.8 shows that the volume of FDI inflow has generally been much larger than that of FDI outflow.

Along with globalisation, regional economic integration has advanced in East Asia. Figures 2.9 and 2.10 show the evolution of intra-regional trade shares of ASEAN and ASEAN+6, respectively.



Source: RIETI-TID2012 database

Figure 2.9 Share of intra-regional trade within ASEAN

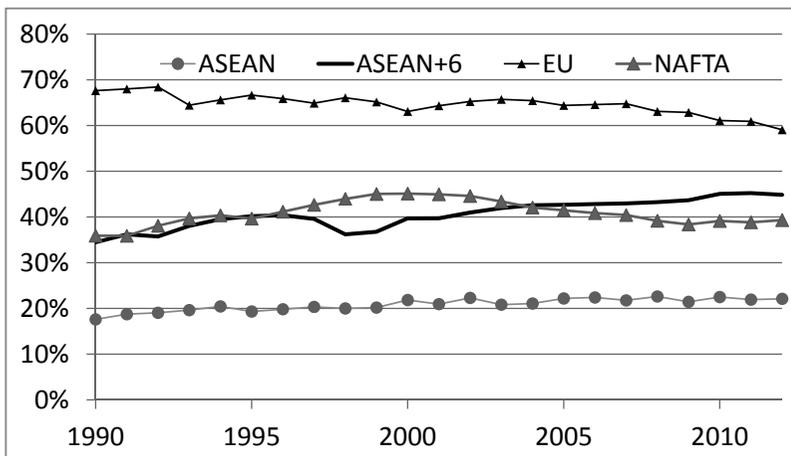


Source: RIETI-TID2012 database

Figure 2.10 Intra-regional trade share of ASEAN+6

As the intra-regional trade share of ASEAN+6 has been much higher than that of ASEAN alone it appears that economic integration between ASEAN and “Plus Six” countries (i.e., Japan, China, Republic of Korea, India, Australia and New Zealand) is most advanced. Actually, regional economic integration in this region has been driven by establishment of regional supply chains of firms, in particular Japanese, Korean or Chinese manufacturers (such as electronics, automobile and machinery industries). The higher intra-regional

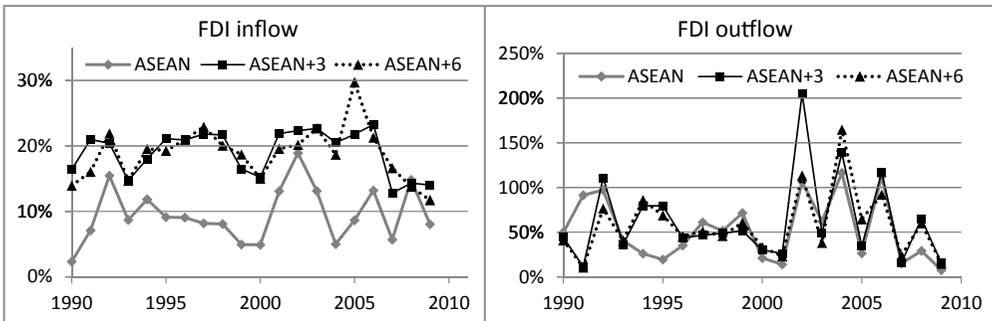
dependence of imports than exports also indicates that regional supply chains provide components and parts to assemble finished products that are exported to regions outside East Asia (Urata 2013). In contrast, intra-regional dependence of exports is higher than that of imports in EU and the North American Free Trade Agreement (NAFTA), which indicates that establishment of instruments such as free trade agreements (FTAs) plays a more significant role than establishment of regional supply chains in these regions (Urata 2013). In the 1990s, the ASEAN Free Trade Area (AFTA) was the only FTA in East Asia, but in the 2000s the number of FTAs in this region rapidly increased and each of the Plus Three countries have concluded FTAs with ASEAN. As shown in Figure 2.11, the intra-regional trade share of ASEAN+6 has been higher than that of NAFTA since 2003 and is approaching that of the EU.



Source: RIETI-TID2012 database

Figure 2.11 Comparison of intra-regional trade share with EU and NAFTA

Intra-regional FDI shares of East Asia do not exhibit a clear tendency (see Figure 2.12). It is clear, however, that multinational firms headquartered in EU or the United States play an active role in FDI to East Asia.

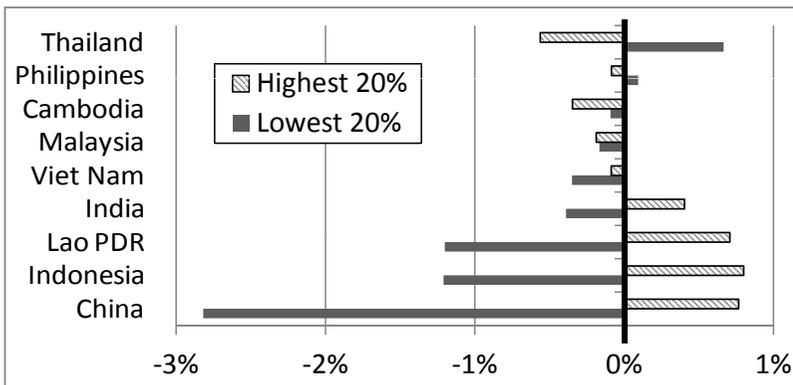


Source: Asia Regional Integration Center database (<http://aric.adb.org/integrationindicators>).

Figure 2.12 Intra-regional FDI shares

4. Growing inequality in East Asia

It is worth recalling that it was high and sustained economic growth along with decreasing inequality, not just striking economic growth, which constituted the East Asian miracle in the 1970s and 80s (World Bank 1993). But, is the current economic growth in East Asia equitable and inclusive? Figure 2.13 shows annual growth rates of income share held by the lowest 20% and the highest 20% of ASEAN+6 countries in terms of income class.³



Source: World Bank (2013)

Figure 2.13 Annual growth rates of income share held by lowest 20% and highest 20% during 1990s and 2000s

The income share of the poor has decreased in most countries, except for Thailand and the Philippines, and the share of the rich has significantly increased in China, Indonesia, Lao PDR and India. From the perspective of equitable and inclusive development, distributing a larger income share to the poor is important. The current development model in East Asia is neither equitable nor inclusive.

Using a similar analysis based on the Gini index (the most widely used inequality indicator, in which 0 indicates perfect equality and 100 reflects perfect inequality {one person owning all the wealth} of the entire population), a similar story is revealed but with a different nuance. As shown in Table 2.1, inequality has dropped not only in Thailand and Philippines, where income share held by the poorest 20% has increased, but also in Cambodia, Malaysia and Viet Nam, where income share of the richest 20% has dropped. In general, inequality in East Asian countries is less severe than in countries in Latin America or Africa, but some East Asian countries have a Gini index of higher than 40 (e.g., China), and are thus categorised as 'high inequality' countries, as shown in Table 2.1.⁴

Table 2.1 Gini index for 1990s and 2000s

Country	Earliest data		Latest data		Average annual growth rate during the period
	Gini index	Year	Gini index	Year	
Australia	n.a.		35.19	1994	n.a.
Brunei Darussalam	n.a.		n.a.		n.a.
Cambodia	38.28	1994	36.03	2009	-0.40%
China ⁵	32.43	1990	42.06	2009	1.38%
India	30.82	1994	33.90	2010	0.60%
Indonesia	29.19	1990	38.14	2011	1.28%
Japan	n.a.		24.85	1993	n.a.
Republic of Korea	n.a.		31.59	1998	n.a.
Lao PDR	30.43	1992	36.74	2008	1.18%
Malaysia	47.65	1992	46.21	2009	-0.18%
Myanmar	n.a.		n.a.		n.a.
New Zealand	n.a.		36.17	1997	n.a.
Philippines	43.82	1991	42.98	2009	-0.11%
Singapore	n.a.		42.48	1998	n.a.
Thailand	45.27	1990	39.97	2010	-0.70%
Viet Nam	35.68	1993	35.57	2008	-0.02%

Source: World Bank (2013)

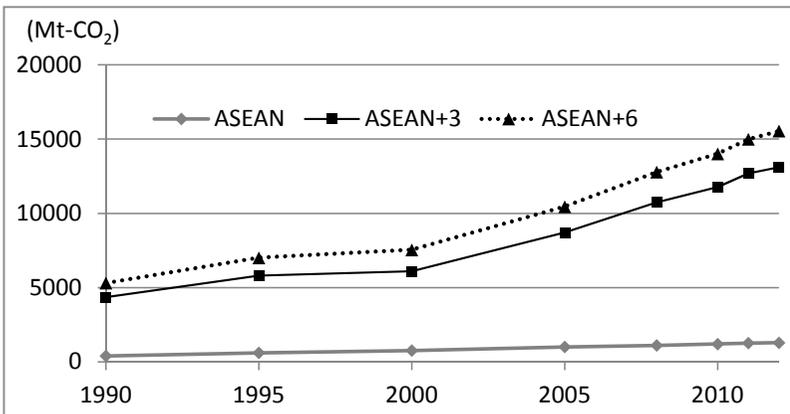
Economic growth, market openness and inequality are all mutually connected through various channels, and recent empirical studies on inequality and market openness show mixed results (Asian Development Bank 2012). For example, Milanovic (2005) claims that trade liberalisation disproportionately benefits the rich in poor countries while Goldberg and Pavcnik (2007) conclude that trade liberalisation has no significant effects on inequality. The International Monetary Fund (2007) found that financial and trade liberalisation have opposite effects on the Gini inequality coefficient—the former tends to increase inequality while the latter tends to decrease it. The Asian Development Bank (2012) observed that the current economic development in East Asia along with market integration favours the owners of capital more than labour, as well as coastal cities more than inland rural areas, which may have led to higher inequality. The key issue is that the current development paradigm and regional integration process have not effectively ensured distributional equality; which is to say the rich-poor gap is growing in many countries.

5. Environmental sustainability under threat

Shifting attention to the environmental sustainability of East Asia’s current development model, many alarm bells are ringing. This section presents major environmental issues particularly relevant to the following chapters, such as CO₂ emissions, resource and material consumption, deforestation, air pollution, and water issues.

5.1 CO₂ emissions

The high economic growth in East Asia has been associated with a drastic increase in carbon dioxide (CO₂) emissions, as shown in Figure 2.14.

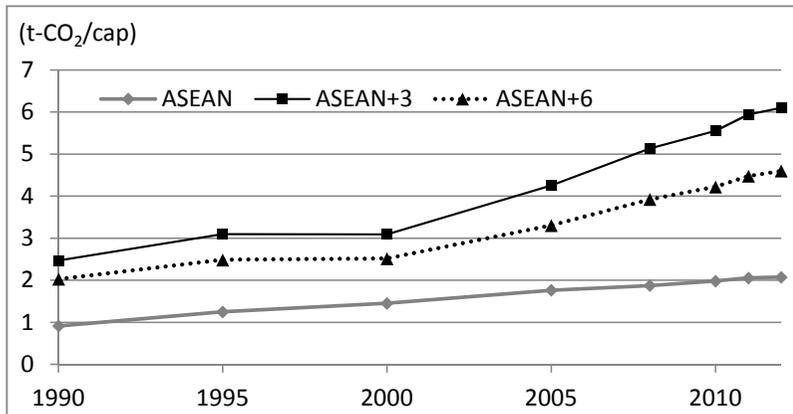


Source: European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR). (<http://edgar.jrc.ec.europa.eu>)

Figure 2.14 CO₂ emissions in East Asia

Since 1990 the aggregate CO₂ emissions in the region have tripled, with an average annual growth rate of around 5%. It is argued that the current global level of CO₂ emissions has already exceeded the planetary limit—that which ensures the long-term functioning of life-supporting ecosystems (Rockstrom et al. 2009). This phenomenal increase in regional CO₂ emissions in East Asia—45% of global emissions currently—poses a serious threat to global environmental sustainability.

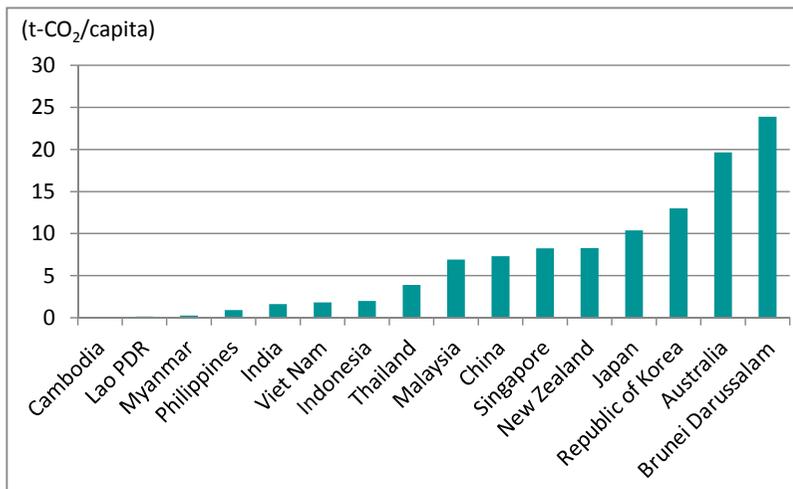
Similarly to GDP, CO₂ emissions per capita, which highly correlates with energy consumption per capita, is more closely related to quality of life than total CO₂ emissions. Figure 2.15 shows the evolution of CO₂ emissions per capita in East Asia.



Source: European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR). (<http://edgar.jrc.ec.europa.eu>), U.S. Census Bureau, International Data Base (population).

Figure 2.15 Per capita CO₂ emissions in East Asia

Per capita CO₂ emissions of East Asian countries exhibit extreme diversity—from the very low sub 1 t-CO₂ per capita (Cambodia, Lao PDR and Myanmar) to the very high, topping 20 t-CO₂ per capita (Australia and Brunei Darussalam), as shown in Figure 2.16.



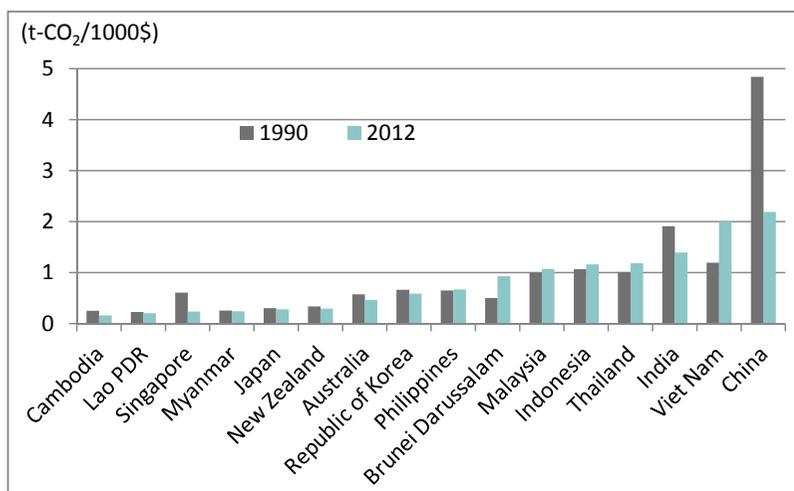
Source: European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR). (<http://edgar.jrc.ec.europa.eu>), U.S. Census Bureau, International Data Base (population).

Figure 2.16 National per capita CO₂ emissions in 2012

It is the legitimate right of any country to strive to achieve a decent quality of life for its population, and Figure 2.16 illustrates that sound economic development and poverty alleviation for developing countries will entail a significant increase in per capita

CO₂ emissions, based on current emission levels of developed countries. This is why international society, in particular developed countries, must strive to establish a genuine low carbon economy model that can secure a decent quality of life through minimal per capita CO₂ emissions.

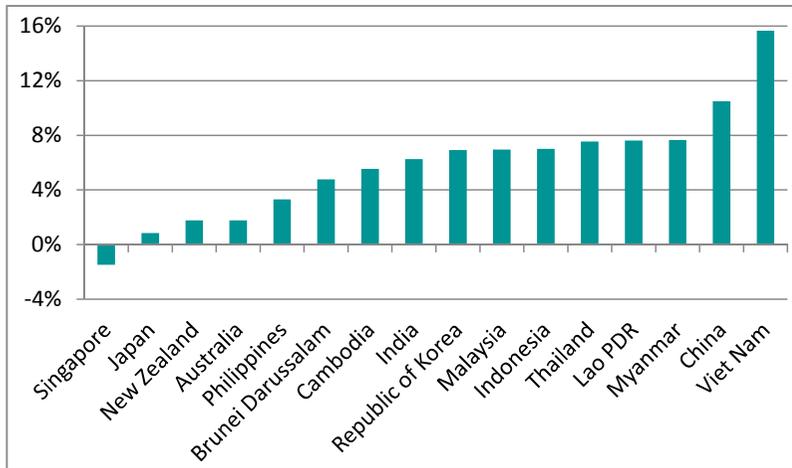
Carbon intensity can be improved on (i.e., reduced) through technological solutions such as energy efficiency improvements and increasing the share of renewable energy (Peng and Shi 2011). Technical cooperation such as in the transfer of low carbon technologies can play an important role to reduce carbon intensity, and this is a promising area of regional cooperation. It should be noted that several countries have actually reduced their carbon intensity during the same period, as shown in Figure 2.17.



Source: European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR). (<http://edgar.jrc.ec.europa.eu>), U.S. Census Bureau, International Data Base (GDP).

Figure 2.17 Carbon intensity in 1990 and 2012

The carbon intensity of China has significantly improved from nearly 5 t-CO₂ per 1,000 USD in 1990 to around 2 t-CO₂ per 1,000 USD in 2012, and the country is pursuing further carbon intensity reduction by setting a binding CO₂ emissions/unit GDP reduction of 40–45% by 2020 (Zhou et al. 2011). It must be noted that while carbon intensity reductions will help energy systems be less carbon-intensive in the long run, they may not necessarily ensure emission reductions in the short run (Bertran et al. 2014). During 1990 to 2012 the average annual growth rates of CO₂ emissions per capita in China were around 10%, as shown in Figure 2.18.



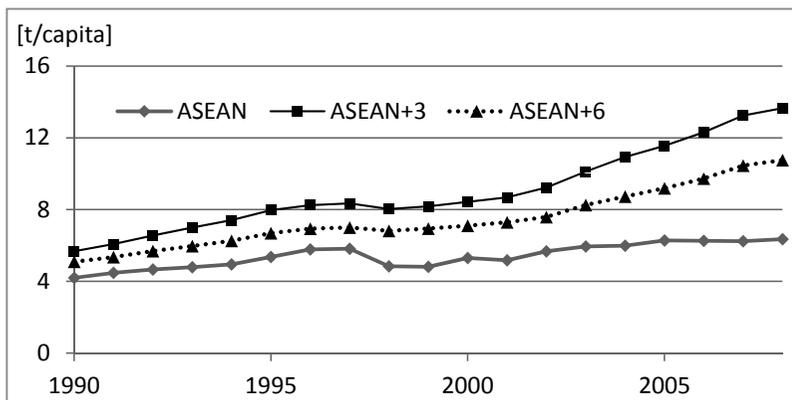
Source: European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR). (<http://edgar.jrc.ec.europa.eu>), U.S. Census Bureau, International Data Base (population).

Figure 2.18 Average annual growth rate of per capita CO₂ emissions (1990–2012)

A comparison of Figures 2.17 and 2.18 illustrates the difficulty of obtaining absolute reductions in CO₂ emissions under the current growth-oriented development paradigm.

5.2 Resource and material consumption

Rapid economic growth has also yielded a significant increase in resource and material consumption. Figure 2.19 shows the evolution of per capita total domestic material consumption (DMC) in East Asia.⁶

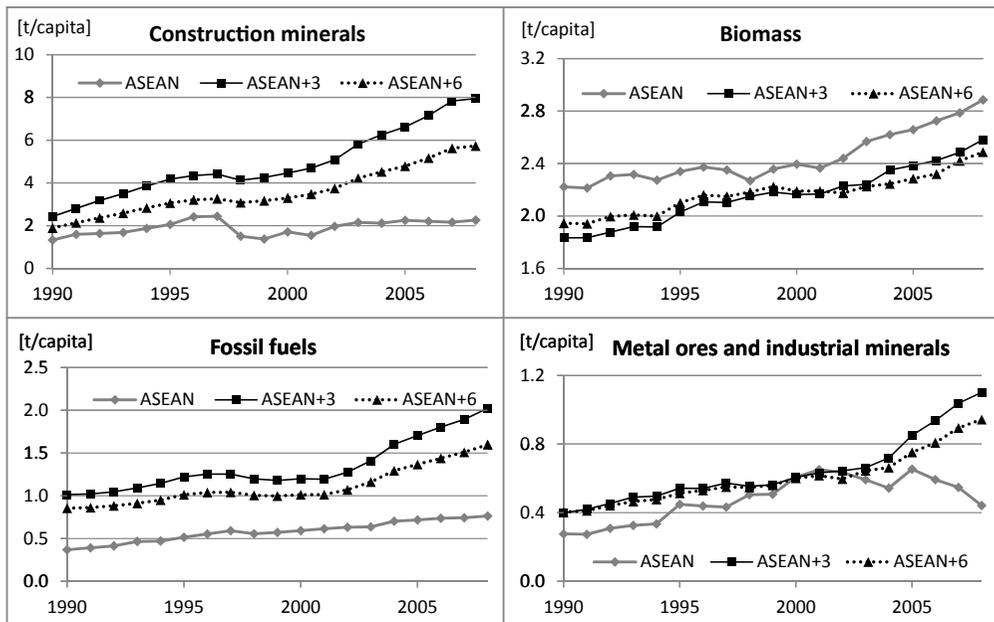


Source: CSIRO and UNEP Asia-Pacific Material Flows online database. U.S. Census Bureau, International Data Base (population).

Figure 2.19 Per capita total domestic material consumption (DMC) in East Asia

In terms of average annual growth rate, per capita total DMC of ASEAN has grown at 2.3% and that of ASEAN+3 and ASEAN+6 have grown at 5.8 % and 4.8%, respectively. By comparing these figures with average annual growth rates of real GDP per capita, ASEAN has improved resource (material) efficiency in terms of real GDP per unit of material consumption while in ASEAN+3 and ASEAN+6 resource efficiency has decreased.

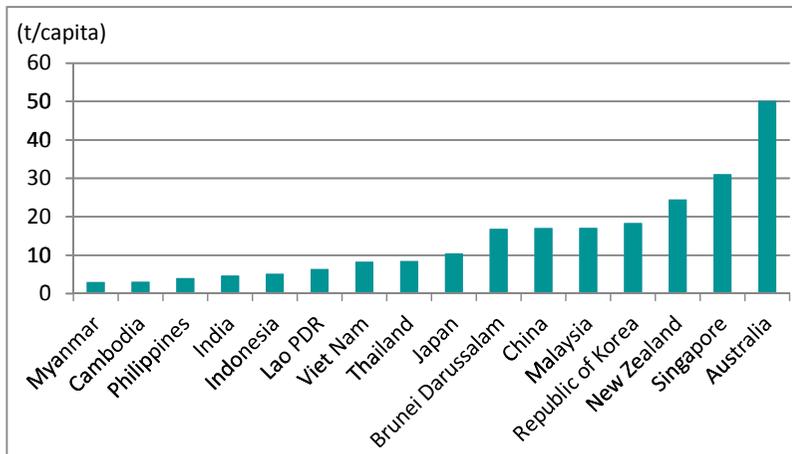
The breakdown of DMC based on four material types is shown in Figure 2.20.



Source: CSIRO and UNEP Asia-Pacific Material Flows online database. U.S. Census Bureau, International Database (population).

Figure 2.20 Per capita DMC of four material types in East Asia

ASEAN's increased resource efficiency is largely driven by the reduced DMC of metal ores and industrial minerals since 2001. In contrast, in ASEAN+3 and ASEAN+6 the growth in DMC accelerated for all material types during the 2000s. Consumption of resources and materials is expected to significantly increase due to the extreme diversity currently demonstrated in East Asian countries, in terms of per capita DMC (see Figure 2.21).



Source: CSIRO and UNEP Asia-Pacific Material Flows online database. U.S. Census Bureau (2013).

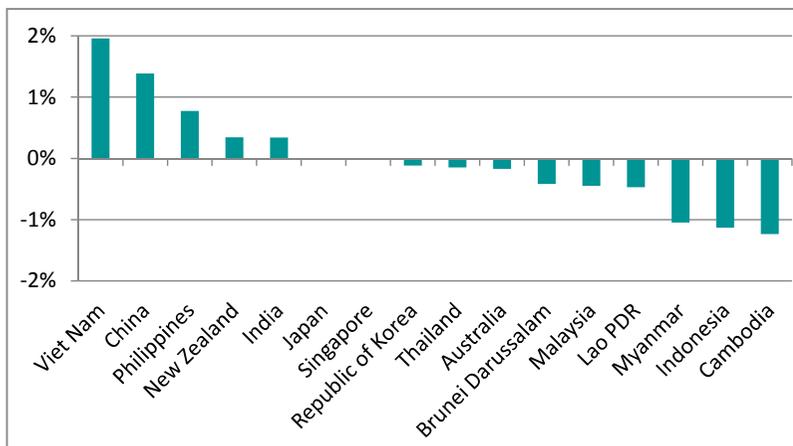
Figure 2.21 National per capita total DMC in 2008

Low per capita DMC in developing countries often reflects basic needs not being satisfied and a low standard of living, thus reducing poverty and attaining a decent quality of life in these countries will entail significant increases in resource and material consumption (Giljum et al. 2010; UNEP 2011).

5.3 Deforestation

Deforestation is of severe environmental concern in the Asia-Pacific region. For example, the average annual forest loss of Indonesia from 1990 to 2010 was 1.2 million hectares (ha), which is equivalent to the size of Palawan Island of the Philippines (FAO 2010). Of the various environmental problems associated with deforestation, there is acute concern over biodiversity loss due to deforestation (Sodhi et al. 2010; Wilcove et al. 2013).

Figure 2.22 shows the average annual growth rates of forest areas.



Source: FAO (2010), Global Forest Resources Assessment 2010.

Figure 2.22 Average annual growth rate of forest areas (1990–2010)

In terms of the pace of forest loss, deforestation is serious not only in Indonesia but also in Cambodia and Myanmar. On the other hand, Viet Nam, China and Philippines have implemented afforestation. In particular, China increased its forest area by 2.5 million ha yearly during 1990–2010 (FAO 2010). However, the afforestation programme has sparked concern, as pointed out by Cao (2008), in that 80% of it comprised monoculture planting (for economic reasons), which led to dried out soil that could not support tree growth. Only 15% of trees survived across the arid and semi-arid areas of northern China (Cao 2008). This illustrates the challenges in trying to resuscitate forest ecosystems that have been decimated through deforestation.

5.4 Air pollution

During the winter of 2013/2014, over 70 major Chinese cities, including Beijing and Shanghai, suffered from heavy toxic smog containing high concentrations of PM2.5 (Guan et al. 2014). PM2.5 refers to airborne particles smaller than 2.5 micrometres, such as sulphates, black carbon, organics, and trace metals that cause respiratory damage (Helble et al. 2000).⁷ In many cities concentrations of PM2.5 were extremely high and in Beijing exceeded 1,000 micrograms per cubic meter, 40 times higher than the World Health Organization (WHO) standard level for good health (Guan et al. 2014). PM2.5 pollution in China caused an estimated 1.23 million premature deaths and economic loss equivalent to 9.7–13.2% of GDP in 2010 (Global Commission on the Economy and Climate 2014). Guan et al. (2014) analyses the driving forces of China’s PM2.5 emissions using environmentally extended input-output analysis and found that export production was chiefly to blame for the rise in PM2.5 emissions.

According to WHO (2014), India also suffers from severe PM2.5 pollution. Annual average concentrations in many Indian cities exceed those of Beijing—Delhi’s is almost three times higher. Primary sources of PM2.5 in Delhi are ascribed to petrol and diesel exhaust, road dust, coal and biomass combustion (Chowdhury et al. 2007). PM2.5 pollution in India caused an estimated 0.63 million premature deaths and economic loss equivalent to 5.5–7.5% of GDP in 2010 (Global Commission on the Economy and Climate 2014).

5.5 Water crisis

Asian Development Bank (2013) warned that more than three quarters of Asia-Pacific countries face an imminent water crisis and that 80% of rivers in the region are unhealthy as regards watershed disturbance, pollution, altered natural flows and biotic factors. For example, China's water crisis is serious, with over 400 of 669 cities lacking sufficient water and over 40% of rivers severely polluted (Liu and Yang 2012). Water stress could also jeopardise economic performance in 14 of its 31 provinces (Wong 2013). In fact, water pollution is so serious that 300 million of China's rural inhabitants people are forced to drink contaminated water (Wong 2013).

6. Conclusion

Chronological economic, social and environmental indicators at the regional level show that simply maintaining past trends will result in further economic growth in East Asia along with a more integrated market, in particular a regionally integrated market. At the same time, it is clear that socio-environmental risks of increased inequality and further compromised environment will be aggravated.

The magnitude of environmental pressures brought about as a result of the current development paradigm (in other words 'business as usual') is expected to be massive. Total DMC of the Asia-Pacific region is expected to almost double by 2030 (UNEP 2011). If the average per capita annual CO₂ emissions hits 10 tonnes (the current level of Japan), the total emissions of ASEAN+6 in 2030 will be 2.4 times higher than in 2012. Even if the region is successful in improving environmental efficiency and can halve its per capita emissions (to 5 t-CO₂/capita), the total regional emissions will still be 1.2 times higher than the 2012 level. If current trends of inequality and rapid degradation of the region's resource bases continue, a tipping point may be reached leading to widespread social unrest. Competition over natural resources is already fuelling a number of local conflicts across Asia (Wilson 2014; Chellaney 2014). Increasing international competition over resources is also highly likely to undermine the region's efforts to ensure peace and stability. 'Resource wars' is not merely a theoretical concept and could easily become a political reality if we fail to establish fair and effective rules for resource management at the regional level (e.g., Klare 2001).

One of the messages that run throughout this book is that regional integration in East Asia in its current blinkered form, which emphasises trade, investment and economic growth, seems to be fuelling these worrying trends. However, the studies presented here also send a positive message—that a different form of regional integration could underpin alternative development models and thereby help turn the negative trends around.

Notes

1. ASEAN+3 consists of 10 ASEAN member countries and China, Japan and Republic of Korea.
2. With linear interpolation for data of missing years
3. The evaluated periods vary across countries due to data availability; for example, that of Cambodia is between 1994 and 2009 and that of Indonesia is between 1990 and 2011, but the 1990s and 2000s are mostly covered. Data for Brunei Darussalam and Myanmar are not available. For OECD members (Japan, Republic of Korea, Australia and New Zealand) and Singapore, data is available only for single year.
4. Gini index at or greater than 40 is widely considered the threshold for 'high inequality' (Asian Development Bank 2012).
5. Some studies estimated a much higher Gini index in China. Xie and Zhou (2014) reported that university-based surveys estimated a higher Gini index than the official figures, ranging from 53.0 in 2010 based on the 2012 China Family Panel Studies to 61.1 in 2011 based on the 2011 Chinese Household Finance Survey.

6. Domestic material consumption is defined as the total amount of materials directly used in an economy (used domestic extraction plus imports), minus the materials that are exported (Eurostat 2001).
7. Sulfur dioxide (SO₂) is also major pollutant in many Asian cities associated with respiratory damage (Chen et al. 2012).

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Chapter 3

Regional Integration and
Sustainable Development:
Experiences from Asia and
Beyond

Magnus Bengtsson and Satoshi Kojima

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Key Messages

- Future development within Asia is threatened by degraded environments and rising inequity, so new developmental paths are necessary.
- Increasing globalisation and intensified economic competition are making it more difficult for economies to break free from conventional inequitable, resource-intensive systems. There is a persistent though not well-founded fear that more sustainable development paths might reduce economic competitiveness.
- Regionally-coordinated policy reforms such as Green Integration can provide the boost needed to break free from conventional business-as-usual modes and formulate alternatives, but such reforms are not being used to their full potential.
- Numerous regional cooperation and integration initiatives exist in this region but the great majority aim mainly at market integration, trade liberalisation and economic growth—a misguided approach since higher trade volumes and economic activity carry significant environmental and social risks.
- A greener approach to regional integration should be centered on promoting sustainable development, which includes two parallel tracks: (i) stronger social and environmental safeguards should be incorporated in all regional agreements, including efforts to further liberalise trade and investment, and (ii) better resourced and coordinated non-binding collaborative efforts are needed to build capacity and facilitate learning on environmental protection and social betterment.

1. The role of regional integration in addressing Asia's challenges

Chapters 1 and 2 highlight how Asia's impressive economic growth has realised material improvements for hundreds of millions of people but also caused severe environmental damage and pressing social challenges. With a dwindling per-capita resource base, rising pollution and growing rich-poor gap, solutions are urgently needed for a more equitable development model that considers both people and the environment. The central focus of this book is both to assert that Asia could better deal with the above problems if its countries worked in unison, and to offer some recommendations as to how to bring this about.

Environmental and social challenges in Asia are profound and complex; Howes and Wyrwoll (2012) characterise the environmental ones as “wicked”—i.e., as dynamic in nature, involving multiple causes and effects, disparate stakeholders and issues—thus they “evade straightforward, lasting solutions”. The same holds for many of the social issues. Such ‘wicked’ problems call for concerted and well-tailored policy responses at multiple levels, and innovative policy and experimentation. Local and national initiatives are in many cases key to managing the challenges of unsustainability, but the scope for action at such levels is conditioned by global and regional factors. This is where initiatives at the regional level can play a significant role—by creating the enabling conditions for action at lower levels.

The first three chapters set the scene for the rest of the book. In this chapter, regional integration is defined in order to analyse Asia at present, via an overview of key integration mechanisms. Integration initiatives currently in the limelight are also explored—the forthcoming ASEAN Community at the end of 2015, ongoing TPP negotiations, RCEP discussions, and the more recently launched China-led free trade initiative announced at the APEC summit in 2014—which mainly focus on economic integration, i.e., facilitation of international trade and foreign private investment. Staying with the theme of regional economic integration, how trade liberalisation and sustainability, especially environmental protection, are linked is then discussed, after which parallels in Europe (EU) and North America (NAFTA) are also explored. Green Integration is then introduced at the end of the chapter and a two-pronged approach for its promotion is suggested for uptake by governments.

‘Regional integration’ is a term commonly used in academic literature, policy circles and increasingly also by mass media. A search on Google generates over 3 million hits, and Google Scholar (for academic publications) reveals around 120,000 individual documents with the term (as of April 2015). Despite its widespread use there is no fixed definition, but it can be broadly understood as “the process by which states within a particular region increase their level of interaction with regard to economic, security, political, and also social and cultural issues” (Van Ginkel and Van Langenhove 2003). This is the definition adopted in this book because its scope encompasses many of the regional initiatives in Asia, it treats integration as a dynamic process that increases interaction between states regardless of current level, and underscores its multi-dimensional, multi-objective nature.

When discussing regional integration it is important to understand the differences between (i) regional *economic* integration (the facilitation of intraregional trade and investments) and other forms of regional integration with different or broader primary objectives, and between (ii) *market-led* integration (spontaneous actions that take place unrelated to governmental action) and *government-led* integration.

As indicated above, this book takes a broad view of regional integration. The studies presented in the following chapters, whilst not limited to regional economic integration per se, together paint a picture revealing that the more high-profile, government-led regional integration initiatives in Asia tend to focus primarily on the economic dimension. This observation leads to the natural conclusion that growing trade and investment in the region need to go hand in hand with increased collaboration and strengthened coordination in other policy domains—the environment, health, labour, and social welfare.

How regional integration has affected sustainability is also discussed, such as how the increased trade in forest products and e-waste negatively effects sustainability (so-called

spontaneous integration), as well as how government-led integration efforts can help realise sustainability objectives at the national level, such as with low-carbon technology transfer and the role of ASEAN in facilitating national implementation of the Sustainable Development Goals. In short, the book aims to show, through examples, how regional integration and sustainability are playing out within the international arena, and how sustainable development can be promoted.

2. Ongoing regional integration processes

This section overviews the Asia Pacific in terms of present efforts in regional integration, and describes how they promote sustainable development and safeguard the environment.

2.1 Regional integration processes in Asia-Pacific – an overview

The first regional integration process launched was the Association of Southeast Asian Nations (ASEAN). Established in 1967 it initially consisted of five countries—Indonesia, Malaysia, the Philippines, Singapore, and Thailand—but now counts 10 in its membership, which is open to any country within SE Asia.¹ In 2007, the ASEAN Charter entered into force, assigning it legal status and an institutional framework. It is generally regarded as one of the most successful regional cooperations in the developing world (Jetly 2003) and has been key to creating an East Asian ‘community’. Further details are provided in section 4.2, which also covers the ASEAN Plus Three (APT) and East Asia Summit (EAS), both designed with the East Asian community in mind.

The counterpart to ASEAN in the Pacific region is the Pacific Islands Forum (PIF). PIF, originally the South Pacific Forum in 1971 upon establishment, was attended by representatives of the Cook Islands, Fiji, Nauru, Tonga, and Western Samoa, as well as Australia and New Zealand as observers, but now comprises 17 members. The change in appellation to ‘PIF’ took place in 1999 to better reflect its geographical reach (Shibuya 2004). It received a secretariat, the South Pacific Bureau for Economic Cooperation, in 1975, which was formally renamed the Forum Secretariat in 1988. PIF has played important roles in regional economic integration, such as in establishing the Forum Fisheries Agency in 1979, signing the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA) between Australia, New Zealand and PIF countries in 1981, and establishing the Air Pacific and the Pacific Forum Line (Shibuya 2004). As regards the environment, PIF has rung warning bells over climate change issues since the early 1990s (Shibuya 2004). All PIF member countries have participated in the Secretariat of the Pacific Regional Environment Programme (SPREP), which has promoted regional environmental cooperation within the region. SPREP, based in Samoa, covers four strategic areas of cooperation—climate change, biodiversity and ecosystem management, waste management and pollution control, and environmental monitoring and governance—and also serves as the secretariat for the Waigani convention, which bans the transboundary movement of hazardous and radioactive waste into and between PIF member states.

Regional cooperation processes in other regions of Asia-Pacific started in the 1980s. In 1985, the South Asian Association for Regional Cooperation (SAARC) was formed by seven countries based on a charter. Despite its firm legal status and institutional structure with a permanent secretariat SAARC has often been criticised for its poor progress in implementing cooperation activities (Jetly 2003; Rahman 2004)—with mutual suspicion between India and Pakistan, and India and the smaller member countries cited as the

main cause (Rahman 2004; Yadav 2013). Despite this it has led to the signing of the SAARC Social Charter and the South Asia Free Trade Area (SAFTA) agreement, both in 2004 (Yadav 2013).

The establishment of the Asia Pacific Economic Cooperation (APEC) in 1989 marked the start of a multi-layered regional integration process in the region. APEC was formed by 12 member countries (including some of ASEAN and PIF) as well as major economic players such as USA, Japan and the Republic of Korea, as a political forum to promote economic growth through trade and investment liberalisation (Hu 2013). APEC's membership now consists of 21 countries, including China and the Russian Federation, and decisions made by it are based on the consensus approach, which can hold back progress in trade liberalisation and regional community-building projects (Hu 2013). For example, the Bogor Declaration in 1994 set APEC's goals of free and open trade, and investment and implementation to no later than 2010 for industrialised members and no later than 2020 for all members, but these deadlines have passed (Hu 2013). Similarly, APEC's region-wide FTA, the Free Trade Area of the Asia-Pacific (FTAAP), has also stalled, and has been replaced with the USA's Trans-Pacific Partnership (TPP) (Capling and Ravenhill 2011). Most recently, APEC leaders have approved the Beijing Roadmap for APEC's Contribution to the Realisation of the FTAAP, which took place at the 22nd APEC Economic Leaders' Meeting in Beijing, November 2014.

From the 1990s several regional cooperation initiatives were established with support from international organisations, particularly from the Asian Development Bank (ADB): the Central Asia Regional Economic Cooperation (CAREC) Programme (10 Central Asian countries; established in 1997); the Greater Mekong Subregion (GMS; established in 1992); the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC; established in 1997); and the South Asia Subregional Economic Cooperation Programme (SASEC; established in 2000). ADB provides secretariat functions for all four initiatives. Allied with these are the following mechanisms: SASEC, consisting of four SAARC members (Bangladesh, Bhutan, India, and Nepal), which is a project-based programme focused on transport, trade facilitation, energy, and ICT (ADB 2013); and BIMSTEC, consisting of two ASEAN member countries (Myanmar and Thailand) and five SAARC member countries (Bangladesh, Bhutan, India, Nepal, and Sri Lanka), which aims to provide trade and technological cooperation between its members in tourism, transport and communication, technology, energy and fisheries and other areas (Saxena and Bhadauriya 2013)—all of which are at various stages of implementation.

The major regional integration processes in Asia-Pacific are listed in Table 3.1.

Table 3.1 Major regional integration processes in Asia-Pacific

Name	Founded	Members (year of participation)	Description
ASEAN	1967	Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam (1984), Viet Nam (1995) Lao PDR (1997), Myanmar (1997), Cambodia (1999)	Legal entity with the ASEAN Charter (2007) AFTA (ASEAN Free Trade Area) was agreed on in 1992.
PIF	1971	Australia (1972), Cook Islands, Federated States of Micronesia (1987), Fiji, Kiribati (1979), Nauru, New Zealand (1972), Niue (1976), Palau (1995), Papua New Guinea (1976), Republic of Marshall Islands (1987), Samoa, Solomon Islands (1976), Tonga, Tuvalu (1976), Vanuatu (1981)	The Pacific Plan (a regional strategy for strengthening cooperation and integration between Pacific countries) was prepared in 2005 and regularly updated.
GCC (Gulf Cooperation Council)	1981	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates	Legal entity with the Charter (1981).
SAARC	1985	Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka	Legal entity with the SAARC Charter (1985). SAFTA (South Asian Free Trade Agreement) was agreed on in 2004.
APEC	1989	Australia, Brunei Darussalam, Canada, Chile (1994), China (1991), Hong Kong, China (1991), Indonesia, Japan, Republic of Korea, Malaysia, Mexico (1993), New Zealand, Papua New Guinea (1993), Peru (1998), Philippines, Russian Federation (1998), Singapore, Taiwan (1991), Thailand, USA, Viet Nam (1998)	Bogor Declaration (1994) set APEC's goal of free and open trade and investment. APEC envisions an eventual single, region-wide FTA known as the Free Trade Area of the Asia-Pacific (FTAAP).
GMS	1992	Cambodia, China (Yunnan Province and Guangxi Zhuang Autonomous Region), Lao PDR, Myanmar, Thailand, Viet Nam	GMS economic cooperation has been supported by ADB, which serves as secretariat.
APT	1997	ASEAN members, China, Japan, Republic of Korea	East Asia Free Trade Area (EAFTA), proposed in 2002.
BIMSTEC	1997	Bangladesh, Bhutan (2003), India, Myanmar (1997), Nepal (2003), Sri Lanka, Thailand	14 priority areas, including environment and disaster management, poverty alleviation, and climate change.
CAREC	1997	Afghanistan, Azerbaijan, China, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, Uzbekistan	Project based programme focusing on transport, trade facilitation, energy, and trade policy. ADB serves as secretariat
SASEC	2000	Bangladesh, Bhutan, India, Nepal	Project based programme focusing on transport, trade facilitation, energy, and ICT. ADB serves as secretariat
EAS	2005	APT members, Australia, New Zealand, India, United States (2011), Russia (2011)	Economic Research Institute for ASEAN and East Asia (ERIA), established in 2007.
TPP	2010	Australia, Brunei Darussalam, Canada (2012), Chile, Japan (2013), Malaysia (2010), Mexico (2012), New Zealand, Peru, Singapore, United States, Viet Nam	United States has led the process as an attempt towards FTAAP.

The following section gives details on several of these integration initiatives, and in particular ASEAN, the oldest and most central to the region, and GMS, arguably the most successful of recent initiatives in terms of project implementation and changes on the ground.

2.2 East Asian regional integration and ASEAN

(1) ASEAN

ASEAN, established with five countries in 1967 and now numbering 10 in its membership, adopted mutual respect of sovereignty and non-intervention in internal affairs as its guiding principles—the so-called “ASEAN way”. Accordingly, dialogue and peaceful conflict resolution are prioritised over formal institutional solutions such as binding rules (Yamamoto 2013), principles that can both catalyse regional cooperation and integration in East Asia but also restrain it from taking more formal and stronger actions (such as establishment of regional institutions) to solve regional problems.

One such problem occurred in July 1997, during the Asian financial crisis, which highlighted the deficiency of regional integration to take action and prompted the members to acknowledge that more formal actions were needed to manage such risks (Matsuoka 2013). In December 1997, ASEAN Vision 2020 was adopted, which called for an ASEAN Community to be established by 2020, for which formalities started in 2003. The Community comprises three pillars: the ASEAN Political-Security Community (APSC), ASEAN Economic Community (AEC) and ASEAN Socio-Cultural Community (ASCC). In 2007 the timetabled start for the Community was brought forward to December 2015. In the same year a Charter was adopted to formally establish a legal and institutional framework, and respective ASEAN Community Councils for each of the three pillars were established to realise the objectives of the pillars. In 2009 the Roadmap for an ASEAN Community 2009–2015, consisting of the blueprints for each of the three pillars, was adopted.

The initial focus of ASEAN was political cooperation but in the 1970s shifted to economic cooperation and integration in order to establish industrial projects (Pomfret 2013). In the 1980s it bolstered intra-ASEAN trade through revisions to the Preferential Trading Arrangements, and in January 1992 the member countries formed the ASEAN Free Trade Area (AFTA) to promote regional economic integration and create a regional market by eliminating tariff barriers between the members by 2008. Transboundary infrastructure projects also help promote regional integration, by improving connectivity between the members. One of such is the ASEAN Cooperation Project on Interconnection, designed to link the power systems of the members, initiated in 1982. Since 1997 ASEAN has commenced two large-scale regional energy infrastructure projects: the ASEAN Power Grid System and the Trans-ASEAN Gas Pipeline (Bhattacharyay 2009). For transport infrastructure, the ASEAN Highway Network Project was started in 1999.

Chapter 4 of this book provides more details on ASEAN’s structure and analyses its potential as a regional catalyst for sustainable development.

(2) ASEAN Plus Three (APT)

The ‘97 Asian financial crisis prompted the formation of ASEAN Plus Three (APT), i.e., ASEAN, Japan, China and the Republic of Korea. APT’s roots can be traced back to a proposal by then Malaysian Prime Minister Mahathir in 1990 for an East Asian Economic Group, which was strongly opposed mainly by the U.S. at the time (Yamamoto 2013). It

was the failure of IMF-U.S. measures to counter the '97 crisis that led to actual realisation of APT, and it was Japan that took the initiative to restore stability to the region's currency system (the Miyazawa Initiative). Against this background the first meeting of the leaders of APT countries was held in Malaysia in December 1997 under an initiative of Prime Minister Mahathir, where it was agreed to hold the APT summit annually. In 2000 APT created the Chiang Mai Initiative, a network of bilateral currency swap arrangements for offering emergency liquidity to members in the event of financial crisis, which led to the Chiang Mai Initiative Multilateralisation (CMIM) in 1999, with its own foreign reserve pool (Grimes 2011). In 2011 the APT Macroeconomic Research Office (AMRO) was established to support CMIM.

APT also plays a vital role in forming the East Asian community. In response to a proposal from President Kim Dae-jung of the Republic of Korea, APT established the East Asia Vision Group of eminent intellectuals in 1998 and the East Asia Study Group of senior government officials of APT member countries in 2000. The final report of the latter submitted to the APT Summit in 2004 recommended 17 short-term measures and nine long-term measures, including the evolution of the APT summit to an East Asian summit and the formation of an East Asia Free Trade Area (EAFTA) among APT members, to achieve closer integration and overcome shared problems (East Asia Study Group 2002).

(3) East Asia Summit (EAS)

The first East Asia Summit (EAS) was held in Kuala Lumpur in 2005 and included the APT members as well as Australia, New Zealand and India (ASEAN Plus Six). Rivalry between Japan and China over leadership in the leadup to the East Asian community has meant that China relies on APT for increased hegemony, with Japan introducing a counterbalance by bringing in Australia and New Zealand. The final decision to include not only Australia and New Zealand but also India reflected the preference of ASEAN (Yamamoto 2013). One important contribution of EAS towards regional cooperation and integration was its creation of the Economic Research Institute of ASEAN and East Asia (ERIA) in 2007, which aims to provide policy analyses and recommendations to regional integration processes (mainly ASEAN and EAS) via research under the three pillars of deepening economic integration, narrowing development gaps and sustainable development.

(4) Subregional cooperation programmes

Several subregional cooperation programmes have played a complementary role to country-led regional integration processes (Pomfret and Das 2013), and are formed by multiple participating countries but do not cover entire national territories.

The Greater Mekong Subregion (GMS)

The Greater Mekong Subregion (GMS) involves Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam, and the Yunnan and Guangxi Provinces of China, the geographical scope of which is defined by the Mekong River basin, a key natural resource for agriculture, fishing, power generation and transport. The countries in the region have strong historical, cultural, and economic linkages but the GMS is also very diverse, not least in terms of economic development. The subregion comprises all four ASEAN member states with the lowest development status but also the region's economic power-house, China, and one of the ASEAN frontrunners, Thailand. A number of initiatives aimed at promoting integration, cooperation and development exist in the GMS, two of the most comprehensive being the GMS Economic Cooperation Programme and the Mekong River Commission.

The GMS Economic Cooperation Programme, established in 1992 and supported by ADB, has been identified as one of the most successful examples of regional cooperation in Asia (Dosch 2011). As the programme was established right at the end of a highly turbulent period characterised by war and violence its key objective was stabilisation and to capitalise on the peace dividend. This comprehensive development programme covers nine priority sectors—agriculture, energy, environment, human resource development, investment, telecommunications, tourism, transport and trade facilitation, and transport infrastructure—the last of which receives the most emphasis. The main thrusts of the programme can be summarised as the 3Cs: increased connectivity, improved competitiveness and a greater sense of community.

Initially established as a more informal arrangement, the programme is now governed by a number of intergovernmental meetings, with heads of state summits held every four years as the highest decision-making body. Ministerial level meetings and senior officials meetings are held on a regular basis in the relevant areas. At the working level there are nine working groups, one for each priority sector. National committees assist with coordinating programme implementation in each country. The ADB serves as the secretariat for the programme but also plays a number of other key roles: financier, provider of technical support, and dialogue facilitator. The programme is funded by ADB and various other development partners.

Activities conducted by the programme are chiefly influenced by the ADB as primary financier, and mainly comprise large-scale infrastructure projects and allied activities. A challenge for the GMS Economic Cooperation Programme to forcefully promote sustainable development is the increasing availability of investment capital in the region and the presence of many financiers who attach lax environmental and social conditions to their lending. This is a dilemma for ADB, since prioritising safeguards in infrastructure lending may result in bids being lost to other finance providers with lower social or environmental stipulations, but watering-down its own safeguards to compensate will do little for sustainable development in the region. The way out of this dilemma is for the region as a whole to allot higher priority to environmental protection and social betterment, and recognise the need for strategic investment in these areas.

The Mekong River Commission (MRC) was established in 1995 to succeed the Mekong Interim Committee, formed in 1957. Four countries in the Lower Mekong river basin comprise its members: Cambodia, Lao PDR, Thailand and Viet Nam. China and Myanmar participate as observers. The MRC states its role as follows: "As a regional facilitating and advisory body governed by water and environment ministers of the four countries, the MRC aims to ensure that the Mekong water is developed in the most efficient manner that mutually benefits all Member Countries and minimises harmful effects on people and the environment in the Lower Mekong Basin." (MRC 2014).

The need for environmental protection is thus clearly stated, and the involvement of ministers in charge of the environment in the MRC Council is an indication of the significance placed on environmental concerns. However, the MRC has no authority to implement projects or enforce decisions. It can only act as a technical advisor and provide a platform for discussions and negotiation between member countries.

A notable feature of the MRC is that China, the source of the Mekong River, is only a dialogue partner, not a full member. This is an institutional weakness which hampers the MRC's efficacy; i.e., not having China as a full member of the Commission limits the possibilities for achieving well-coordinated and balanced water resource management across the whole river basin.

The goal of MRC is to achieve rational water use planning at the regional (river basin) level. However, the related countries still mainly undertake water development projects unilaterally, without mutual consultation. The idea that joint planning might have benefits for all might be agreed on in principle but not acted on in practice.

Construction of a number of large dams and irrigation systems on the main stream and tributaries of the Mekong will pose a serious threat to the region's environment (ICEM 2010), and in the next decade whether MRC has any power as a subregional coordination platform, as well as whether countries act in accordance with their political declarations will be seen. For the MRC to survive and continue to play a meaningful role in the Mekong's management it "must be recognised as a knowledgeable and impartial regional agency whose judgement countries of the region respect" (Verbiest 2013). Chapter 8 of this book provides more details on the Mekong River situation and discusses the role of the MRC further.

Other subregional initiatives

In 1990 the leaders of Singapore, Malaysia and Indonesia agreed to validate the Subregional Economic Zone (SREZ) arrangement for the Singapore-Johor-Riau (Sijori) region. This decision resulted from a rise in trade and investment flows in the 1980s in the Sijori region, which experienced inbound labour-intensive industry relocations from Singapore to Johor and Riau due to high land prices and labour wages in the former. The Sijori region is now a growth centre within ASEAN, but the proportion of economic growth in this region that can be attributed to SREZ is unclear due to the lack of official Sijori organisations, and the private sector appears to have a big role (Pomfret and Das 2013).

The Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT), formed in 1993 by the three countries of the name, now includes 14 provinces in southern Thailand, eight states of Peninsular Malaysia, and the 10 provinces of Sumatra in Indonesia (Pomfret and Das 2013). Institutionally, it comprises public and private sectors with the establishment of the IMT-GT Joint Business Council in 1995 as the official institute to mobilise the private sector. In 2005 the leaders of the three countries requested ADB to assist in revitalising IMT-GT. With the support of ADB, the IMT-GT Roadmap for 2007–2011 was developed in 2006 as a strategic framework, as well as a plan of action to guide subregional cooperation. In 2007, the Centre for IMT-GT Subregional Cooperation (CIMT) was established as IMT-GT's secretariat. IMT-GT has made efforts to improve connectivity in transportation and energy infrastructure mainly through national projects such as toll roads. Of the eight potential priority Projects identified by an IMT-GT Ministerial Meeting in 2009, Melaka-Pekanbaru Power Interconnection is the only one with a cross-border nature (Pomfret and Das 2013). However, although environmental protection is stated as an IMT-GT objective, there is little evidence of this in the work programme. Establishment of a centre for disseminating knowledge on environment-friendly agriculture is the most prominent environmental initiative in the implementation blueprint but it lacks sufficient funding at only 0.1% of the overall budget (IMT-GT nd.).

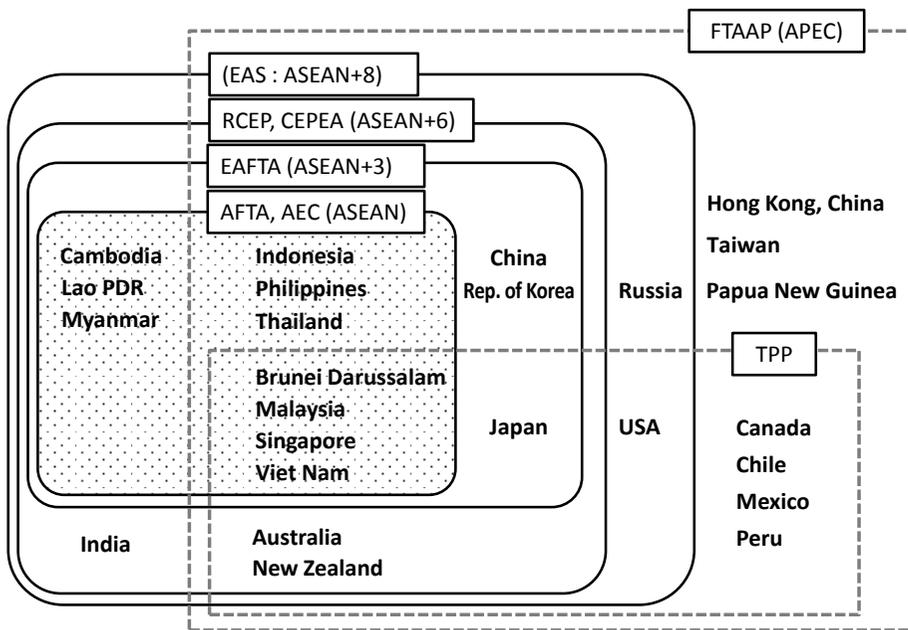
The Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) was established in 1994 as a subregional cooperation programme covering the less developed areas with relatively weak connectivity to the economic centres of these countries. For example, BIMP-EAGA covers the provinces of Kalimantan, Sulawesi, Maluku and West Papua of Indonesia separated from Java by water. The distances within BIMP-EAGA are often shorter than those between these areas and the economic centres of the corresponding countries, and cross-border cooperation through BIMP-EAGA is expected

to address development challenges arising from this weak connectivity (Pomfret and Das 2013). In 1994, the BIMP-EAGA Business Council (BEBC) was launched to involve the private sector, and a secretariat therefor was established in 1996. A number of infrastructure development projects, particularly in transport and energy, have been identified under BIMP-EAGA but the progress so far is disappointing, mainly due to poor institutional setting, according to the Midterm Review of BIMP-EAGA Roadmap 2006–2010 (Pomfret and Das 2013). Environment is one of the four Strategic Pillars of BIMP-EAGA, alongside connectivity, agricultural development and tourism. The current Implementation Blueprint (2012–2016) lists five components of the Environment Pillar, but details are only provided for the one on ecosystem management. Ecosystem management projects under the Coral Triangle Initiative (which involves six countries and a secretariat based in Manado, Indonesia) have been implemented, including alternative livelihoods for fishing communities. ADB is the chief project funder and partner, and has conducted 19 technical assistance projects worth over USD 20 million for BIMP-EAGA (Carpenter et al. 2013).

(5) Regional economic integration processes in East Asia

East Asia is one of the centres of global industry, and regional economic integration was originally market-driven, in which multinational corporations played key roles such as in building regional supply chains (Urata 2013). Since the 1990s government-driven regional economic integration through free trade agreements (FTAs) has deepened,² with the first major FTA in this region being the ASEAN Free Trade Area (AFTA), enacted in 1992. With the exception of AFTA, no other FTAs surfaced in the 1990s, but many (38 as of October 2010) were enacted in the following decade (Urata 2013). These are either bilateral (e.g., Japan-Singapore, Thailand-Australia) or between ASEAN and one of the Plus Six countries (Japan, China, Korea, India, Australia, New Zealand), with the latter kind of agreements labelled as “ASEAN+1” FTAs. This situation, with its many entangled bilateral FTAs and ASEAN+1 FTAs, is hence commonly referred to as the “Asian noodle bowl” (Kawai and Wignaraja 2009).

Each of ASEAN, APT and EAS is making efforts to untangle the ‘noodles’ and to deepen regional economic integration (see Figure 3.1). ASEAN is strengthening economic integration through creation (by 2015) of the Asian Economic Community (AEC), which can be seen as the most advanced achievement of AFTA. APT promoted the idea of EAFTA, the feasibility study for which was conducted by a group of experts chaired by a Chinese expert and the results of which were reported to the APT Economic Minister Meeting in 2006. Similarly, the Comprehensive Economic Partnership for East Asia (CEPEA) was proposed to EAS by Japan in 2006 and study group meetings on CEPEA have been held with Japan as chair (Hiratsuka et al. 2009). All the above processes have proceeded in parallel but have not yet reached the negotiation stage.



Source: Adapted from Umada (2013)

Figure 3.1 East Asian regional economic integration processes and TPP

To break this deadlock, in 2011 ASEAN proposed the Regional Comprehensive Economic Partnership (RCEP) as a compromise between EAFTA and CEPEA (Umada 2013). RCEP is based on open accession and any of the ASEAN Plus Six countries and “other external economic partners” can participate after RCEP negotiations end. RCEP fully considers the diverse developmental status of participating countries and is designed to be flexible, i.e., provide for special and different treatment for the least-developed ASEAN Member States. The first round of RCEP negotiations was held in May 2013 and attended by all ASEAN Plus Six countries, and negotiations are slated for conclusion by the end of 2015.

The rapid pace of RCEP development has been attributed to strategising, on the part of ASEAN, to counter the proposed Trans-Pacific Partnership (TPP), another major regional FTA in Asia-Pacific region and led by the United States (Umada 2013). TPP was originally established by four Asia Pacific countries, Brunei, Chile, New Zealand and Singapore, as a new type of “high quality and comprehensive” trade agreement accompanied by agreements on environmental and labour cooperation as separate documents, which came into force in 2006 (Elms and Lim 2012). TPP is based on open accession, and since the United States, Australia, Peru and Viet Nam joined in March 2010 the TPP negotiation process has been led by the United States. Currently 12 countries, including seven ASEAN Plus Three members (Australia, Brunei, Japan, Malaysia, New Zealand, Singapore, Viet Nam) are in negotiations. TPP potentially divides ASEAN into two groups, namely members and non-members of TPP, and the weight of the United States in the TPP process may threaten ASEAN’s leading role in East Asian economic integration processes. From another perspective, TPP and RCEP could be seen as representing the real economic rivalry between US and China over Asia-Pacific hegemony. On the other hand, it is also possible for TPP and RCEP to work in a complementary way as one process, as both are based on open accession (Umada 2013).

2.3 Environmental cooperation in East Asia

(1) ASEAN environmental cooperation initiatives

ASEAN has played a leading role in promoting environmental cooperation in East Asia. As a decision making body of the ASEAN environmental cooperation, the ASEAN Experts Group on the Environment was established in 1978 and upgraded to the ASEAN Senior Officials on the Environment (ASOEN) in 1989 (Elder and Miyazawa 2015). In 1981, the ASEAN Ministerial Meeting on Environment (AMME) further enhanced ASEAN cooperation and has been held at least once every three years. Current activities to ensure environmental sustainability are specified in the Blueprint for the ASEAN Socio-Cultural Community (ASCC) together with those to ensure human development, social welfare, social rights and ASEAN identity (ASEAN Secretariat 2009). Chapter 4 provides more details on ASEAN and how it could more actively promote member country implementation of sustainable development.

Under these institutional arrangements ASEAN has carried out several environmental cooperation activities. From 1978 to 1992 a series of ASEAN Environmental Programmes (ASEPs) identified priority environmental cooperation activities and implemented demonstration projects, including the development of environmental impact assessment (EIA) guidelines and guidelines on transportation and the collection, treatment and disposal of hazardous substances (Koh 2009). Although ASEPs contributed to capacity development of environmental agencies in the member countries, the efficacy of the programmes was compromised due to insufficient funds, weak institutional capacity and lack of proper follow-up mechanisms (Takahashi 2001a).

In response to the recognition within ASEAN that environmental cooperation required a boost, the ASEAN Strategic Plan of Action on Environment (ASPEN) was launched in 1994, in which six working groups were created under ASOEN to implement ASPEN. To address funding, ASPEN suggested exploring both internal and external sources and some environmental activities and projects specified in ASPEN managed to obtain funds from international organisations such as UNEP, UNDP, ADB and the World Bank as well as from bilateral donors such as Australia, Canada, USA and New Zealand. However, the external funds were mainly provided on a project-by-project basis, which meant that activities or projects were implemented at the discretion of the donors (Takahashi 2001a), and that some projects with external funding assistance failed to achieve initial goals due to the low ratio of funding to the total contribution to the project. In general, insufficient financial resources is an endemic stumbling block for the environmental cooperation activities of ASEAN (Elder and Miyazawa 2015).

Another challenge is the reluctance of ASEAN member countries to enter into legally binding commitments, a problem exemplified by transboundary haze. Haze is mainly caused by peat and forest fires in Indonesia, and severely affects Southeast Asia, especially Malaysia and Singapore (Varkkey 2012). In response, ASEAN organised the first Workshop on Transboundary Pollution and Haze in 1992; in 1995 the ASEAN Cooperation Plan on Transboundary Pollution was adopted and a Haze Technical Taskforce was set up (Varkkey 2012). The year 1997 witnessed a particularly serious outbreak and severely affected many cities (Kuala Lumpur, Singapore, Bangkok, Brunei and Jakarta) for several weeks, and thus served as the tipping point for creation of the ASEAN Ministerial Meeting on Haze in the same year. The result was the Regional Haze Action Plan (RHAP)—in effect an obligation for member countries to develop plans, guidelines and other measures to address the issue on a country-by-country basis (Varkkey 2012, Forsyth 2014). In 2002, the ASEAN Agreement on Transboundary Haze Pollution, which provides legally

binding support for RHAP, was signed by all ASEAN member countries and is the second environmental treaty of ASEAN with legally binding nature, after the Agreement on the Conservation of Nature and Natural Resources in 1985 (Takahashi 2001a). However, neither of them has been fully implemented due to incomplete ratification (Takahashi 2001a; Forsyth 2014), and in the case of the haze agreement, Indonesia's eventual ratification, in 2014, came 12 years after its initial signing.

(2) GMS environmental cooperation initiatives

The 10-year strategic framework 2002–2012 of the GMS Economic Cooperation Programme was based on five 'strategic thrusts', one of which was aimed at 'protecting the environment and promoting the sustainable use of shared natural resources'. One of the 11 flagship programmes, the Core Environment Programme and Biodiversity Conservation Corridors Initiative (CEP-BCI), was tasked with directly addressing environmental issues in the context of poverty eradication and infrastructure development.

The current strategic framework, which covers the 2012–2022 decade, is mainly a continuation and expansion in scope of the earlier framework. It maintains the CEP-BCI and includes the objective of enhancing environmental performance in the subregion as one of its eight priorities. The need for environmental protection is etched into its framework; in addition to being a separate priority area it is also integrated in the objectives of other priority areas, including transport, energy and power, tourism and agriculture. However, it is worth noting that the investments in environmental protection amount to just a fraction of that spent on infrastructure projects: the regional investment framework for 2013–2022 contains projects with an estimated investment topping USD 50 billion (ADB 2014), while CEP-BCI's budget for 2012–2016 is only USD 26.5 million (GMS-EOC n.d.).

The CEP-BCI comprises the following four components in its current phase (2012–2016): (i) sustained development planning systems, methods, and safeguards; (ii) improved management of conservation landscapes for sustainable livelihoods; (iii) enhanced climate resilience and promotion of low-carbon development; and (iv) strengthened institutions and sustainable financing for environmental management. The activities of the initiative are expected to be closely coordinated with other working groups of the GMS programme. CEP-BCI is technically supported by the GMS Environmental Operations Centre (GMS-EOC), co-located with ADB's resident mission in Bangkok.

(3) Other environmental cooperation initiatives

The end of the Cold War and the global adoption of the concept of sustainable development at the Rio Earth Summit in 1992 contributed to the establishment of environmental cooperation mechanisms in NE Asia, such as the Northeast Asian Conference on Environmental Cooperation (NEAC), North-East Asian Sub-regional Programme on Environmental Cooperation (NEASPEC), Northwest Pacific Action Plan (NOWPAP), and Tripartite Environment Ministers Meeting (TEMM), as shown in Table 3.2 (Takahashi 2001b). These mechanisms have promoted environmental cooperation in the region but have been criticised for both lacking comprehensive, strategic environmental action plans for medium and long-term objectives and lacking satisfactory achievements in terms of concrete environmental improvements (Takahashi 2001b).

Table 3.2 Major environmental cooperation mechanisms in East Asia

Name	Founded	Members (year of participation)	Description
AMME	1981	ASEAN member countries	<ul style="list-style-type: none"> ● Official meetings held every three years
NEAC	1992	China, Japan, Republic of Korea, Mongolia, Russia	<ul style="list-style-type: none"> ● Annual meeting for frank dialogue on strategies between environmental ministries, local governments and specialists
NEASPEC	1992	China, DPR Korea, Japan, Mongolia, Republic of Korea, Russia	<ul style="list-style-type: none"> ● Environmental cooperation mechanism via foreign ministries
NOWPAP	1993	China, Japan, Republic of Korea, Russia	<ul style="list-style-type: none"> ● One of 13 Regional Sea Programmes of UNEP ● DPR Korea participates as an observer
TEMM	1999	China, Japan, Republic of Korea	<ul style="list-style-type: none"> ● Annual ministerial meetings to promote exchange of views and strengthened cooperation on environmental issues
Acid Deposition Monitoring Network in East Asia (EANET)	2001	Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, the Philippines, Russia, Republic of Korea, Thailand, Viet Nam	<ul style="list-style-type: none"> ● Activities including acid rain monitoring and data collection, technical support and training programmes to improve data accuracy
APT Environmental Ministerial Meeting	2002	APT member countries	<ul style="list-style-type: none"> ● Annual ministerial meetings ● Currently focused on biodiversity, climate change, environmental education, water resources management, cleaner production, and waste management
EAS Environmental Ministerial Meeting	2008	EAS member countries	<ul style="list-style-type: none"> ● Held every two years ● In 2012 Australia proposed cooperation activities related to outcomes of Rio +20, urban sustainability, and climate change adaptation

Sources: Takahashi 2001b, Horiuchi et al. 2013.

2.4 Discussion

What is the takaway from such experiences for regional integration?

First, environmental protection and trade are generally considered as separate fields. Many of the abovementioned cooperation and integration schemes contain elements of environmental protection, which are often prominently stated in the overall objectives; however, environmental activities are usually only tenuously linked with promotional efforts aimed at increased trade and investment, and such linkages are generally strengthened only as a result of donor initiatives. There is little interest from each country in linking trade and investment promotion with environmental protection and sustainable resource management. Naturally, such resistance is likely a protective measure stemming from the concern that environmental regulations could impede trade—something that might disadvantage developing countries which lack the capacity to meet strict environmental standards and assure compliance.

Second, initiatives are often poorly coordinated, which leads to reduced efficacy of the outcomes. This is due to the glut of mechanisms initiated by different organisations and development partners, which in turn is influenced by differing geopolitical agenda and even rivalry between donors. Improved coordination would enhance the effectiveness of activities and thus the benefits offered to the region, so must remain as a priority. This also holds for coordination within each country, especially for government institutions and other main actors. The main emphasis of integration initiatives in the region has been on trade liberalisation and infrastructure construction, complemented by for example streamlining of customs procedures and capacity building at national levels. These measures are fairly easy since they involve only a limited number of government agencies and require a minimum of inter-ministerial coordination. For regional integration to deepen there is a need to address more cross-cutting issues that involve a large number of government agencies in each country and also to harmonise legislations, regulations, and standards. This is likely to be more of a challenge than the initiatives implemented so far, which underscores the need for better coordination, both within and between countries.

Third, the integration schemes in the region illustrate the sustainability challenges associated with the development gaps between the countries in the region. In recent years Vietnam's strong economic growth is overtaking Cambodia and Lao PDR in terms of GDP per capita. This developmental divide is already influencing investments and trade patterns; for example, Viet Nam has successfully stopped deforestation and launched major reforestation projects. At the same time it imports large amounts of timber from Lao PDR to meet the increasing demand from its furniture industry. This trade, often involving illegal logging, is a factor contributing to the shrinking forest area in Lao PDR. As argued elsewhere in this book, reducing existing and emerging development gaps, between countries as well as within them, is likely to be a prerequisite for balanced regional integration processes that can contribute to more sustainable developmental outcomes.

3. Promotion of trade and investment: implications for environmental sustainability

3.1 Regional integration: the emphasis on economic integration

The nature of regional integration processes has differed over time and according to region. Its central thrust, however—promoting economic development by eroding barriers to trade—has not. From the 1990s onwards regional integration for much of the world meant a strong emphasis on trade promotion and market liberalisation in support of economic growth, as seen by a number of milestone events such as the birth of the European Union (EU) in 1993, the ASEAN Free Trade Agreement (AFTA) in 1993, the North American Free Trade Agreement (NAFTA) and adoption of the Bogor Goals by the Asia-Pacific Economic Cooperation (APEC) in 1994, and the establishment of the Southern Common Market Treaty (MERCOSUR) in South America in 1995. In the 2000s the slow progress in global trade negotiations under the World Trade Organisation (WTO) helped spur a renewed upsurge in trade liberalisation efforts at regional and bilateral levels—the 2005 Trans-Pacific Strategic Economic Partnership Agreement (TPSEP) (now the broader Trans-Pacific Partnership; TPP) for example, negotiations for which were ongoing at the time of writing (April 2015).

Regional economic integration typically aims to reduce or eliminate import and export barriers, streamline customs procedures, promote investments in trans-border transport

infrastructure and create favourable conditions for investors based in other countries in the region. In some cases it also involves broader market liberalisation measures such as strengthened protection of intellectual property rights, harmonisation of technical standards and government regulations on products and services. Such policy reforms, introduced in a coordinated fashion across a region, can reduce costs and business risks for private enterprises and are therefore believed to stimulate economic growth and create jobs. However, while doing so, economic integration also carries the risk of exacerbating environmental problems and worsened labour conditions and other social issues. This illustrates the complex relationship between trade liberalisation and sustainability.

Critical to trade liberalisation is increased mobility in investment capital, corporate research and development, and industrial production. Past decades show how easy it is to relocate businesses in other countries and establish complex value chains where materials, parts and components are outsourced to different countries, which increasingly compete against each other in offering favourable conditions to investors and corporations. However, offering such lures means governments are hesitant to strengthen environmental and social regulations, due to the perceived fear of reduced competitiveness. Another potential downside is the inability to secure tax revenue from global companies (with tax arrangements often outsourced to tax havens), which can weaken public services (e.g., Zoeteman et al. 2005).

This rest of this section covers how trade liberalisation can affect sustainability, particularly environmental sustainability, in the context of regional economic integration. This overview of the main linkages between trade and environment is intended to help the reader comprehend the scale and complexity of the challenges discussed in the forthcoming sectoral and issue-based chapters.

3.2 Liberalisation of trade and investments – good or bad for the environment?

Assessing the effects of trade and investment liberalisation, including regional economic integration, is difficult; even for purely trade-related issues such as how the introduction of preferential import tariffs has influenced trade patterns in a region, research often disagrees on the role played by formal integration efforts. Assessing the indirect effects of economic integration—how the promotion of foreign investment affects the environment—is even more challenging (e.g., Baumüller 2009). Extrapolations of effects of regional economic integration initiatives from the myriad other factors influencing how a country develops and economically evolves and how pressures on the environment change over time are imprecise even in retrospect and forecasts are plagued with added uncertainty.

The Trade Knowledge Network illustrates the problem. It was launched in 1998 by the International Institute for Sustainable Development (IISD) for this very reason and to inform the policy community. Their synthesis report, published after six years of studies in all major regions of the world, found that the relationship between trade and environment is too complex to allow for sweeping generalisations, and concluded that trade and trade liberalisation “can in some cases be good for the environment, and in other cases bad, or (frequently) both at once” (Cosbey 2004, p1).

It should also be kept in mind that each process of regional economic integration has its own characteristics, meaning that experiences from one region may have limited relevance in other regions where circumstances differ. The small number of world regions that can be researched also lowers the validity of any statistical insights obtained. So while studies of other regions can suggest what to look into—the major areas of concern

and the key causal linkages—the consequences of regional economic integration have to be analysed for individual regions based on specific contexts. The following section explains the main linkages starting with the positive side, how trade and investment liberalisation can benefit the environment, and proceeds to explain the environmental risks involved.

(1) How liberalisation of trade and investment can help protect the environment

Increased trade can assist in environmental protection (e.g., Frankel 2009), and involves three direct mechanisms: (i) easier and cheaper transfer of technologies with high environmental performance (green technologies), together with improved market access for products and services with high environmental performance (environmental goods and services); (ii) infusion of local businesses with know-how and management practices, via foreign investment, to help raise the bar for better environmental management; and (iii) stimulated growth for more sustainably produced goods, via improved access to foreign markets. The following paragraphs explain these linkages further.

(i) Liberalisation of trade and investment can facilitate the diffusion of green technologies, products and services; however, it may not happen spontaneously. For liberalisation to play such a role there needs to be specific mechanisms in place to preferentially promote the transfer of more sustainable products and technologies. While trade liberalisation efforts, such as regional economic integration, can be used to facilitate green technology transfer, they rarely are. Chapter 9 discusses green technology transfer in the context of regional integration in more detail, focusing on energy efficient and low-carbon technologies.

(ii) Enterprises based in technologically more advanced countries can bring environmental technologies, know-how and management practices with them when establishing production in less advanced countries. These companies usually comply with strict environmental and labour safety regulations in their home markets and therefore have the capacity to meet such high standards. The establishment of production facilities with high environmental and safety performance can be directly beneficial since they pollute less, expose the workforce to fewer risks and use resources more efficiently, as well as demonstrate to the domestic private sector, civil society and regulators that high environmental and social performance is technically possible as well as commercially viable—an added bonus. Local suppliers that join enterprise value chains would also benefit since they may be required to meet standards that exceed legal requirements and established domestic practices.

(iii) Trade liberalisation may increase export opportunities for sustainably produced goods, especially for producers in developing countries that target discerning niche markets in the developed world. For such products, trade liberalisation can improve market access and competitiveness of producers in developing countries. However, certification requirements, such as organic food labels, can be costly for small producers. Such schemes therefore tend to favour large players with greater economies of scale. Improved market access for products with high environmental credentials is thus a potential benefit of market integration, but the positive effect is not a given conclusion. Case-by-case analysis is needed to clarify how trade liberalisation might actually affect sustainability outcomes. Targeted support for small-scale producers may be needed in order to avoid negative social impacts.

Market integration could also benefit the environment more indirectly, especially in middle-income countries. If integration speeds up modernisation and creation of a

large well-educated urban middle class this could entail stronger demands for a clean environment, and such needs could influence government priorities and the allocation of resources to environmental protection. However, the significance of such indirect and longer-term effects is far from clear and is mainly determined by country-specific factors. The effects may also be stronger for local pollutants than for global environmental problems, such as greenhouse gas emissions.

(2) How trade and investment liberalisation can create environmental risk

Concerns abound over environmental risks associated with increased trade and international investments (e.g., Esty 2001; IISD and UNEP 2005), particularly in that: (i) increased overall production and consumption can increase stress on the environment; (ii) international competition to attract investment capital and job opportunities can lead to inadequate regulations and/or lax enforcement; (iii) foreign investors can be tempted to engage in illegal or unethical practices when operating in countries with weak governance; (iv) growing trade volumes and simplified customs procedures can increase the risks of illegal trade; and (v) increasing geographical and cultural distance between production and final consumption can weaken the drivers for more sustainable practices. There are also a number of issues associated with specific aspects of trade agreements. The rest of this section elaborates on the concerns over market liberalisation.

(i) One of the main aims of trade liberalisation is economic growth, but increased production and consumption puts higher pressures on the environment unless economic and technological advances can compensate for the increased output. In order to reduce or eliminate the negative consequences, growth in less resource-intensive and polluting sectors needs encouraging, as does deployment of improved technologies and practices.

(ii) Trade liberalisation tends to sharpen competition among countries, both to attract foreign investments and to grow exports, which could dampen governmental aspirations to strengthen regulations or introduce additional taxes and fees, but can also lead to a cleaner, better-protected environment, which can act as a competitive advantage to attract foreign investors. Further, strong environmental policies, as part of a predictable regulatory framework, can spur innovation and create competitive advantages, especially in environmental or green product segments. Such counter-balancing aspects interact in complex ways and usually depend on economic structure, stage of economic development and other factors. However, the fear that market liberalisation will ride roughshod over environmental regulations is ever prevalent.

(iii) Growing investments, especially in vulnerable sectors such as extraction, can increase environmental impacts, particularly in countries and regions with low public awareness, weak government regulations and implementation and enforcement, malfunctioning legal systems, and rife corruption. Poor governance tends to increase the risk of environmental harm but such risks can be multiplied upon increased inbound foreign capital due to governments at all levels turning a blind eye to transgressions by foreign investors—as witnessed by the issues of palm oil plantations and air pollution/haze (Chapter 1).

(iv) Rising overall trade volumes can increase the risk for illegal trade and smuggling (of drugs, weapons, humans, endangered species, etc.), and simplified customs procedures can compound such challenges. Similarly, construction of new transport infrastructure in previously remote areas to facilitate trade between countries can be especially damaging if pristine forests are opened up to loggers, poachers and hunters.

(v) Growing international trade increases the separation of production and consumption, which can leave consumers in the dark as to how goods are produced, as well as increased ambivalence to environmentally harmful and socially inequitable production if impacts take place far away. Consumers and private companies can also apply different ethical standards to production in other cultures.

In addition to these general concerns are other issues, mainly related to specific aspects of trade agreements, which may be relevant to regional integration, as follows.

Some trade agreements (TPP) include rules on public procurement, which can mute governmental environmental criteria in the procurement of goods and services undertaken. Trade agreements thus require careful crafting so that clauses on public procurement do not obstruct green procurement.

Strengthened protection of Intellectual Property Rights (IPR) (as in TPP) can negatively affect sustainability, as longer patents can bar access, for developing countries, to new technologies (green/resource efficient/low-carbon) and their deployment. Agreements must not hinder the uptake of technologies that assist society in sustainability objectives, and should instead speed up their deployment.

Some agreements, such as TPP, include mechanisms for Investor State Dispute Settlement (ISDS), designed to increase investor confidence and reduce the risks associated with making investments in foreign markets. ISDS actually enables private companies to sue governments, via a form of extrajudicial legal mechanism, for loss of expected profits. Such mechanisms can have a chilling effect on policymaking aimed at bolstered regulations. Governments that incorporate ISDS in agreements thus need to ensure their authority to regulate for the public good is not compromised.

(3) Complexity

It is clear that liberalised trade and investment creates both opportunities and challenges for environmental protection, but the significance of each of the mechanisms described cannot be simply judged on. Understanding how further market integration in East Asia could affect sustainable development in terms of the positive and negative effects, how initiatives or agreements would be designed and what complementary measures are needed are all determined by individual country contexts, and require more detailed analysis. What is clear, however, is that regional integration and sustainable development are multifaced and linked in complex ways. It is the intention of this book to elucidate some of these links, as well as emphasise the need for further study.

Currently, integration in Asia is being pursued with a very limited understanding of how it might affect sustainability; some countries and regions conduct Environmental Assessments or the broader-scoped Sustainability Impact Assessments (SIA), when negotiating new trade agreements. The EU is the most advanced in this regard since it conducts SIAs for all new agreements, assessing impacts in its own territory as well as in partner countries. SIAs are designed to anticipate likely impacts of trade liberalisation in areas such as income, employment, capital investment, equity and poverty, health and education, gender inequality, environmental quality of air, water and land, biological diversity and other natural resource stocks. The assessments involve quantitative analysis and comprehensive consultations with numerous stakeholders in order to reflect their knowledge and concerns in the process (EC 2014), and can help identify areas of caution for governments and other actors as regards implementation, monitoring and needs identification for capacity building.

4. Regional integration in North America and Europe – experiences and lessons for Asia

Experiences from other regions can help in discussing the potential implications for sustainable development in Asia. This section summarises regional integration in North America (NAFTA) and the EU, especially with regards to how sustainability can be promoted in the context of liberalisation of trade and investment. In brief, these experiences highlight the importance of capable regional institutions for safeguarding the environment. The formation of the EU shows how regional integration processes have been informed by historic circumstances and provides a reminder that even under favourable conditions deep regional integration requires much time and effort. The NAFTA case highlights some of the risks.

(1) The North American Free Trade Agreement – NAFTA

In 1994, the North American Free Trade Agreement (NAFTA) entered into force. Involving Canada, Mexico and the USA it aimed at facilitating trade and cross-border investment but included a number of measures aimed at protecting the interests of foreign investors, such as IPR protection and dispute resolution between foreign investors and governments. The agreement had broad, ambitious objectives; its preamble states that it is designed to promote sustainable development and boost the development and enforcement of environmental laws and regulations.

NAFTA is an important case to draw lessons from; it was the first major regional trade and investment agreement involving both developed and a developing country, and which included environmental protection and sustainable development in its objectives. NAFTA has served as a model for a number of US bilateral trade agreements and is a source of inspiration for the currently ongoing negotiations on TPP. It has also been in force for two decades, thus can be analysed in terms of effects and outcomes.

In parallel with NAFTA the three countries also negotiated a separate agreement on environmental cooperation—the North American Agreement on Environmental Cooperation (NAAEC)—which entered into force concurrently with the trade agreement. NAAEC established the Commission for Environmental Cooperation (CEC) as a regional facility to support monitoring and implementation. The NAFTA negotiations also led to the establishment of two other US-Mexico bilateral institutions associated with environmental issues: the North American Development Bank and the Border Environmental Cooperation Commission, which chiefly fund projects on water and sanitation in the region along the US-Mexico border.

NAFTA has been controversial since its very concept. Reviews of its overall consequences disagree on many fundamental points, even on how the agreement has influenced trade flows among the three countries. The general opinion, however, is that NAFTA has fallen short of its initial objectives, not only in terms of environmental protection and sustainable development but also employment and economic equality.

A 2008 report by the CEC concluded that NAFTA is neither very bad nor very good for the environment in general, but noted that the impacts “vary considerably from one sector to the next and from one region to another” (CEC 2008), and that the envisioned environmental effects of trade liberalisation, such as technology transfer and spread of good practices, generally did not materialise. The most notable positive effect was that demand in Canada and the US for goods with lower environmental impact in some cases had contributed to improved environmental performance in Mexico.

A task force convened by Boston University in 2009 found that Mexico's environment had generally worsened since NAFTA (Gallagher 2009) and attributed this to the low prioritisation of environmental protection by the Mexican government. Citing a UN study (Schatan and Carillo 2006) they noted that Mexico's spending on environmental protection and the level of inspections had declined in the post-NAFTA period, contrary to the mechanisms outlined in NAFTA.

The authors also concluded that "NAFTA's environmental side agreement and related institutions lack the authority to deal with these and other problems. In addition, they have been underfunded, relegating them to the role of interesting pilot projects rather than comprehensive tri-national mechanisms to address environmental issues." (Gallagher 2009, p.62). This assessment is in line with the findings of the CEC study mentioned above (CEC 2008), which concluded that this tri-lateral institution had been effective in providing information to a limited group of experts but had not managed to reach out more broadly and therefore had had little influence on each country's policymaking.

A recent study by the US environmental organisation Sierra Club and four other NGOs came to similar conclusions concerning the limited efficacy of the environmental safeguards established in conjunction with NAFTA (Karpilow et al. 2014). The Sierra Club study further found that environmental stressors have increased in a number of sectors, including agriculture, natural resource extraction (mining in Mexico and tar sands exploitation in Canada), and manufacturing, where regulations have fallen behind increases in production volumes. The report argues that these detrimental effects are to a significant extent due to NAFTA, which "has reduced the ability of governments to respond to environmental issues" (Karpilow et al. 2014, p.1).

(2) The European Union – EU

The European Union (EU) offers another case to study and draw lessons from. It is undisputedly the most advanced example of regional integration to date and environmental protection is one of the policy areas being harmonised across the Union.

The EU's roots go back to the European Coal and Steel Community (ECSC) in 1951, which comprised Belgium, France, West Germany, Italy, Luxembourg and the Netherlands. Its scope then increased to include more member countries and deepened integration, via delegation of national authority to the EU (Dinan 1999). Milestones include establishment of the European Economic Community (EEC) with the signing of the Treaty of Rome in 1957, establishment of the EU with the Maastricht Treaty in 1992, and launch of a common monetary policy and a single currency (Euro) in 1999 (Dinan 1999). Currently the EU consists of 28 member countries and operates through five main institutions: the European Commission, representing the interests of the EU as a whole; the European Parliament, representing the EU population; the EU Court of Justice; the Council of the European Union, representing the governments of the individual member countries; and the Court of Auditors (Wallace et al. 2010). The former three supranational institutions represent the executive, legislative and judicial powers of the EU, respectively (Tsebelis and Garrett 2001).

Supranationalism is a unique feature of the EU political system in terms of its treaties and the laws, which have primacy over their equivalents in the member countries (McCormick 2001) and come in three main forms: regulations, directives and decisions. The *regulations* are binding rules directly applicable to all member countries without needing to be turned into national law; the *directives* are binding on member countries regarding goals or objectives but not the means to achieving them, i.e., their implementation requires

changes in national law; and *decisions* are also binding but can target selective member countries, institutions or even individuals with usually very specific scope. The EU treaties, laws and obligations established are collectively known as the “*acquis communautaire*”, and acceptance thereof is a precondition for joining the EU for the country concerned (Jorgensen 1999).

The EU is relatively advanced in mainstreaming environmental protection and sustainable development. McCormick (2001) identified 14 principles related to environmental policies in the EU treaties (in particular the Single European Act in 1986, the Maastricht Treaty in 1992 and the Treaty of Amsterdam in 1997), which include the polluter pays principle, the principle of sustainable development, the precautionary principle, the principle of a high level of protection, the safeguard principle, the international principle and the integration principle. The principle of a high level of protection requires upward harmonisation of member country standards for protecting internal health, safety, and the environment. The safeguard principle allows member countries to maintain any standards that are stricter than those outlined in EU law. The international principle sets one of the objectives of the EU as the promotion of measures at the international level to address regional and global environmental issues, and stipulates that environmental protection requirements must be integrated into the definition and implementation of other EU policies (McCormick 2001).

In terms of policymaking, the Single European Act introduced qualified majority voting in the Council of Ministers for environmental proposals, which greatly improved environmental policymaking efficacy (McCormick 2001), as did the 1993 establishment of the European Environment Agency (EEA), which enabled collection of reliable, objective information via data collection and analysis via the European environment information and observation network (Eionet; established as a partnership network of EEA and its member countries). Further, the EU actively involves multi-stakeholders such as nongovernmental organisations (NGOs) in the environmental policymaking process, and in 1993 an informal General Consultative Forum on the Environment was set up by the European Commission in order to reflect opinions of various interest groups such as business sectors, consumer groups, local authorities and academic experts (McCormick 2001).

Equipped with these institutional mechanisms the EU introduced advanced regional environmental policies such as the EU directive on waste electrical and electronic equipment (WEEE directive), the EU directive on the restricted use of certain hazardous substances in electrical and electronic equipment (RoHS directive) in 2002, and the 2020 climate and energy package to achieve the 20-20-20 target (20% reduction in EU greenhouse gas emissions from 1990 levels, raised share of EU energy consumption produced from renewable resources to 20%, and 20% improvement in EU energy efficiency) by 2020. This posits the EU as having been the global leader in international environmental politics since the early 1990s (Kelemen 2010). Kelemen (2010) also points out that the EU principle of a high level of protection, as well as exposure of European firms to international competition, urges the EU to promote international agreements that pressure other countries to adopt similarly high standards. Another attribute of the EU is in its efforts to ‘green’ international trade institutions such as the WTO, designed to prevent EU environmental standards being dismissed as illegal non-tariff barriers to international trade (Kelemen 2010).

(3) Implications for regional integration in Asia

The cases of NAFTA and the EU illustrate how government priorities can influence sustainability outcomes in the context of trade liberalisation. For NAFTA, although sustainability was stated as an objective, the mandates of the institutions established therefor were too weak and capacity was lacking. Governmental follow-up actions have also been insufficient. Conversely, in the EU at least some of the economically stronger member countries display ambition with regards to environmental protection and sustainability and have raised the bar for the EU as a whole. For countries in Asia currently engaged in regional integration processes, one of the crucial questions is whether governments recognise the need for a shift to more sustainable development patterns or not.

Human resource capacity is one of the key factors influencing what regional institutions can actually do. The European Commission—the heart of the EU administration—employs over 23,000 people in total; the two Directorates for Environment and Climate have staffs of 454 and 137, respectively; the European Environment Agency, which deals mainly with monitoring and information brokerage, employs around 200, and a number of environmental research centres are part of the EU administration, adding further expertise and capacity. Whilst a comparison of EU and ASEAN secretariat capacity is perhaps unfair given that they have different mandates, it is notable in that ASEAN's secretariat employs just over 300 and the department dealing with environmental issues has less than 10. As a further comparison, the secretariat of the Council for Environmental Cooperation (the organisation set up as part of the NAFTA agreement to facilitate coordination of environmental protection in the three countries) employs less than 50.

The EU case is also a reminder that regional integration processes, especially towards deeper integration in which policy authority is partly relinquished by national governments to regional institutions, tend to proceed very slowly. The EU was also formed under different historical circumstances than those in Asia at the time the ASEAN was established in 1967—the origins of the EU date back to the late 1940s, a period of post-war rebuilding, reconciliation and peacebuilding. As the EU actually took over four decades to reach its current form, and given the differences between Europe and Asia, including history and diversity, regional integration in Asia could be forgiven for progressing more slowly. It is expected to gradually gain traction though, as countries gradually grow more economically dependent on each other.

The experiences of NAFTA are highly pertinent for the countries in Asia contemplating, or already in negotiations regarding TPP, particularly in light of the increasing environmental pressure in Mexico. Government representatives state that TPP will greatly differ from NAFTA and include better environmental and social safeguards (e.g., USDS 2015), but since TPP is an opaque, closed-door mechanism it is far from clear whether such proclamations can be substantiated. Further, even if safeguards are included, such as provisions for financial penalties on governments that fail to enforce their environmental policies, there are no guarantees they will actually be used. This is the reason why major environmental NGOs in the US oppose the TPP, i.e., because it would harm the environment.

5. Regional integration and sustainable development – lessons learnt and opportunities for synergies

5.1 Experiences of regional integration in Asia

As this chapter shows, countries in the Asia-Pacific are slowly but surely taking steps towards more coordinated regional cooperation, which is a looser form of regional integration. Many initiatives exist, often overlapping and sometimes competing, but the upcoming launch of the ASEAN Economic Community currently holds centre-stage on both political and media agenda. It is also mainly through economic agreements that countries have shown willingness to establish binding rules; non-economic initiatives, such as environmental protection, are mostly of a non-binding nature, focusing on dialogues, exchange of information on good practices, political declarations, studies, and limited implementation projects.

The review of existing integration efforts in Asia presented in this chapter shows that regional economic integration and sustainability are mostly dealt with as separate items—only limited efforts relate to substantial environmental protection programmes in regional economic integration initiatives. More effort is needed to tie-in environmental agendas with economic ones, as existing initiatives mainly stem from international organisations or trading partners outside of the region.

It is also evident that large differences in economic development in the region raise challenges for reconciling regional economic integration and sustainable development—low-income countries are typically weak in governance and preventing the negative effects of investments and trade, and middle-income countries may also face similar challenges. Further regional economic integration involving such countries should therefore tread lightly, to strengthen domestic governance capacity and monitoring mechanisms. In the long run, however, the aim should be to reduce the region's developmental gaps.

5.2 Prospects for Green Integration

Countries in the Asia Pacific are jeopardising their future development potential due to degraded environments and rising inequity, and would benefit from adopting new developmental paths that encourage healthy ecosystems, well-managed natural resources and a clean environment for human wellbeing and economic prosperity. While awareness of such is slowly growing, countries that merely compete against one another in an increasingly globalised economy will find it hard to break free from the conventional resource-intensive development model. Solutions to this dilemma need to be found on the international stage, but the process is too slow.

Against this background this book introduces the concept of Green Integration (Chapter 1), and proposes adopting such as a marriage between regional integration and sustainable development, to guide trade promotion and market liberalisation toward environmental and social objectives. It argues that joint actions at the regional level have the potential to empower countries to break away from the conventional business-as-usual pathway and formulate alternatives, and that uncoordinated unilateral action may not suffice in combatting unfavourable trends. A key obstacle to better policy is the fear over competition, and overcoming this can only be accomplished if policy reforms are effected via region-wide coordination.

The book identifies two parallel tracks for governments to promote Green Integration: (i) by establishing sustainability objectives, safeguards and promotion mechanisms in mainstream regional economic integration processes, such as trade agreements and economic partnerships; and (ii) by creating and strengthening cooperation initiatives on environment and sustainability, separate from regional economic integration. Separate cooperation initiatives can be advanced more easily in the short term, especially if they rely mainly on non-legally binding measures, but how much actual progress can be made with this approach is unknown. Mainstreaming sustainability into regional economic integration is presumably more politically challenging but offers potentially greater sustainability benefits. Experiences from outside of the region, for example NAFTA and the EU, need to be borne in mind and incorporated in the region's efforts to further liberalise trade and investment. The two tracks to Green Integration are complementary and would likely be most effective if pursued in parallel. Based on such a two-pronged strategy, the following seven chapters provide ideas on how Green Integration could be pursued in specific sectors and policy areas.

Notes

1. Timor Leste applied to join ASEAN in 2011 and is likely to become the 11th member.
2. In this chapter, FTAs include economic partnership agreements (EPAs) which are generally more advanced forms of FTAs that cover not only trade liberalisation but also rule-making, etc.

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Chapter 4

ASEAN Community and the Sustainable Development Goals: Positioning Sustainability at the Heart of Regional Integration

Simon H. Olsen, Shom Teoh and Ikuho Miyazawa

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Key Messages

- The work of ASEAN is primarily sectoral, with environmental sustainability as part of the organisation's Socio-Cultural pillar, separate from its Economic and Political-Security pillars.
- This arrangement has served ASEAN well in promoting conventional socio-economic development in areas such as trade and education, but not sustainable development, which requires more cross-sectoral coordination and policy integration—something ASEAN in its current form cannot operationalise.
- The framework of ASEAN, as a major regional organisation, could help member states formulate and pursue sustainable development models but needs to be 'rewired' in order to do so.
- Weak coordination over disparate policy areas and lack of engagement with non-state actors are the two Achilles heels of ASEAN's current framework. This chapter argues that sustainable development (and related development goals) would be better promoted via: (i) strengthened overall institutional and financial capacity of ASEAN's Secretariat; (ii) opening up ASEAN to greater engagement with non-state actors, including the scientific community; and (iii) establishing an SDG Expert Committee to support the ASEAN Secretariat and its member states in coordinating sustainable development actions that are regionally significant. The above activities should be funded equally by all ASEAN member states.

1. Introduction

The Association of South East Asian Nations (ASEAN) – by definition in its founding Declaration a region of peace, freedom and prosperity for its peoples with a common identity – is expected to reach a critical milestone by the end of 2015 through the launch of the ASEAN Community. This milestone event in South East Asia's regional integration process happens to coincide with the adoption of a new global set of development goals – the Sustainable Development Goals (SDGs) – which will replace the Millennium Development Goals (MDGs) from 2016. This chapter argues that ASEAN member states should utilise the adoption of SDGs to both strengthen and partly refocus their framework for regional integration, as doing so would better serve

sustainable development across the region. In practice, this would mean aligning the overall objectives of the ASEAN Community with those of the forthcoming SDGs and strengthening this regional framework. The chapter analyses the current structure and working modalities of ASEAN, reviews its response to the Millennium Development Goals (MDGs) and makes recommendations on how it could become better equipped to aid in successful SDG implementation throughout South East Asia.

Most observers would readily agree that community building in the region revolves around the ASEAN Economic Community (AEC). However, the 'ASEAN Community' was conceived based on a much broader vision that is underpinned by three elements – 'Economic', 'Socio-cultural' and 'Political Security' – often referred to in ASEAN parlance as the 'three pillars' comprising the AEC, ASEAN Socio-Cultural Community (ASCC) and the ASEAN Political-Security Community (APSC). This broader vision is found in the ASEAN Charter (ASEAN 2008), which underscores the need for "...sustainable development for the benefit of present and future generations...to place the well-being, livelihood and welfare of the peoples at the centre of the ASEAN community building process" (p.2). Such vision, therefore, is greatly at odds with the much narrower focus of 'liberalised' trade and investment, which runs the risk of undermining long-term sustainability unless accompanied by appropriate safeguards and capacity-strengthening measures. This chapter therefore argues that ASEAN Member States and institutions should start crafting a coherent response to future SDGs, in order to ensure that the ASEAN Community is based not only on aspirations for economic integration but also on principles of long-term sustainability, and to ensure that the sustainability aspirations of the ASEAN Charter form the bedrock of ASEAN's regional integration.

The current reality may be that economic and political interests supersede those of a social and environmental nature, but we argue that ASEAN's vision of a regionally-integrated 'community' should necessarily be more directly concerned with the environment and sustainability, and that it should establish safeguards to that end. To ensure that sustainability issues are addressed across the regional integration blueprints we also recommend the ASEAN to establish an SDG expert committee that sits institutionally across the three blueprints.

1.1 Addressing the SDGs regionally within ASEAN

Synergising the overall objectives of ASEAN integration with those of the future SDGs would be relevant for three main reasons. First, in theory, sustainable development should be pursued in a coherent manner at global, regional, national and sub-national levels, with nested objectives based on the subsidiarity principle coordinated vertically (top-down and bottom-up). Global goals such as SDGs can play a big role in galvanising support and guiding actions at the lower levels namely the regional level (via ASEAN), and further to the national and local levels in each ASEAN Member State. ASEAN regional integration could contribute positively to SDG implementation – both at the regional and country level – as long as it is organised in the proper way.

Second, as many sustainability issues, such as ecosystem management, biodiversity protection, migration, demographics and population change, climate change and disaster risk reduction are often determined by factors beyond national borders, it would be a good idea to address them through regional frameworks, raising the importance of bodies like ASEAN.

Third, sustainability of the AEC will to a large extent depend on the health of the region's ecosystems, its ability to produce clean energy and the overall health of the environment.

In this regard the 'environment', instead of being institutionally located as a sub-element under the ASCC 'pillar', needs to be attributed higher importance in the overall scheme of regional integration (ASEAN 2009a). This is also true for sustainability, which should be the overarching mission linked with development, to keep in check the effect of economic integration on the environment. The impetus to strengthen the agenda of 'environmental sustainability' through processes that reflect the future SDGs also at the ASEAN level is an opportunity that should not be missed.

1.2 Focus and structure of this chapter

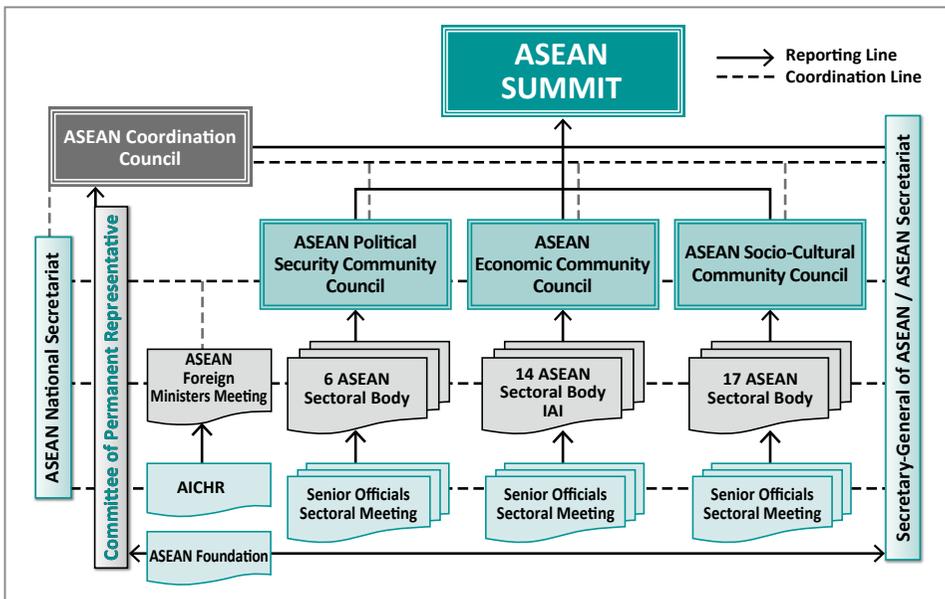
Strengthening the status of the environment and sustainable development requires institutions and mechanisms to coordinate policies and actions across multiple dimensions, sectors and themes, and this chapter asserts that SDGs should be integrated in the overall ASEAN regional integration process and reflected in institutional frameworks and mechanisms. The chapter is structured as follows:

First, the institutional frameworks in the regional integration process are briefly reviewed. Second, how MDGs (the predecessor to SDGs) have been approached in the context of the ASEAN Community institutions and actors is described. Third, perceived gaps and shortcomings in the existing institutional set-up of MDGs within ASEAN integration are examined. Fourth, a hypothetical set of SDGs – which reflect the priorities of ASEAN Member States and overlapping thematic action areas between ASEAN regional integration and SDGs – is presented. The conclusion offers suggestions to synergise SDGs with ASEAN regional integration, particularly from the perspective of improving coordination within ASEAN and using practices that have been applied elsewhere, as well as improving coordination with external supporting stakeholders.

2. ASEAN formal institutional structure

The primary responsibility for coordinating actions towards regional integration – both among ASEAN Member States and between ASEAN and other stakeholders – lies with the ASEAN Secretariat¹, which has the core mandate to 'provide for greater efficiency in the coordination of ASEAN organs and for more effective implementation of ASEAN projects and activities'. The Secretariat is envisioned as the 'nerve centre of a strong and confident ASEAN Community that is globally respected for acting in full compliance with its Charter and in the best interest of its people'.²

Naturally, it is a challenge for large regional bodies such as ASEAN to coordinate actions, which is why its functions were strengthened via adoption of a new Charter in 2008 (Letchumanan 2010). In terms of specific organs or mechanisms, the regional integration process is coordinated horizontally by the ASEAN Coordinating Council (ACC), which is represented by Foreign Ministers and meets at least twice a year. The ACC is tasked to (i) coordinate the implementation of agreements and decisions of the ASEAN Summit (the highest-level decision making organ within ASEAN); and (ii) coordinate ASEAN Community Councils to enhance policy coherence, efficiency and cooperation among them (see Figure 4.1).



Source: Wahyuningrum (2012)

Figure 4.1 ASEAN organisational structure

ASEAN Community Councils meet at least twice a year to review progress in implementation by sectoral or ministerial bodies under their purview based on decisions adopted by the ASEAN Summit (with regional integration being key on the agenda), coordinate cross-cutting issues across pillars and submit recommendations to the ASEAN Summit. The appropriate Minister from the Member State holding the ASEAN Chairmanship chairs these Councils. Below the Community Councils are the relevant sectoral or ministerial bodies and their subsidiary supporting meetings (working group level), which provide recommendations to the Councils on relevant issues according to their respective mandates.

At the level below the ACC, Community Councils are also supported by the Committee of Permanent Representatives (CPR), which consists of ambassador-level representatives who work with the ASEAN National Secretariat and ASEAN Sectoral Ministerial Bodies. The CPR liaises with the Secretary-General and ASEAN Secretariat on all subjects and daily affairs relevant to the work of ASEAN. One of the key roles of CPR is to facilitate and strengthen ASEAN cooperation with external partners.

Implementation of regional integration activities is guided by the overall Roadmap for an ASEAN Community (2009–2015), which consists of three Community Blueprints as well as the Initiative for ASEAN Integration (IAI) Work Plan 2 (ASEAN 2009a; ASEAN 2009b; ASEAN 2009c). These activities fall under three types: (i) nationally-driven initiatives; (ii) regional activities that enhance or complement national initiatives through shared experience, information and knowledge; establishment of regional networks; and joint regional approaches (e.g., development of regional work programmes); and (iii) regional activities that involve setting up regional mechanisms or standards. For regional integration and for the future SDGs, activities at all these levels will be important.

Monitoring and evaluation (M&E) mechanisms for the regional integration process have been gradually developed and have also been enhanced over time. A key mechanism is the ASEAN Community Progress Monitoring System (ACPMS), which aims to measure the progress of achievement of ASEAN's main goals for only the AEC and ASCC. This system was based on the ASEAN Baseline Report (ABR), a preliminary study commissioned in 2006 by the ASEAN Secretariat and conducted by a team of consultants to provide an objective description of the baseline situation. More comprehensive M&E frameworks of the ACPMS were developed in 2007 and 2012 with the support of donors into its current form. The ACPMS itself is intended to complement other efforts of M&E, such as the Mid-term Review of ASCC and the ASEAN Economic Community Scorecard (which only measures compliance in implementing the specific measures and actions mentioned by the AEC Blueprint, and not the progress in achieving the objectives of the AEC (ASEAN 2014)). The ASEAN Political-Security Community Council (APSCC) receives periodic reviews on its implementation progress by ASEAN Coordinating Conference for the ASEAN Political-Security Community.

3. The MDGs and ASEAN

3.1 ASEAN's institutional response to the MDGs

The following section provides an overview of ASEAN's institutional response to the MDGs, with a view to making suggestions as to how to improve ASEAN's organisational structure in support of implementation of future SDGs. The MDGs are complementary to ASEAN integration goals. Table 4.1 shows the occurrence of MDG themes in the three Community blueprints, and since ASEAN has already incorporated MDGs into its blueprints, it would be logical to continue doing so with the SDGs. However, we also note that the somewhat inconsistent incorporation of MDGs in the blueprints could imply that for the future, new development goals would have to be more consistently incorporated in the objectives across all three blueprints.

Table 4.1 Occurrence of MDGs within ASEAN Community Blueprints

MDGs	Occurrence in the three blueprints for regional integration			Corresponding mechanisms
	AEC	APSC	ASCC	
Goal 1 (poverty eradication)	✓		✓	Ministers Meeting on Rural Development and Poverty Eradication Meeting of ASEAN Ministers on Agriculture and Forestry
Goal 2 (education)			✓	Ministers Meeting on Education
Goal 3 (gender equality)			✓	ASEAN Committee on Women
Goal 4, 5, 6 (health)	✓		✓	Ministers Meeting on Health Development Meeting on Social Welfare and Development (child-related)
Goal 7 (environment)			✓	Ministers Meeting on Environment Minister-level meeting on transboundary haze
Goal 8 (global partnership)	✓	✓	✓	All sectoral bodies

As seen in the table above, it is notable that MDGs are not strongly represented in either the AEC or APSC. Even within the ASCC, the main responsibility in each goal has been tasked to selected mechanisms such as the Ministers Meetings on Rural Development and Poverty Eradication as well as Agriculture and Forestry for Goal 1 (poverty eradication). For Goal 8 (global partnership for development), all sectoral bodies related to MDGs are involved but there is no coordination mechanism dedicated to such. The environment unexpectedly falls into the weakest of the three pillars with no mention in the other two. Moreover, most of the mechanisms listed in the table are high-level meetings, thus it is unclear to what extent these meetings have contributed to the implementation of MDGs at national or sub-national levels. Regularly updated, country-specific data does exist on the performance of ASEAN member states as regards the MDGs (ESCAP, ADB and UNDP 2012), but it is difficult to prove any causal links between the actions of regional agencies and progress at the national level. These shortcomings should be taken into account and remedied via the SDGs to increase the likelihood of an integrated and coherent response to the new development goals.

How has ASEAN been cooperating with others in the work pertinent to the MDGs? The ‘tracks’ terminology has been used previously to describe the modes of engagement in regional or inter-governmental processes, and is useful for further analysing how the MDGs have been handled in the three ASEAN Communities. There is no universal definition for the ‘tracks’, but this paper adopts an interpretation that is consistent with the general usage in literature for the Asian region.³

According to the literature (Taylor et al. 2006; Morrisson 2009), ‘Track 1’ (T1) refers to official, government-led activities, while ‘Track 2’ (T2) refers to unofficial activities with

close links to 'Track 1', led by external and non-government entities, including the research community. T1 and T2 are seen as functioning symbiotically. To T1 actors, T2 may serve as: (i) a source of advice and expertise, especially for emerging or highly dynamic issues; (ii) a relatively 'safer' and more conducive socialising space for discussion and to generate new ideas, especially on sensitive issues; and (iii) an alternative route for action when T1 is stalled.

T1 refers to the activities of all official ASEAN bodies (ASEAN Summit, ministerial or other official meetings, etc.) carried out by national government representatives from ASEAN Member States. Meanwhile, T2 refers to activities outside T1 led by non-ASEAN, non-government entities, including other governments⁴ (in ASEAN terminology they are referred to as 'Dialogue Partners'), supporting organisations such as the UN (an ASEAN Dialogue Partner since 2007), as well as other international or regional organisations, academia and nongovernmental organisations (NGOs).

In general, non-government affiliated T2 actors who are not Dialogue Partners have a limited role in ASEAN formal meetings. Typically, only ASEAN Member States (T1 government representatives) have formal standing in ASEAN meetings. The participation of T2 actors is determined by official nomination by T1 actors, after which they may act as members of government delegations for specific purposes – as technical resource persons, advisors or project implementing partners who assist in providing reports and inputs into ASEAN meetings for example.

Actions on MDGs in the context of the ASEAN have been pursued at varying levels by both T1 and T2 actors, from high-level expressions of political commitment, to policymaking, as well as implementation and monitoring and evaluation, as summarised in Table 4.2 below.

Table 4.2 Existing work for MDGs that can be built on and adapted for SDGs

Levels of action	Existing work for MDGs that can be built on and adapted for SDGs	
	Track 1 Actors	Track 2 Actors
High level expression of commitment	An MoU was signed between the ASEAN Secretariat and UN to work closely on promoting regional security and achieving MDGs (2007) Joint Declaration on the Attainment of the Millennium Development Goals in ASEAN (2009)	Informal consultations and discussions between T2 actors with ASEAN Secretariat and ASEAN government officials outside ASEAN processes. Provision of technical advice and inputs to T1 ASEAN meetings as a government delegation member during high-level and policy formulation meetings
Policymaking	Incorporated as action lines in the ASCC Blueprint (2009) under the elements of: <ul style="list-style-type: none"> • Poverty Alleviation⁵ • Access to Healthcare and Promotion of Healthy Lifestyles⁶ • Improving Capability to Control Communicable Diseases⁷ ASEAN Roadmap on the Attainment of MDGs (2012) – a regional study conducted by ASEAN Secretariat (with Australian Government’s support)	
Implementation	National and regional MDG-relevant activities by ASEAN member states acting on the high-level ASEAN expression of commitment	Activities which are designed explicitly to support MDGs, particularly by country-based UNDP offices, ADB and World Bank and their partners, as well as NGOs and academia such as AIT’s ASEAN Regional Centre of Excellence for the MDGs (ARCMDGs)
Monitoring & Evaluation	Overall monitoring by ASEAN Secretariat and the ASEAN Coordinating Council ASEAN Statistical Report on Achieving the MDGs	ESCAP’s Asia-Pacific Regional MDG Report (2007) ESCAP/ADB/UNDP Asia-Pacific Millennium Development Goals (MDGs) Report (2012) MDG Reports by UNDP country offices Assessment papers by various universities, research institutes and think-tanks

Source: Authors’ Compilation

The MDGs have been a largely UN-driven agenda, so the UN was naturally a key T2 actor for the introduction of them into the ASEAN framework, but given that the UN is mandated by governments, it has a special standing compared to other T2 actors. ASEAN and the UN held joint summits in 2000 and 2005.⁸ Subsequently, the UN General Assembly invited ASEAN to participate in its sessions and work in an observer capacity in 2006. Then the ASEAN Foreign Ministers in 2007 accorded the United Nations full Dialogue Partner status. In 2007, an MoU was signed between the ASEAN Secretariat and the UN to work closely on regional security and promoting the MDGs (ESCAP 2010).

The 2007 MoU was followed by the signing of the Joint Declaration on the Attainment of the Millennium Development Goals in ASEAN (ASEAN 2009d) which acknowledged that various complementary actions on MDGs are being pursued concurrently through a

range of ASEAN initiatives.⁹ In addition, selected action lines in the ASCC Blueprint refer to the MDGs, for example in the case of health, poverty alleviation and others.

As a response to the Joint Declaration on the Attainment of the MDGs, the Asian Institute of Technology (AIT) established the ASEAN Regional Centre of Excellence for MDGs (ARCMDGs). One of the achievements of this Centre was the formulation of the ASEAN Roadmap on the Attainment of MDGs (2011). Among others, the Roadmap proposed actions such as: (i) identification of MDG Focal Points within each ASEAN member state (i.e., within Ministry of Planning); and (ii) reporting progress in implementation by ASEAN member states of the Roadmap 2011 through the ASCC as well as for the ASEAN Heads of Statistical Offices Meeting (AHSOM) MDGs Statistics Report.

Concurrently, T2 actors appear to have played a more prominent role in implementing practical activities, including capacity building and M&E, as publicised through MDGs progress reports at regional and national levels. ADB, World Bank, UNDP and other UN agencies, such as WHO and UNICEF, have played significant roles in implementing projects and programmes in collaboration with national ministries and partners.

The MDG experience within ASEAN can be capitalised on when devising ways in which future SDGs can be more holistically integrated into ASEAN regional integration processes. What are the lessons from these ASEAN institutional responses to MDGs when considering SDGs? The following section briefly analyses the strengths and weaknesses of these mechanisms.

3.2 Analysis of ASEAN's institutional treatment of MDGs: challenges and gaps

The MDGs successfully gained T1 high-level commitments, which are reflected in key documents such as the Joint Declaration on the Attainment of MDGs in ASEAN (ASEAN 2009d) and subsequently the Roadmap for an ASEAN Community 2009–2015 (2009). This led to the formulation of an ASEAN Roadmap for the Attainment of the MDGs in 2011 (ASEAN 2012), which was spearheaded by the ASEAN Secretariat and a T2 actor (AIT) with the support the Australian Government.

However, the recommendations and actions of the Roadmap (ASEAN 2012) appear to have gained only limited traction. For instance, the roadmap came relatively late, and as a result, has so far had limited impact on accelerating implementation and developing a solid monitoring mechanism. More generally, MDGs work has not been explicitly linked into the ASEAN regional integration process. The Roadmap indicates that ASEAN's work on MDGs shall contribute to the process of ASEAN regional integration, but this mainly concerns areas situated within ASCC and its linkage to other communities remain unclear. Thus while there seems to be a high level commitment, there is also a lack of concrete action lines within and between relevant community pillars for the MDGs.

This means that to ensure meaningful implementation and monitoring of the Roadmap's prescriptions and strategy, there needs to be effective follow-up and coordination between the ASPC and ASCC Focal Points at both the country (between line ministries) and ASEAN (between two pillars) level. In theory, individuals acting as MDG Focal Points (i.e., within national planning ministries) could act as bridges connecting AEC, APSC and ASCC. However, typically Focal Points are changed, and often there is insufficient transfer of information from the predecessor to the successor, and this lack of continuity obstructs effective coordination over time. Second, although in theory the coordination of work across and within pillars is the responsibility of the ASEAN Community Councils and the ASEAN Coordinating Council, these bodies function more as a series of high-level

'meetings' rather than as a working-level forum within ASEAN where Focal Points can convene for in-depth discussions on how to coordinate actions for MDGs implementation and cross-pillar actions (as well as ASEAN regional integration) (Chalermplanupap 2009).

The ASEAN Secretariat is supposedly directly responsible for coordinating action across ASEAN organs and pillars, but is generally acknowledged to be understaffed and under-resourced considering the scale of its operations and responsibilities (Nesadurai 2013a; Chongkittavon 2012). Compared to the past, many ASEAN countries are more developed and have a larger potential to support a stronger ASEAN, but the matter is rather one of priorities – it would be a simple calculation to estimate the cost of adding staff to the ASEAN secretariat, and our guess is that even 100 extra staff would cost significantly less than, say, a single fighter jet.

In other words, these institutional and capacity barriers render T1 actors within ASEAN as unlikely candidates for promoting the level of coordination that MDGs have required. At this point, it must be also noted that both the Joint Declaration and Roadmap were developed relatively 'late' – almost a decade after the MDGs were introduced in 2000 – so there has been somewhat limited time for implementing follow-up actions. For the future SDGs it is recommended that ASEAN provide a joint response faster to allow more time for follow-up both at the level of ASEAN and in countries.

This brings us to the role of T2 actors, who may be more effective in leading coordination across line ministries and across pillars within ASEAN. A key T2 actor involved in developing the MDGs Roadmap for ASEAN is the ARCMDG hosted by AIT. The operations of ARCMDG in following-up the Roadmap have been limited so far, possibly due to the lack of funding and also recent changes within AIT. It has also been a challenge for ARCMDG to be directly and continuously involved in the ASEAN processes and meetings related to MDGs as it relies on invitations from ASEAN Member States or Dialogue Partners. This may happen simply because the national Focal Points have changed or lost track of developments in past meetings. It may also partially reflect the closed and bureaucratic nature of the ASEAN itself, where there is no strong mandate or incentive for ensuring and promoting the participation of non-government T2 actors in its meetings and processes.

Compared to non-government actors like AIT, Dialogue Partners (i.e., Australia, who has supported work on MDGs) are formally involved in ASEAN meetings and processes, and also have a stake in ensuring follow-up of key processes, but this may also not be pursued strongly due to changes in the Dialogue Partner Focal Points as well as fluctuating regional cooperation policies. In terms of monitoring and evaluation, it must be noted that data on the progress of regional integration and MDGs achievements may overlap. The Mid-Term Review of ASCC Blueprint also recognises the inadequate M&E tools and knowledge management system in ASEAN ASCC (ASEAN 2014). Data collection and analysis for both the regional integration process and MDGs has been highly challenging and ASEAN has required assistance from T2 actors in this task (ASEAN 2011). It has proven challenging to obtain complete and comparable data across ASEAN member states.

Therefore, it is reasonable to assume that the task of harmonising indicators for the MDGs across ASEAN countries, as well as strengthening statistical systems, is a crucial one, but it is beyond the realistic reach of ASEAN (ASEAN 2011). Hence, T2 actors such as ESCAP and UNDP may be better positioned to lead the monitoring role, including publication of MDGs progress reports at regional and national levels, in cooperation with the ASEAN Secretariat.

4. SDGs and ASEAN regional integration

4.1 Inherent linkages between the SDGs and ASEAN regional integration goals

Given that MDGs have been pursued at the national level and are also reflected in the ASEAN regional integration blueprints, this section makes some tentative recommendations as to how ASEAN through its regional integration process could institutionally respond to a new set of development goals. However, since there are no agreed goals at the moment, the following section uses the outcomes from a workshop exercise carried out in the latter half of 2013 in the ASEAN Secretariat in Jakarta.¹⁰ This workshop focused on the future SDGs, taking participants through a number of simulated negotiations to reveal common Focus Areas for goals among the participating ASEAN country representatives.

After presenting the context of the future SDGs and some proposals (ASEF 2014), participants proceeded to identify possible priority areas for development in the respective ASEAN countries, and were then divided into groups to conduct mock negotiations aimed at deciding on possible ASEAN-wide priorities for SDGs.¹¹

At the end of the two-day workshop, the representatives formulated a statement (Annex 1), which outlined the possible development priorities for ASEAN SDGs. The excerpt below (Table 4.3) outlines these priorities, and how they occur in the Blueprints for the ASEAN Community.

Table 4.3 Results of ASEAN mock-negotiation exercise

Goals as result of the ASEAN mock-negotiation exercise	Occurrence in the 3 Blueprints for regional integration		
	AEC	APSC	ASCC
Recognising the need to strengthen cooperation among ASEAN Member States, we are committed to pursue the following ASEAN Sustainable Development Goals:			
1. Reaffirm our commitments to reduce poverty in the region as an indispensable requirement for sustainable development.			✓
2. Emphasise the need to secure sustained access to nutritious food through increased productivity of food production as well as limiting the negative impacts of food production.	✓		✓
3. Reaffirm the importance of universal access to quality education.			✓
4. Recognise the importance of access to healthcare and health services for all.	✓		✓
5. Advance environmental sustainability, improve disaster risk reduction management, as well as minimise the impacts of climate change.		✓	✓
6. Recognise the need to ensure sustained supply of energy through, <i>inter alia</i> , the promotion renewable energy use.	✓		
7. Endeavour to narrow the development gaps, both at regional and national levels.	✓		✓
8. Enhance good governance through improved transparency and accountability, as well as increase efforts in strengthening capacity monitoring and performance evaluation.	✓	✓	
9. Establish an ASEAN sustainable development goals (SDGs) fund.	✓		

Reflecting what ASEAN member states might pursue as region-wide SDGs, the direction set forth in the Jakarta Statement (annex 1) is mainly a reiteration of the MDGs with more ambitious moves in sectors such as energy, quality education, environmental sustainability and good governance. Furthermore, the mock-negotiations also offer clues on: (i) institutional overlap and where coherence should emerge; (ii) which issues are already prioritised in current development blueprints, and (iii) which issues may have to be added or receive more emphasis, as a result of real SDGs negotiations. One notable example is that closely related issues such as climate change and disasters are added to the environment thematic cluster, and it is possible to recognise these issues not only in the SCB but also in the PSCB blueprint – providing impetus for more cross-sectoral integration of environment issues than can be presently seen in the blueprints for regional integration.

Moreover, Table 4.3 shows that both the AEC and the ASCC Blueprints dedicate attention to thematic areas of (i) food security, quality and sustainability of production; (ii) health issues and universal healthcare; and (iii) regional and national development gaps. Horizontal coordination by the CPR or another institutional framework would be important in these three development areas. Issues pertaining to good governance are emphasised in both the AEC and the APSC blueprints, and matching mechanisms to avoid overlaps should be considered here, as well as increased synergies. Both of the APSC and the ASCC blueprints are problematic in terms of environmental sustainability, and since natural resource use and environmental degradation may become increasingly relevant for political stability and security of the region, cooperation in these themes would seem relevant for ASEAN as well.

Issues mentioned in only one of the Blueprints does not mean that they are not important, but indicates that coordination among the regional integration institutions may be delegated to only one pillar. Important emphases are placed on the primary concerns relating to poverty reduction (ASCC), which have political and economic implications, as well as financial aspects (AEC), which of course are strongly anchored in the AEC Blueprint. Other cross-cutting priorities that the ASEAN Secretariat has identified for 2015 and beyond include the environment, disasters, and health.

4.2 Policy integration: EU experience and relevance to ASEAN and SDGs

The following section will briefly summarise the main findings from a few reviews of regional integration at the EU level. This is done mainly to see if there are any lessons or pointers as to how regional integration could proceed for ASEAN, whilst taking into account environmental and wider sustainability issues.

Some literature (Peters 1998; cited in Steurer and Berger 2009) on environmental policy integration (EPI) in the EU has reviewed the use of institutional mechanisms and arrangements to drive cross-sectoral integration. However, while the literature documents little success resulting from their use, the reviewed practices could be applied to integration of SDG priorities in the ASEAN regional integration context.¹²

At the high levels of agenda and direction, some examples from the EU include so-called 'political declarations of intent', which are often based on shared constitutional documents (Jordan 2008) such as the Amsterdam or Maastricht treaties. These declarations highlight the importance of environmental sustainability in their preambles and objectives and help place specific components on the agenda despite the fact that they offer no concrete means by which such intentions can be realised. As such they represent a step in the right direction.

Political declarations of intent already exist at the ASEAN level, but are yet to be explicitly linked to SDGs. Articulating them would be the logical first step when the SDGs emerge and could be anticipated earlier, so that the almost ten-year delay that occurred with the integration of the MDGs into ASEAN's work can be avoided. In fact, such political agenda-setting could potentially prove more useful for ASEAN than it did in the EU context, because the SDGs will already exist as national level commitments once they have been negotiated at the intergovernmental level in late 2015. Thus, reaffirming a commitment via such declarations at the ASEAN level would be backed up by existing commitments at the country level, and such reaffirmation should not be a very difficult task for this reason.

At the operational level, one way to increase horizontal coherence is establishing integration units mandated to design and implement sustainability appraisals or screening tools of policy proposals at the regional level for their potential impact on SDG issue areas. Jordan (2008) reveals that at the level of the EU such appraisals lacked momentum since they were articulated only at the regional level, and it seems to have been difficult to institutionally reflect this at the national level without a pre-existing national commitment to do so. Here again, extant national commitments to future SDGs may prove to be the spark to ignite national level action.

SDG-Committees could also be one way to institutionalise integration at the ASEAN level. It may be possible to establish one that could act in an advisory role to inform the ASEAN Coordinating Council of possible implications of different regional integration policies on SDGs. Such a committee would need to consist of experts from across the region with thorough and region-specific knowledge, both on sectoral issue areas and their interlinkages. The success of such a committee would depend on its professional and financial capacity, and could be one of the initiatives supported by the SDG Fund, as proposed in the Jakarta Statement (see Annex 1).

5. Concluding recommendations

The ASEAN regional integration framework requires balanced, coherent and coordinated actions in three pillars – economic, political security and socio-cultural – and for the resulting development to be of a mutually reinforcing, and not undermining nature. Yet in reality economic integration tends to take priority, with little coordinated action under the economic pillar taking place with the other two areas. The adoption of the SDGs represents an important waypoint and opportunity for ASEAN to shift from its 'business as usual' paradigm of development, in which economic development runs roughshod over all else, especially the environment, to a paradigm that elevates sustainable development, in the quest for regional prosperity.

However, the cross-cutting nature of Sustainable Development, as articulated for example in the SDGs, makes it hard to find a 'comfortable' fit within ASEAN's current structure. ASEAN's treatment of the MDGs suggests that with the existing structure effective coordination will be challenging. The ASEAN itself is based on three loosely-coordinated Community pillars that are further subdivided into a large number of sectoral ministerial and working-group mechanisms, and which also involve a number of Dialogue Partners and external non-government stakeholders.

As shown in the previous sections, the MDGs have mainly been handled within the ASCC and institutional links of ASCC with other pillars have been limited. However, in contrast, the future SDGs should be more embedded throughout the three Community Blueprints.

For instance, AEC and ASCC are both related to food and health, as well as to addressing development gaps at regional and national levels. Similarly, APSC and ASCC are linked in terms of environmental sustainability and disaster risk reduction, and AEC and APSC both handle issues related to good governance.

Without effective institutional coordination mechanisms *across*, as well as *within* these Communities (and within national institutions among the ASEAN member states for that matter), ASEAN's institutional response for the future SDGs will likely be fragmented and as a result only provide very limited support for national and sub-national implementation¹³.

Hence, it might be meaningful to consider establishing an SDG expert committee – which does not strictly reside within any of the three Community pillars – that is tasked with coordination of multiple sectoral bodies relevant to SDG actions and which reports directly to the ACC. The committee could consist of ASEAN staff from all member countries and, once momentum has been achieved, also include regional experts from other sectors of society. The first task for this committee could be to undertake a comprehensive study on the inter-linkages and potential cross-pillar effects of the measures undertaken under the three Community pillars from a holistic, sustainable development perspective.

It must also be recognised that the ASEAN Secretariat needs to be boosted significantly in terms of finances and human resources to the level where it is capable of carrying out far more effective coordination than at present. And in this respect, although ASEAN Member States have historically been reluctant to provide additional resources for a more empowered ASEAN Secretariat or for establishing additional mechanisms, their attitude seems to be changing, as evidenced by the recent Declaration on strengthening the ASEAN Secretariat and reviewing the ASEAN Organs.¹⁴ Further, countries in the ASEAN are wealthier than before, thus the timing is right for strengthening the Secretariat and providing it with the necessary human resources – after all, the cost of an upgrade can't be much compared to other less sustainable priorities of countries in the region.

The EU's experience on horizontal institutional and cross-sectoral coordination in relation to sustainability shows how leadership and coordination can be bolstered to advance integration of the future SDGs within the regional integration framework. This applies especially for the 'softer' approaches that may be more suitable given the ASEAN principles of non-interference, and the emphasis countries place on national sovereignty (Nesadurai 2013).

In spite of the above anticipated challenges, there are some recommendable pragmatic, incremental actions that may be pursued by T1 and T2 actors and that fit within the existing institutional constraints of ASEAN and build on the past work related to MDGs, as outlined in Table 4.4 below.

Table 4.4 Recommended actions for regional coordination and cooperation

Level of action	Recommended actions by T1	Recommended actions by T2
High-level Expression of Commitment	<p>ASEAN Leaders to incorporate SDGs as the successor to MDGs at future ASEAN Summits</p> <p>ASEAN Coordinating Council to:</p> <ul style="list-style-type: none"> clarify/specify/mandate responsibility of SDG-regional integration activities to CPRs and ASEAN National Secretariats establish ASEAN Development Fund with support for SDG activities within ASEAN framework 	UN agencies to build awareness of SDGs among ASEAN Secretariat and ASEAN member states and aid with capacity for implementation
Policymaking	Revise the ASEAN Roadmap on the Attainment of MDGs into a new Roadmap for Attainment of SDGs	ARCMDGs, ESCAP and others to initiate close connections to official ASEAN dialogue partners and T1 (governments) for regional policy coherence
Implementation	CPR and ASEAN National Secretariat to link directly with country-based implementing agencies such as ADB, WB, UNDP, WHO, UNICEF	IOs with access to T1 processes to propose implementation mechanisms, and offer funding resources or coordination services
Monitoring & Evaluation	Same as above, in terms of collecting data and information for M&E across multiple ministries	
Intra-ASEAN Coordination among SDGs	Create 'coalition of the willing' among countries with common challenges in specific SDG thematic areas	IOs support implementation capacity among the 'coalition of the willing'
Overall multi-stakeholder Coordination	Governments support emerging participation mechanisms as proposed by NGOs in the region	NGOs develop closer working relationship and trust with T1

In terms of expression of high-level political commitment, T1 should continue to play a strong role. As with MDGs, SDGs and regional integration should be explicitly, systematically and closely linked in terms of high-level political support throughout planning, implementation and monitoring phases and the adequate existing institutions at T2 levels should be involved to provide expert support and input. The high-level expressions and policies may consider assigning greater responsibility and mandates to nationally-oriented T1 actors – CPRs and National Secretariats – working with expected lead agencies of the UN and development banks to strengthen coordination and collaborative efforts on SDGs, especially on implementing practical actions and M&E.

Furthermore, ASEAN Leaders should consider establishing the ASEAN SDG Development Fund (goal 9) with the support of its Dialogue Partners. The initiative for such a fund would have to be established at the highest level, i.e., at the UN-ASEAN Summit and would need to be maintained and replenished probably by public sector funding from ASEAN member states themselves. The fund could be used to bolster human resources through twinning programmes among ASEAN member states to help coordinate country-based implementation action with regional M&E actors, such as international

organisations in the region (ESCAP and ARCMDGs). Aligning such an approach with external development support could happen if ASEAN member states use an SDG promotional approach to Dialogue-Partner funded projects at the ASEAN level, and at national/country programme levels. Japan (JICA) is already experimenting with such approach in Lao PDR under the IAI framework, the aim of which is to integrate the country's needs and participation more actively and fully in ASEAN processes and activities.

As mentioned earlier, in terms of policymaking and implementation, ASEAN's institutional structure makes institutional coordination for cross-sectoral and cross-pillar actions, as well as with external supporting stakeholders, a key challenge. There is no quick-fix for the fragmented implementation within and across its pillars. Nevertheless, T2 actors, such as UN agencies, ADB, World Bank, IGES, and regional networks of practitioners should at least aim to improve coordination of implementation efforts at the country level, as well as do more in linking with and providing inputs to the CPR, ASEAN National Secretariats and the ASEAN Secretariat informed of country-level and regional work relevant to SDGs in the context of ASEAN regional integration.

Monitoring and evaluation should ideally reside within the ASEAN Secretariat, which would imply that needs to increase its capacity and resources. One clear challenge relates to the lack of available data, and the capacity to collect and analyse data on development aspects covered by potential SDGs. For the MDGs, some directions have already been established, primarily through the T2 level monitoring and reporting initiatives, but more emphasis needs to be paid to harmonising development-related indicators across ASEAN countries. Moreover, the efficacy of existing information-sharing mechanisms and forums, such as ARCMDGs, remains limited. Rather than creating new mechanisms, donors might wish to consider mobilising funding and other resources to strengthen and support existing mechanisms and institutions (both within and outside of ASEAN) already conducting M&E.

ESCAP, UNEP, UNDP and others (ARCMDG) may be suitable T2 actors for leading M&E efforts in SDG progress, working in close partnership with relevant ASEAN bodies such as the CPR and national secretariats – even at the working group level.¹⁵ This would make sense, not only in terms of ESCAP being the principal UN Secretariat in the region, but also to provide follow-up on behalf of the UN so that it can help ASEAN member countries meet their global and ASEAN commitments. This is all the more plausible, since the UN was accorded full ASEAN Dialogue Partner status in 2007, in return for being awarded Observer status in the UN General Assembly.

Acknowledgement

This research was conducted with the support from the "Project on Sustainability Transformation 2015 (S-11-4)" for the Environment Research and Technology Development Fund of the Ministry of Environment, Japan.

Notes

1. The ASEAN Secretariat, based in Jakarta, has a staff of around 270.
2. Former ASEAN Secretary General Dr. Surin Pitsuwan harbored this ambitious aspiration. With the the recent adoption, by the 25th ASEAN Summit in Naypyitaw, of the Declaration on Strengthening the ASEAN Secretariat and Reviewing ASEAN Organs, there is now some hope that regional support and recognition will be there for the Secretariat to fulfill this role.
3. While there is no official definition of the different tracks, other authors have discussed the terms. See for instance Noel Morada, 2007 on "The ASEAN People's Assembly and Track 2 ½ Diplomacy". Yuyun Wahyunigram has also written on

- the different tracks. ASEAN practitioners usually refer to Track 2 as the research track and Track 3 as the civil society/NGO track. The parliamentary input is referred to as Track 1.5, as are conferences/workshops that mix government and research.
4. Australia, Canada, China, EU, India, Japan, Republic of Korea, Pakistan, Russia, UN and the United States; Pakistan is only a 'sectoral' and not a 'full-fledged' Dialogue Partner.
 5. B1/19-i "Develop and implement an ASEAN Roadmap towards realising the UN Millennium Development Goals in consultations with concerned sectoral bodies with a view to identifying and extending technical assistance required in the field of poverty reduction".
 6. B4/22-i "Promote investment in primary health care infrastructure, in a rational manner and likewise ensure adequate financing and social protection for the poor and marginalised populations for better access to services and achievement of health-related Millennium Development Goals (MDGs)".
 7. B5/23-iv. Reduce the impact of HIV transmission and the impact of HIV epidemic, consistent with the Millennium Development Goals (MDGs), the UNGASS declarations on HIV and AIDS, ASEAN Commitments on HIV and AIDS, and Third ASEAN Work Programme on HIV and AIDS".
 8. Subsequent ASEAN-UN Summits were held in 2008, 2011 and 2013.
 9. They are: Framework Plan of Action on Rural Development and Poverty Eradication, the projects/programmes on poverty and quality of life in the Initiative for ASEAN Integration (IAI) Work Plan, the Joint Statement of the Third ASEAN Education Ministers' Meeting, the Work Plan for primary education, gender equality as well as combating certain infectious diseases for Women's Advancement and Gender Equality (2005-2010) and the Work Plan to operationalise the Declaration on the Elimination of Violence against Women (2006-2010), the ASEAN Work programme on HIV/AIDS and the measures on health development and sustainable development in the Vientiane Action Programme as well as the ASEAN Declaration on Environmental Sustainability.
 10. The training was organised and facilitated by ASEF, IISD, and IGES representatives, who presented findings from a research project on SDGs, along with a methodology for countries to identify relevant targets and indicators at national levels to match global SDGs. Following this context setting, the ASEAN representatives were given several tasks, involving identifying their own country priorities for SDGs based on hand-outs containing targets and indicators found in national documents.
 11. Note that the results of this do not infer positions of countries **and that this outcome in no way has any official legal status**. The findings are merely the result of a very early stage action-research. At the time of this workshop no SDGs existed, so none of the participating ASEAN representatives came with a negotiation mandate. Nevertheless, the results revealed a certain level of interest across ASEAN nations for future SDGs.
 12. One marked difference between EPI and integration of broader sustainable development concerns is that – compared to environmental policies only, sustainable development includes social and economic concerns and may precisely therefore fare less poorly than the attempt at EPI in the EU.
 13. The Mid-Term Review of the ASEAN ASCC Blueprint (2014) also suggests this point on enhancing coordination and cross-sectoral mechanisms such as strengthening Focal Point networks, in particular for cross-sectoral issues and shared targets such as MDGs and the future SDGs.
 14. This declaration is from November 12 2014 and can be read at http://www.asean.org/images/pdf/2014_upload/Declaration%20on%20Strengthening%20the%20ASEAN%20Sec%20and%20Reviewing%20the%20ASEAN%20Organs.pdf
 15. An MoU was signed between ASEAN Secretariat and UN to work closely on promoting regional security and achieving MDGs - this can be specifically enhanced/reviewed to specifically incorporate SDGs and follow up at the high level, through the regular UN-ASEAN Summit.

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Annex 1: Jakarta Statement (result of mock negotiation exercise)

Jakarta Statement on the ASEAN Sustainable Development Goals in the context of the Post-2015 Development Agenda

We, the representatives of ASEAN Member States, participating in the Workshop on Sustainable Development Goals (SDGs), convened in Jakarta, Indonesia, from 2 to 4 September 2013;

Recalling the resolve of the ASEAN Member States as enshrined in the ASEAN Charter, ASEAN Roadmap for the Attainment of the Millennium Development Goals adopted by ASEAN Leaders at the 19th ASEAN Summit in November 2011 in Bali, Indonesia, and other relevant ASEAN documents, to “ensure sustainable development for the benefit of the present and future generations to place the wellbeing, livelihood and welfare of the peoples at the centre of the ASEAN community building process”;

Recalling the outcome document of the General Assembly on the MDGs in 2010, entitled “Keeping the Promise: United to Achieve the MDGs”, the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, in June 2012, with the outcome document entitled “The Future We Want”;

Reiterating the importance of peace and security as the fundamental condition to attain sustainable development in the region;

Recognising the need to strengthen cooperation among ASEAN Member States, we are committed to pursue the following ASEAN Sustainable Development Goals:

1. Reaffirm our commitments to reduce poverty in the region as an indispensable requirement for sustainable development.
2. Emphasise the need to secure sustained access to nutritious food through increased productivity of food production as well as limit the negative impacts of food production.
3. Reaffirm the importance of universal access to quality education.
4. Recognise the importance of access to health care and health services for all.
5. Advance environmental sustainability, improve disaster risk reduction management, as well as minimise the impacts of climate change.
6. Recognise the need to ensure sustained supply of energy through, inter alia, the promotion of the use of renewable energy.
7. Endeavour to narrow the development gaps, both at the regional and the national level.
8. Enhance good governance through improved transparency and accountability, as well as increase efforts in strengthening capacity in monitoring and performance evaluation.
9. Establish an ASEAN sustainable development goals (SDGs) fund.
10. Extend our deep appreciation to the Government of the French Republic for the excellent arrangements made for the meeting.
11. Recognise the value of the process of developing targets and indicators and commitments of countries.

Chapter 5

Sustainable Management of Natural Forests in the Asia- Pacific Region: Implications of Regional Economic Integration and Measures to Avoid Potential Environmental Harm

Lead author: Henry Scheyvens

Contributing authors: Taiji Fujisaki and Federico Lopez-Casero

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Key Messages

- Asia's forests are resources of multiple-significance for the region and the planet as a whole—for community livelihoods, as a source of timber and fibre, for natural control over water flows, to store carbon and as home to many unique species and ecosystems.
- Deforestation and forest degradation are rapidly eroding these values.
- Regional trade in forest products is already extensive but could expand further due to continued trade liberalisation.
- Increasing production of forest products, driven by expanded trade and domestic demand, could place further stress on the region's forests.
- Regional initiatives play a key role in reducing such risks, as a complement to actions at the national level.
- This chapter recommends a number of actions that can be promoted through regional collaboration to reduce the potential harm of integration to forests: (i) developing responsible public and private sector procurement policies, (ii) establishing legal standards and verification processes, (iii) eco-labelling of wood-based and agricultural products, (iv) green building codes and standards, and (v) mandatory environmental and social lending criteria.

1. Introduction

Forests cover about 592 million hectares (ha) or 19% of the land area in Asia (FAO 2010) and provide a wide range of ecosystem services that are important locally, nationally and globally. Despite these services, high rates of deforestation and forest degradation are found in many parts of the Asia-Pacific region. While Southeast Asia holds only 5% of the world's forests, it experienced 25% of global forest loss between 2000 and 2010 (Blaser 2010) and the entire Asia-Pacific region experienced a net decline in forest carbon stocks between 1990 and 2010 (FAO 2010).

Given that countries in the region are becoming increasingly economically integrated, what, if anything, does this mean for the region's forests? Without strong environmental

controls in place, it seems likely that whilst some sectors or populations may benefit from integration under certain conditions, deforestation and forest degradation will continue to be major problems in the region. Conversely, if mechanisms to promote responsible trade, financing and investment are undertaken in parallel, new resources and institutions for forest management could be created. These observations lead to the following questions:

- How could regional integration affect forest resources?
- How can we protect forests, i.e., mitigate the potential damage?

These questions are considered timely as the Association of Southeast Asian Nations (ASEAN) aims to establish an ASEAN Economic Community by 2015, amid growing recognition of the importance of the region's forests as storehouses of biodiversity and carbon and how they can reduce the risk of disasters, as well as their values and use in adapting to climate change.

To answer these questions, this paper draws mostly on a literature review and a basic analysis of trade and investment flows. It begins with analysing the current status of economic integration in the region, explains why there is already a high degree of integration in the wood-based products sector and what factors impact integration, discusses the potential for specific integration instruments to impact forests through trade and investment flows in the sector, and concludes by suggesting a range of measures that could help protect forests from potentially harmful impacts of economic integration.

2. How integrated is the region's wood-based products sector?

Integration could potentially impact forest resources by increasing cross-border trade, financing, investment and labour flows in all sectors related to forests and forest land, i.e., forestry, agriculture, mining and energy, amongst others. This paper limits its analysis to the current extent of integration in the wood-based products sector, with the understanding that a comprehensive study that reviews integration impacts on other sectors relevant to forest resources and land is needed.

Economic integration can be defined as a staged process through which a group of countries gradually coordinate or merge their economic policies over time with the purpose of lowering trade barriers and other economic obstacles between them, thereby expanding markets and trade, lowering prices, and improving the competitiveness of trade partners through lower costs and economies of scale (USITC 2010). This *formal* integration includes the establishment of institutions, policies or legislation as outcomes of deliberate political actions. Integration can also be *informal* when economies begin to integrate with or without formal, authoritative intervention (Wallace 1990) and *substantial* in terms of the actual flow of commodities, finances and labour. Making this distinction allows analysis of both the *formal structures* that remove barriers between economies and *substantial integration* in terms of actual cross-border trade, finance, investment, labour, and commodity chains.

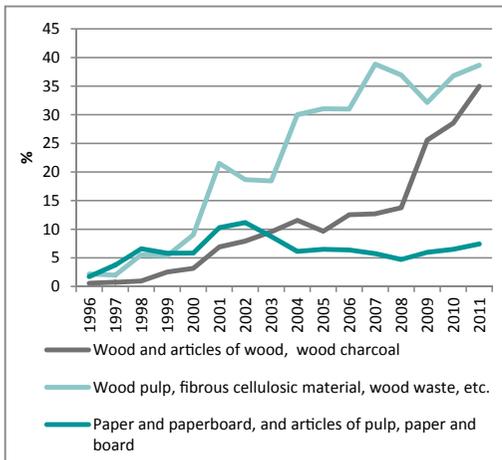
2.1 Intra-regional trade

Export and import statistics for major wood-based products show that a high degree of *substantial* integration already exists in the sector. The world's major tropical log trade

flows are found within the region. Malaysia is the world’s largest exporter of tropical logs, followed by Papua New Guinea (PNG) and Myanmar. In 2011, half of Malaysia’s log exports went to India, with the remainder taken by other Asian markets; PNG exported 90% of its logs to China; and 56% of Myanmar’s log exports went to India, with China taking another 30% (ITTO 2012). China is now the world’s largest tropical log importer, followed by India, Japan, Taiwan, and Republic of Korea (ITTO 2012). In 2011, 55% of China’s tropical log imports were from PNG and Solomon Islands (ITTO 2012), while 44% of India’s imports were supplied by Malaysia and 26% by Myanmar, with PNG also providing a significant volume (ITTO 2012). Viet Nam and Thailand also play important roles as staging posts for Mekong wood flows through to China, Republic of Korea and the rest of the world.

The Asia-Pacific region also accounts for much of the global trade in tropical sawnwood, veneer, plywood and secondary processed wood products (SPWPs).¹ In 2011, 58% of exports and 76% of imports of tropical sawnwood took place in the region (ITTO 2012). Malaysia, Thailand and Indonesia are the largest exporters, and China, Thailand and Malaysia are the top importers (ITTO 2012). Malaysia, Indonesia and China are the world’s largest exporters of plywood, while Japan accounts for nearly half of global imports (ITTO 2012).

Bilateral trade statistics suggest that integration in the wood-based products sector is growing rapidly at the regional level. For example, from 1996 to 2011 the total share of wood and wood articles and wood charcoal exported from countries in the Pacific to China leapt from 0.6% to 35%; for wood pulp, fibrous cellulosic material, wood waste, etc., from 2.2% to 38.7%; and for paper and paperboard, and articles of pulp, paper and board, from 1.7% to 7.4% (Figure 5.1). A similar upward trend can be seen for Vietnamese exports of the same commodities to the ASEAN+3² countries, which grew from an average of 43% in 2001 to an average of 72% in 2010 (Figure 5.2).



Source: UN COMTRADE database.

Figure 5.1 Share of selected wood-based product exports from Pacific islands imported by China, 1996–2011

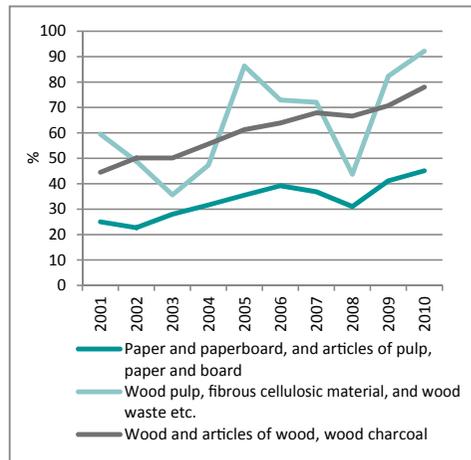
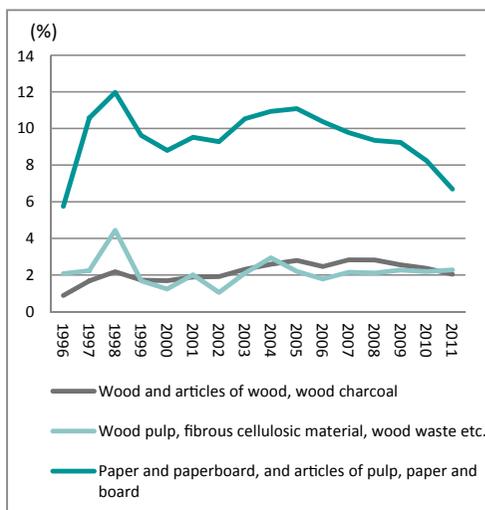
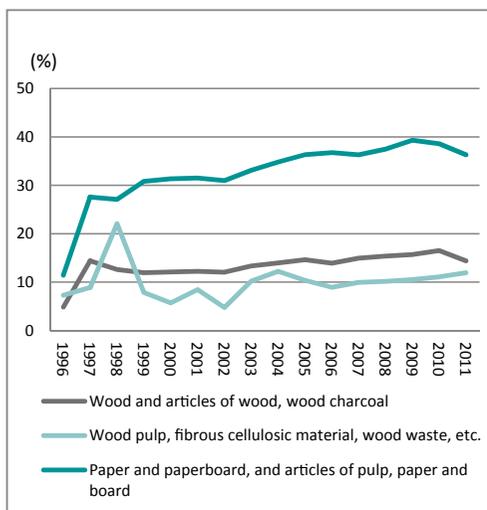


Figure 5.2 Share of selected Vietnamese wood-based product exports imported by ASEAN+3, 1996–2011

Intraregional trade intensity and trade share provide a more precise picture of the degree of economic integration.³ In 2011, the ASEAN intraregional trade intensity for wood and articles of wood and wood charcoal was 2.0, for wood pulp, fibrous cellulosic material, wood waste, 2.3, and for paper and paperboard, and articles of pulp, paper and board, 6.7 (Figure 5.3). As a score of more than 1 indicates that the trade flow within the region is larger than expected given the importance of the region in world trade (RIKS 2008), these figures indicate a high level of integration within ASEAN. However, progress on integration in the sector has not been steady. Both intraregional trade intensity and trade share for selected wood product categories increased rapidly up to 1997/1998, dropped suddenly after the Asian financial shock and for some products declined after the global financial crisis of 2007-2008 (Figure 5.3, 5.4).



Source: Asia Regional Integration Center (ARIC) database (<http://aric.adb.org/integrationindicators#>, accessed 11 March 2014).

Figure 5.3 *Intraregional ASEAN trade intensity for selected wood-based products, 1996–2011*

Figure 5.4 *Intraregional ASEAN trade share for selected wood-based products, 1996–2011*

2.2 Intraregional investment

Statistics and examples reported by various sources suggest that foreign direct investment (FDI)⁴ in the wood-based products sector is significant for some Asia-Pacific countries and may be increasing.⁵ In the case of natural forest management, perhaps the largest control of concessions by foreign investors can be seen in PNG, where Malaysian companies hold about 80% of the timber permits (Scheyvens and Lopez-Casero 2013). Chinese investment in logging natural forests in Myanmar is also thought to be considerable (USITC 2010).⁶ In some parts of the region, FDI in intensively-managed timber plantations is also significant and may grow further as supplies of timber from natural forests decline. Japan is reported to be the largest source of FDI for plantations, with joint investments underway in Thailand, Viet Nam and Indonesia (USITC 2010). Chinese state-owned enterprises (national, provincial and municipal) are another significant source of FDI for forestry.⁷ China’s Ministry of Commerce overseas investment approval records show that Chinese investments in forestry and land use in Asia have mainly been directed at Lao PDR, where rubber plantations have

been targeted to provide rubber for China's growing vehicle industry (Brack 2014). Xiufang and Canby (2011) list five Chinese paper companies with plantation expansion plans in Lao PDR in 2010, indicating that a growing need for paper pulp is also driving Chinese FDI.

FDI can be especially large when countries share a land border. For example, the Vietnamese military, other private firms and a Vietnamese labour force are heavily involved in the logging, timber processing and wood export sectors in Lao PDR (Forest Trends 2010). Logs are either processed in the country by wood processing plants run by Vietnamese managers and staffed by Vietnamese labour, or directly shipped to Viet Nam (Forest Trends 2010). Yanfang (2008) reports that Chinese companies have also invested heavily in timber harvesting and wood processing in Russia, and are involved as intermediaries in the commercial log depots and control the wholesale timber market in some parts of the country. This investment has been promoted by both the Russian and Chinese governments through a series of supportive statements and programmes (Brack 2014).

3. What factors affect the degree of economic integration?

The previous section indicates that economic integration in the region's wood-based products sector in terms of trade, FDI and in some places also labour force, is already high but also that the level of integration can fluctuate significantly over time. Clearly, the degree of *substantial integration* is influenced by more than just *formal integration* arrangements. A study by the US International Trade Commission found that integration of the hardwood plywood and flooring sectors amongst ASEAN members is affected mostly by (i) supply of raw materials, including supply of materials that are verified as legal or certified as sustainable; (ii) competition within the region, especially with the emergence of China as a major competitor, and (iii) product standards required to sell into industrialised country markets (USITC 2010). Looking beyond hardwood plywood and flooring, the factors that influence integration in the region's wood-based product sector can be categorised as follows:

3.1 National differences in factor endowments

There are large differences in amounts of land, labour, resources and entrepreneurship (or "national factor endowments") that encourage integration in the wood-based products sector. The region can be split up into countries that act as raw material suppliers and those that process or transform them. The suppliers are those countries with rich natural forest assets that lack the means to process these onshore, due partly to high costs and poor infrastructure. This group includes PNG, Solomon Islands, Lao PDR, Cambodia, Russia and Myanmar; the Malaysian state of Sarawak can be considered a supplier of raw materials for Sabah, another Malaysian state. These countries supply timber to international markets as well as a second group of countries, the "transformers", that process the wood materials into value-added products for export. The main transformer countries are China, Viet Nam and Thailand. Another group of countries – Indonesia and Malaysia – have large, though shrinking natural forest estates, and large wood processing sectors that were developed through attractive government loans and subsidies (Barr 2001). This third group is important for the region as suppliers of value-added wood materials to major regional consumer markets, such as Japan.

The above grouping of countries is somewhat simplistic as it uses a static characterisation that does not capture how national factor endowments can change over time as countries develop. Nevertheless, it conveys the basic message that national factor endowments are a major driver for integration in the region.

3.2 Growth in regional and domestic markets

Regional markets for wood materials are growing as economies expand and this drives integration, but can also have complex outcomes. In parts of the Asia-Pacific region, domestic demand for housing as well as for furniture and other SPWPs has been growing because of rising income levels, population growth and urbanisation, which helps explain why some of the world's largest trade flows in wood products and materials are now found within the region. Experiences in India and China both illustrate this point. A boom in construction in India, which the Government encouraged with loan subsidies and taxation incentives to the building industry, led to an increase in log and plywood imports (ITTO 2012). In China, urbanisation and rising income levels have increased the imports of wood for joinery and furniture (ITTO 2012) as well as paper and paperboard for writing paper, magazines, photocopying, cardboard boxes, paper bags and toilet paper (Xiufang and Canby 2011).

The growth of regional markets does not always mean greater integration, however. For example, growth of the construction and the domestic furniture industries in Indonesia led to a significant drop in its tropical plywood exports (ITTO 2012), though this is also likely associated with the rise of China as a competitor in the plywood export trade. The experience in Malaysia was similar, with a buoyant housing and construction sector causing some log and sawnwood exporters to turn their attention to the domestic market (ITTO 2012). The relative rate of growth of economies in the region is also important. This is evident from the fact that tropical plywood buyers in Japan, once the world's largest wood importer, have found themselves having trouble competing with the rapidly growing market for tropical plywood in India.

3.3 Legality assurance

Some major timber markets and buyers now require assurance from their suppliers that wood materials were legally harvested. The US, EU and Australia have enacted legislation that prohibit the trading of illegally harvested timber, while Japan, the Netherlands, Germany, Denmark, the UK, France, Spain, Belgium, Norway and New Zealand have all introduced policies to avoid the use of illegal timber in public procurement, and some major companies involved in the wood products trade have introduced procurement policies to keep illegal wood out of their supply chains. These initiatives on timber legality have important implications for integration as the main countries supplying tropical logs to the region's processing hubs have problems with legal compliance in their forestry sectors (Blaser 2010). The outcomes could include shifts in supply chains as well as diversion of regional wood product exports from the EU, US and Australian markets to the less discerning regional markets.

3.4 Dwindling timber supplies from natural forests

The region has been highly competitive in the international wood-based product markets sector because its extensive tracts of tropical forests have provided a source of abundant, cheap and highly regarded wood products with desirable technical attributes and aesthetic qualities. However, supplies of high quality, large diameter tropical logs in the major producer countries are dwindling, due to over-harvesting of natural forests, land conversion and, in some countries, progress in the enforcement of laws and regulations that limit timber harvests to sustainable levels (ITTO 2012). This impacts integration in complex ways, as some cross-border value-added product chains that use wood from natural forests may disappear, while cross-border investment in timber plantations is likely to increase.

3.5 Logging and log export bans

China, Viet Nam, and Thailand have introduced natural forest logging bans, while Indonesia, Fiji, Thailand, the Philippines, Lao PDR, Cambodia, Viet Nam, Myanmar and Peninsular Malaysia have introduced log export bans. The aims of these bans are to protect remaining natural forest estates and/or to promote domestic processing industries. The impacts of the bans on integration can be complex. While a log export ban means that a country can no longer export logs to other countries, suggesting that integration would decline, some countries with log export bans have become major timber importers and processors, particularly China, Viet Nam and Thailand, suggesting that in some cases the bans may have increased integration.

4. Are formal economic integration processes likely to have any impact on the region's remaining natural forests?

Given that there is already a high degree of substantial economic integration in the wood-based products sector, the apparent slowdown in the pace of integration after the Asian financial crisis, and the array of factors that influence integration in complex ways, there may be some doubt as to whether further development of formal economic integration arrangements will have any implications for the region's remaining natural forests. The discussion below takes up this issue, reflecting on a variety of measures and instruments that are being promoted through various economic integration processes.

4.1 Tariff reduction/elimination

Developing countries in the Asia-Pacific region have committed themselves to significant tariff reductions and elimination through regional processes such as ASEAN. In common with many of its other priority integration sector roadmaps, the ASEAN Roadmap for Integration of Wood-Based Products Sector targets tariff elimination, removal of barriers to investment and improved trade facilitation (USITC 2010). Tariffs on hardwood plywood and flooring amongst ASEAN members have historically been as high as 40% (USITC 2010), but as of 1 January 2010 intra-ASEAN tariffs on wood-based products were mostly zero or less than 5% (ASEAN Secretariat). ASEAN has concluded free trade agreements (FTAs) with a number of countries in the region that are either important as wood product exporters, importers or both, including China, Japan, Republic of Korea, Australia-New Zealand, and India, and these FTAs will further reduce the average tariff on wood-based products in the region.

Further tariff reduction could have some impact on the regional trade in wood-based products. A US International Trade Commission study foresees tariff elimination leading to greater regional industry integration in the hardwood plywood and flooring sector by reducing the costs of combining wood materials from different countries in a finished product (USITC 2010). The International Tropical Timber Organisation also expects that tariff reductions under the ASEAN-China Free Trade Agreement (ACFTA) will impact trade by increasing the competitiveness of Chinese wooden furniture in ASEAN markets (ITTO 2012).

Tariff reductions on "forest-risk" agricultural commodities, i.e., commodities whose production is often associated with forest conversion, could also have implications for the region's forests. An obvious example is palm oil, which is widely associated with deforestation in Indonesia and Malaysia, and has become a major threat to forests in PNG. The regional trade in palm oil has been growing rapidly and this trend is set to

continue as regional economic integration progresses. With the launching of the ASEAN-China Free Trade Area, China reduced its import tariff on palm oil from 30% to 9%, leading to a 27% growth in Malaysian oil palm product exports to China between 2008 and 2013 (People's Daily Online, 13 Jan. 2010).

4.2 Removal of non-tariff trade barriers

Measures that can act as non-tariff trade barriers (NTBs) for wood-based products take various forms and can have a considerable impact on international trade (FAO 2005). These include export restraints such as total log export bans, export quotas, or selective bans based on species; phytosanitary regulations; specific aspects of building codes; procurement policies favouring legal and sustainable timber; and laws prohibiting the trade in illegally harvested timber. Governments may resort to NTBs to protect their domestic industries from international competition, but it can be difficult to know when this is their intention (FAO 2005).

How economic integration processes might impact NTBs is unclear. Some integration processes include agreements to work towards eliminating NTBs, e.g., the Interim Technical Working Group on Common Effective Preferential Tariff for the ASEAN Free Trade Area is working on NTB elimination, but governments that have committed to tariff reductions may still look to NTBs to protect their industries from international competition.

4.3 Trade facilitation

As a result of economic integration processes, the role of customs authorities is moving away from that of a "gatekeeper" towards trade facilitation and security (Gordhan 2007). These transformations are apparent in ASEAN trade facilitation measures, such as streamlining procedures at ports of entry and harmonising documentation requirements, and in the development of national and ASEAN single windows, i.e., the concept that traders only have to deal with one government agency which then passes on information to other government agencies (USITC 2010). The precise extent to which these types of trade facilitation measures are likely to impact the trade in wood-based products is unclear, but based on interviews with industry representatives USITC (2010) concluded that ASEAN trade facilitation processes have benefited the trade in hardwood plywood and flooring in the region through the reduction of transaction processes and costs. The same study found that border crossing in the Greater Mekong Subregion, which is slowed by permits and fees as well as the practice of off-loading trucked goods at the border crossing and reloading them on to a different vehicle for the remainder of the journey, is becoming smoother. This may reflect progress in implementing the Cross Border Transit Agreement signed in 1998 by Viet Nam, Lao PDR, and Thailand and later joined by Cambodia, Burma, and China (ADB 2011; USITC 2010).

4.4 Investment liberalisation and financial sector integration

Investment liberalisation

There is thus already considerable intra-regional investment in various sectors that poses a threat to forests. Nevertheless, if regional integration removes the remaining barriers to investment, still greater investments in activities associated with forest destruction could eventuate. These barriers include the prohibition of outright land ownership by foreigners, non-access to national treatment for foreign investors, and the restriction of investment in concessions to joint ventures with local majority ownership (USITC 2010).

ASEAN has been working on the removal of investment barriers through the ASEAN Comprehensive Investment Agreement (ACIA), signed in February 2009 and slated to enter into force after ratification by all ASEAN members. ACIA facilitates investment by providing new investor protections, clear timelines for investment liberalisation and benefits to foreign-owned, ASEAN-based investors. The ASEAN-China Investment Agreement, which has provisions on fair and equitable treatment to investors, non-discriminatory treatment on nationalisation or expropriation, and compensation for losses, also aims to reduce investment barriers (Soerakoesoemah 2012).

Financial sector integration

The Asian Development Bank Regional Integration Monitor foresees continued efforts to integrate banking through regional arrangements and initiatives such as the ASEAN Economic Community and free trade agreements (ADB 2014). Financial integration processes include the ASEAN Banking Framework, which aims to enable ASEAN banks to enter and operate in banking markets within member states, and to eliminate discrimination against foreign banks. While the cross-border flow of financial instruments is relatively small, it is increasing, especially credit flows from Japanese and Australian banks (ADB 2014). Further analysis is required to understand whether these increases are likely to have any implications for the region's natural forests.

5. How to conserve the region's remaining natural forests in the context of regional economic integration

The overall impression gained from the review of regional economic integration processes and instruments presented above is that formal integration arrangements could pose further threats to the region's remaining natural forests. Given that these forests provide important ecosystem services to the region and globally, and hold significant value for future generations, the region's leaders promoting economic integration have a responsibility to ensure this outcome doesn't become a reality. The options available to them include a "hard" policy approach involving building environmental commitments into integration instruments, or a "soft" approach built around regional co-operation and support for actions by national governments, or a combination of the two.

In the region there is little political appetite for the first option, with leaders having steered regional agreements away from binding commitments and controls on environmental issues, instead preferring to agree to co-operate on them. The ASEAN-China Free Trade Area (ACFTA) and the Trans-Pacific Partnership Agreement (TPP) are cases in point. In analysing the background to ACFTA, Gao (2012, 118) concludes "for China, an FTA is about trade and trade only. China did not force ASEAN to accept side deals on non-trade issues". Abidin and Aziz (2012, 57) explain that ACFTA started with "low-common denominators among the 11 nations". At first glance, the TPP, currently being negotiated by 12 countries,⁸ appears to have taken a stronger approach on environmental issues, as it has an Environment Paper. The Environment Paper, dated 24 November 2013, mentions illegal logging and other key environmental issues for the region, including biodiversity, indigenous knowledge and resources, over-fishing and climate change. However, these environmental elements were mostly pushed by the US (though there are exceptions with, for example, Peru and Mexico pushing for further text on the rights of indigenous peoples) and other countries have been reluctant to accept them because of commercial and political interests (Kelsey 2014). As a consequence, the environmental elements are weak and unenforceable. In terms of combatting illegal logging, they are limited to exchanging information and experiences (TPP 2013).

Given that the political context of the region seems to prefer a low denominator approach on non-economic issues when integration agreements are being signed, how is it possible to ensure that economic integration does no net environmental harm? Making full use of existing initiatives and building on shared agendas may offer the best prospects for achieving sustainable forest management in this context. While economic integration focuses on trade and investment liberalisation, the major economic integration processes in the region do have formal environmental agendas and have established various forums and bodies – meetings, taskforces, expert groups, etc. – to promote these agendas. For example, ASEAN has set up several forums to promote the sustainable management of forest resources. The ASEAN Ministerial Meeting on Agriculture and Forestry (AMAF) promotes collaboration between member countries on food, agriculture and forestry. The objectives of AMAF include not only increasing intra-regional trade in agricultural and forestry products, but also promoting regional collaboration for the management and conservation of natural resources for sustainable development. The ASEAN Senior Officials on Forestry (ASOF) acts under AMAF, focusing specifically on promoting regional cooperation in the forestry sector. It has established several expert and working groups, including the ASEAN Working Group on a Pan-ASEAN Timber Certification Initiative and the ASEAN Wildlife Enforcement Network (ASEAN-WEN).

APEC initiatives relevant to the environment include the Anti-Corruption and Transparency Experts' Task Force, which was established in 2005 and upgraded to a working group (the Anti-Corruption and Transparency Experts' Working Group, ACTWG) in 2011. The main aim of the ACTWG is to fight corruption and promote transparency, both of which are serious issues for forestry in the region. The ACTWG included illegal logging as a priority issue in its medium term work plan.

The APEC Expert Group on Illegal Logging and Associated Trade (EGILAT) is another APEC initiative. EGILAT was established by the APEC Ministers Responsible for Trade in 2011, the same year in which the APEC Leaders' Declaration included a commitment to take actions to stop the trade in illegally harvested timber and to combat illegal logging. EGILAT's work plan for 2014 included two meetings to discuss the sharing of information on capacity building, and strengthening the capacity of member countries to address illegal logging and associated trade; developing an understanding of how legality is defined by countries; and planning for other activities, such as via a workshop on legality assurance systems.

Several measures that would reduce the potential harm of regional economic integration to forests and that could be promoted through APEC's and ASEAN's environmental agendas, as well as through other relevant initiatives in the region, are discussed below.

5.1 Collaboration to tackle the trade in illegally harvested timber

Collaboration to stop the trade in illegally harvested timber is one area that could benefit significantly from greater and more systematic regional cooperation, as it has proven difficult for countries acting alone to stop the movement of illegally harvested timber across their borders. Areas in the region known as "hotspots" for the cross-border movement of illegally harvested timber include parts of the national borders of countries in the Greater Mekong Subregion, i.e., Cambodia, China, Lao PDR, Myanmar, Thailand, and Viet Nam, the border between Sawarak (Malaysia) and Kalimantan (Indonesia), and between China and the Russia Far East.

Regional enforcement drives

There are in fact some examples of regional collaboration on enforcement that are relevant to the trade in illegally harvested timber. These have focused on combating the trade in illegal wildlife, but have included tree species listed in appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Two such one month operations, code named “Operation Cobra” and Operation Cobra II,” were conducted in early 2013. The operations resulted in over 400 arrests and more than 350 major wildlife seizures, including seizures of more than 200 metric tonnes of rosewood logs and 42 metric tonnes of red sanders wood (LATF 2014, CITES Management Authority of China 2014).

The successes of these two operations highlight the importance of multi-agency and regional collaboration. The operations were overseen by an International Coordination Team (ICT) chaired by the China National Interagency CITES Enforcement Coordination Group and, in the case of Cobra II, also the Lusaka Agreement Task Force (LATF). The ICTs included investigators from participating countries from Africa, Asia and the US, who were joined by staff from the World Customs Organisation, CITES, INTERPOL, LATF, the ASEAN Wildlife Enforcement Network, and the South Asia Wildlife Enforcement Network.

The organisation and implementation of these types of enforcement operations deserve further study to understand how they can be conducted most effectively, including whether additional regional and national bodies should be involved. If these operations are infrequent events and limited to CITES-listed species, they are unlikely to have a significant and lasting effect on the cross-border movement of illegally harvested timber. If, however, they were conducted on a regular basis and in an integrated manner to strengthen existing national enforcement capacities and activities, and if their scope was expanded to cover all tree species, they could potentially make an important contribution to responsible timber trade in the region.

Customs collaboration to combat the trade in illegally harvested timber

Customs collaboration is essential to any regional initiative on enforcement of trade-related matters. An IGES study found that customs law is often violated when illegally harvested timber is transported across borders, meaning that customs authorities have a mandate to act on the trade in illegally harvested timber (Scheyvens and Lopez-Casero 2010). However, it can be difficult for customs agencies acting alone to thoroughly investigate the movement of suspect timber. The World Customs Organisation (WCO) recognises the importance of collaboration between customs agencies in dealing with infractions and provides protocols in its Johannesburg Convention for mutual administrative assistance and information sharing. The WCO also drafted a model bilateral agreement to guide its member countries in drafting bilateral agreements on mutual administrative assistance.

The IGES study examined various types of agreements between customs agencies, which include legally binding customs mutual administrative assistance agreements (CMAAs) and non-legally binding memoranda of understanding, and other similar cooperative arrangements, from the perspective of whether they would be useful to combat the trade in illegally harvested timber. The study concluded that while these agreements are general in nature and thus do not specify illegal logging or any other issue as a problem, they do provide important protocols for useful sharing of information on spontaneous and request bases. As CMAAs, MoUs and other agreements for collaboration already exist between countries in the region, a stocktaking of these and analysis of how they might be used to increase collaboration on suspect timber movement would be useful.

Another way of moving the idea of greater customs collaboration to combat the trade in illegally harvested timber forward would be to develop a support programme for the neighbouring countries of Viet Nam, Cambodia, Lao PDR, and Thailand. Action is needed to reduce the trade in illegal timber between these countries, and the commonalities they share could pave the way for some form of sub-regional programme. Customs-to-customs MoUs already exist amongst the four countries and such relationships can be built upon.

Regional processes and platforms could also be targeted for regular meetings between customs, forestry and other relevant departments. ASOF might be an appropriate venue, given that in 2007 it made a statement on the importance of customs collaboration to combat the trade in illegally harvested timber. ASEAN's Customs Procedures and Trade Facilitation Working Group, which was designed to take up any issues relating to customs integration, could also be approached to take up this idea. APEC's EGILAT could also be lobbied, as its work plan for 2014 included the option of approaching the APEC Sub-Committee on Customs Procedures (SCCP) to hold a joint meeting on issues facing customs procedures for forest products.

Specific measures that could be supported through existing platforms and processes include:

Making better use of RILO A/P: The WCO established the Regional Intelligence Liaison Office for Asia and the Pacific (RILO A/P) as its focal point of intelligence analysis and liaison of enforcement cooperation with member administrations in the Asia and the Pacific region. RILO A/P provides a platform for member administrations to identify critical areas that require attention in the region, which can include environmental issues in-so-far as they are relevant to customs agencies. WCO member countries could be encouraged to officially request that control of illegal trade in timber and other forest products be incorporated as a priority element of the RILO A/P work programme.

Expanding the function of CEN: The WCO collects data and information for intelligence purposes through its global enforcement information and intelligence tool, the Customs Enforcement Network (CEN). CEN manages a 'seizures and offences' online database that stores intelligence submitted voluntarily by member customs administrations, including on CITES-listed tree species, so has some relevance to forest resources. Using CEN, member customs administrations are able to check high risk carriers, routes, *modus operandi* and other information relevant to their enforcement work. Member countries could request illegal wood to be included as a separate category of the CEN seizures database; seizure information is reported under 13 categories, but illegal wood is not one of these. All member countries could be encouraged to submit information on illegal timber trade (seizures and infractions) to RILO A/P, which would then be entered into the database.

Customs agreements on use of export declarations to reduce timber smuggling: Stamped export declarations provide some indication of product legality and have greater enforcement consequences than commercial and shipping documents. Thus, timber smuggling might be reduced by having export declarations sent in advance of shipments (prior notification) to customs in the importing country. This would require an agreement between the exporting and importing countries on the use of export declarations as a check on timber legality. This idea could be piloted by two or more countries, with support from RILO A/P and relevant ASEAN and APEC bodies.

5.2 Promoting responsible trade

National timber legality assurance systems

National timber legality verification systems are being developed by several countries in the region to provide assurance that all their wood-based products are fully legal. These initiatives have been spurred by the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, which was launched in 2003. The FLEGT Action Plan sets out a range of measures to increase the capacity of producer countries to control illegal logging while reducing the trade in illegal timber products between these countries and the EU. These measures include the development of legality standards through a participatory multi-stakeholder process and establishment of a timber legality assurance and licensing scheme within individual producer countries. The principle instruments to implement the Action Plan are Voluntary Partnership Agreements (VPAs), which are legally binding bilateral commitments to trade only in timber that has been verified as produced in compliance with a mutually recognised national standard of legality.

The greatest progress in the development of a national timber legality assurance scheme can be seen in Indonesia, which signed a VPA with the EU in February 2014. Indonesia's national Timber Legality Assurance System (TLAS; in Indonesian *Sistem Verifikasi Legalitas Kayu*, SVLK) was established under two regulations in 2009. The regulations provide national definitions of legal timber and sustainable forest management, with detailed principles, criteria, indicators and verifiers covering aspects of forest production and processing. Verification guidelines setting out the methods and appraisal norms to be used are also specified. The government has made SVLK certification compulsory for all timber producers, traders, processors and exporters, and several bodies have been accredited by the Indonesian National Accreditation Committee (KAN) as SVLK certifiers.

While Indonesia is the only country in the region to have signed a VPA with the EU, Malaysia, Viet Nam, Lao PDR and Thailand are involved in formal negotiations on VPAs with the EU, and Cambodia and Myanmar have expressed interest in them (FERN 2014). Interest in the development of national timber legality assurance systems can also be found outside of programmes under the EU FLEGT Action Plan. For example, both the State Forestry Administration (SFA) of China and the PNG Forestry Authority (PNGFA) are developing such systems. The concept behind the China Timber Legality Verification System (CTLVS) is for SFA to act as an accreditation body that certifies other bodies to issue licenses for timber in producer countries that meets the CTLVS standard (Scheyvens and Lopez-Casero 2013). The PNGFA is developing its Timber Legality Standard (TLS) as part of a package of outputs that consists of a 'wood products tracking and chain of custody verification system', a database to assist in the monitoring and reporting on the flow of timber products, a legality standard and an industry code of conduct for legal forestry activities (Scheyvens and Lopez-Casero 2013).

There is now enough experience with national timber legality assurance systems for a regional dialogue to extract lessons and discuss good practices for promoting this instrument. In its 2014 work plan APEC's EGILAT has the mandate to consider holding a workshop on national timber legality assurance systems, so could be an appropriate venue to initiate discussion. However, the promotion of a regional dialogue on this topic would require careful planning to overcome possible tensions, while at the same time ensuring meaningful, output-oriented discussion. Tensions could arise as countries involved in the development of legality verification systems with the aim of agreeing on a VPA have exposed themselves to a lot of external scrutiny over agreed principles,⁹ while China and PNG have not been exposed to such scrutiny.

Voluntary certification

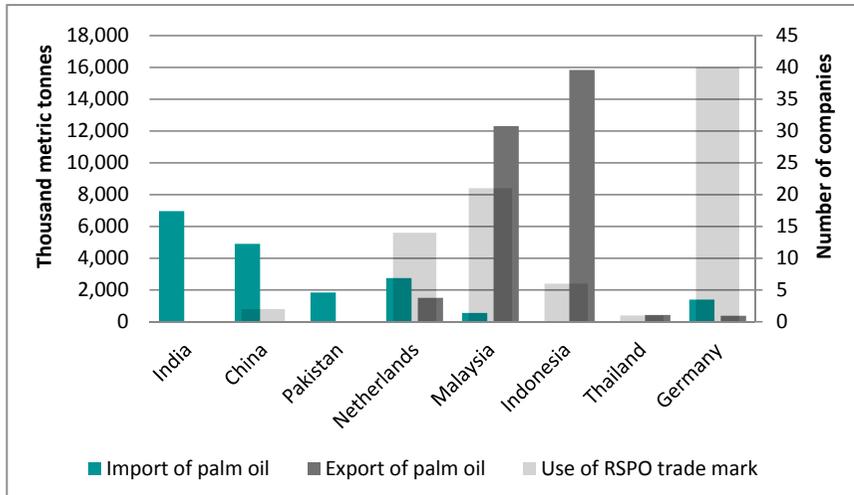
National timber legality assurance systems are mandatory systems. Environmental certification, on the other hand, is voluntary, but has the advantage of looking beyond what is required by law to consider the broader issue of sustainability. Both can contribute to responsible timber trade in the region.

Forest certification enables forest managers and wood product manufacturers to provide information to the market that helps consumers select products not associated with forest destruction. Some forest managers in the region have had their operations certified under either the global Forest Stewardship Council scheme or national schemes such as the Malaysia Timber Certification Scheme, the China Forest Certification Scheme and schemes run by the Indonesia Ecolabelling Institute (ITTO 2012, 2014). However, the total certified forest area in countries and areas where forest governance is weak remains very low. This also applies to environmental certification of forest-risk agricultural products. Some progress has been made in the certification of palm oil (RSPO 2012), but less progress is evident for sugarcane, rubber and cassava.

Several major barriers need to be overcome for environmental certification to be anything more than marginal in terms of the total volumes of products traded. These include the high costs for producers of acquiring certification and the fact that certification does not give the producer much, if any, market advantage in the region. Issues thus need to be overcome on both the supply and demand sides.

On the supply side, the costs of certification are high for a combination of reasons. In the case of wood certification, forest management practices are often well below the certification standards due to weak enforcement of forest regulations, which makes achieving compliance with the standards a lengthy and costly process. Moreover, in tropical developing countries forest managers often have to work through disputes with local communities, which commonly arise because of lack of government attention to local land and resource claims when allocating forest rights. The complexities of planning, managing and monitoring forestry operations in biodiversity-rich tropical forests also add to certification costs.

On the demand side, certification is constrained by lack of buyer interest in environmental labels and willingness to pay a premium for certified products. For example, despite the Japanese government having developed its "Goho-wood"¹⁰ system to promote the use of verified-legal wood, and despite the government stating that illegally harvested wood will not be used in public procurement, there is little willingness of Japanese buyers to pay a premium for certified timber (Lopez-Casero and Scheyvens 2007). The greatest demand for certified wood is in fact from outside the region, and this is also true for certified forest-risk agricultural products.¹¹ Figure 5.5 shows that while Asia-Pacific countries are among the largest global traders and consumers of palm oil, there is much less interest in the region than in Europe in providing assurance that palm oil is environmentally sustainable.



Source: UN COMTRADE database; RSPO (2014).

Figure 5.5 Top 5 importers and exporters of palm oil compared with use of the Roundtable on Sustainable Palm Oil (RSPO)¹² trade mark (2013)

There are at least three ways in which regional integration processes could contribute to promoting voluntary environmental product certification as part of their environmental agendas. First, they could encourage the development of product standards for all major forest-risk products and the strengthening of existing standards; for example, some shortcomings have been identified in the RSPO standard and its application (Greenpeace International 2013). Second, they could encourage periodic reviews of forest laws and more effective national enforcement of forest regulations, which would raise the level of forest management performance and thus reduce the challenge forest managers face in complying with certification standards.¹³ Third, they can encourage the development of responsible regional markets through private and public sector procurement policies for legal and sustainable timber.

Green building rating systems

Green building rating systems could be part of the way forward towards more responsible intra-regional trade in wood-based products.¹⁴ Green building rating systems “score” buildings by allocating points for optional building features that support green design, such as the use of sustainable and recycled materials. Some provide points specifically for the use of certified timber. For example, the Hong Kong Building Environmental Assessment Method (HKBEAM) and Malaysia’s Green Building Index both give credit for demonstrating that at least 50% of all timber and composite timber products used in the project are certified (Cheng and Clue 2010).

Over 30,000 buildings in the region are now enrolled under green rating systems (Lowry 2011), but a number of hurdles are obstructing further progress. In Thailand, high construction costs, lack of regulation consistency, low electricity prices, lack of technical skill, focus of property developers on short-term costs rather than long-term benefits, the fact that domestic companies tend to work with local suppliers that do not handle green materials, and limited awareness of economic and health benefits are all constraining the sector (Solidiance 2013). In Malaysia, lack of awareness, education and information on benefits have been identified as major hurdles to green buildings (Esa et al. 2011).

Regional collaboration to promote green building is already underway. The US has led initiatives on green building in APEC and ASEAN with the objective of minimising obstacles to trade. The APEC Subcommittee on Standards and Compliance (SCSC) is promoting green building, reflecting a commitment by APEC leaders to pursue common objectives to prevent technical barriers to trade related to emerging green technologies. The SCSC took up the issue of green buildings as one of its largest projects in 2011, undertaking a survey on sustainability in building construction, two workshops and two case studies on the trade impacts of life cycle assessments and of green rating systems. This project represented the first example of joint APEC-ASEAN collaboration and is continuing under a multi-year project on green building that runs through to the end of 2015. This will include studies on green building codes and whether APEC and ASEAN activities have facilitated trade in green building materials. These efforts should be intensified and linked with other initiatives within and outside APEC and ASEAN to promote the trade in responsible timber, especially with a view to engaging with India, China and other countries experiencing construction booms.

5.3 Responsible investment and banking

In promoting financial sector integration, ASEAN's focus has strictly been on economic and financial issues, e.g., how liberalisation can be tailored to reflect different levels of financial sector development in the member countries, and on the safeguards necessary to avoid macroeconomic instability and systemic risk that could arise from the liberalisation process (ADB 2013b, 6). There appears to be little discussion on the environmental responsibilities of banks and investors, yet this is an issue that has raised a lot of concern in forestry and land development in the region. In 2013, Norway's sovereign wealth fund accused 23 Asian palm oil companies of causing deforestation and ceased financing them (Dagenborg and Doyle 2013).

There is some development in investment standards taking place in the region that could provide material for a regional dialogue on this issue. These include efforts by the Government of China under the policy slogan "government guidance, enterprise decision-making" to encourage responsible conduct by Chinese businesses abroad, due to backlash against Chinese FDI in some countries (Brack 2014). Guidelines on compliance with domestic laws, regulations, international conventions and agreements signed by China and the host country, and on managing environmental risks in project financing have been produced.¹⁵ However, Brack (2014) concludes that these guidelines have so far had little impact on the environmental performance of Chinese enterprises operating in the forestry sector of other countries, mainly due to their voluntary nature and lack of monitoring.

A regional initiative to take up the issue of promoting responsible banking and investment in forestry, forest-risk agriculture and megaprojects commonly associated with deforestation is long overdue. Issues that need to be examined closely are: (i) To what extent are foreign direct investment and domestic investment respectively associated with developments that drive forest destruction? (ii) What progress has been made with the development of controls on banking and investment for projects impacting forests in the region? (iii) What mandatory and voluntary approaches represent good practice and how can these be promoted? On this last issue, safeguards can be found in multi-national lending, sovereign investment funds, and private sector lending that could be reviewed. The relevance and uptake of international initiatives such as the Equator Principles (the most widely recognised sustainable banking principles) (Saunders 2005) in the region also deserve study.

6. Conclusion

There is already a high degree of economic integration in the wood-based products sector in the Asia-Pacific region when measured in terms of intraregional trade and investment. National factor endowments and growing regional markets for wood-based products are among the reasons behind this. Nevertheless, this review has found that further removal of barriers to trade and investment in the forest sector could increase pressure on forest land and resources and accelerate deforestation and forest degradation, especially in countries where forest governance is weak. This may also apply to integration in other sectors that are associated with forest conversion in the region, such as agriculture, mining and hydropower generation.

Economic integration processes such as ASEAN and APEC do have environmental agendas and better use can be made of these to minimise the potential harm of integration to the region's remaining natural forests. This paper recommends the following measures to the various bodies established by ASEAN and APEC to promote their environmental agendas, as well as other organisations working on trade, investment and banking issues relevant to the forestry sector:

- Engage forestry, customs and other relevant agencies in regional enforcement drivers to combat the cross-border movement of illegally harvested timber as a regular activity, with a view to strengthening enforcement capacities in the participating countries;
- Request the Regional Intelligence Liaison Office for Asia and the Pacific to include the trade in illegally harvested timber in its work programme, and the World Customs Network to expand its Customs Enforcement Network database to include illegally harvested timber;
- Pilot the idea of agreements between countries to use export declarations as a prior notification of timber shipments to reduce timber smuggling;
- Organise a regional dialogue on national timber legality assurance systems, with a view to supporting the development of such systems in the region;
- Promote environmental certification of forest and forest-risk agricultural products through standards development, support for forest law review and enforcement in countries where forest governance is weak, and public and private procurement policies;
- Promote the development and application of green building codes that encourage the use of certified timber;
- Launch a regional initiative to take up the issue of responsible banking and investment in forestry, forest-risk agriculture, and megaprojects commonly associated with deforestation.

In addition to these recommendations, this review points to areas where further research is desirable. While this paper mostly focused on the implications that integration in the wood-based products sector has for forests, extending this study to include integration in all sectors with implications for forest land and resources would be useful. There is also a need for deeper study of emerging and expanding markets for wood-based and forest-risk agricultural products in the region, given that some of these markets are now the

world's largest. Another important issue for research is how some companies in Asia have evolved from small logging operations to multinational corporations with multi-sector interests as well as investments in forestry outside the region, and the implications of this.

Notes

1. The categories of tropical SPWP are wooden furniture and parts; builders' woodwork (joinery and carpentry); other SPWP (packing, wooden boxes, etc.); casks, barrels, vats and other cooper's products; picture frames; table/kitchenware and other articles for domestic/decorative use; and tools, handles, brooms and other manufactured products and mouldings (ITTO 2012).
2. ASEAN member countries plus China, Japan and Korea.
3. The regional trade share is the proportion of total trade by a region that is accounted for by trade within the region, while the intraregional trade intensity is the ratio of intraregional trade share to the share of world trade with the region. Intraregional trade intensity provides an indication of whether trade within a region is greater or smaller than would be expected from the region's importance in world trade.
4. Inbound investment is calculated by measuring foreign direct investment (FDI), which indicates a long-term interest in a foreign enterprise, as opposed to portfolio investment where funds can be withdrawn quickly (USITC 2010).
5. Compared to trade statistics, data on intraregional investment in the timber industry are more difficult to come by. ASEAN countries, for example, do not report FDI statistics at the level of specific industries (USITC 2010).
6. Myanmar's recent initiatives to court foreign investors include joint ventures with firms from Thailand, Hong Kong, India and Singapore to produce advanced wood products in the country, following a recent ban on export of whole logs (THIHA 2013).
7. Brack (2014, 1) notes that by 2012 China had become the world's third largest source of FDI (second, if Hong Kong is included), with FDI flows climbing steadily from about USD 2.5 billion in 2002 to USD 84 billion in 2012 as a result of the adoption of the Going Global (or "Going Out") strategy in 2001 and the rapid accumulation of foreign exchange reserves. He explains that some of this investment has been directed at securing supplies of timber and wood products.
8. Australia, Brunei Darussalam, Chile, Canada, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States, and Viet Nam.
9. Illustrating this point, when the European Parliament ratified the VPA with Indonesia, it issued a strongly-worded resolution on what it viewed as deficiencies in the VPA regarding timber from forests converted to other uses and financial corruption, as well as SLVK certification of timber for forests where rights are disputed by indigenous peoples and local communities (FERN 2014).
10. See <http://goho-wood.jp/world/>
11. In 2013, Unilever, which uses palm oil in soap and margarine, pledged to buy all its palm oil from "traceable sources" by 2014 and Wilmar International, which controls 45% of the global production of, and trade in, palm oil, pledged to only provide products that are free from links to deforestation (FT.com 2013).
12. The RSPO is a voluntary association of palm oil producers, traders, manufacturers and financiers. It certifies growers who commit to transparency, legal compliance, economic sustainability, and environmental and social responsibility. Its members are responsible for around 40% of global crude palm oil supply (RSPO 2012).
13. Based on requests from member countries, the International Tropical Timber Organisation has actually reviewed forest management performance at the national level and proposed options for improve legal compliance, but compliance problems remain. Providing resources to move forward with the recommendations of these studies should be a priority.
14. "Green building" generally refers to using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle, while at the same time creating improved building conditions for human health (Howe 2010).
15. *A Guide on Sustainable Overseas Silviculture by Chinese Enterprise* produced by the State Forestry Administration and the Ministry of Commerce directs Chinese companies to ensure that logging is conducted according to the law and to avoid involvement in the destruction of high conservation value forest (Brack 2014). The *Guidelines for Environmental and Social Impact Assessments of the China Export and Import Bank's Loan Projects* require the assessment of social benefits and environmental demands to be considered alongside economic benefits in the assessment of loan projects. The *Environmental Assessment Framework* developed by the Exim Bank excludes financing of sub-projects involving "commercial logging operations for use in primary tropical moist forest" and "production or trade in wood or other forestry products other than from sustainably managed forests" (Brack 2014). The *Green Credit Guidelines* direct banks to develop environmental and social risk lending criteria and to require their clients to take mitigation actions when risks are considered high (Brack 2014).

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Chapter 6

Greening the Trade of Recyclable Materials: Recycling Certification for Improved E-waste Management in East Asia

Yoshiaki Totoki, Yasuhiko Hotta, Chika Suzuki-Aoki,
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Key Messages

- E-waste is growing in Asia, coupled with environmental and health concerns due to inappropriate recycling.
- This chapter explores ways to address hazardous e-waste recycling and argues that establishing a safe, responsible international trade would be more productive than merely discouraging the transboundary movement of e-waste.
- E-waste management capacity varies throughout Asia; establishing a regional resource circulation system via division of labour would be more efficient than creating complete recycling systems in each country.
- To ensure environmentally sound regional resource circulation, we need to identify and nurture high-standard recyclers and to develop traceability systems throughout the recycling chain, for which recycling certification schemes with high standards and proper compliance monitoring would help.

1. Introduction

1.1 E-waste as a regional environmental challenge

The amount of e-waste generated and traded across borders in Asia is increasing, and the capacity for safe treatment is far below the needs. As a result, huge volumes of e-waste are treated with primitive, low-cost methods, exposing people to harmful substances and polluting the environment. Regional economic integration, i.e., the systematic removal of barriers to trade, can facilitate further increases in such transboundary flows. Regional solutions are needed for dealing with these challenges. This chapter reviews policy responses, recycling and waste treatment capacity, and offers suggestions on how to improve the current unsustainable situation.

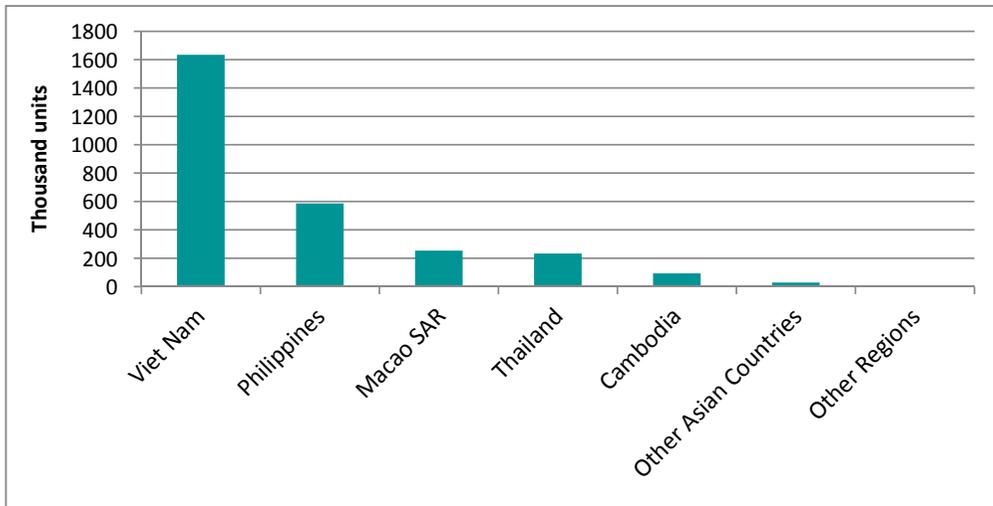
Along with the rapid economic growth, industrialisation and urbanisation in Asia over recent decades results in the growing need for resources in developing countries. According to the United Nations Environmental Programme (UNEP 2011), “the Asia-Pacific region accounted for 80% of the growth in world material use over the 35 years to 2005” (p.25). Growth and urbanisation means higher levels of production

and consumption of goods, as more developed and emerging economies with richer populations can afford to consume goods such as electronic products in larger volumes and with higher turnover rates, thus resulting in increased generation of waste and used goods. For example, the switch to digital TV broadcasts in Japan in 2011 created demand for new state-of-the-art products such as flat-screen TVs, making the older Cathode Ray Tube (CRT) sets obsolete waste. Such turnover of obsolete or used goods generates huge amounts of waste but also valuable recyclable resources that in some cases can be used to help meet increased resource demands. These recyclable resources are being traded in increasing amounts. Secondary resources and second-hand goods play a significant role in fulfilling demand for affordable resources and goods in rapidly growing resource- and goods-consuming regional economies. Here, regional economic integration has played an important role because most recyclable secondary resources such as waste plastic, waste paper, scrap iron, copper, and aluminium generated in Asia have been traded within the region (Michida 2010).

Of the recyclable materials, problems associated with e-waste (or WEEE: Waste Electrical and Electronic Equipment) has received particular attention in Asia. E-waste includes end-of-life and used electronic and electrical appliances, used parts, and mixed metal scrap from electronics or other industries and usually comprises valuable as well as hazardous substances—such as lead, mercury and brominated fire-retardants. Concerns therefore surround the possibility of these hazardous chemicals being emitted into the environment due to inappropriate recycling processes (Tsydenova and Bengtsson 2011; Puckett et al. 2002).

Asia generates e-waste from domestic consumption of new electrical appliances at all levels of society, ranging from the individual, to businesses, governmental institutions and industry. For example, Viet Nam was projected to discard 17.2 million items—personal computers (PCs), TVs, air-conditioners, refrigerators, and washing machines—in 2010 (Nguyen et al. 2009) and China was expected to discard 71.9 million PCs, 58.3 million TVs, 12.4 million air-conditioners, 9.67 million refrigerators, and 11.6 million washing machines in the same year (Li et al. 2006).

The high demand for electrical appliances is also met by imported Used Electrical and Electronic Equipment (UEEE). For example, Japan exported more than 2.8 million used CRT TVs in 2011, mainly to the Philippines, Viet Nam and the Macao Special Administrative Region (SAR) in China (Trade Statistics of Japan) (see Figure 6.1). Japan also exported 2.79 million laptops (new and used) to other countries in 2013. Of these, 1.97 million units were considered as second hand products and 93% were exported to Hong-Kong SAR in China, and then transferred onwards (Kobyashi 2014). UEEE products are those likely to have short lives and to become waste relatively early. Consumers in importing countries utilise the remaining life of such second hand equipment within a few years and generate e-waste. Hence, the UEEE trade has contributed to generation of e-waste in the importing countries.



Source: Trade Statistics of Japan (for year 2011)

Figure 6.1 Used CRT-TVs exported from Japan to other countries in 2011

Some e-waste may be traded as mixed metal scrap to satisfy developing Asia's thirst for resources. This scrap can comprise by-products of the pressing process of electronic industries, failed parts, and undismantled end-of-life electronic and electrical appliances. Asia is one of the destinations for international trade in e-waste or scrap containing materials originating from electronic and electrical appliances, and e-waste is also traded within the region for reuse/recycling purposes, such as from Mong Cai in Viet Nam to China (Yoshida et al. 2012). Thailand also functions as a transfer hub of regional UEEE to neighbouring countries such as Cambodia, Myanmar, and Lao PDR (Sasaki 2013). These facts overturn the previously held belief that e-waste flows mainly from industrialised to least developed countries.

Under the current Basel Convention, much controversy over the trade of potentially recyclable resources, one of which is e-waste, has surfaced. This has prompted discussion for drafting the Basel Ban Amendment, designed to prohibit the export of hazardous waste from developed to developing countries. Some countries party to this convention, however, assert that an outright ban on hazardous materials trading may disrupt sound international resource circulation systems. To address this issue, Indonesia and Switzerland initiated the Country-Led Initiative (CLI) to supplement the Basel Convention, which was adopted at the 10th Conference of the Parties of the Basel Convention in October 2011. This initiative aims to clarify what exactly constitutes hazardous waste subject to the export ban from developed to developing countries and to allow recyclable resource circulation. Discussions on establishing an international standard for environmentally sound management (ESM) of hazardous wastes and potentially recyclable resources are underway by the expert working group on environmentally sound management related to CLI. The issue is also being addressed by UNEP (2013), which allows exporting of hazardous waste from countries that lack adequate sound e-waste management capacity to countries with such capacity. What exactly constitutes 'sound' relates to environmental impact, for which the expert working group drafted a practical manual of certification schemes in May, 2014, in order to codify the distinction (UNEP 2014).

Some recent studies reveal that trade in recyclables, especially e-waste, has become more complex (Michida 2010; Lepawsky and MacNabb 2010; Lepawsky 2015). By analysing trade statistics of electronic scrap, Lepawsky (2015) even argues that trade from non-OECD countries (i.e., developing countries) to OECD countries increased and become the dominant direction of trade from 1996 to 2012. Thus, a more nuanced approach than a simple ban in trade would appear necessary to green the trade in recyclable materials.

1.2 Objectives

This chapter aims to provide suggestions as to regional role sharing in e-waste management to address environmental issues created by increased uncontrolled waste flows in Asia. One such suggestion is to implement international recycling certification for e-waste management. This chapter also attempts to combine ‘top-runner’ and ‘bottom-up’ approaches to establish sound international recycling based on international recycling certification. In order to promote the implementation of recycling certifications and regional role sharing for e-waste management, creation of an international fund for sustainable resource management as an incentive system is also discussed.

2. Regional role sharing for e-waste management

2.1 E-waste recycling chain

The recycling chain for e-waste generally comprises several steps: collection, dismantling, resource recovery and transportation (see Figure 6.2). The recyclers are typically collection traders, dismantlers and material recyclers such as smelters and transporters. The sources of e-waste are the actual consumers of electrical equipment—individuals, commercial facilities, offices as well as industrial manufacturers producing electrical equipment or related components and generating scrap from manufacturing processes.

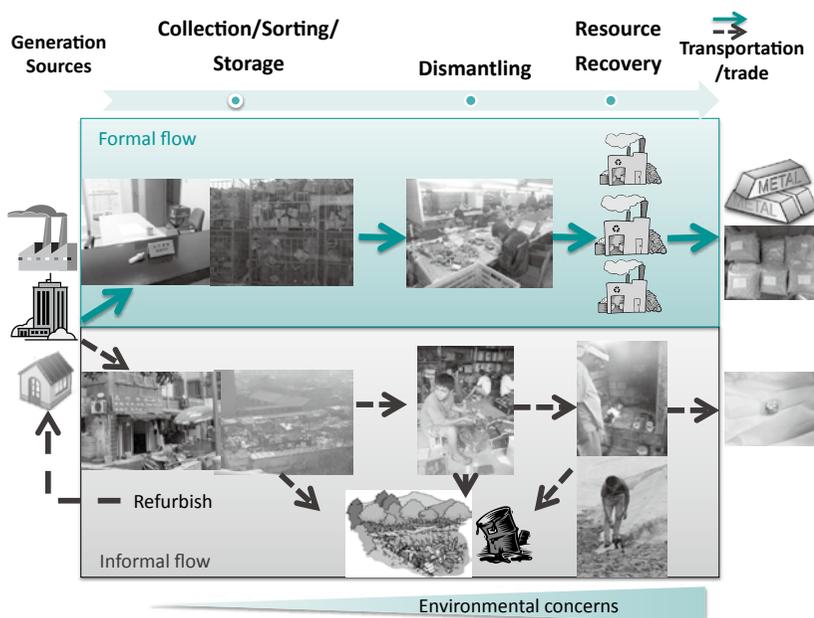


Figure 6.2 Recycling chain for e-waste

Collection of e-waste from generation sources is an important activity as it determines the amount of materials actually available for recovery, and such determination is itself complex due to the presence of both formal and informal collection means. Informal sectors such as junk shops and scrap dealers collect e-waste from consumers in countries without formal collection systems for refurbishing or repairing and resource recovery. The collected e-waste are sorted and transported to the dismantling step. Collection, sorting and storage activities generally have minimal environmental concerns and do not require advanced technologies to handle e-waste safely.

Dismantling segregates the components for further resource recovery processing, and parts containing hazardous substances have to be removed and stored or treated in an environmentally sound manner with appropriate technologies, while the valuable substances need to be removed for efficient recovery processing. Formal dismantling processors need to identify environmentally sensitive components such as batteries, capacitors, ozone-depleting substances (mainly from refrigerators and air-conditioners), CRT glass, mercury-containing backlights from flat-panel displays and printed circuit boards and then dispose of them safely. On the other hand, informal dismantling processes focus on the valuable components for re-sale and material recycling, with the residual wastes often disposed of nearby. Such residual wastes are often burned in the open to reduce volume, generating toxic fumes that affect nearby populations. Further, burning plastic wiring sheaths and other parts may also generate toxic gases that affect unprotected workers at these locations.

For metal recovery, there are three major destinations: the ferrous fractions is transferred to steel plants for recovery of iron; aluminium is sent to aluminium smelters; and copper and other precious metals are sent to integrated metal smelters that can recover precious metals, copper and other non-ferrous metals (Schluep et al. 2009). In order to prevent environmental pollution during the smelting process, such as of volatile organic compounds (VOCs) and dioxins generated in the combustion of printed circuit board and organic components such as paint layers and flame retardants in plastic particles, smelters need to utilise advanced technologies for gases and strong acidic leaching effluents in the system. However, copper smelters and hydrometallurgical plants are not usually designed for such specialised treatment.

For plastic or glass recovery, the fraction containing these materials must be sent to appropriate facilities. Standard recycling technology can handle plastics and glass only if hazardous substances are not present. If present (e.g., lead in CRT glass, flame retardants in plastic resins), they need segregating and treating using appropriate processes.

The resource recovery process generally generates higher economic returns than the collection or dismantling processes, but does require advanced pollution control technologies to ensure environmental protection and work safety. Not all countries in the region have such facilities for environmentally sound resource recovery, and the process is usually performed on a small-scale, informal basis with low recovery rates and high risks of environmental pollution. For example, the Basel Action Network has reported serious environmental pollution in China, India and Pakistan caused by inappropriate recovery of valuable metals such as gold and copper (Puckett et al. 2002). Figure 6.3 summarises the flow of informal recycling sectors in India and China (Brigden et al. 2005).

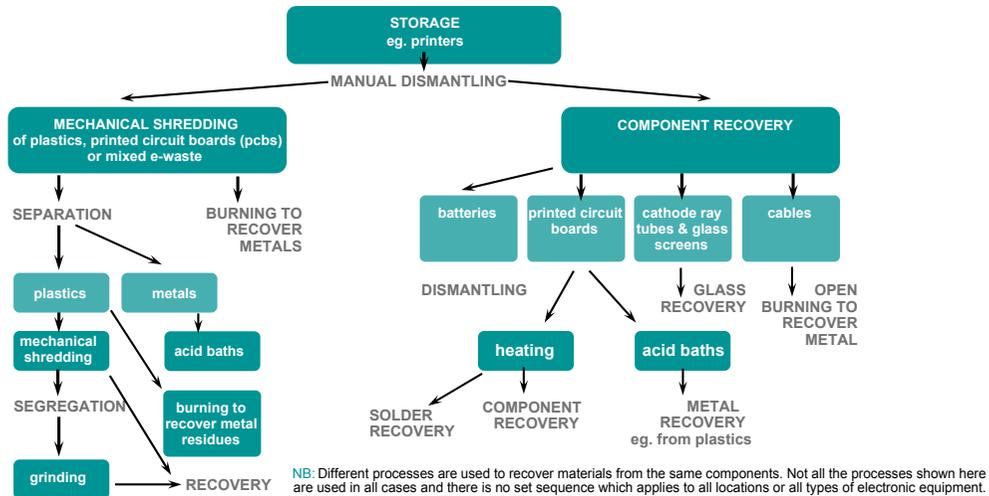


Fig. 4. WEEE recycling processes in India and China. Reproduced from Brigden et al. (2005) with permission from Greenpeace International.

Source: Brigden et al. 2005

Figure 6.3 E-waste recycling practices in India and China

2.2 E-waste management capacity

E-waste management capacity in Asia varies by country in terms of institutional and physical infrastructure.

Most Asian countries lack proper institutional frameworks and recycling infrastructure or capacity for sound treatment of e-waste. Informal recycling of e-waste without proper environmental protection thus prevails and causes serious environmental problems (Schluep et al. 2009). Unfortunately, informal recycling generally has a competitive advantage over the formal one in the collection, dismantling, and smelting of e-waste, due to the cost savings of ignoring environmental protection and labour safety (Williams et al. 2013). Informal recycling and dismantling are often associated with physical dismantling and hazardous recycling operations such as ink toner sweeping, open burning, CRT cracking, circuit board recycling, acid stripping of chips, plastic chipping and melting and material dumping (Puckett et al. 2002; Yu et al. 2010; Chi et al. 2011), which often release hazardous materials such as lead, mercury and persistent organic pollutants such as dioxins and furans (Tsydenova and Bengtsson 2011; Brigden et al. 2008). Sound treatment of e-waste by the formal recycling sector requires not only recycling infrastructure and capacity but also effective governance and institutional frameworks based on the concept of extended producer responsibility (EPR) in order to establish an overall system composed of collection, transportation and treatment with proper financial consideration.

Countries can be classified into three groups based on their e-waste management capacity in terms of institutional framework, dismantling status and infrastructure for resource recovery, such as smelters (see Table 6.1).

Table 6.1 Categorisation of e-waste management capacity

	Type 1	Type 2	Type 3
Institutional framework based on EPR policy for formal collection	○	×	×
Dismantling capacity	○	○	×
Infrastructure for resource recovery, such as smelters	○	△	×
Examples	Japan, China, Rep. of Korea, Taiwan, India, etc.	Thailand, Viet Nam, Philippines, Malaysia, etc.	Cambodia, Myanmar, Lao PDR, etc.
Remarks	Competition between formal and informal sector is high in some countries.	Integration of informal sector into formal recycling chain is the key. There is limited infrastructure for resource recovery such as smelting facilities.	Focus should be on the establishment of general waste management systems and formal collaboration on regional recycling for disposing of e-waste.

First are countries or a region with specific e-waste regulations. Japan, Republic of Korea, China, Taiwan, and India have introduced e-waste management laws based on the concept of EPR and established institutional frameworks covering collection, transportation, dismantling and material recovery of e-waste from individual consumers. Formal infrastructure for treatment of e-waste such as dismantling, recovery of recyclable materials and disposal of hazardous materials is also in place. In China and India, however, the informal sector is still dominant in the recycling market as the formal recycling chain usually collects and treats only a small portion of the generated e-waste despite the existence of formal recyclers specified for e-waste treatment.

Second are countries without specific e-waste regulations but with the potential infrastructure for resource recovery—countries categorised as in economic transition such as Thailand, Viet Nam, the Philippines, and Malaysia. E-waste is treated under a hazardous waste framework based on the 'polluter pays principle' (PPP), which mainly targets industrial waste rather than EPR. In these countries there is no scheme of collection from consumers. The numbers of electrical appliance consumers as well as domestic production of such appliances are significantly increasing, but apart from certain facilities for disposal of industrial waste (e-scrap from production processes), no formal collection system of e-waste from individual consumers generally exists. These countries generally rely on the informal sector for collection, dismantling, and limited resource recovery from e-waste and cannot perform the entire process of e-waste recycling alone due to lack of up-scale resource recovery facilities such as integrated smelters for metal recovery.

Third are countries without any institutional frameworks for e-waste management or infrastructure for resource recovery, and very limited dismantling capacity. They are usually least developed countries such as Cambodia, Lao PDR, and Myanmar. Currently they face no serious environmental issues related to e-waste and prefer to import cheap used electrical equipment to meet increasing demand. Since there are no recycling facilities, a practical solution to complete the recycling chain may be to export e-waste to other countries that have established proper facilities for resource recovery.

2.3 Regional role sharing for e-waste management

Given these conditions, a regional e-waste management system based on international role sharing along the recycling chain could be considered. Sharing roles in the recycling chain can be based on recycling processes such as the collection, dismantling, and resource recovery phase, and recycling capabilities in terms of institutional framework, dismantling capacity and infrastructure for resource recovery (Figure 6.4).

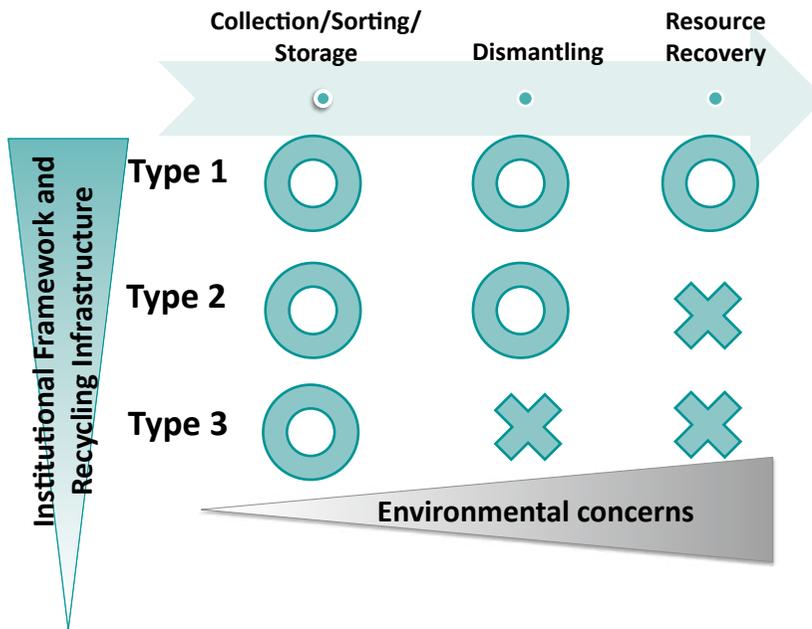


Figure 6.4 Viability of role sharing along recycling chain

Type 1 countries can contribute to all the processes of collection, dismantling, and resource recovery. In particular, resource recovery represents the key to this regional role sharing since it requires advanced technologies and processes and involves no environmental pollution, labour, or health and safety issues.

Type 2 countries can contribute to collection and dismantling but not to resource recovery. They can also benefit from the informal sector in terms of any collection and dismantling systems already in place. The dismantling of e-waste is a labour-intensive process more suited to countries with low-cost workforces. Formalisation of existing informal sectors can help nurture the recycling industry in these countries. The advantage of establishing regional role sharing of e-waste management is not only in reduced environmental pollution from e-waste recycling but also job creation in the formal sector due to the conversion of informal recyclers into formal recyclers, with attendant income and health benefits.

Countries considered to be type 3 can make efforts in the collection and transfer of collected e-waste to other reliable countries under regional collaboration arrangements due to their lack of institutional framework and recycling infrastructure.

Figure 6.5 shows the envisioned concept of role sharing for the different country categories. As individual recyclers cannot complete all the recycling activities it is important to establish an environmentally sound e-waste recycling chain comprising collection, dismantling, and resource recovery, connected through transportation and trade of e-waste/dismantled components. Traceability up to the point of disposal is key throughout the process.

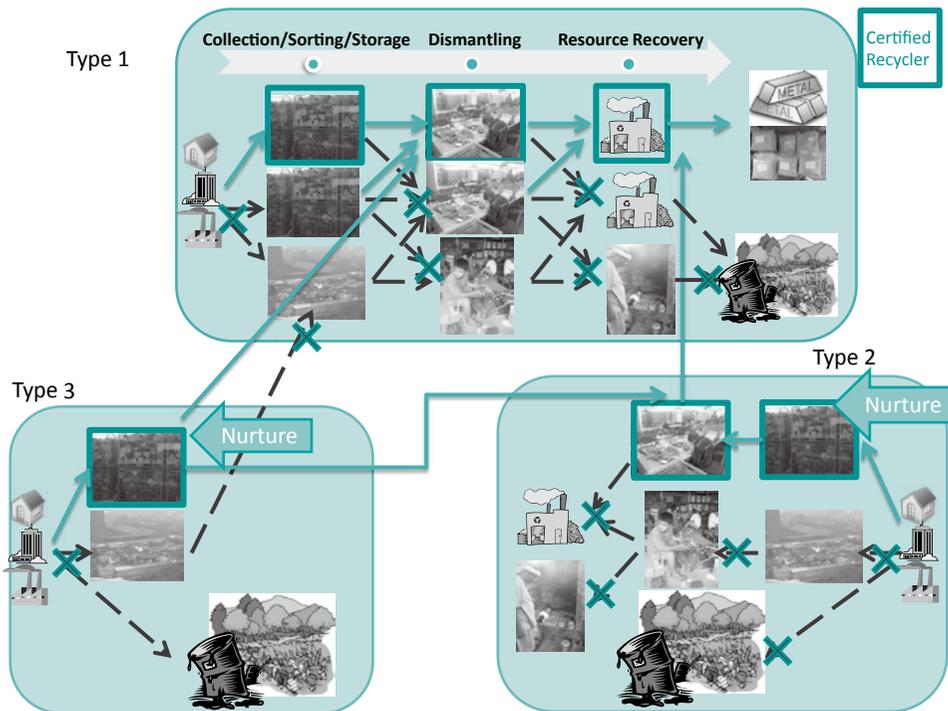


Figure 6.5 Image of improved e-waste management in Asia through the introduction of recycling certification

2.4 A step to implement regional role sharing

There are only a limited number of countries with facilities to transform e-waste into recyclable resources, thus it is crucial to identify and nurture them for environmentally sound management whilst discouraging the environmentally unsound activities of informal recycling. Creating an international recycling network of quality recyclers is one way this could be done. To implement effective regional role sharing, responsible recyclers meeting international environmental and occupational health and safety management standards need to be identified for each stage of collection, dismantling and resource recovery. A traceability system also needs to be developed to avoid flows of e-waste to the informal recycling chain.

3. Recycling certification for waste management and regional resource circulation

International certification for recycling of e-waste can be an approach to help the region identify responsible recyclers and to develop traceability throughout the recycling chain (Hotta et al. 2008). This approach would be able to identify environmentally sound facilities and help nurture and support recycling businesses operating in an environmentally sound manner. Introduction of recycling certification at the regional level and support of establishing traceable recycling chain between qualified recycling businesses would improve resource efficiency and environmental protection through economies of scale in the region. Recycling certification can also help to reduce the burden on national governments in downstream management such as monitoring as well as to complement other procedures set out in the Basel Convention.

3.1 What is recycling certification for e-waste management?

The certification schemes discussed here are voluntary systems or standards to identify businesses that can appropriately manage and treat resources in recycling markets, through third party certification bodies or trading companies that can certify appropriate recycling businesses. Such certification would mean information on sound recycling businesses could become publicly available. This definition includes certification by affiliated industry groups (second-party certification) and third-party certification based on standardised specifications, but excludes certification via internal audits (first-party certification). Targeted e-waste under this scheme may cover two types of wastes— post-consumer waste and industrial waste. The former is generated from consumed products (including scrap) and the latter includes electric and electronic items/components derived from the by-products, industrial waste and business waste resulting from the production of electric and electronic items.

3.2 Existing recycling certification and standards for e-waste management

North America and Europe have already taken steps to develop certification systems to qualify recycling businesses for e-waste. The US Environmental Protection Agency (US-EPA) convened a multi-stakeholder process to develop responsible recycling practices for use in accredited certification programmes, which led to the Responsible Recycling (R2) solution in 2008, and in 2009, e-Stewards was established in the US, via the Basel Action Network. US-EPA recommends domestic recyclers to obtain R2 or e-Stewards certification (US-EPA 2013).

In Canada, the Electronics Product Stewardship Canada established the Recycler Qualification Programme (RQP) for end-of-life electronics recycling in 2010, the goal of which is to ensure sound management of end-of-life electronic products—safeguarding worker health and safety and environmental protection—from the point of primary processing to final disposition.

In Europe, the WEEE Forum, an association of 39 WEEE producer responsibility organisations, established a set of standards for management of waste electrical and electronic equipment (called WEEELABEX) for various recycling processes, including transport, sorting, storage, preparation for re-use, treatment and final disposal. The WEEE Forum's standards are to form the basis for European Standards (ENs), which are documents ratified by the European Committee for Electrotechnical Standardisation (CENELEC), a standards organisation. Once WEEELABEX is incorporated into ENs, this standard will act as the global benchmark for e-waste recycling.

While the extent of certification covering responsible recycling of e-waste is low, it is expected to grow (Chaplin and Anne 2013). Existing voluntary recycling certification for e-waste (e.g., Responsible Recycling and e-Stewards) requires environmental management as well as occupational health and safety management systems. As a minimum regulatory requirement, recycling certification system must ensure environmental, health and occupational safety throughout the recycling process.

Another key point is that recycling certification should focus on guaranteeing traceability throughout the recycling chain. This can be secured through a 'Chain of Custody' which combines the following two approaches. First is to record the quantity of recyclables and wastes received, recycled, disposed of and transported in each recycling process. Second is to ensure sound transactions and management of recyclables, through capacity assessment, audits, and written contracts for downstream actors by upstream actors in the recycling chain. Developing such custody chains would encourage domestic transactions and international trading of recyclable resources. In particular, country case studies and comparative analyses of existing voluntary recycling certification systems indicate that traceability and mass balance systems within the recycling chain serve as keys to satisfy informational demands and control point management (Hotta et al. 2013). Systems such as 'manifest' enable tracing of the waste stream in each treatment process. The 'mass balance' system involves keeping records of weight-based input/output data on materials such as metals entering and leaving treatment facilities.

These recycling certifications also identify the hazardous components and materials requiring caution during and after dismantling. R2 defines 'focus materials' of potential environmental concern and outlines the management of such to ensure environmental and worker safety (R2 Solutions 2013). e-Stewards also identifies components similar to problematic components and materials. WEEELABEX sets the standard for treatment by providing general requirements, including de-pollution guidelines to ensure treatment operators remove all liquids, substances, preparations, and components from waste electronics, etc. according to article 8(2) and annex II of directive 2002/96/EC (WEEE Forum 2013). WEEELABEX additionally provides specific requirements for components such as CRT displays, flat-panel displays and lamps.

Table 6.2 gives examples of hazardous components of R2, e-Stewards, and WEEELABEX. The common components are those containing PCBs (polychlorinated biphenyls) or mercury, CRTs, batteries and printed circuit boards. e-Stewards and WEEELABEX also list plastics with brominated flame retardants, toners/ink cartridges, radioactive devices/components, etc.

Table 6.2 Examples of hazardous components listed under R2, e-Stewards, and WEEELABEX

R2 (Focus Materials)	e-Stewards (Problematic Components & Materials)	WEEELABEX
PCBs containing items	PCBs containing components	PCB containing capacitors, capacitors containing mineral or synthetic oil, electrolyte capacitors containing substances of concern
Mercury containing items	Mercury-containing components, including mercury lamps, LCD screens, switches, batteries and subcomponents	Mercury containing components
CRTs & CRT glass	CRTs	CRT displays (specific requirements)
Batteries	Lithium button, lithium ion, and lead acid batteries	Batteries and accumulators
Whole or shredded circuit boards	Printed circuit boards	Printed circuit boards
	Glycolant coolants (e.g., in old rear projection CRT devices)	Plastics containing certain types of brominated flame retardants
	Toners, inks and toner/ink cartridges and their uncleaned cartridges	Volatile Fluorocarbons and volatile hydrocarbons
	Magnetrons in microwave ovens and other equipment, if containing beryllium oxide ceramic insulators	Asbestos
	Printer and copier drums and other components containing selenium and/or arsenic	Flat panel displays (specific requirements)
	Radioactive devices or materials	Components containing radioactive substances
	Any additional materials deemed hazardous, explosive, corrosive, or otherwise problematic for mechanical processing, by the organisation or applicable regulations	Lamps (specific requirements)
		Other components (toners, lamps, components containing refractory ceramic fibres, and oil)

3.3 Benefits of recycling certification

Applying the recycling certification system to Asia can facilitate regional role sharing for e-waste management as doing so would:

- Identify responsible recyclers, through registration, ensuring legal requirements such as facility compliance and import/export compliance are met, and provide protection measures for workers, public health and the environment. Certification organisations as second or third parties would verify the quality of recyclers based on international unified standards. Further, certified recyclers could easily locate reliable downstream processors to form effective national or international networks.
- Provide guidance in the management and technical standards for collection, dismantling and resource recovery, with special attention to treatment of materials of concern.

- Improve traceability and mass balances in the recycling flow and guarantee the chain of custody by requiring certified recyclers to ensure downstream recyclers actually treat e-waste, especially hazardous components, in an environmentally sound manner. WEEELABEX and R2 employ proprietary traceability and mass balance systems.
- Reduce burdens on national governments by reducing the frequency of monitoring and auditing, and involving use of certification organisations.

4. Combining top-runner and bottom-up approaches to establish sound international recycling

Recycling certification should be applied in accordance with the various institutional and operational environments in Asian countries. In particular, it requires considering how certification criteria should be set, since each country may require a different licence scheme for recycling activities. In this regard, this section elaborates on two approaches for applying certification systems in Asia, based on country goals.

One is to use a 'top-runner' approach, involving issuing recycling certification to distinguish the good from the bad recyclers of e-waste in the recycling market, with preferential treatment given to the sound operators.

Another is to use a 'bottom-up' approach, in which recycling certification is used to identify potential recyclers not yet defined as 'sound' recyclers in the market and to target such operators for capacity development and investment. This would enable countries without specified recycling regulations for e-waste to build domestic recycling capacity and ensure labour health and safety and environmental protection.

As discussed in Sections 2.2 and 2.3 of this chapter, Asia's institutional and physical/ industrial infrastructure is diverse. A certification system would thus identify the most advanced treatment facilities in each region, which would form the basis of a recycling chain, to which top-runner facilities with differentiated functions and technical requirements would plug into. Utilising this network of top-runner facilities, countries with lower capacity, such as type 3 countries, would use the bottom-up approach to upgrade their recycling systems into type 2. Type 2 or 3 countries with lower capacity would utilise the concept of certification for specific requirements and capacity development for collecting, separating and sorting hazardous components for relatively less developed facilities. Under such coordination, the combination of top-runner and bottom-up approaches would help establish a sound recycling chain that incorporates the disparate infrastructures of each country much more efficiently than having to establish a complete set of recycling facilities and systems in each country from the outset.

More specifically, each type of country identified in Section 2.2 could utilise certification in the following manner:

Type 1 countries would act as recycling hubs owing to their greater capacity to recycle e-waste and dispose of hazardous components in an environmentally sound manner. Recycling certification would assuredly trace domestic and international flows of e-waste between responsible recyclers to prevent it ending up in informal sectors.

Certified recyclers would act as 'top-runners' for resource recovery and could be incentivised with funds for infrastructure upgrades or grants to ensure formal collection,

in order to avoid competition from the informal sector. Simplifying the international trade between certified recyclers under the Basel Convention will facilitate regional cooperation.

For countries lacking appropriate advanced technologies (smelting), establishing effective means of collection from consumers and industry, combined with cooperation from international recyclers with access to such technologies, would suffice.

Type 2 countries in economic transition should focus on recycling e-waste from industries associated with industrial waste regulation due to the lack of systematic recycling system of consumer e-waste. Since type 2 countries have no formal collection route or specified recycling facilities such as smelting they must utilise the informal sector's recycling capacity and promote regional cooperation. In this case, they can nurture sound recyclers by establishing a collection and dismantling system with cooperation from existing informal collectors, which would be upgraded based on recycling certification criteria. This could be promoted via incentives, i.e., loans or grants to certified recyclers and penalties for violators. Simplification of shipping e-waste from domestic to international recyclers would help. There are certain needs of international trade from type 2 countries to type 1 countries for environmentally sound management and resource recovery. For example, companies operating in type 2 countries may need to ensure treatment of their produced waste certified recyclers in type 1 countries in order to follow their CSR policies.

Type 3 countries face no serious sustainability challenges related to e-waste management due to their limited economic development and industrial infrastructure for resource recovery. Here, development of a general waste management system for increased recycling capacity should be prioritised, together with creation of collection points for potential collectors such as junk shops to export waste via international routes to certified recyclers in type 1 or type 2 countries for resource recovery.

To solve the e-waste challenges in Asia, therefore, differences in recycling capacity can be coped with through role sharing, in which all countries in the region cooperate for mutual benefit. The role of type 1 countries is to contribute to regional cooperation and resource efficiency; that of type 2 countries is to utilise and upgrade existing recyclers; and type 3 countries can focus on developing collection of e-waste.

5. Towards implementation of an international recycling certification scheme

To apply and operationalize an effective and feasible recycling certification scheme in the region, the following issues should be examined.

First, who—or which organisation—should take the lead in such certification scheme? This could be a voluntary but semi-public industrial initiative or start out as a regional working group of experts to consider guidelines for certification. Second, incentive mechanisms should be developed along with application of the certification scheme. Third and fourth, how to harmonize or coordinate with existing international rules such as the Basel Convention, as well as existing domestic rules, need discussing.

To bring this about, governments, experts, industrial associations such as those of manufacturers of electronic and electrical products, recyclers, and waste managers, as well as international organisations, including the Basel Regional Office, will all need to work together closely. International certification and standards for sound recycling of

e-waste should be utilized as a communication tool to enable such cooperation, in which the above players develop appropriate standards, guidelines and certification schemes. As seen in the case of R2 Standards or WEEELABEX, leading entities for certification development and application internationally should be industrial associations or related multi-stakeholder organisations, in collaboration with national governments. The application of certification schemes would also aid manufacturers of e-products and recycling industries in terms of transparency and accountability, both of which are needed in an increasingly internationalised recycling market. The concept of certification would also help build trust between governments and the recycling market to ensure sound recycling, and serve as an information disclosure mechanism covering the location and capacity of sound recyclers. Building trust is needed since the region lacks a competent regional authority for environmental governance, and together with information disclosure on location, these would represent a first step towards a functioning e-waste management and recycling system.

The potential impacts of recycling certification on informal recyclers may depend on their roles within the recycling chain. Certification could assist in upgrading informal recyclers to engage in collection and dismantling processes that do not generate serious environmental impacts. For these recyclers, certification would incentivise their activities through education, training, and investments. Certification would also deter harmful 'backyard' recyclers (such as for gold recovery). Since most type 1 and type 2 countries prohibit backyard recycling for metal recovery, stronger regulations and supportive measures such as training and subsidies would be needed, in order to make operations at informal backyard recyclers legitimate.

Recycling certification could be an effective policy tool if combined with incentive systems such as investments for nurturing recycling infrastructure. For this it will be important to establish international branding and reliability of recycling industries in order to promote environmentally sound resource circulation in the rapidly integrating Asian market. Hotta and Kojima (2012) propose an international fund be created for sustainable resource management as a source for financing bilateral and multilateral cooperation programmes in the 3R/materials circulation field. This type of fund could encourage technological development and infrastructure investment for resource efficiency improvements, and be fed from revenues generated through economic instruments for domestic resource management and circulation, such as virgin material taxes and recycling fees. The presence of such a fund would also bolster the efficacy of recycling certification as a tool for regional cooperation and help in sound e-waste management.

6. Conclusion

Under the present state of economic growth in the region, developing Asian countries will face environmental and economic challenges under the existing recycling system, which relies on market-based transactions and a largely informal recycling market to recycle resources. Further, environmentally sound management of recyclable resources is gradually taking hold as the way forward, and policy development related to 3R and institutional frameworks has taken place. What is needed now is to develop the physical infrastructure. This could be done—in step with institutional arrangements for promoting recycling facilities and a system to ensure environmentally appropriate treatment and recovery processes—through the use and nurturing of existing recyclers. Further, international role sharing of recycling activities through intra-regional flows can progress alongside economic integration in Asia.

Under these conditions, utilisation of recycling certification is a potential policy approach to facilitate regional collaboration for ensuring sound recycling of e-waste. Regional economic integration may aggravate environmental impacts associated with uncontrolled flow of e-waste but also provide a good incentive to establish a regional resource circulation framework. Introducing standardised recycling certification, at least for top-runners, can contribute to role sharing of recycling activities in the region by identifying and disclosing information on responsible recyclers in both developed and developing countries in Asia. This role sharing is also beneficial for countries with less capacity in e-waste management to ensure sound management of e-waste in the face of increasing consumption of e-products. It should be noted that this is not a call for waste trade liberalisation, as this would be counter to the Basel convention. Rather, the proposed model for international recycling, based on regional role sharing and recycling certification, should be seen as a measure to facilitate environmentally sound e-waste management for countries that lack adequate domestic recycling or treatment capacity of e-waste (UNEP 2013). The concept of using recycling certification schemes would naturally require compliance with regulations and legislation, as would transboundary movement, in line with the process of the Basel convention.

Recycling certification can be used in a number of ways: National governments can request or suggest recycling facilities to obtain specified certification and to adopt auditing schemes to promote environmentally sound management of e-waste; business sectors can voluntarily participate in recycling certification to meet growing market demands of e-waste recycling and management; and Basel regional centres in China, Indonesia and Iran could act as springboards to implement regional recycling certification and to promote regional role sharing for environmentally sound management of e-waste. An incentive system could also be combined with recycling certification, via an international fund for sustainable resource management, which could operate through the Basel regional centres in cooperation with the World Bank or Asian Development Bank.

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Chapter 7

Air Pollution and Regional
Economic Integration in
East Asia: Implications and
Recommendations

Mark Elder

Chapter 7

Air Pollution and Regional Economic Integration in East Asia: Implications and Recommendations

Mark Elder

Key Messages

- Air pollution is worsening in the Asia-Pacific region along with continued strong economic growth, and could be aggravated by further economic integration.
- Air pollution standards and regulations have gradually strengthened in the region, but in many cases are still weaker than the WHO guidelines.
- Economic integration has not prevented stronger standards, but policymakers' fears about costs and trade competitiveness may have slowed the strengthening of stronger policies.
- Fears about competitiveness are not well founded since there is little evidence of a "race to the bottom" while there is evidence that stronger air pollution standards can promote exports to countries with higher standards.
- A co-benefit approach and better cost-benefit analysis can show that stronger air pollution regulations are economically beneficial, for example by reducing health costs and reducing crop damage from air pollution.
- Some countries, particularly developing ones, may lack capacity to establish or implement stronger air pollution policies and related measures such as monitoring.
- This chapter therefore recommends domestic air pollution policies be strengthened and harmonised particularly in the ASEAN Community, and concrete measures should be taken to develop effective implementation capacity.
- Expanded regional integration in Asia (further facilitation of trade and investment) should be conditioned on stronger domestic air pollution standards and regulations, stronger enforcement and implementation, and development of implementation capacity.
- Stronger international cooperation will therefore be key. Here, the European Convention on Long-range Transboundary Air Pollution (LRTAP) could act as a role model for a regional framework. This could be based on strengthening existing frameworks or creating a new one.

1. Introduction

This chapter explores the implications of increased regional economic integration for air pollution control in East Asia and offers recommendations on how to address them. Economic integration has gradually progressed in the region, mostly informal and market based, but also formal in the case of ASEAN. Recently, the pace of discussions on regional economic integration has picked up, especially regarding the Trans-Pacific Partnership (TPP), and the ASEAN Community is to be established in 2015.

The urgency of air pollution has significantly increased in recent years, and the situation is still serious despite national efforts and regional cooperation initiatives which have achieved some success. In 2010, CAI-Asia's survey of major cities concluded that "while some improvements in air quality have been achieved, levels of PM₁₀ and SO₂ continue to exceed World Health Organization (WHO) air quality guidelines (AQG). There is not enough air quality data to assess PM_{2.5} and ozone" (CAI-Asia 2010). Further, overall economic and social trends suggest that air pollution is likely to increase in developing Asia. Thus, any gains due to stronger policies may be offset by economic growth, energy consumption, and motorisation. WHO estimated that in 2012, globally, 4.3 million deaths were attributable to household air pollution and 3.7 million to ambient air pollution. Of these deaths, 77% from household air pollution (3.31 million), as well as 70% from ambient air pollution (2.6 million) occurred in the Western Pacific or Southeast Asia (WHO 2014).

There are two major perspectives on the relationship between the environment and economic integration. One warns of the danger that economic integration may weaken environmental standards, while the other argues that there is little evidence for this, and suggests that economic integration could even strengthen standards in some cases (Frankel 2009, Copeland and Taylor 2004, Levinson and Taylor 2008, Poelhekke and van der Ploeg 2012, Vogel 1999, Saikawa 2013, List and Co 2000).

This chapter takes a closer look at the implications of potential increased economic integration for air pollution issues in East Asia. It also considers how air pollution policies might be affected, and what measures could both reduce potential negative effects and encourage positive effects. Actual air pollution trends in East Asia are not covered in detail, as many studies have done this already (e.g., Kurokawa et al. 2013), but levels of air pollution are compared against the specific standards set by each country to provide inter-country comparisons of standard attainment.

This chapter recommends linking increased regional integration in East Asia with stricter domestic air pollution standards and regulations as well as bolstered enforcement and implementation of existing ones. At a minimum, safeguards should be established to ensure negotiations do not undermine existing environment related international agreements and domestic measures.

Two major obstacles to these recommendations are addressed by this chapter. First, there are fears over costs and negative impacts on trade competitiveness. This chapter argues that these fears are often misplaced, and benefits – both economic and health related – are often overlooked. Second, many countries have insufficient capacity for implementation and also insufficient scientific capacity.

To address the first obstacle, this chapter attempts to explain why stronger air pollution policies are not likely to undermine competitiveness. It also recommends that detailed cost-benefit analysis should be supported by a co-benefits approach that links air pollution measures to economic development, green jobs, and energy security, and

also links cost reduction or sharing measures with climate change mitigation measures. These can provide compelling incentives for taking stronger action. Both obstacles can be addressed by strengthening the international cooperation framework to support and help to coordinate these efforts, including related capacity building. Coordination would increase the cost effectiveness of stricter measures and ease concerns about trade competitiveness. Ideally, air pollution standards and enforcement should be strengthened regardless of any trends in regional integration. However, the recent attention to regional integration initiatives provides an opportunity to consider more carefully the fears of potential effects on trade competitiveness.

Europe has already experienced these issues, especially fears about the effects of air pollution countermeasures on trade and economic competitiveness, which were successfully addressed in the Convention on Long Range Transboundary Air Pollution (LRTAP). This chapter therefore briefly reviews LRTAP's experience and how it differs from East Asia's situation, to draw some policy implications.

The rest of this chapter is organised as follows. Section 2 reviews existing air pollution standards in the region, section 3 explores the implications of recent trends in economic integration for air pollution, section 4 compares the situation in East Asia with Europe's LRTAP, and section 5 concludes with some policy recommendations.

2. Existing Air Pollution Policies and Standards in East Asia

This section presents selected information on standards related to ambient air quality, light and heavy duty vehicle emissions, fuel, vehicle fuel economy, and the state of air quality monitoring in Asia. It also summarises major policy trends in China. It does not discuss stationary sources, which are also very important, since reliable and easily comparable national data is not available.

The information presented here does not provide a comprehensive picture of the situation, due to the difficulty of obtaining accurate and comparable information. Some of the information was obtained from Clean Air Asia (formerly CAI-Asia) (e.g., CAI-Asia 2010, 2011; CAA 2014) and the ASEAN Secretariat (2009), but there are many limitations such as missing data, limited comparability, and lack of disaggregated data (Patdu and deLeon 2012). This chapter uses the latest available data from CAA and other specialised networks.

Ambient air quality standards

Ambient air quality standards for many East Asian countries are summarised in Table 7.1 below, and the number of these countries meeting WHO guidelines is indicated in Table 7.2. Most of this information was compiled from CAI-Asia (2010) and Clean Air Asia (2014), although the Chinese standards were updated (Lin and Elder 2014). Data was updated to 2014 as much as possible.

The WHO recommendations and EU and US standards are included for reference. WHO also has Interim Targets for some developing countries that cannot meet the guidelines. In Asia, some countries follow the WHO guidelines for some pollutants but more countries follow the weaker interim targets for developing countries. Notably, both China and India have adopted the stronger WHO guidelines for NO₂ and Ozone for certain designated areas. Other countries have adopted standards with reference to the US or Japan. As of 2014, only Afghanistan and Myanmar lacked ambient standards while Brunei Darussalam had standards only for PM₁₀ and not for other air pollutants. Following

increased media attention, several countries adopted PM_{2.5} standards after 2010. Eleven countries had no annual lead standards as of 2010 (but could have standards for other time periods; e.g., Thailand has a monthly lead standard of 1.5 µg/m³). These differences make it difficult to accurately compare standards.

Table 7.1 Ambient air quality standards for selected Asian and non-Asian countries and WHO guidelines (µg/m³)

Country	PM _{2.5}		PM ₁₀		TSP		SO ₂			NO ₂			O ₃		CO		Pb
	24-Hr	Annual	24-Hr	Annual	24-Hr	Annual	1-Hr	24-Hr	Annual	1-Hr	24-Hr	Annual	1-Hr	8-Hr	1-Hr	8-Hr	Annual
Afghanistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	65	15	150	50	-	-	-	365	80	-	-	100	235	157	40	10	0.5
Bhutan	-	-	100	60	200	140	-	80	60	-	80	60	-	-	4	2	-
Brunei Darussalam	-	-	150	50	-	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	-	-	-	-	500	300	500	300	100	300	100	-	200	-	40	20	-
China: Gr. I	35	15	50	40	150	50	150	50	20	120	80	40	160	100	10	-	1
China: Gr. II	150	70	150	70	500	150	500	150	60	240	80	40	200	160	10	-	1
China: Gr. III	-	-	250	150	-	-	-	250	100	-	120	80	200	-	20	-	1
Hong Kong, China	75	35	100	50	-	-	-	125	-	200	-	40	-	160	30	10	-
India*	60	40	100	60	-	-	-	80	50	-	80	40	180	100	4	2	0.5
India**	60	40	100	60	-	-	-	80	20	-	80	30	180	100	4	2	0.5
Indonesia	65	15	150	-	230	90	900	365	60	400	150	100	235	-	30	-	1
Japan	35	15	-	-	100	-	262	105	-	-	75-113	-	118	-	-	23	-
Lao PDR	-	-	120	50	330	100	780	300	100	320	-	-	200	-	-	30	10.26
Malaysia	-	-	150	50	260	90	350	105	-	320	10	-	200	120	35	10	-
Mongolia	50	25	150	50	150	100	-	30	10	85	40	30	-	100	30	10	-
Myanmar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nepal	-	-	120	-	230	-	-	70	50	-	80	40	-	-	-	10	0.5
Pakistan	35	15	150	120	500	360	-	120	80	-	30	40	-	-	-	10	5
Philippines	50	75	150	60	230	90	-	180	80	-	150	-	140	60	35	10	1
Rep. of Korea	-	-	100	50	-	-	392	131	52	188	113	56	196	118	28.6	10.3	0.5
Singapore	35	15	150	-	-	-	-	365	80	-	-	100	-	147	40	10	-
Singapore 2020	37.5	15	50	20	-	-	-	50	-	200	-	40	-	100	30	10	-
Singapore L T targets	25	10	50	20	-	-	-	20	-	200	-	40	-	100	30	10	-
Sri Lanka	50	25	100	50	-	-	200	80	-	250	100	-	200	-	30	10	-
Thailand	50	25	120	50	330	100	780	300	100	320	-	57	200	140	34.2	10.3	-
Viet Nam	50	25	150	50	200	140	350	125	50	200	-	40	-	120	30	10	0.5
WHO IT-1	75	35	150	70	-	-	-	125	-	-	-	40	-	120	-	-	-
WHO IT-2	50	25	100	50	-	-	-	50	-	-	-	-	-	-	-	-	-
WHO IT-3	37.5	15	75	30	-	-	-	-	-	-	-	-	-	-	-	-	-
WHO AQG	25	10	50	20	-	-	-	20	-	-	200	40	-	100	30	10	0.5
EU	-	25	50	40	-	-	350	125	-	200	-	40	-	120	-	10	0.5
US	35	12	150	-	-	-	75 ppb	0.5 ppm 3h	-	100 ppb	188	100	-	147	40	10	0.15 3 mo av-

Sources: CAI Asia 2010, pp. 10, 12, and CAA 2014d, USEPA, EU. Data from China was updated from MEP cited in Lin and Elder 2014 (new standards for Grade I PM_{2.5}, and Ozone 8-Hr; and Grade II PM_{2.5}, PM₁₀ annual, NO₂, Ozone 8-Hr)

Each country's standards as of 2014 are compared to WHO guidelines and targets in Table 7.2 below, which shows that Asian standards are generally lower than WHO's guidelines for most pollutants, except for CO. No country met the WHO PM_{2.5} guideline, but six countries were at or planned to reach the next strongest level, and nine countries had no standard. Singapore had the strongest standards, with 5 out of 6 pollutants meeting or planned to meet WHO recommendations. China and Mongolia recently adopted the highest standards for 4 of the 6 pollutants. Each country was classified as favourably as possible according to the highest guideline or target met by any one indicator, or in cases where a country has more than one type of standard. Strictly speaking, in a few cases, the standards are not technically comparable due to different specifications. However, use of this data appears to be the only way to make a rough international comparison without doing additional technical analysis or until countries harmonise their standards.

Table 7.2 Comparison of selected ambient standards in Asia with WHO guidelines and targets

Pol-lutant	No standard	Weaker than WHO IT-1	WHO IT-1	WHO IT-2	WHO IT-3	WHO AQG
PM_{2.5}	9	0	3	4	6	0
	Afghanistan, Bhutan, Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Nepal, Rep. Korea	none	Hong Kong (China), India*, Philippines	Mongolia, Sri Lanka, Thailand, Viet Nam	Bangladesh*, China, Indonesia*, Japan, Pakistan, Singapore 2020	none
PM₁₀	4	0	9	7	0	2
	Afghanistan, Cambodia, Japan,*** Myanmar	none	Bangladesh, Brunei Darussalam, Indonesia*, Malaysia, Mongolia, Nepal*, Pakistan*, Philippines*, Viet Nam	Bhutan, Hong Kong (China), India*, Lao PDR*, Rep. Korea, Sri Lanka, Thailand*	none	China (I)*, Singapore (planned)
SO₂	3	8	8	1	0	2
	Afghanistan, Brunei Darussalam, Myanmar	Bangladesh, Bhutan, Cambodia, Indonesia, Lao PDR, Philippines, Rep. Korea, Thailand	Hong Kong (China), India, Japan, Malaysia, Nepal, Pakistan, Sri Lanka, Viet Nam	China (I)	none	Mongolia, Singapore (planned)
NO₂**	3	10	NA	NA	NA	9
	Afghanistan, Brunei Darussalam, Myanmar	Bangladesh, Bhutan, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Philippines, Sri Lanka, Thailand	none	none	none	China (I), Hong Kong (China), India*, Rep. Korea*, Mongolia, Nepal, Pakistan, Singapore, Viet Nam
O₃	5	4	8	NA	NA	5
	Afghanistan, Bhutan, Brunei Darussalam, Myanmar, Nepal	Cambodia, Indonesia, Lao PDR, Sri Lanka	Bangladesh, Hong Kong (China), Japan, Rep. Korea, Malaysia, Pakistan, Viet Nam, Thailand	none	none	China (I), India, Mongolia, Philippines, Singapore
CO	3	1	0	0	0	18
	Afghanistan, Brunei Darussalam, Myanmar	Japan, Lao PDR	none	none	none	Bangladesh, Bhutan, Cambodia, China, Hong Kong (China), India, Indonesia, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Rep. Korea, Singapore, Sri Lanka, Thailand, Viet Nam

Source: Based on Table 7.1 above. Figures indicate the number of countries adopting a specific level of standard for each pollutant.

* Each country was classified as favourably as possible according to the strictest guideline or target met by any one indicator, or in cases where a country has more than one type of standard.

** 5 countries have 24-hr. standards instead of annual standards; these were classified as annual standards in order to enable a rough comparison.

*** Japan has a standard for TSP instead of PM₁₀.

Emission standards for light duty vehicles

Emission standards for new light duty vehicles of selected Asian countries (and the EU and Australia for comparative purposes) planned as of 2014 are presented in Table 7.3 based on information up to 2014. The table, which excludes Japan, Myanmar, Mongolia, Lao PDR, and Cambodia, shows that a number of countries have advanced to Euro 4 but many are still at Euro 1 or 2. Countries should progress to Euro 5.

Table 7.3 Emission standards for new light duty vehicles of selected countries as of 2014

Country/Area	Year Adopted	2014 Standard	Future Plan/Notes
European Union	2014	Euro 6	Petrol
Australia	2013	Euro 5	Euro 6 by 2017
Hong Kong, China	2012	Euro 5	
Republic of Korea	2013	Standards 1-4	Euro 5 diesel
China (major cities**)	2013	China 4	China 5 by 2015
China (nationwide)	2011	China 4	China 5 by 2017
Taiwan	2011	US Tier 2 Bin 7	Equivalent to Euro 4
Singapore (gasoline)	2014	Euro 4	
Singapore (diesel)	2014	Euro 5	
India (entire country)	2010	Euro 3	Considering Euro 6 by 2021
India (some major cities)	2010	Euro 4	
Thailand	2012	Euro 4	
Malaysia (gasoline)	2011	Euro 3*	Considering Euro 4 by 2015
Malaysia (diesel)	2011	Euro 2*	Considering Euro 4 by 2015
Nepal	2012	Euro 3	
Philippines	2007	Euro 2	Euro 4 by 2015
Viet Nam	2007	Euro 2	Euro 4 by 2016, Euro 5 by 2021
Indonesia	2005	Euro 2	Considering Euro 4 by 2016
Bangladesh (main cities**)	1996	Euro 2	Considering E3/2014, E4/2019
Bangladesh (nationwide)	1996	Euro 2	Considering Euro 3 by 2019
Pakistan	2012	Euro 2	
Sri Lanka	2008	Euro 2	Considering Euro 4 by 2016

Source: Clean Air Asia 2014c, CAI-Asia 2011, based on information as of 2014.

* Tentative, ** China: Beijing, Shanghai, Guangzhou; Bangladesh: Dhaka & Chittagong

Emission standards for heavy duty vehicles

Table 7.4 Emission standards for new heavy duty vehicles of selected countries as of 2014

Country/Area	Year Adopted	2014 Standard	Future Plan/Notes
European Union	2013	Euro 6	
Australia (gasoline)	2003	Euro 5	
Australia (diesel)	2003	Euro 4	
Singapore	2014	Euro 5	
Hong Kong, China	2012	Euro 5	
Republic of Korea	2014	Euro 4	
China (major cities*)	2013	China 5	
China (nationwide)	2013	China 4	
Taiwan	2006	Euro 4	
India (entire country)	2010	Bharat 3	
India (selected major cities)	2010-12	Bharat 4	
Pakistan	2013	Pak 4	
Thailand	2006	Euro 3	
Nepal	2013	Euro 3	
Viet Nam	2006	Euro 3	Euro 4 by 2017
Indonesia	2013	Euro 4	In cities; Euro 2 elsewhere
Philippines	2008	Euro 2	
Malaysia	2003	Euro 1	Considering Euro 2 by 2013
Bangladesh	--	None	Considering Euro 2 by 2014

Source: Clean Air Asia 2014c.

* Beijing, Shanghai, and Guangzhou

Fuel standards

Stricter vehicle emission standards need to be combined with stricter fuel standards in order for the anti-pollution equipment to operate properly. Lack of availability of cleaner fuel is a major obstacle to stricter vehicle emission standards. Table 7.5 shows planned sulphur levels in diesel fuel in selected Asian countries in comparison with the EU, Japan, and the US. Nearly all of the Asian countries should improve, and some less developed countries still have very dirty fuel. CAI-Asia (2011) argues that cleaner fuels do not adversely affect the economy and provide economic benefits due to improved public health.

Table 7.5 Standards for sulphur content of fuels in selected Asian countries, EU and US

	Diesel Standard (ppm)	Petrol Standard (ppm)	Notes
EU	10		
US	10		
Japan	10	10	
Hong Kong, China	10	50	
Republic of Korea	50	10	
Singapore	50	50	10 ppm/ diesel by 2014
Taiwan	10	50	
Thailand	50	50	
China (nationwide)	50	50	10 ppm by 2017**
India (metros)	50		
India (nationwide)	350	150	
Nepal	350	150	
Bhutan	500	No info.	
Brunei Darussalam	500	1000	50 ppm by 2016**
Malaysia	500	500	50 ppm by 2016**
Philippines	500	500	50 ppm by 2016**
Sri Lanka*	500		Considering 50 ppm**
Viet Nam	500	500	50 ppm by 2018**
Cambodia	1500	1000	
Myanmar	2000	No info.	
Lao PDR	2500	500	
Indonesia	3500	500	
Bangladesh	5000	1000	
Mongolia	5000	No info.	
Pakistan	7000	No info.	

Sources: CAI-Asia 2011, UNEP 2014.

* Sources disagree. UNEP 2014 indicates 2000 ppm for diesel and 1000 ppm for petrol.

** Source does not indicate whether this refers to diesel or petrol or both.

Automobile fuel economy standards

No ASEAN country had automobile fuel economy standards as of 2010, although some countries took preliminary steps. Singapore had a voluntary labelling scheme, while Thailand had a fuel economy standard of 20 km/l for legally designated eco-cars eligible for tax incentives, but no required standards for all cars (50by50 and CAI-Asia 2010). As of 2014, Indonesia, like Thailand, offered tax incentives for eco-cars including a fuel economy requirement of 20 km/l (GFEI 2014). Overall, efforts to establish fuel economy standards in ASEAN countries are still in the early stages (GFEI 2014).

ASEAN countries have been taking some steps towards standards, and efforts are also being made on related voluntary vehicle labelling, fiscal/tax incentives and public information programmes. However, overall progress has been very slow, and the status as of 2014 is summarised in Table 7.6 below.

Table 7.6 Policy developments related to fuel economy in selected ASEAN countries

Country	Fuel Economy Standards & Baseline Calculations	Type of Vehicles Covered	F.E. Vehicle Labelling	Fiscal/tax incentives	Public Information Programmes
Indonesia	Baseline calculations and cost-benefit analysis completed in 2012. Legal drafting of fuel efficiency policies and standards (km/l) underway.	Light-duty 2-wheelers	Voluntary based on conformity of production	Low Cost Green Car (LCGC) Programme	Eco-driving programmes, policy dialogues
Malaysia	National Automotive Policy 2014: Implementation of Energy-Efficient Vehicles (EEV) will be based on fuel consumption specification (l/100km) and carbon emission (gCO ₂ /km) will only be used once the EURO 4 fuel quality standard is introduced.	Light-duty 2-wheelers	None, but under discussion	Temporary import tax & excise duty exemption	Government developing Malaysia as regional hub for Energy Efficient Vehicles (EEVs)
Philippines	Baseline calculations underway and scheduled to be completed by Jan 2015. Introduction of standards planned under the proposed House Bill on National Energy Efficiency Conservation	Light-duty	Voluntary based on fuel economy runs	Senate proposing incentive bill	Eco-driving programmes and fuel economy runs
Thailand	Draft MEPS & HEPS (km/l) established for diesel and petrol vehicles in 2013 by DEDE – Ministry of Energy with Thailand Automotive Institute	Light-duty 2-wheelers	None	CO ₂ taxation policy based on engine size	
Viet Nam	TCVN issued by the Ministry of Science and Technology: fuel consumption limits (l/100km) of passenger cars (Aug 2013) and for 2-wheelers (Sep 2014)	Light-duty 2-wheelers	Mandatory from Jan. 2015		

Source: Rono and Bakker 2014.

Efforts to promote fuel efficiency have been made by the Global Fuel Economy Initiative (GFEI), established in 2009, and its regional partner for Asia, Clean Air Asia (formerly CAI-Asia). In November 2013, the first ASEAN Clean Fuels and Vehicles Forum was organised by Clean Air Asia and The National Environment Agency of Singapore with support from various partners, including the United Nations Environment Programme (UNEP), GIZ, and the ASEAN Secretariat (CAA 2014). Participating ASEAN countries were Brunei Darussalam, Cambodia, Lao PDR, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam (Roño & Bathan 2013). Presentations by Thailand and Indonesia referenced national discussions on establishing standards, but the Forum reported no new standards.

The many potential benefits of stricter fuel efficiency standards in ASEAN countries, such as enhanced energy security, cost savings, air pollution and health are well documented (GFEI and CAI 2010, GFEI 2014). A cost-benefit analysis conducted for Indonesia identified significant cost savings for stricter fuel efficiency standards, especially when used in combination with other related policies (CAI 2012).

Despite these benefits, fuel efficiency standards have not been adopted in ASEAN countries, which is somewhat surprising since other air pollution policy measures such as emission standards have been accepted. According to Fabian (2010), fuel economy policies and measures are currently a lower priority than alternative fuels and emissions management, although it is unclear why. Challenges to introducing fuel economy standards include overlapping ministerial jurisdictions, fuel subsidies, resistance from car manufacturers, higher costs for more efficient cars, lack of consumer awareness, used car imports and the need for coordination with fuel and emission standards (Fabian 2010, GFEI 2014).

Regarding other countries in Asia, China, in contrast, has established fuel economy standards, which are currently at Phase III with a goal of reaching 6.9 l/100 km by 2015, compared with 7.34 l/100 km in 2012. It is now developing Phase IV standards to be set at 5 l/100 km. In Asia, therefore, concerns over competition from China are not very persuasive as a reason for other countries to delay fuel economy standards. Japan and the Republic of Korea also have standards while India does not (GFEI 2014).

Point Sources

No comparative information on emission standards for point sources such as power plants or other industries exists, even though many countries have these standards, including China (Lin and Elder 2014), India, Singapore (Energy Asia 2012), and Japan. For China, stricter emission restrictions for coal-fired power plants were a key element of a set of new air pollution policies adopted in the early 2010s (Lin and Elder 2014). These policies are comparable to those of developed countries, and are funded by higher electricity rates (Chinafaqs.org 2012).

Without reliable comparative information, it is difficult to know the extent of similarities and differences between countries, as well as the stringency of their standards. Countries should establish standards if they do not already exist, and existing standards may need strengthening. Uncertainties about the comparability of standards, may contribute to resistance to strengthening them due to concerns about competitiveness, especially in sectors such as power generation which affect trade-related industries.

Air Quality Monitoring

Monitoring is necessary in order to assess air quality and enforce and implement standards and regulations. However, according to a survey by Clean Air Asia (2014), monitoring is insufficient in many areas of Asia. A survey of 69 Asian cities in 17 countries, including at least seven megacities (Beijing, Delhi, Dhaka, Guangzhou, Manila, Mumbai, Shanghai, and Tokyo), concluded that the majority (57% of all cities in the survey and 70% of cities in developing countries) lack adequate monitoring stations compared to EU guidelines. Moreover, "in more than half of the countries surveyed, not all of the pollutants with national standards are monitored by cities" (p.18). Quality control or assurance measures for air pollution monitoring were being implemented in 27 cities. Some developing countries had limited financial and human resources or technical capacity (p.28).

Budget estimates for capital costs of fixed monitoring stations ranged from 146,200 USD in Bangkok to 360,000 in Seoul, and operational costs per station ranged from 6,300 USD in Seoul to 27,200 in Bangkok. Overall network operation costs for consumables, parts, and repairs ranged from 117,592 USD in Ulaanbaatar, to 380,000 in Jakarta and 630,000 in Singapore (CAA 2014, p. 36). It is unclear why expanding monitoring networks would be

difficult with this range of costs, especially if a cost-benefit analysis were to be conducted. Cities or countries facing real financial constraints could still establish or add at least a small number of monitoring stations for a modest cost. External assistance could also be considered.

China

China may be a major source of concerns in other countries about the possible effects of stronger air pollution policies on trade competitiveness, since it is involved in a significant share of global trade in a wide range of industries. This chapter argues that China's new and considerably strengthened air pollution policies give countries which are worried about trade competitiveness plenty of extra room to strengthen their own policies.

China comprehensively upgraded its air pollution policies during the 12th Five-year Plan period which began in 2011—the Air Pollution Action Plan issued by the State Council in September 2013 being the most recent. These policies cover five main areas (Lin and Elder 2014): 1) Reinforced standards and regulations; new pollution reduction targets, particularly in designated priority regions, covering a broad range of pollutants, including PM_{2.5}, ozone and volatile organic compounds (VOCs); phase-out of “Yellow Label” high polluting vehicles; 2) Expanded monitoring and public reporting of data; 3) Bolstered enforcement of pollution reduction targets which are newly linked to promotion of officials, and expanded use of environmental impact assessments (EIA); 4) A major policy push to promote renewable energy and energy efficiency; 5) A kind of environmental-industrial policy, aimed at promoting environmental protection industries and technologies, not just renewable energy and energy efficiency.

China's Environmental Protection Law was also strengthened in April 2014, which reinforces many of these trends, although the effectiveness of its implementation is unknown (van Rooij and Wang 2014, Economist 2014). Revisions to strengthen China's Air Pollution Control Law were under discussion as of late 2014 (Speegle 2014). Major proposed changes are summarised by Barbara Finamore (2014), although the basic direction is in line with the Air Pollution Action Plan described above.

These new policies have required some local governments and designated regions to formulate action plans to respond to severe pollution episodes. New plans in Beijing and Hebei Province include restrictions on vehicle use and temporary production shutdowns for factories and electric power generation plants (and require actual operation of anti-pollution equipment). These measures are said to be enforced fairly strictly.¹

Overall trends in air pollution standards

Several major trends are suggested by this survey. 1) In some areas, such as ambient air quality standards and light vehicle emission standards, some East Asian countries have already established standards in line with or exceeding WHO recommendations or US standards; 2) Some countries have established standards, but not as strict as WHO or the US; 3) Some countries have weak standards, and a few appear to have no standards; 4) No ASEAN countries had vehicle fuel economy standards as of 2010—which is surprising given the obvious energy security and cost benefits of increased fuel efficiency; 5) No comparative information is available on other kinds of standards, such as industrial emissions standards or other air pollution policies.

Overall, the strength of air pollution standards in the countries in the region varies widely—from a complete lack of standards, to WHO-equivalent standards. Ambient and

mobile standards in many countries have been bolstered in recent years, with occasional reviews and amendments. For light- and heavy-duty vehicles, many countries have updated their standards very recently, as can be seen from Tables 7.3 and 7.4 above. This study only reviewed ambient and mobile standards and not standards for stationary sources, which may have a similar variability.

The fact that some countries have strict standards, and that standards are gradually strengthening in the region, indicates that economic integration itself does not necessarily prevent stricter ambient and mobile standards. Standards for stationary sources may be more affected by economic integration. However, in many cases standards still need to be strengthened and better enforced to address severe air pollution, and it is possible that economic integration may be restricting how high standards could strengthen. The next section analyses the air pollution implications of recent trends in trade liberalisation and economic integration in East Asia in more detail.

3. Air Pollution Concerns Regarding Recent Trends in Trade Liberalisation and Economic Integration

This section addresses the broad concerns regarding air pollution relating to recent trends in trade liberalisation and economic integration in East Asia. It does not try to quantify or evaluate the impacts since other factors, such as embodied trade in air pollution, similar to embodied trade in carbon, make it difficult to identify responsibility for emissions.

Generally, trade liberalisation and economic integration are presumed to increase economic growth, which then increases air pollution and other environmental problems (Copeland and Taylor 2003). Major anthropogenic sources of air pollution include fossil-fuel electric power plants, automobiles, and various industrial sectors, particularly petrochemicals and steel (UNEP 2012; Kurokawa, et al. 2013). Much air pollution is related to energy consumption. More trade also leads to more shipping and transport—by air, train, lorry, ship—which also causes more air pollution. Air pollution from ships is becoming serious due to an increasing number of vessels and the use of low quality fuel (Mueller, et. al. 2011).

Air pollution resulting from increased economic integration may contribute to existing regional transboundary air pollution problems in East Asia (Nagashima, et al. 2010, Chang 2012). Transboundary issues are addressed in existing international agreements such as the ASEAN Agreement on Transboundary Haze Pollution, the Acid Deposition Monitoring Network in East Asia (EANET), and international discussions such as the Air Pollution Policy Dialogue under the Tripartite Environment Ministers Meeting (TEMM) among China, the Republic of Korea, and Japan.²

General concerns about trade competitiveness and a potential race to the bottom

One of the main fears of economic integration is about the so-called ‘race to the bottom’, if industries move production out of countries with stricter air pollution regulations such as Japan or the Republic of Korea to those with weaker regulations. However, most research has not found significant evidence of this (Frankel 2009, Copeland and Taylor 2004), with some exceptions (see e.g., Levinson and Taylor 2008, Poelhekke and van der Ploeg 2012). Conversely, there is somewhat more evidence for a ‘race to the top’ (the ‘California effect’), in which companies make their products more environmentally friendly in order to meet the requirements of large advanced export markets. Sometimes even developing countries, producing for export markets, raise their standards in order to

encourage domestic companies to develop the required export capabilities (Vogel 1999, Saikawa 2013). More research is needed to clarify the conditions causing races to the top or bottom.

A key limitation of existing research is that it tends to focus on the point of view of developed countries with high standards, which fear that industries and jobs may move to countries with lower standards.

This chapter argues that it is also necessary to explore the question from the point of view of developing countries which are considering whether to strengthen their environmental standards. According to the “race to the bottom” hypothesis, developing countries may worry about losing business to neighbours with lower standards, while the “race to the top” hypothesis suggests that raising their standards might help their industries to gain better access to advanced markets.

Many policymakers in developing countries may be unaware of the potential benefits of ‘racing to the top’ or the empirical evidence that the potential competitive benefits from ‘racing to the bottom’ may be limited. Therefore, this fear of losing trade competitiveness still may be a major obstacle to strengthening air pollution standards and enforcement, even if these fears are not well supported by empirical evidence.

In practice, many countries, especially developing ones, resist linking economic integration, particularly trade liberalisation, with stricter environmental measures (Chaytor 2009, OECD 2007). Agenda 21 cautions that “special factors affecting environment and trade policies in the developing countries [should be] borne in mind in the application of environmental standards, as well as in the use of any trade measures,” and notes that “standards that are valid in the most advanced countries may be inappropriate and of unwarranted social cost for the developing countries.”³

A key argument of this chapter is that policymakers’ concerns about trade competitiveness are not well justified by the evidence, and may be economically counterproductive. To the extent that markets are characterised by a ‘race to the top’, countries which lag behind in strengthening their standards may find it difficult to develop exports in related industries. Likewise, if there is no race to the bottom (for example, if the costs of meeting environmental regulations are not very significant), then it may be difficult for countries to gain any competitive advantage by maintaining lower standards. Finally, even if trade competitiveness fears were valid, the fact is that major developing exporters like China have significantly strengthened their air pollution (and other environmental) standards. This provides some space for China’s trade competitors to raise their own standards and still maintain or improve their trade competitiveness.

Air pollution and economic integration

Policymakers may still have concerns specifically related to air pollution regarding potential negative effects on competitiveness of stricter air pollution standards in the context of economic integration even though large-scale quantitative studies have not found much evidence for this. Still, specific concerns related to air pollution might be difficult to detect using quantitative models relying on highly aggregated data.

Air pollution standards have gradually strengthened over time in many East Asian countries, as noted in the previous section, along with the gradual progress of economic integration in the region. Also, as can be seen from the survey of air pollution standards presented above, their stringency roughly (though not fully) correlates with levels of

economic development. Generally, least developed countries have the weakest (or no) standards, developed countries have the highest standards, and emerging economies are in the middle. Therefore, it cannot be said that economic integration necessarily stops the development of standards, or weakens them.

Nevertheless, progress on standards, especially in developing countries, has been slow, and generally these standards are weaker than the highest recommended WHO guidelines. Competitiveness concerns relating to economic integration may be delaying the adoption of stricter standards and maintaining a gap with standards in developed countries. For example, in Thailand, detailed cost-benefit analyses of proposed stricter air pollution standards were necessary in order to persuade policymakers to adopt them,⁴ and despite this a gap with developed country standards still existed.

According to a former Thai official, developing countries may agree to strengthen environmental standards but not to the same level as in developed countries. In his view, affordability for businesses and the government was the main reason, and that as countries become more developed they can better afford stricter standards.⁵ Affordability in this context may be related to absolute costs and not international trade, but in the context of trade negotiations, affordability is clearly also related to trade competitiveness.

Another danger is that companies will export cheaper but higher-polluting products (such as automobiles) to countries with weaker air pollution regulations as they become wealthier through trade (Macias et. al. 2013). This has by and large happened in East Asia, which has seen a massive rise in car use and related pollution due to rising living standards, trade and economic growth. Many of these cars are higher polluting used cars imported from developed countries where they no longer meet more stringent emission regulations. To be sure, newer, less polluting cars would have been more expensive and there would have been fewer of them. In principle, as living standards increase along with economic growth, people become more prosperous and can afford cleaner cars.

Air pollution standards vary greatly in East Asia, and these differences may have already affected the relative economic competitiveness of the countries within it. As traditional trade and investment barriers are steadily reduced through economic integration, regulations in other areas, such as air pollution or environment, may exert increasing effects on trade. Thus economic liberalization may generate pressure on some countries to harmonize or narrow the differences between their air pollution regulations, and some may be reluctant to strengthen them, as discussed below in the discussion on Europe. Moreover, harmonisation should always be in the direction of stricter rather than weaker policies.

Least developed countries with minimal or no air pollution regulations

The most serious problem may be the least developed or developing countries like Myanmar or Afghanistan, which have minimal or no air pollution regulations, thus making them susceptible to low cost/high polluting technologies and imported products (e.g., cars). For example, in Myanmar, the institutional framework for environmental regulation was strengthened in 2011 through the new Environmental Conservation Department within the newly upgraded Ministry of Environmental Conservation and Forestry (previously the Ministry of Forestry). Nevertheless, the country still had no air quality standards as of 2013 (Environmental Conservation Department, Myanmar 2013) even though the Environmental Conservation Law of 2012 granted authority to the government to develop them (Hlaing, Patdu, and Capadocia 2014). Myanmar also lacks a national air quality monitoring programme. Past ad hoc monitoring has indicated that levels of PM₁₀ are above WHO guidelines and among the highest in Southeast Asia

(Hlaing, Patdu, and Capadocia 2014). While current air pollution may be mainly due to mobile sources, economic development may mean industrial and area sources are likely to become significant (Hlaing, Patdu, and Capadocia 2014). Myanmar also has no comprehensive inventory of air pollutants, despite having one for greenhouse gases (Hlaing, Patdu, and Capadocia 2014). Myanmar, Afghanistan and DPR Korea were the only Asian countries still using leaded gasoline as of April 2014.⁶ Implementation of economic integration should be conditioned on the establishment of minimum air pollution and other environmental standards, as well as effective implementation and reporting mechanisms. Of course, minimum standards and implementation mechanisms should be established even in the absence of economic integration initiatives.

Cross-border electricity trade

This is an important sector-related issue. Here the fear surrounds the possible location of new power plants using low cost/high polluting technologies in nearby countries with weaker regulations. One example is Thailand, which plans to expand imports of electricity from power plants built in neighbouring countries, including China and Lao PDR (Power Insider 2013, Cleanbiz.asia 2013). In 2011, Thailand imported 10.8 gigawatts from Malaysia and Lao PDR (US Energy Information Administration 2013). A 4,000 megawatt coal-fired power plant to export electricity to Thailand was planned in Myanmar's Dawei Special Economic Zone before being cancelled due to environmental concerns in January 2012 (Robinson 2012). Although Thailand imports some electricity from large scale hydropower plants, other adverse environmental and socioeconomic impacts besides air pollution may result, especially on international rivers like the Mekong.

On the positive side, regional integration of electricity markets could expand the use of renewable energy, since expansion of the scale of the grid could compensate for the intermittent nature of major renewable energy sources, thereby increasing its physical potential (Romero, Elder, and Bhattacharya 2010). In addition, expanded economic integration in the form of increased trade in renewable energy equipment could also facilitate greater adoption of renewable energy (Moinuddin and Bhattacharya 2013).

Link between climate and air pollution

The link between climate and air pollution (e.g. UNEP 2011, Akimoto et al. 2012) is an important new issue that will also be influenced by increased economic integration. It is increasingly recognized that air and climate pollution are caused by many of the same sources, and that significant cost savings (sometimes called "co-benefits") can be achieved by managing them in an integrated way (Asian Co-benefits Partnership 2014). However, just as with air pollution, most governments worry about the effects of climate countermeasures on economic and trade competitiveness (e.g., Cosbey and Tarasofsky 2007). Thus, if further economic integration leads to a race to the bottom in responses to climate change as well as air pollution countermeasures, the cost savings and other co-benefits to an integrated approach will be lost.

Direct negative effects of air pollution

Air pollution itself has direct negative effects on economic competitiveness. For example, in Beijing some companies have difficulties attracting foreign staff (Bloomberg.com 2014), and even some Chinese citizens try to move to less polluted areas (Cendrowski 2013). The competitiveness of Hong Kong's financial sector is also being eroded as firms move to Singapore in search of cleaner air (Financial Times 2006). There is increasing evidence that air pollution damages agricultural crops (Nawadha, et. al., 2012, 2013).

Environmental safeguards in trade agreements

Since the 1980s, the importance of incorporating environmental safeguards in trade agreements has been recognised in the OECD (e.g., Kamal and Imai 2003, IISD and UNEP-DTIE 2005, OECD 2007), but it has not been a priority in East Asia. The EU has made some efforts to incorporate provisions related to environment and sustainable development in its negotiations with ASEAN countries (Cuyvers 2013). A study by Yanai (2014) on environmental provisions in Japan's regional trade agreements with developing countries concluded that although all of the agreements had environmental provisions, such provisions are typically small in number and lack environmental chapters or side agreements. Yanai recommends Japan to incorporate environmental assessments into regional trade agreements in order to avoid environmental problems resulting from them. It is not clear whether environmental or sustainability provisions will be incorporated into the negotiations on the TPP (this point relates to all environmental issues, not just air pollution).

4. International cooperation on air pollution in the context of economic integration in Europe

This section compares the experiences of East Asia and Europe, since Europe faced similar issues regarding the links between economic integration, air pollution, and trade and economic competitiveness. Some may be sceptical about the value of such a comparison because the differences between the two regions – economic, cultural, historical – are thought to be very great, and Europe's system is very advanced. This chapter argues that the comparison should start not with the present situation in Europe, but rather at the beginning of the European countries' efforts to address transboundary air pollution. This was during the era of the Cold War's epic conflict between capitalism and communism which threatened to engulf the earth in a nuclear war; security conditions in East Asia today seem much less serious. During the Cold War, there were very large differences among the European countries (and also between the US and the USSR/Russia) in political systems, cultures, and economic development, although perhaps not as pronounced as the differences in East Asia.

Ultimately, cooperation on air pollution and economic integration was successful in Europe despite many unfavourable conditions. The cornerstone is the Convention on Long-range Transboundary Air Pollution (LRTAP) which came into effect in 1979. Transboundary air pollution became an international issue in the early 1970s, and it took a few years to arrive at the initial LRTAP agreement in 1979, which was a very general agreement without specific commitments among the West European countries, the US, Canada and the former Soviet Union and its allies in East Europe. Over time LRTAP added several conventions requiring reductions of specific air pollutants. LRTAP's current form is the Gothenburg Protocol, adopted in 1999, which uses an integrated approach simultaneously addressing a range of pollutants and effects. Overall, LRTAP evolved gradually over 20 years overcoming many obstacles.

Initially, Britain and West Germany, two of the major sources of transboundary air pollution, were reluctant to agree to the treaty, mainly due to concerns about economic competitiveness, especially for automobile producers. West Germany changed its position in favour of the treaty after its auto producers developed advanced pollution reduction technology, and it saw the opportunity to gain a comparative advantage through stricter air pollution regulations throughout Europe. Eventually, both West Germany and Britain also recognized that air pollution was damaging their own ecosystems. In Germany in

particular, extensive publicity surrounding widespread forest damage was important (Boehmer-Christansen 2000, Sprinz and Wahl 2000).

The Gothenburg Protocol directly addressed concerns about stricter air pollution measures on trade competitiveness and on costs in general. Its innovative feature was differentiated targets negotiated based on a modelling system that calculated cost-optimised reduction strategies, instead of the previously used system of percentage reduction targets, which had resulted in wide disparities in abatement costs among the member countries. The Gothenburg Protocol resulted in steadily stricter air pollution control measures, and is generally considered to be one of the more effective multilateral environmental agreements. The Gothenburg Protocol was successful in part because its differentiated targets helped overcome concerns over costs (particularly for the smaller and less advanced countries of eastern and southern Europe). In addition, there were large investments in capacity building to help less advanced countries to meet their targets.

A major difference between Europe and East Asia is the much greater level of economic integration of the EU. Joining the EU was a high priority for the less developed European countries after the end of the Cold War, as it unlocked the door to preferential trade access to the EU market, something that led prospective member countries to make concessions on many aspects of their domestic policies (Moravcsik and Vachudova 2003), including harmonisation with the higher EU environmental standards and regulations. Joining LRTAP, which provided technical assistance and capacity building to members needing it, was an effective way to smooth the adoption and implementation of stricter air pollution policies. The EU did not require full adoption of all standards all at once, and in some cases allowed a phase-in period (see Carius, von Hofmeyer, and Bar 1999).

In general, over time, as steadily advancing European integration reduced formal trade and investment barriers, the trade effects of other policy areas, such as the environment, became more visible. This in turn led to pressures to harmonise these policy areas within the EU in order to reduce any trade distortions (see e.g., Barnes and Barnes 1999, Jordan 2002). Thus, the EU countries jointly strengthened their domestic air pollution policies in a coordinated way through LRTAP in a series of steps (Sliggers and Kakebeeke 2004).

Certainly, East Asia is different in some important aspects—no ‘community’ exists, and no leading countries with large markets are advocating such a community to be underpinned by stricter environmental standards. The ASEAN ‘Community’, which is still in its initial stages, is focused on trade and investment liberalisation, and it has no concrete plans to strengthen or harmonise environmental policies.⁷ Moreover, as the pace and degree of liberalisation are not very ambitious, member countries may have not yet felt much economic pressure to harmonise other policy areas, such as the environment, although this could still happen in the future if liberalisation becomes more ambitious. Therefore, currently, unlike in Europe where the creation of the EU generated powerful incentives to strengthen environmental policies and their implementation, in ASEAN and East Asia more broadly, there are no similar driving forces or leading countries.

Nevertheless, the LRTAP experience still has important implications for East Asia. First, to the extent that economic integration does progress, it will create internal economic pressures for harmonization within ASEAN itself, just as it did in Europe. However, since economic integration has not progressed very far in East Asia, these pressures may not have been felt much there yet. Second, the most important implication is the desirability of LRTAP-style differentiated reduction targets, based on national circumstances, which prioritise cost effectiveness using an agreed integrated model. The legally binding aspect is less important. Even with voluntary targets instead of a binding agreement, a mutually

agreed integrated model could still help countries to devise the most cost effective reduction measures. Third, LRTAP demonstrates the critical importance of capacity building to implement and meet standards, and the role of international cooperation via the LRTAP framework, which will be key for developing countries that lack even sufficient air pollution monitoring capacity.

5. Recommendations

This section makes seven recommendations: 1) Strengthen air pollution standards — the evidence suggests that this may strengthen rather than undermine economic competitiveness; 2) Promote more cost-benefit analysis of stronger air pollution countermeasures (which may also reduce fears over costs and competitiveness); 3 and 4) Enable implementation through expanded data monitoring and capacity building; 5) Promote a co-benefit approach to link air pollution with other issues, thereby reducing costs and increasing the benefits from air pollution countermeasures; 6) Enhance the above recommendations 1–4 by strengthening international cooperation frameworks; 7) Conduct sustainability assessments of economic integration initiatives as a structural measure to enhance coherence between environment and development (this applies more broadly, not just to air pollution), and prevent environmental problems from economic integration to avoid having to ‘clean up’ later.

Recommendation 1: Strengthen and harmonise or coordinate domestic air pollution standards and regulations, and strengthen implementation of existing ones

This recommendation is particularly aimed at the countries forming the ASEAN Community in 2015, but also other countries involved in international negotiations to expand economic integration. At least, standards should be strengthened, even if they cannot be harmonised or coordinated.

This chapter argues that for countries concerned about trade competitiveness, there is still room to strengthen standards, since China, as well as ASEAN’s major export markets in Europe, North America, and Japan have already strengthened various standards. Harmonised, coordinated standards would minimise potential negative effects on trade competitiveness. Recommending stronger standards is not really new, but it has not been followed sufficiently. Therefore, the recommendation bears repeating, especially in the context of new initiatives such as TPP for which the probability of environmental safeguards is unclear.

Ideally, strengthened air pollution standards and commitments to implement existing ones should be incorporated into future agreements to promote economic integration. The degree and timing of strengthening could be differentiated among countries, similar to the LRTAP’s Gothenburg Protocol. The US, EU, and other OECD countries now incorporate environment-related provisions into regional trade and economic partnership agreements (Chaytor 2009). Examples in East Asia include the EU (Cuyvers 2013) and US FTAs with the Republic of Korea.

Regarding the capacity to establish and implement new standards, a staged phase-in process coupled with capacity building might be necessary, especially for newly developing countries. More advanced emerging economies like China countries may already have some capacity in major metropolitan areas like Beijing, Shanghai, and Guangzhou, but may still need additional capacity, especially outside of these areas.

Conventional Cost-Benefit Calculations

Conventional cost-benefit analysis shows that the benefits of reducing air pollution significantly outweigh the costs, regardless of economic integration. WHO has documented the enormous toll from disease from air pollution (WHO 2014a and 2014b): “Globally, 4.3 million deaths were attributable to household air pollution (HAP) in 2012, almost all in low and middle income (LMI) countries. The South East Asian and Western Pacific regions bear most of the burden with 1.69 and 1.62 million deaths, respectively” (WHO 2014a p. 1). The annual death rate has been increasing since the 2000s, although this may be partly due to better evidence of the causes of death. Moreover, “Globally, 3.7 million deaths were attributable to ambient air pollution (AAP) in 2012. About 88% of these deaths occur in low- and middle-income (LMI) countries, which represent 82% of the world population. The Western Pacific and South East Asian regions bear most of the burden with 1.67 million and 936,000 deaths, respectively” (WHO 2014b, p. 1). Therefore, in total, about 8 million people died from air pollution in 2012. East Asian megacities are particularly suffering from hazardous levels of air pollution. This information is well known, but so far it has failed to persuade policymakers strengthen air pollution standards to the strongest WHO-recommended levels and effectively implement them.

Addressing Competitiveness Concerns

This section argues that competitiveness concerns are not well founded. The exports of many ASEAN countries (e.g., cars and car parts) already need to meet advanced environmental standards established in their major export markets. Moreover, many companies in ASEAN countries are either foreign-owned, or members of global production networks, so they have access to advanced environmental technology. There is no good reason for these countries not to adopt similar standards for products sold in their domestic markets. During the 1997 Asian economic crisis, Thailand’s car-related industries benefited from higher emission standards, which enabled them to reduce their reliance on depressed domestic markets and focus more on exports sales, since export markets required higher standards.⁸

One recent quantitative study on automobiles (Saikawa 2013) found a trend for developing countries to strengthen their auto emission standards in order to strengthen trade competitiveness and enter export markets with higher environmental standards. Moreover, countries that strengthened their standards tended to increase their exports. Saikawa also observed that developing countries targeting advanced export markets also consider raising domestic standards to avoid putting exporting firms at a disadvantage in domestic markets.

In contrast, lower domestic air pollution standards can undermine long term economic competitiveness due to the higher production costs and divided management focus resulting from maintaining two production lines to meet different domestic and foreign standards. Michael Porter (1990) argued in his *Competitive Advantage of Nations* that longer term competitive advantage is more sustainable by using a product differentiation strategy rather than focusing on short term cost competitiveness.

Companies do not always understand their self-interest correctly. The classic case is the Japanese response to the US decision to delay the introduction of stringent air pollution regulations on automobiles in the 1970s. The Government of Japan had raised its own standards in parallel with the US in order to encourage its domestic producers to develop the capability to produce cars which could be exported to and sold in the US. When the US delayed the introduction of the regulations, the Japanese auto producers urged the

Japanese government to delay its own regulations. However, the government refused, and as a result, the Japanese auto producers were well positioned to make strong advances in the US market when the regulations were finally introduced (see Pharr and Badaracco 1986; Sagara 2013). Likewise, the desire to strengthen international competitiveness of China's automakers was one of the factors behind the country's decision to strengthen its air pollution standards for automobiles (Oliver, et. al. 2009, Saikawa 2013). This decision was taken despite domestic opposition from many Chinese domestic firms, but received support from those possessing the relevant technologies. In this case, the Government of China understood that adopting the stricter standards would facilitate the technological upgrading of the industry as a whole (Saikawa 2013).

The other major argument against strengthening air pollution standards is that people in the least developed countries might favour higher polluting used cars over cars with more advanced pollution controls due to affordability and poverty reduction issues. The results of this path are well known, with many megacities choking in hazardous smog. Newly developing countries should try to leapfrog over this dirty phase of traditional economic development, via improving public transportation for example. At a minimum, standards should be set to allow imports of only less polluting cars, as newer, cleaner cars are not necessarily more expensive than older and more polluting ones. Prices are also affected by demand and supply, not just the cost of specific car components.

The same could be said of electric power in the context of expanding energy access. Developing countries should use cleaner power generation from the beginning, rather than the traditional model of building large-scale dirty power plants first and then cleaning up later. Renewable energy sources are the most desirable, but if fossil fuels are used, then at least advanced pollution reduction equipment should also be required. Setting high product standards for electrical goods is also important, as this reduces power consumption and costs, and increases energy security. Again, these suggestions are not new, but they also have not been widely implemented. Economic integration presents a useful opportunity to repeat these suggestions, and address some arguments for not implementing them, such as possible concerns about costs and trade competitiveness.

China is one of the main focuses of trade competitiveness worries. However, it is no longer a valid reason for other developing countries to delay strengthening standards, since China has already strengthened its own standards and committed significant resources to their implementation. Moreover, this is part of China's new energy and industrial policy which prioritises energy efficiency and renewable energy, not just as environmental policy, but also to promote new industries, technologies and create jobs. Newly developing countries thus have space to strengthen their standards, invest in cleaner technologies, and leapfrog the dirty stages of development. Contrary to the old conventional thinking, countries that adopt outdated, inefficient, and highly polluting technologies may be endangering rather than supporting their long run economic competitiveness.

Africa illustrates the dangers of insufficient or absence of standards. There have been recent reports of global auto manufacturers selling new cars without any pollution equipment in countries without any regulations (Chakanyuka 2014; Tsiko 2015),⁹ cars that are even more polluting than older ones. Newly developing countries in Asia need to avoid this.

Recommendation 2: Promote cost-benefit analysis of stronger air pollution countermeasures

Cost-benefit analysis can demonstrate that the benefits of stronger air pollution countermeasures may significantly outweigh the costs (e.g., US Environmental Protection Agency 2011), as well as clarify the potential effects on economic competitiveness. Recent research shows that the actual costs of air pollution are much higher than previously thought (e.g., CAI-Asia 2011 regarding fuel standards), while the costs of air pollution reduction measures are often significantly lower than estimates by business. Concepts of economic development are also evolving. Cleaner production can reduce waste and costs while creating more jobs. Greener goods and services and environmental industries can be more technologically advanced and more advantageous in terms of job creation than some traditional industries. Whether detailed studies of developing countries exist is unknown, but in the US, studies have estimated employment effects (Heintz, Garrett-Peltier, and Zipperer 2011), for example the Natural Resources Defence Council (Yeh, Johnson, and Hawkins 2014) estimated that a carbon pollution standard for electric power plants could create 274,000 jobs in the US by 2020. Effective cost-benefit analysis studies require reliable, high quality data, which could be facilitated through international organisations and cooperation frameworks. Co-benefits, discussed below, should also be incorporated into the analysis.

Recommendation 3: Strengthen data collection, sharing, and analysis

Better and more easily obtained data will help persuade governments and other stakeholders to strengthen air pollution standards and policies. As mentioned above, efforts have been made by Clean Air Asia, the ASEAN Secretariat, and others, but cooperation through a more specialised, technical organisation or framework with good governmental connections may be needed to access official policy and monitoring data. In Europe this is done by LRTAP and the bodies beneath it such as the European Monitoring and Evaluation Programme (EMEP). LRTAP also provides capacity assistance to countries needing it, and conducts integrated modelling to support the Treaty.

East Asia thus should have a framework similar to LRTAP. Among existing frameworks, EANET could be one option since it has the widest geographic scope and established monitoring network, although its scope would need to be significantly expanded with additional functions beyond monitoring and coverage of additional pollutants. ASEAN is another theoretical possibility since it could request information from its members, but other organisations, such as EANET, might be better candidates since the ASEAN Secretariat lacks technical and human resources. Initially, NGOs and research institutes may need to augment information collection and compilation via external funding. Efforts to develop this kind of system have been attempted in Northeast Asia through the project on Long-Range Transboundary Air Pollutants in Northeast Asia (LTP) and the Northeast Asian Subregional Programme for Environmental Cooperation (NEASPEC), but these efforts are limited in geographic scope. Creation of a new organization or framework could be the best option. The new Joint Forum on Clean Air in Asia and the Pacific, proposed at a consultation meeting in Sri Lanka in November 2014, could also help strengthen synergies among the various existing international cooperation frameworks dealing with air pollution in the region and help to reach an agreement on the best way forward.¹⁰ UNEP should also play a coordinating role since it has experience with various air pollution cooperation frameworks.

Recommendation 4: Capacity building to strengthen domestic air pollution measures

Some countries may not have sufficient capacity to establish and implement stricter air pollution standards and regulations, especially newly developing countries. This requires technically skilled human resources and monitoring equipment, as well as assistance in policy development. Still, this is not just a matter of technical capacity; governments need to be motivated to build it.

Developing capacity may take some time, and international organisations, universities, and NGOs may need to help. This assistance should be incorporated into any related trade and investment agreements, or could be arranged separately in an air pollution cooperation mechanism. For LRTAP, this assistance is handled by the EMEP, and is used for monitoring, creating and maintaining emissions inventories, and modelling. The original concept for EANET was based on EMEP, but EANET faces significant limitations in its scope, funding, and human resources. Additional capacity building in the region is very much needed.

Recommendation 5: Promote a co-benefits approach

A co-benefits approach emphasises the additional benefits that can be achieved with air pollution reduction measures. There are two major perspectives which focus on economic development co-benefits and climate change mitigation co-benefits, respectively.

Economic development co-benefits are concrete examples of synergies between the environment and the economy, and fit well with the green economy concept promoted at Rio+20. This idea can be seen in China's Air Pollution Action Plan of September 2013 and various 12th Five-year Plans related to air pollution, which include a variety of industrial policy measures to eliminate high-polluting outdated production capacity and regulate where highly polluting industries are located. The Blue Sky Science and Technology Project is a Special Five-year Plan, implemented jointly by the Ministry of Science and Technology and Ministry of Environmental Protection, which aims to develop new environment-related technologies and calls for new projects worth 100 billion RMB (about 16 billion USD) (Lin and Elder 2014). Renewable energy and energy efficiency, which also address energy security and job creation, are high priorities in China's economic development strategy.

Technically skilled jobs are directly created by the development and implementation of stricter air pollution control measures. Governments need trained human resources to develop policies, operate monitoring equipment, and conduct inspections. Businesses need personnel to operate pollution equipment, monitor compliance with regulations, and design cleaner production processes. These should be considered green jobs.

More narrowly focused co-benefits between air pollution and climate mitigation measures are now a global priority (UNEP 2011) and the focus of a major international initiative, the Climate and Clean Air Coalition, to promote related efforts (Climate and Clean Air Coalition 2013). Some major air pollutants are also greenhouse gasses, and many of the sources of both air pollution and climate change are similar, such as automobiles and electric power generated by fossil fuels. Therefore, some air pollution reduction measures also reduce GHG emissions, so there are significant cost efficiencies from the simultaneous reduction of air pollution and GHGs. Moreover, some air pollutants such as SO_x have a cooling effect, so an integrated approach to air pollution and climate change (sometimes called co-control) also improves the policy effectiveness by avoiding policies mutually offsetting each other. Overall, the co-benefits approach can deliver multiple

benefits and enhance the cost-effectiveness of air and climate policies (Asian Co-benefit Partnership 2014), as well as economic co-benefits, especially jobs (Zusman 2012, Puppim De Oliveira 2013)—which are all high priorities for policymakers and stakeholders.

Recommendation 6: Strengthen the international cooperation framework for air pollution

More international cooperation would help countries to strengthen and harmonise their air pollution standards and regulations. This is important in the context of the development of the ASEAN Community and eventually a broader Asian community, following in the footsteps of the EU. Trade and investment liberalisation creates strong economic pressures to harmonise policies in other areas, particularly the environment, and many countries may lack the capacity to develop and implement stricter air pollution standards and regulations. Here again, the LRTAP could be a useful model. Its major advantages include differentiation of targets according to level of development, emphasis on capacity building, and use of an integrated approach to enhance overall effectiveness by accounting for the interactions between different pollutants and environmental effects. Taken together, these approaches enhance cost effectiveness. Although LRTAP is a legally binding treaty, an Asian version does not need to be. The benefits could still be realised under a voluntary framework (Elder, et. al, 2013).

A number of air pollution cooperation frameworks already exist in Asia. Only two include Southeast Asia: EANET and the ASEAN Transboundary Haze Agreement. In Northeast Asia there are three frameworks: the Tripartite Environment Ministers Meeting among China, Japan, and the Republic of Korea (TEMM), the Joint Research Project on Long-Range Transboundary Air Pollutants in Northeast Asia (LTP), and the North-East Asian Subregional Programme for Environmental Cooperation (NEASPEC). In South Asia there is the Male Declaration. However, except for the Male Declaration, their focuses are very limited (Elder 2013), and they do not focus on harmonization of standards, or capacity building for policy development or implementation. None of these frameworks is linked to economic or trade related frameworks.

Theoretically, EANET might have the greatest potential among the existing frameworks, since its membership is broader, giving it more potential in terms of capacity building. Originally it was considered to have some potential to be a prototype East Asian LRTAP. However, EANET's current scope is too limited and would need to be significantly expanded to include more pollutants, modelling, coordination of policy harmonisation, and capacity building. Moreover, EANET's Intergovernmental Meeting has not been able to agree on expanding its scope, so its future form is currently unclear. The other options would be to enhance coordination among existing frameworks, or simply to create a new framework. These options could be explored by the proposed Joint Forum on Clean Air in Asia and the Pacific, mentioned above.

Recommendation 7: Sustainability assessment of international negotiations on regional economic integration

This chapter recommends that sustainability impact assessments should be conducted for international negotiations on economic integration to identify and overcome potential impacts. This should be done before and during negotiations, not just after the negotiations have been completed, so that potential impacts can be identified and minimised before the agreement is finalised. Of course, any assessment should include environmental issues in general, not just air pollution.

This recommendation is not new but it is not typically implemented in East Asian countries. Since the 1990s, such assessments have been recommended to analyse trade-related environmental issues in the context of specific trade negotiations (UNEP 2001, Abaza 2007). According to the OECD, environmental assessments have become “a critical tool for anticipating and managing the environmental impacts” of regional trade agreements (OECD 2007, p. 56). These assessments are required by the EU, the US, Canada and New Zealand, some of which involve multi-stakeholder participation. The EU conducts broader “Sustainability Impact Assessments” going beyond just environmental issues to include assessments of social and economic impacts (European Commission 2006) and capacity development needs. However, the author is not aware of any assessments have been conducted on recent major economic integration initiatives relating to East Asia such as TPP or the ASEAN Community. To be sure, conducting these assessments may be difficult, especially for some developing countries, and capacity building may be required, or they may need to be outsourced.

Limitations

It is important to recognise that stricter standards and other environmental safeguards related to negotiations on economic integration will not necessarily solve air pollution problems by themselves. Compliance and enforcement are also essential, but efforts might not be sufficient. In some cases such as air pollution in China where air pollution standards have been steadily increased (particularly in Beijing), gains from stronger standards or better technologies may be offset by continued economic growth and increases in overall consumption.

6. Conclusion

Air pollution is worsening in the Asia-Pacific region along with continued strong economic growth, and could be aggravated by further economic integration. Concerns over competitiveness may not have created pressures for a race to the bottom or weakened existing air pollution regulations or cooperation as generally feared. Nevertheless, competitiveness concerns may have fostered hesitation to strengthen standards and other air pollution policies and contributed to their slow progress.

This chapter recommends that domestic air pollution policies should be strengthened and harmonised or coordinated, particularly in the ASEAN Community. Some countries, particularly newly developing ones, may not have sufficient capacity to establish or implement stricter air pollution policies and related measures such as monitoring.

International cooperation will be important, which could be based on a voluntary LRTAP-type framework. This framework could be based on strengthening and coordinating existing frameworks, or creating a new one.

Concerns over economic and trade competitiveness persist. This chapter argues that this traditional thinking about environmental protection and trade competitiveness, specifically for air pollution, is counterproductive and instead is likely to harm competitiveness as well as the air environment. Much research has concluded that environmental regulations are generally not the main factor influencing business decisions, with other factors such as wages and infrastructure playing bigger roles (Frankel 2009, Copeland and Taylor 2004). Other research shows how stricter regulations can spur competitiveness and catalyse a shift towards a more advanced industrial structure (Porter 1990; Porter and Van der Linde 1995, Levinson and Taylor 2008), and that air pollution

imposes huge economic burdens (for example, WHO 2014a, WHO 2014b). This chapter thus argues that stricter standards and implementation are economically beneficial.

For countries still concerned about trade competitiveness, this chapter argues that the space to strengthen air pollution regulations has significantly expanded, even under the traditional way of thinking. China is the focus of many countries' concerns about trade competitiveness. However, China has already acted unilaterally to strengthen air pollution measures (Lin and Elder 2014). Therefore, countries worried about trade competitiveness have lost one of the main reasons to avoid strengthening air pollution measures. Moreover, many Asian countries already manufacture products such as auto parts to global standards for export. Countries which retain weaker air pollution standards will hurt the competitiveness of their auto-related manufacturing sectors by dividing the attention of local firms between the local and export markets.

China's encouraging unilateral actions show that the traditional modes of thinking may be changing. The World Bank and China's former State Environmental Protection Administration estimated the total cost of air and water pollution at 5.8% of GDP (World Bank and SEPA 2007); this is evidence that China's government is recognizing the costs of air pollution. Recent research has demonstrated evidence of health and crop damage (e.g., Nawahda et al. 2012, 2013). Newly developing countries should avoid the traditional pollute first and clean up later path to industrialisation, and instead 'leapfrog' to more advanced, cleaner development. This is likely to lead to stronger competitiveness and lower costs in the long run.

In the long run, the path followed by East Asia could follow a similar trajectory as the EU and LRTAP, despite the many differences between the two regions. As traditional trade and investment barriers are lowered, the trade effects of domestic policies will be felt more strongly, and East Asian countries will face increasing pressure to harmonise or narrow the differences between these policies. This harmonization should be in a stricter rather than more lax direction. LRTAP promoted harmonisation, as EU air pollution directives were developed around the same time, as well as coordination with non-EU countries. Less developed non-EU countries in Eastern and Southern Europe were motivated to join LRTAP and adopt stricter air pollution standards, despite concerns about trade competitiveness, by their strong desire to join the EU. This situation was made possible by the fact that leading EU member countries required new members to adopt the higher EU/LRTAP standards. In East Asia, there are no countries which currently play this leading role. This chapter recommends that developed countries such as Japan, the Republic of Korea, and Singapore should take the lead in linking stricter environmental standards (including air pollution) to regional economic integration. China should also join the leading countries, since it has already strengthened its own standards ahead of other countries in the region

Further progress on trade and investment liberalisation agreements should be preconditioned on the establishment of minimum national standards for air pollution (and other environmental issues) as well as a concrete plan for the development of implementation capacity in developing countries, to avoid a potential race to the bottom. Economic integration should be used to promote the leapfrogging model.

It is also important to remember that LRTAP was established at the peak of the Cold War. The establishment of LRTAP was not blocked by the Cold War conflict, but rather LRTAP itself was intended as a means to promote détente and reduced tensions (a "security" co-benefit). International cooperation on air pollution in East Asia should be considered in a similar way.

The political climate now favours higher prioritisation of air pollution reduction measures due to increasing concerns about air pollution's high costs. Many developing countries in Asia have already adopted and strengthened air pollution standards, especially ambient standards and auto emissions standards. These efforts should be accelerated to avoid economic development overtaking the progress of standards and control measures. In some areas, standards should be newly established such as for fuel efficiency and emissions from industrial processes.

In conclusion, now may be a favourable time to link the air pollution issue to the accelerating trends of trade liberalization and economic integration. It is hoped that this chapter can further encourage policymakers and suggest to them that it is now politically feasible and economically desirable to adopt much stricter measures and coordinate them through international cooperation.

Acknowledgements

Research for this chapter was supported by the Environmental Research and Technology Development Fund (S-7-3) of the Ministry of the Environment, Japan. The author is very grateful for the comments, suggestions, and discussions by Eric Zusman, Magnus Bengtsson, Peter King, Supat Wangwongwatana, May Ajero, Kazuo Matsushita, and Noppaporn Panich. The author would also like to express sincere thanks and appreciation to Hajime Akimoto and Katsunori Suzuki for their continuous support during the S-7-3 project.

Notes

1. Interviews with Chinese air pollution experts in Beijing in March, 2014.
2. Joint Communiqué, the 16th Tripartite Environment Ministers Meeting Among Korea, China and Japan, 28-29 April 2014, Daegu, Republic of Korea.
3. United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, *Agenda 21*, 3 to 14 June, 1992, paragraph 2.22g. <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>
4. Personal communication with former senior official of Thailand's Pollution Control Department, September 2014.
5. Personal communication with former senior official of Thailand's Pollution Control Department, September 2014.
6. According to the website of UNEP's Partnership for Clean Fuels and Vehicles, "Status of leaded gasoline phase-out in the Asia-Pacific region April 2014," accessed July 28, 2014.
7. In 1997, ASEAN set a goal to "achieve an ambient air quality below 100 Pollutant Standards Index (PSI), adjusted wherever appropriate, by the year 2010 with priority on urban and industrialized areas." (Sunchindah 1998) It is not clear whether this goal has been achieved. Clearly, as discussed above, ASEAN standards for specific air pollutants have not been harmonised.
8. Personal communication with former senior official of Thailand's Pollution Control Department, December 2014.
9. Author's discussions with African air pollution researchers at the 16th International Union of Air Pollution Prevention and Environmental Protection Association (IUAPPA) Congress at Cape Town, South Africa, 29 September-4 October 2014.
10. Chair's Summary, Consultation Meeting of the Joint Forum on Clean Air in Asia and the Pacific and the Fifth Governmental Meeting on Urban Air Quality in Asia, Colombo, Sri Lanka, 17-18 November 2014. Available at http://cleanairasia.org/portal/sites/default/files/agenda/meeting_report_of_consultation_for_joint_forum_and_5th_govt_meeting_feb2015.pdf.

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Chapter 8

Water-Food-Energy Nexus Approach: Towards Green Regional Cooperation in Southeast Asia

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Key Messages

- Asia faces serious challenges in water, food and energy security for its growing and rapidly urbanising population.
- Scientific understanding of the mechanisms underpinning these three critical resources, as well as general awareness, have greatly improved of late, but little has changed on the ground.
- Rational use of these resources requires integrated planning that reflects interdependencies and trade-offs, but government planning is mainly sector-based and not open to an integrated approach.
- Shared international resources, such as of trans-border rivers, highlight the challenges of effective planning for sustainable use.
- This chapter analyses the Mekong River basin and discusses how this shared resource could be rationally used through nexus approach.
- It recommends strengthening the Mekong River Commission via bolstered resources and coordinating authority, and encourages China to participate as a full member. It also recommends Transboundary Environmental Impact Assessments of river projects be conducted to reflect synergic and trade off nexus effect across the whole river basin.

1. Nexus approach for sustainable regional integration in resources security

Water, energy and food are fundamental to human survival, economic growth and sustainable development. Rapid urbanisation and global population growth are placing huge pressures on these resources, the shortage of any one of which could lead to social and political instability, geopolitical conflict, human health hazards as well as irreparable environmental damage, both within individual countries and beyond national borders.

Ensuring human basic needs such as water, food and energy often extends beyond the capacity of a single nation, and although regional cooperation intends to promote resource access beyond national borders (Rosner and Granit 2012), efforts to date have

failed to focus on water, energy, and food security in an integrated or ‘nexus’ manner. Such a narrow-minded approach can create problems in international river basins, where critical decisions on upstream hydropower development that ignore basic human needs may well involve economic benefits, but at the expense of irreparable ecosystem damage as well as loss of water and food security further downstream.

This is particularly true for the Mekong River basin, where regional integration particularly in the energy sector, threatens water, food security and ecosystems, both in the countries with the dams and in others along the Mekong basin. In particular, investment in hydropower dam projects, aimed at promoting the international power trade, is likely to most adversely impact low-income groups, who will also likely receive scant benefits from such projects. For instance, construction of a series of dams in the upstream part of the river (Lancang River) in China has already altered river flow, fish production and affected communities along the Lower Mekong Basin (LMB). Pornrattanaphan (2004) states that construction of the Mawan dam in China will lead to a 25% reduction in mean annual minimum discharge and also decrease suspended sediments in the Mekong system (Fu and He 2007). This situation could significantly worsen if a planned cascade of mainstream dams goes ahead in the LMB. For instance, construction of the Xayaburi dam in Lao People's Democratic Republic (Lao PDR) will reduce nutrient-rich alluvial sedimentation in the Mekong Delta from 26 to 7 million tonnes annually (VNA 2011), and construction of the Yali Falls dam in the Viet Nam tributary has changed the river hydrology, which purportedly led to the random flood events affecting Cambodia further downstream (Lerner 2003).

Changing water flow patterns, loss of soil nutrients, inundation of agricultural land and damage to migratory fisheries due to uncoordinated development of hydropower plants in upstream countries have negative impacts on food security, livelihoods, biodiversity, and ecosystems (Piman et al. 2013; Cronin and Hamlin 2012). Consequently the 48 million people (about 80% of the total 60 million in LMB) who directly rely on the Mekong for their food and livelihood could be affected (Baran and Myschowoda 2009; ICM 2010).

Construction of the 11 or 12 proposed mainstream dams on the Mekong River would improve electricity supply in the region, but the net economic benefit of dam construction under most scenarios would be positive only for Lao PDR, while other countries including Viet Nam, Thailand and Cambodia could experience total net economic losses (Costanza et al. 2011). This situation—one of lop-sided economic benefit versus negative impacts due to uncoordinated development of hydropower plants in upstream countries—could raise geopolitical tensions in the region (see Box 8.1). Regional integration pursued based on such a single-sector approach, which focuses on short-term economic gains and ignores growing inequity, is not in line with sustainable development and not in the long-term interest of the region. Continued regional integration needs to be provided with effective safeguards and complementary regional mechanisms that can prevent adverse outcomes. For better regional integration, nexus approach is being viewed as a way to enhance cross-sectoral coordination and manage trade-offs among highly linked natural resources. The chapter makes concrete suggestions as to what form such mechanisms could take via exploring the following key questions:

- (i) What are the threats of the current uncoordinated and single-sector approach to sustainable resource management in the context of the Mekong River basin?
- (ii) What mechanisms can address these threats and enhance a nexus approach in regional integration and provide win-win solutions?

Box 8.1 Decision to construct Sahong Dam raises fear over Mekong

The Government of Lao PDR has decided to construct the Don Sahong hydropower dam with a capacity of 240 MW, arguing that it is on one of the many braided streams of the river, rather than damming the mainstream. The final Environmental Impact Assessment (EIA) report argued that the Don Sahong Dam will have no significant impact on local fisheries and migrating fish in the Mekong River, but it was claimed that the EIA used inappropriate methodology and contradictory evidence (RFA 2014; WWF 2014). A team of international fish passage experts assembled by WWF claimed that the project is unlikely to meet the requirements of the Mekong River Commission (MRC) Preliminary Design Guidelines for proposed mainstream dams in the LMB, which states that “the developer should provide effective fish passage upstream and downstream”; which means in actual practice safe passage for 95% of the targeted species under all flow conditions. The EIA also fails to address transboundary impacts of the dam construction even though the dam is to be located less than 2 km from the Lao-Cambodia border. The project has been facing opposition from neighbouring local communities, NGOs, and some fisheries experts in the region, who contend that construction of the dam will threaten the Khone Falls ecosystem (the largest waterfall of Asia), ecotourism in Siphandone, and food security in the region. Some examples of the opposition include:

- The Governments of Cambodia and Viet Nam demanded independent scientific studies on transboundary impacts before planning of any dam construction on the Mekong mainstream.
- In Thailand, a coalition of NGOs demanded the Thai Government to take action and stop construction of the dam.
- According to Chhith Sam Ath, Executive Director at Cambodian NGO Forum, the Don Sahong dam will push Cambodia and Viet Nam closer to food crisis through adverse effects on fisheries.

(Source: Fawthrop 2013)

2. State of regional cooperation for resource security in Southeast Asia

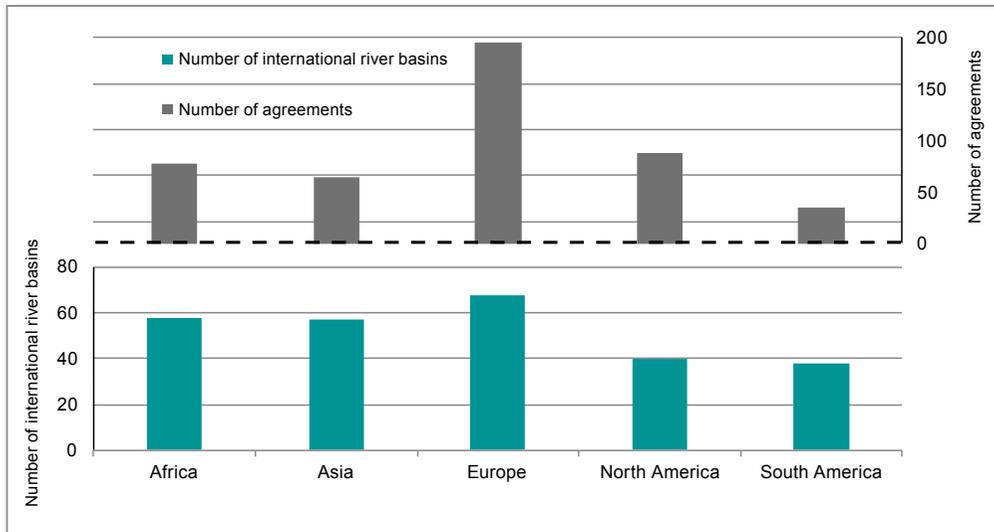
To meet growing electricity demands, several regions are targeting cross-border power transmission. Globally, a number of successful cases of regional cooperation on energy security has been taken place, including the Southern African Power Pool (SAPP) regional interconnections, Central American Electrical Interconnection System (SIEPAC) market institutions, the Gulf Coast Countries (GCC) power exchange trading agreement, the Nile Basin Initiative (NBI) joint investment project in the power sector, and the intergovernmental agreement (IGA) on regional power trade in the Greater Mekong Subregion (GMS) (ESMAP 2010).

Emerging food crises due to increasing prices has accelerated regional cooperation in Asian developing countries. For example, the Association of Southeast Asian Nations (ASEAN) approved the ASEAN Integrated Food Security (AIFS) Framework at the 14th ASEAN Summit in 2009 (ASEAN Secretariat 2011) and the heads of member states of the South Asian Association for Regional Cooperation (SAARC) signed an agreement on establishing a SAARC Foodbank in 2007, to ensure regional food security (SAARC 2014).

Similarly, regional cooperation on transboundary water resource management has been initiated in Asia and other parts of the world. For example, the Mekong River Commission (MRC) was established as an intergovernmental agency in the LMB under the 1995 Mekong Agreement for joint management of shared water resources and sustainable development in the Mekong River basin (MRC 2011). This agreement identified major roles for the MRC such as basin-wide planning, environmental protection, facilitation of equitable water use and navigation (MRC 1995).

2.1 Transboundary water resource management

More than 40% of the world's population relies on transboundary river basins for its survival (UN Water 2008). Conflicts between international and national interests are the main challenges confronting transboundary river basin management (Zeitoun et al. 2013). However, transboundary river basins have also provided opportunities for regional cooperation and promotion of peace and security in the region (UN Water 2008). The transboundary freshwater spatial database identified 464 agreements, both bilateral and multilateral, on transboundary water bodies (OSU 2014), but while Asia accounts for 21% of the world's transboundary river basins, 14% of agreements have been made in the region (Figure 8.1). Of these, several regional agreements have been signed to manage and use transboundary waters in an equitable and sustainable manner; such as (i) the 1996 treaty between India and Bangladesh on sharing of the Ganga/Ganges waters at Farakka; (ii) the 1996 treaty between Nepal and India concerning integrated development of the Mahakali river including Sarada Barrage, Tanakpur Barrage, and Pancheshwar Project; and (iii) the 1995 Mekong agreement on cooperation for sustainable development of the Mekong River Basin among the four LMB countries. However, in spite of the various agreements on transboundary water governance, lingering issues of trust coupled with regional political tension have hindered implementation. For instance, in 2010 Pakistan filed a case in the International Court of Arbitration accusing India's Kishanganga hydropower project on the Neelum River in Kashmir of violating the Indus Water Treaty of 1960 (Langton and Prasai 2012). In another case, Cambodia and Viet Nam continued to raise their concerns about the construction of Xayaburi and Don Sahong hydropower dams in Lao PDR at the Second Mekong Summit, Ho Chi Minh, in April 2014 (Phnom Penh Post 2014; Marwaan 2014).



Source: Prepared by the authors based on International Freshwater Treaties database <http://www.transboundarywaters.orst.edu/database/interfreshwaterdata.html> (accessed on 1st July 2014)

Figure 8.1 Number of agreements for management of international river basins

2.2 Regional initiatives for food security in Southeast Asia

There are several arrangements for regional cooperation aimed at promoting stable access to food in the region, such as the development of regional food reserves, the first such initiative in Asia and the Pacific. In 1979, ASEAN leaders signed an agreement on the ASEAN Food Security Reserve due to wide fluctuations in production as well as instability of the region’s food supply. The ASEAN Emergency Rice Reserve (AERR) was established to serve as a subset of national stocks voluntarily designated to address food emergencies throughout the region, with releases of stocks conditional on bilateral negotiations. Due to failure of this initiative during implementation owing to poor administration, lack of funding, complex procedure of prices and distribution, the ASEAN ministers agreed to re-launch a pilot scheme in 2004 named the East Asia Emergency Rice Reserve. Success of the pilot scheme and the food price crisis in 2008 fuelled formulation of a permanent mechanism agreed on by the ASEAN+3 countries, the ASEAN+3 Emergency Rice Reserve (APTERR). Established in 2011 this reserve includes both earmarked and physical stocks. With this agreement ASEAN countries commit in principle to regional cooperation in response to food emergencies. Technical, financial, economic, legal and institutional issues connected therewith, however, remain to be clearly laid out (Briones 2011).

2.3 Energy security through regional power trading

Regional integration through power trading in the GMS began as part of the GMS Economic Cooperation Programme launched in 1992. Energy trading could provide considerable benefits, including improved energy security and reliability, more efficient use of energy resources, optimisation of transmission networks to meet increasing demands in different countries, and reduced environmental damage via use of renewable energy sources such as hydropower. These advantages should lead to decreasing energy costs and a more reliable energy supply that would directly benefit societies and economies (ADB 2013).

According to a joint study conducted by the Asian Development Bank (ADB) and the Asian Development Bank Institute (ADBI) in 2012, the economic and environmental benefits of regional integration in the GMS energy sector together will enable savings of up to 19% of total energy costs (equivalent to USD 200 billion) by 2030. Expanding the interconnection of GMS power systems alone can provide a saving of USD 14.3 billion by 2030, mostly via substitution of fossil fuel generation with hydropower (ADBI 2013). Integration of power systems is also expected to result in slower growth of carbon emissions compared with the business as usual scenario.

Power trading in the GMS is probably the most advanced within Southeast Asia. Rapid economic growth in the region, particularly in Thailand during the 1980s and the early 1990s, as well as resolution of several regional armed conflicts, led to exploitation of the abundant hydropower potential in China, Viet Nam, Lao PDR and Myanmar to reduce dependency of the region on expensive fossil fuels (ECA 2010). To meet the growing demand for electricity Thailand has become the largest power importer in the region and signed several MOUs related to power imports with Lao PDR, Myanmar and China. Countries with abundant hydropower potential such as Lao PDR and Myanmar have invested in export-oriented hydropower generation projects based on power trading commitments with high economic growth countries like China, Thailand and Viet Nam. Based on a commitment of 10,000 MW of power imports by Thailand (ECA 2010), a number of hydropower plants such as Theun Hinboun and Houay Ho have already been commissioned in Lao PDR.

Like Thailand, Viet Nam also started importing hydropower from neighbouring countries to meet its double-digit growth in power demand. In 2010 it accounted for 20% of the annual power trading in the region (ADBI 2013). Meanwhile, China, a power exporter to Viet Nam, will become a power importer from Lao PDR and Myanmar to fuel its own rapid economic growth. Cambodia's interest in the regional power trade stems from its desire to reduce its dependency on expensive fossil fuel options, but the country is also exploring hydropower development to meet rapidly growing domestic demand.

Table 8.1 Nature of power trade in GMS countries

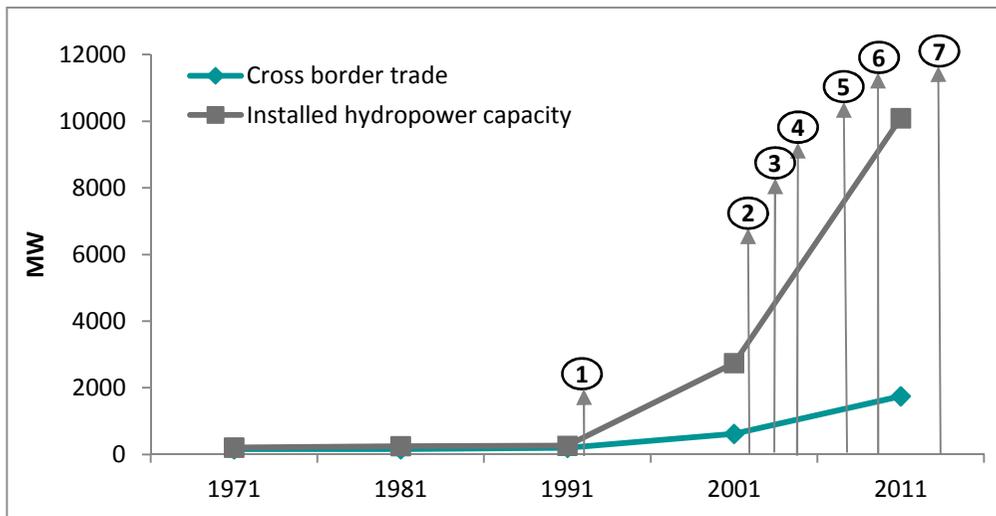
Country	Hydropower potential (GW)	Export orientated projects (actual, planned and proposed)	Imports (GWh)	Exports (GWh)	Net Imports (GWh)
Cambodia	15	8	1,546	-	1,546
China (Yunnan)	150	1	1,720	5,659	-3,939
Lao PDR	26	38	1,265	6,944	-5,679
Myanmar	100	12	-	1,720	-1,720
Thailand	13	0	6,938	1,427	5,511
Viet Nam	30	0	5,599	1,318	4,281

Source: Baardsen (2008); ADBI (2013)

Regional power trading began with active support of ADB in the early 1990s. Other development partners such as the World Bank and Swedish International Development Agency (SIDA) are also involved in promoting power trading initiatives in the Mekong region.

Furthermore, ASEAN has been proactive in promoting regional economic cooperation, including in the energy sector, to promote economic development in poorer member countries such as Lao PDR, Myanmar, and Viet Nam. It is expected that with the support of external partners, exploitation of hydropower will inevitably increase under the regional power trading initiative to fuel economic growth in the region. Under this initiative, expansion of hydropower plants will be driven by export-oriented projects in Lao PDR, Myanmar and Cambodia to meet the high demand from neighbouring countries like Thailand, Viet Nam and China.

Figure 8.2 shows the total amount of hydropower installed and cross-border trade with some key milestones in the GMS regional power trade cooperation to date.



Source: ECA 2010

Notes: Key milestones in power trade cooperation in GMS

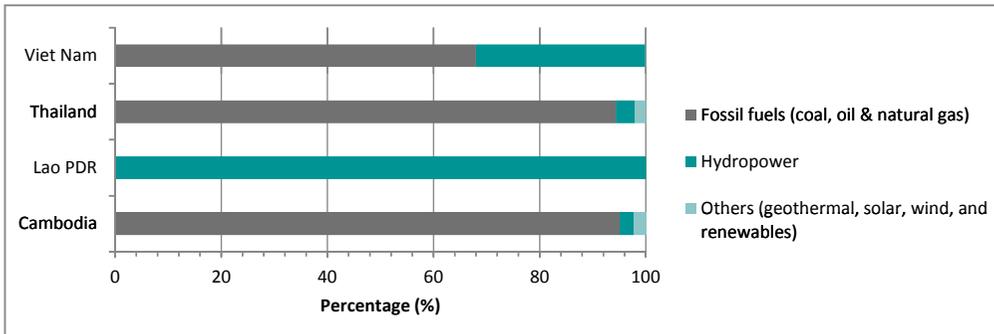
- 1- GMS Economic Cooperation Program launched (1992)
- 2- Regional Power Trade Coordination Committee (RPTCC) established (2002)
- 3- Intergovernmental agreement (IGA) on regional power trade ratified by all six GMS countries (2004)
- 4- Guidelines for the Implementation of Stage 1 of the Regional Power Trade Operating Agreement (MOU-1) signed (2005)
- 5- Road Map for Implementing the GMS Cross-Border Power Trading (MOU-2) signed (2008).
- 6- Second update of the GMS regional master plan completed (2010)
- 7- Regional Power Coordination Centre (RPCC) established in 2013 with legal identity dedicated to manage cross-border power infrastructure and trade in the GMS

Figure 8.2 GMS regional power trade cooperation – Key milestones

3. Necessity of a water-food-energy nexus perspective: The case of regional power trading in the Mekong region

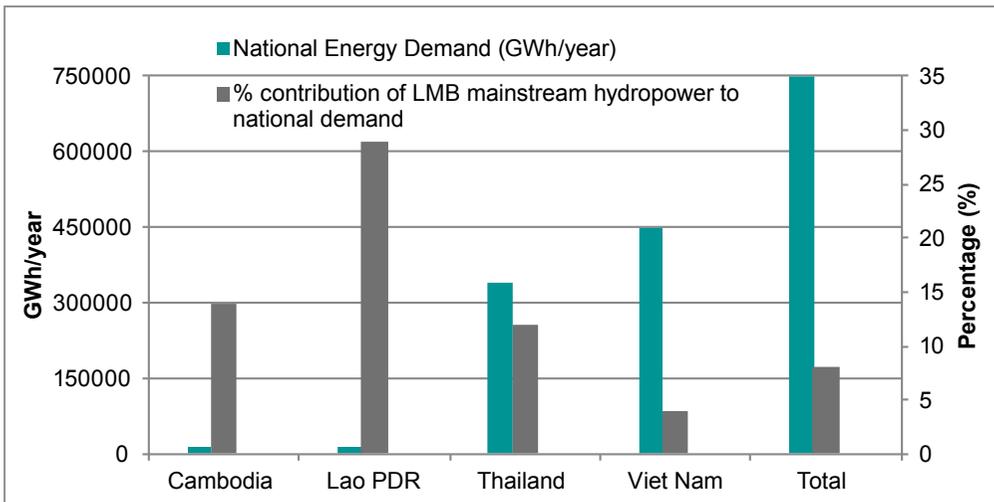
Addressing the growing demand for energy, the regional trade in electricity has become an integral part of the electricity supply plan in the Mekong countries. Table 8.1 shows that 59 export-oriented hydropower projects are under construction. However, none of the projects were developed based on a truly regional power market, and instead were based mainly on bilateral cooperation. As of 2011, 10,879 MW of hydropower generation capacity had been established in the region (Dore et al. 2007; Dore and Xiaogang 2004; King et al. 2007). Most of the export-oriented hydropower projects have been planned

and established based on import commitments between Thailand and Viet Nam and countries such as Lao PDR and Myanmar, which have abundant hydropower potential. Other than bilateral cross-border trading of electricity, LMB countries have also exhibited political willingness to establish interconnection arrangements for electricity via the ASEAN Power Grid through adoption of “ASEAN Vision 2020” at the Second ASEAN Informal Summit in 1977 (ASEAN Centre for Energy 2013). The ASEAN Power Grid is anticipated to provide a secure regional energy network and promote win-win economic relationships in the region.



Source: ADB 2013

Figure 8.3 Share of power generation outputs in LMB countries by 2010



Source: ICEM 2010

Figure 8.4 National energy demand forecasts for LMB countries by 2025

3.1 Addressing water-food-energy nexus perspective in hydropower planning leading to changes in social and environmental outcomes

Economic development is one of the main goals of current hydropower-based regional integration in the GMS. However, policy limitations on the mitigation of social and environmental impacts represent one of the major challenges to hydropower-based energy security in the region. Under current development plans it is predicted that the region will experience negative social and environmental impacts, particularly in downstream countries like Cambodia (Baran and Myschowoda 2009; ICEM 2010; Zaffos 2014; The Economist 2013), which are directly relevant to the water-food-energy nexus. Although hydropower has been acknowledged as the cheapest clean energy technology, narrow-scaled sectoral planning may have negative impacts on water and food security in the region and intensify upstream-downstream conflicts.

It is clear that the waters of the Mekong are profitable for those who see development in terms of energy production. However, hydropower development may create negative impacts on food security, specifically on the fisheries and agriculture sectors of the downstream countries such as Viet Nam and Cambodia. The construction of Xayaburi hydropower dam in Lao PDR represents a typical example of a hydropower project, and which has significant potential impact on the environment and poor populations of Cambodia. According to Vannarith (2012), when the dam were to be constructed on the mainstream of the Mekong River, the primary food source (fish) of 80% of Cambodia's population would be affected. The Tonle Sap lake area, which represents 60% of Cambodian inland fisheries, would be most seriously affected (Matsui et al. 2006). Consequently, the livelihood of 1.2 million people in the areas surrounding Tonle Sap Lake would be under threat.

A critical review of the latest Environmental Impact Assessment (EIA) Report of the Xayaburi dam by the World Wide fund for Nature (WWF) reported that the EIA not only fails to address major concerns such as impact on fish species, aquatic habitats, and targeted species for fish passage, but also fails to address transboundary impacts (WWF 2011). Although this dam is built on a transboundary river basin, the EIA was carried out based on the national EIA requirements and the potential impacts were only assessed to a distance of 10 km downstream, completely ignoring downstream neighbouring countries (International Rivers Network 2014). As a result, the report faced strong objections from neighbouring countries and NGOs, who all requested a more comprehensive study and assessment of transboundary and basin-wide environmental impacts, including a cumulative impact assessment. The International Rivers Network criticised the construction of Xayaburi dam in a recent report and claimed that Lao PDR had gravely violated the 1995 Mekong Agreement (Herbertson 2013). Despite this strong opposition, the Government of Lao PDR declared that 30% of construction work had been completed and dam construction would continue according to plan (Phnompenh Post 2014)—an example of private sector actors taking advantage of government agencies to push through unsustainable projects that would not be acceptable elsewhere (WWF 2014).

More recently, Rewat Suwanakitti, the Deputy Managing Director of Xayaburi Power, has stated that the spillway and fish passage system have been redesigned to mitigate transboundary impact, which has enabled governmental support from Cambodia and Viet Nam for construction of the dam to proceed (Globaltimes 2013). However, at the Second Mekong Summit (held in Ho Chi Minh in April 2014), Cambodia, Viet Nam and donor agencies continued to voice their concern over the project (Phnom Penh Post, 2014, Marwaan, 2014).

Impacts of hydropower development are not limited to mainstream dams and are also caused by dams constructed on the Mekong's tributary systems. One of the most important tributary systems of the Mekong is the "3S" river basin, comprising the Sekong, Sesan and Srepok River basins, accounting for about 17% of the Mekong's annual flows. Due to the growing demand for electricity supply in Viet Nam and Cambodia, an increasing number of hydropower projects in the 3S river basin are being considered, with more than 20 hydropower projects already built or under construction, and 26 additional dams slated for construction in the near future (Grimsditch 2012). Recently, a plan for the construction of the 420 MW Lower Sesan 2 hydropower dam and 375 MW Lower Sesan 3 hydropower dam in Cambodia (invested in by Chinese companies) were approved by the Government of Cambodia (Cambodiadaily 2013). Ziv et al. (2012) reported that the Lower Sesan 2 dam alone would cause a 9.3% drop in fish stocks basin-wide, threaten over 50 fish species, alter the Mekong hydrological low flows and lead to reduced sediment flows of approximately 6–8%.

Box 8.2 China factor and their impacts on the Mekong's mainstream

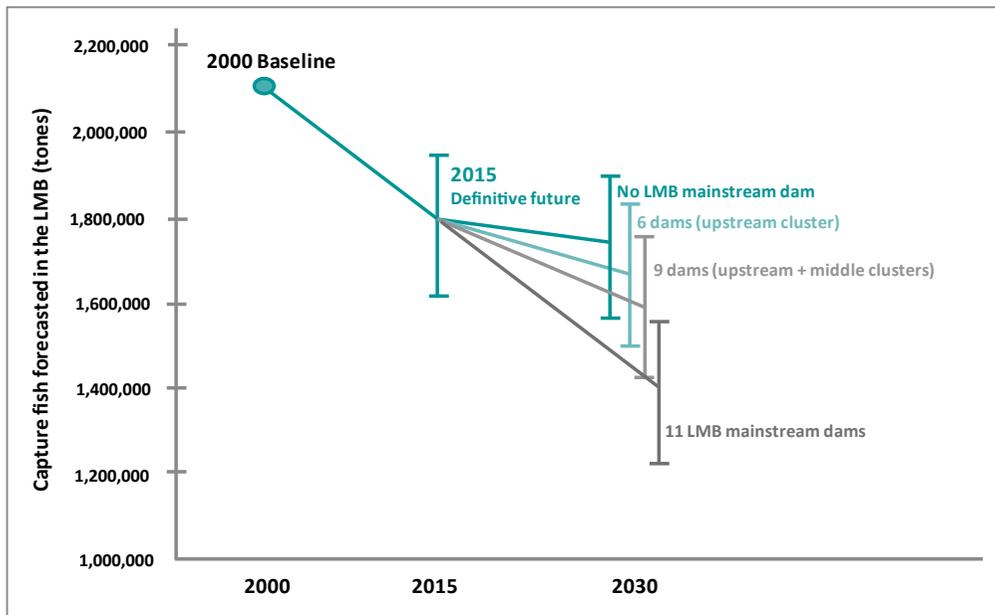
It would be insufficient and incomplete to discuss hydropower dams on the Mekong's mainstream without mentioning the role of China.

Rising demand for energy led to China's decision to construct a cascade of dams on the upstream section of the Mekong River, comprising eight large dams under construction or completed. China has also made plans for a further 12 large dams on the Lao, Lao-Thai, and Cambodia stretches of the Lower Mekong mainstream. Currently, four mega-sized dams have been constructed on the Langcang Jiang in Yunnan Province; the remaining four are in various stages of planning and construction.

A Strategic Environmental Assessment (SEA) conducted by MRC experts estimated that the livelihoods of nearly a million people will be at risk due to the impacts of these dams alone. The dams will also reduce sediment flow from China by about 22% from normal levels, leading to huge impacts on food security in the downstream countries, as overland floods deposit massive amounts of nutrients along with the sediment. Whether Yunnan dams were planned to facilitate mainstream dams on the Lower Mekong cannot be determined due to lack of sufficient and useful data on the critical design characteristics of the Yunnan dams and how these dams will be operated (Cronin and Hamlin 2012). Consequently, the downstream countries can only make assumptions based on the known physical characteristics and configurations of the dams. Thus, investments on downstream dam construction will face huge risk and uncertainty. Cronin and Hamlin (2012) suggest that the four LMB countries should adopt a more unified stance and demand greater transparency and due consideration of downstream interests in how China operates these upstream dams. The ideal approach to regional cooperation for environmentally sustainable management, including hydropower development, should involve all six countries of the Mekong basin, including China and Myanmar, through participation in the MRC.

Construction of mainstream dams on the lower Mekong is estimated to cause colossal losses in the fisheries sector, equivalent to USD 476 million/year, loss of 54% of riverbank gardens, and reduction in nutrient loading, requiring an estimated USD 24 million/year to maintain the productivity of floodplain agriculture (ICEM 2010).

ICEM (2010) estimated that by 2030 the loss of fish production is expected to be 210,000–540,000 tonnes or 10–26% of the year 2000 baseline with no LMB mainstream dam scenario. Meanwhile, if 11 mainstream dams are constructed the total loss in fish resources would increase to 550,000–880,000 tonnes or 26–42% compared to the 2000 baseline, meaning a 340,000 tonne fisheries loss would be the direct result of mainstream dam construction (Figure 8.5). This annual loss represents 110% of the current total annual livestock production of Cambodia, under the 11 mainstream dam scenario.



Source: ICEM, 2010

Figure 8.5 Potential incremental impacts of LMB mainstream dams on fish production basin-wide

From the discussion above it is envisioned that if the planned mainstream and tributary dams go ahead without due consideration and comprehensive assessment of their impacts—for the whole basin—food security, livelihood, soil fertility, biodiversity and ecosystem will all be heavily negatively affected.

3.2 Can the current approach of hydropower generation provide net benefit in the region?

Energy cooperation as part of the GMS Economic Cooperation Programme has been identified as one of nine areas of sub-regional cooperation. Recent estimates of energy resources in the GMS include about 229 GW of potential hydropower generation annually, as well as proven reserves of about 1.2 billion cubic meters of natural gas, 0.82 billion tonnes of oil and 28.0 billion tonnes of coal. Despite this, the energy reserves are unevenly distributed throughout the sub-region. Lao PDR, Myanmar, Viet Nam, and the two Chinese provinces in the GMS account for about 94% of the hydropower resources (ADB 2013). The peak power demand in the GMS, which stood at about 83 GW in 2010, is expected to more than triple to about 277 GW by 2025 (ECA 2010).

In view of sharing benefits from diversifying energy resources to meet various demands across the region, energy cooperation in GMS has so far focused on regional power trade and grid interconnections. Over the past few years investors and developers mostly from China, Malaysia, Thailand and Viet Nam, but mainly Chinese and Thai companies and banks, have submitted proposals for 12 hydropower projects for the LMB mainstream, 10 in Lao PDR (two of which are on the Lao-Thailand reaches of the mainstream) and two in Cambodia (Figure 8.6). Based on the current design, if all mainstream dams are developed, they could significantly increase generated power in the region and represent up to 14,697 MW or 23–28% of the national hydropower potential of the four LMB countries and 5–8% of the total hydropower potential in the GMS region. They would also provide economic benefit, but mostly to Lao PDR (ICEM 2010).

All of these proposed dams are commercial projects that would be constructed, operated and owned by foreign investment companies. To a certain extent, this was brought about by slackened environmental controls offered by some countries as an inducement for foreign investment (King et al. 2007).

Table 8.2 Status of mainstream dams in Lao PDR

Name	Location	Capacity (MW)	Planned market	Investors	Status
Xayaburi	Luangprabang	1285	Domestic, export to Thailand	Electricité du Laos (EdL) 20% Ch.Kanchang (Thailand) 30% EGCO (Thailand) 12.5% Natec Synergy 25% Bang KIK Expressway 7.5%	Under construction
Don Sahong	Champasak	360	Domestic, export to Thailand	EdL 20% Mega First Corporation Berhad MFCB (Malaysia) 80%	Planning stage
Sanakham	Xayaboury	660		Government of Lao 19% Datang Overseas Investment Co., Ltd. 81%	Planning stage
Phou Ngoy	Champasak	651	Domestic, export to Thailand	Charoen Energy and Water Asia Co., Ltd. (Thailand)	Planning stage
Pakbeng	Oudomxay	921		Government of Lao 19% Datang Overseas Investment Co., Ltd. 81%	Planning stage
Ban Koum	Champasak	1872	Domestic, export to Thailand	Italian-Thai Development Co. (Thailand) and Asia Corp Holdings Limited	Feasibility stage
Luangprabang	Luangprabang	1200	Domestic, export to Viet Nam	Petro Vietnam Power Corporation (Viet Nam)	Feasibility stage
Pak Lay	Xayaboury	1320	Domestic, export to Thailand	CEIEC+ SINOHYDRO	-

Source: Department of Energy Business-Powering Progress (2014)

In contrast with private companies and banks, multilateral financial agencies such as Asian Development Bank and the World Bank have confirmed they would not support or invest in hydropower projects on the mainstream Mekong because doing so would grossly

violate their guidelines for environmental and socioeconomic impacts (Thanhniennews 2011). According to MRC (2011), the 11 proposed dams in LMB would turn 55% of the Mekong river into reservoirs and lead to estimated agricultural losses topping USD 500 million per year, slashing the average protein intake of Thai and Lao populations by 30%.



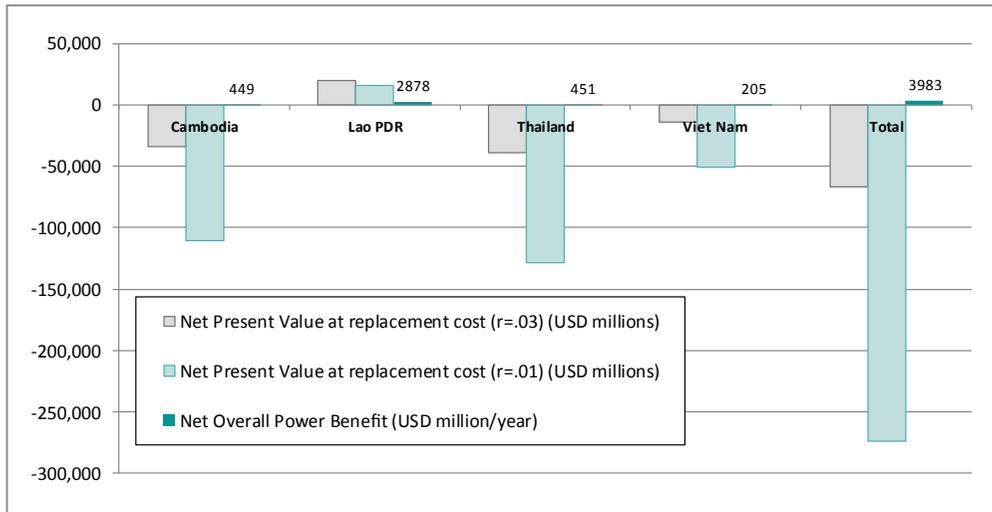
Source: Modified from Cronin & Hamlin 2012

Figure 8.6 Map of Mekong mainstream dams

A study conducted by the Portland State University & Mae Fah Luang University demonstrated that under most scenarios, especially under the most adverse revised assumptions for an 11-dam scenario, Lao PDR is still a USD 15.5-billion winner after 20 years, while Thailand, Cambodia, and Viet Nam are losers by USD 129.9, 110.3, and 50.7 billion, respectively (Figure 8.7) (Costanza et al. 2011).

Lao PDR, together with power importing countries and investors, could play a role in reducing the risk of total net economic loss in the region due to construction of uncoordinated mainstream dams by utilising the tributaries instead, and also consider the ecological and socioeconomic consequences and possible mitigation measures until appropriate solutions for sustainable development of a mainstream dam of mutual benefit to riparian countries are identified. Adopting this stance could also encourage multilateral financial agencies to invest in hydropower projects, as occurred in the Nam Theun 2 hydropower dam in Lao PDR tributary, which secured international investment via multilateral development banks (including World Bank, Asian Development Bank, European Investment Bank, and Nordic Investment Bank), export credit agencies, bilateral financing agencies, international commercial banks, and Thai commercial banks. An extensive review of hydropower development in Lao PDR indicates that the country has 18,000 MW of hydropower potential—*without* the need for any mainstream dams. Only 15% of the country's hydropower potential has been developed over the past 40 years (GIZ 2014). As a result, this country has a huge hydroelectric capacity derived from its tributaries; in fact the combined capacity of these plants *exceeds* demand. By

2020, the country's electricity demands will reach 2,500 MW, which is still only 14% of the hydropower potential (excluding mainstream dams). Therefore Lao PDR could consider delaying construction of new mainstream dams until a more comprehensive transboundary impact assessment is performed. In this case, importing countries like Thailand and investors could play a vital role by encouraging Lao PDR to harness hydropower potential from the tributaries.



Source: Prepared by the authors based on data from Costanza, et al. 2011

Figure 8.7 Net economic benefits of hydropower dam construction on Mekong River

Alternatively, WWF (2014) suggested that some other existing less destructive and environmentally more sustainable electricity generation and hydropower options could be used. Employing user-friendly assessment tools such as Hydropower Sustainability Assessment Protocol (HSAP) or the Rapid Basin-wide Sustainability Assessment Tool (RSAT) can help to incorporate regional factors into the project site, design and operation.

4. Water-Food-Energy nexus approach for green development in the Mekong region

Resource scarcity, which emphasises water, food and energy as human basic needs, is one of the most urgent shared concerns in the region (Griggs 2013). Moreover, water, food and energy have moved to the top of the global agenda following the food and energy price increases that started in 2007. Addressing the water, food and energy nexus is considered increasingly important for transparently and equitably meeting increasing global demand without compromising sustainability (Lele et al. 2013). In the "Global Trends 2030" report (NIC 2012), the US National Intelligence Council described the interconnected nature and risks in water, food, energy supply security as a "megatrend" that will gain global momentum in the near future. Actions or solutions for one single resource or sector may bring positive or negative impacts on the other two. Disconnected approaches and silo-like thinking are more likely to make matters worse and risk serious unintended consequences. Similarly, the conventional approach

of hydropower development in isolation of other sectoral considerations fails to support green development concepts. Therefore, an integrated water, food and energy approach needs to be introduced for further regional power trading and cooperation in the GMS. Following are some policy options for introducing water, food, and energy nexus in regional integration in the GMS.

4.1 Benefit sharing among sectors and riparian countries

The earlier sections clearly demonstrate that heavy infrastructure development on the mainstream by one riparian country would affect downstream countries by changing the pattern of water flow, reducing sediment transportation, and reducing fisheries stocks. While some predict rising water conflicts and potential war (Starr 1991; Gleick 1993; Lowi 1993; Homer-Dixon 1994; Klare 2001), others have suggested that water may serve as a catalyst for cooperation (Wolf et al. 2003; Turton 2000). In this context, benefit sharing has been suggested as a sensible strategy to move towards cooperative use of international waters. It is argued that benefit sharing from water facilitates engagement of riparian countries in development and management of transboundary water bodies, equitable distribution of transboundary benefits from water cooperation, and win-win options instead of potentially conflicting water sharing (Sadoff and Grey 2002, 2005; Phillips et al. 2006; Rossouw 2010). According to Bachurova (2010), common management of transboundary water resources generates net benefits compared to unilateral development of water resources.

In more detail, the benefits provided by water cooperation are (i) benefits to the river (protecting watersheds, conserving aquatic and riverine terrestrial biodiversity, preserving soil fertility, preserving water quality, and maintaining natural buffering capacity of the river stream), (ii) benefits from the river (food production, and power generation), (iii) reduced costs via shift of policy from dispute to cooperation and ideological change from energy-food sufficiency to energy-food security benefits due to cooperation on transboundary river, and (iv) catalysing benefits beyond the river such as integration of regional infrastructure, markets and trade (Sadoff and Grey 2002). Table 8.3 shows that a number of benefit-sharing mechanisms, including monetary benefit sharing (e.g., revenue sharing, property tax, preferential rates, and securing income) and non-monetary benefit sharing are in use in different parts of the world. Although most benefit sharing mechanisms have been established for domestic impact, a few can be seen in transboundary river basins as well—such as in Senegal, Mali and Mauritania, who have agreed to share developmental costs and benefits of jointly-operated common infrastructure in the Senegal River basin using a burden-sharing formula (Qaddumi 2008). Bilateral power-trading projects also create win-win opportunities for both participating countries, although impacts on other riparian countries are ignored.

Table 8.3 Benefit sharing mechanisms under two different spatial contexts

Type of benefit sharing mechanism		Description
Monetary Benefit Sharing	Revenue sharing (e.g., in Norwegian, Colombian, Brazilian, Argentina and Nepalese legislation) (Source: iwawaterwiki.org; MRC, 2011)	Revenue sharing with local or regional authorities tied to output of power generation.
	Preferential rates (e.g., in Norwegian legislation)	Preferential electricity rates can be negotiated between local or regional authorities and infrastructure operators.
	Property taxes (e.g., in Norwegian legislation)	Taxing of infrastructure operators based on project's property value or other factor.
	Development funds (e.g., Nam Theun 2; in Norwegian legislation)	Development funds from power sales are used to foster economic development, compensate affected people and conserve ecosystems in project-affected areas.
	Livelihood restoration, socioeconomic development (e.g., Nam Theun 2)	Securing income through job creation.
Non-Monetary Benefit Sharing	Equitable sharing of project services for community development (e.g., Viet Nam)	Households in project areas receive improved access to energy services in return for having hydropower project located in their area. The infrastructure project should facilitate access to markets and common resources.
	Transboundary resource development (e.g., bilateral power trading projects in GMS)	Transboundary resource development triggered by power infrastructure projects could create win-win opportunities

Source: Qaddumi 2008; Rossouw 2010; MRC 2011

Box 8.3 Nam Theun 2 Hydropower, a good example of benefit sharing

The Nam Theun 2 Hydropower Project in Lao PDR, one of the largest project in operation with 1,075 MW (about 1,000 MW is exported to Thailand), funded by 27 international banks, including World Bank Group, the Asian Development Bank (ADB), the European Investment Bank (EIB) and Agence Francaise de Developpement (AFD). Nam Theun 2 was expected to provide 12% of active storage capacity in the Mekong Basin in 2010 and 7% in 2025 (GIZ 2014). The multipurpose use of water from Nankai reservoir, including electricity production, flood amelioration and water for irrigation, is considered a key element in the success of such a project. A good indicator of benefit sharing is the restoration of livelihoods of the local people around the project and facilitation of poverty alleviation in Lao PDR. Revenue from the project, about US\$ 1 million/year, is contributed for the protection of a 4,000 km² national protected area for the 30 year construction and operation period. About 159 affected villages downstream receive US\$16 million allocated for compensation and livelihood restoration. A further US\$ 2.3 million was added later for the programme's supplementary budget. The Nam Theun 2 project will generate about US\$ 2 billion for the Government of Lao PDR, and these revenues may be used to improve living conditions, health care, education, provide access to roads, electricity, contributing to poverty reduction as well as environmental protection (GIZ 2014). According to EDF Group et al. (2012), on the Nakai Plateau, households now enjoy significant higher incomes and living standards, as well as better access to health, education, water and sanitation.

In the Mekong River basin direct regional benefit sharing, especially revenue sharing can reduce negative externalities on food and water security of downstream countries caused by hydropower development in the upstream countries. As discussed in section 3, most of the benefits from hydropower generation in LMB will fall to Lao PDR. In contrast, livelihoods of millions of poor people and food security would be adversely affected in the downstream countries, including Cambodia and Viet Nam. In this case, transboundary benefit sharing and national-to-local benefit sharing in the framework of a nexus approach can mitigate diplomatic anxiety and contribute to sustainable development throughout the river basin. A good example of benefit sharing of hydropower development in LMB is the Nam Theun 2 Hydropower Project. This project is committed to providing compensation from revenue for socioeconomic development to improve living conditions, healthcare, education, access to roads, electricity, poverty reduction and environmental protection (see Box 8.3).

In transboundary river basins, development projects should focus on optimisation of basin-wide benefits. For motivation and sustainable cooperation, the riparian countries should agree on sharing generated benefits in a fair manner. Political willingness to share benefits plays a key role for the realization of benefit sharing in the context of transboundary river basins (Sneddon 2008).

4.2 Introduction of transboundary EIA under the overall umbrella of relevant international conventions

Maximisation of indigenous energy resources to fuel economic growth is the driver of hydropower promotion in all LMB countries. However, a number of studies have demonstrated that uncoordinated dam construction in the Mekong mainstream will create huge environmental and social issues in the region (ICEM 2010; WWF 2014; RFA 2014) and also threaten sub-regional power trading initiatives. For sustainability of sub-regional power trading and cooperation, environmental issues need to be addressed in national and regional energy planning and policies. Although all LMB countries have basic environmental legislation regarding EIA, none of them have specific environmental criteria for hydropower development (King et al. 2007). This lack of both environmental and social safeguard policies has been seen by certain foreign investors as an incentive to advance into hydropower projects. Therefore, adoption of a transboundary EIA framework by the LMB (and preferably the six GMS) countries will enable adoption of common environmental criteria for hydropower projects in the region.

Adoption of the 1997 Convention on the Non-Navigational Uses of International Watercourses by the United Nations General Assembly provided the framework for inter-State cooperation on international watercourses but is yet to be enforced. The United Nations Economic Commission for Europe (UNECE) Water Convention on the Protection and Use of Transboundary Watercourses and International Lakes is the basis of hundreds of multilateral and bilateral agreements on transboundary water bodies in Europe. The principle objectives of the Convention are to prevent, control and reduce transboundary impact, to promote reasonable and equitable use of transboundary waters and to ensure their sustainable management. Another successful convention in Europe is the Convention on Environmental Impact Assessment in a Transboundary Context (informally called the Espoo Convention). The Espoo Convention acknowledged that separate political identities and national goals together represent one of the main barriers in transboundary environmental management, and even more so for transboundary river basins, where upstream states are less motivated to consider the interests and rights of downstream states. Espoo obliges parties to carry out transboundary environmental impact assessments for certain activities in initial planning stages. The success of Espoo

in Europe motivated countries of other regions such as Canada and central Asia to sign into the convention. Core attributes of Espoo are in the areas of transboundary impact assessments, inter-party consultation, cooperative arrangements, dispute resolution and public participation—all crucial for transboundary basin development. Introduction of transboundary EIA in the Mekong basin under an international convention such as Espoo would help assess the adverse impacts of hydropower projects across the river basin by involving any potentially affected neighbouring countries in EIA and decision-making processes. Such assessments would aid in formulating measures to mitigate the adverse impacts across the river basin under the framework of a nexus approach. Furthermore, transboundary EIA can enhance international cooperation through better understanding of the possible tradeoffs and equitable sharing of benefits. Transboundary EIA also facilitates early information sharing with potential victims and ensures public participation in decision making so that project implementation can avoid diplomatic issues at later stages.

Existing relevant protocols and tools such as HSAP and RSAT could provide a raft of basic requirements for transboundary EIA for hydropower projects as they are designed to measure social, environmental and economic impacts. RSAT can address key issues of hydropower sustainability, including transboundary impacts of ongoing improvements to practices; basin-wide understanding; integration between basin-planning and hydropower development frameworks; cooperation among riparian countries; equal weighting of socio-economic, environmental and socio-culture factors in hydropower-related decision-making processes; consistent objective of sustainable development across the basin; and engagement stakeholders in all decision-making processes (USAID and ADB 2010).

4.3 Strengthening governance of Mekong River Commission to enable win-win cooperation

Since its establishment in 1995, the Mekong River Commission (MRC) is the only intergovernmental agency mandated to focus on water resource management and sustainable development in the LMB. According to the agreement signed by the governments of four riparian countries in 1995, MRC will play a role in basin-wide planning, environmental protection, facilitation of equitable water use and navigation (MRC 1995). Establishment of MRC has broadened the scope of regional cooperation in basin development, resource management, power security, food security and environmental protection and it coordinates and promotes cooperation towards sustainable development as well as management and conservation of water and related resources. Since its formal establishment, MRC contributed initially at the project-scale level and then progressed into strategic planning. Considering the potential negative impacts of hydropower dams on food security, livelihoods and environment, MRC is exploring sustainable options for hydropower development in the region. It has formulated design guidelines for mainstream dams and RSAT and is actively involved in development of the HSAP. MRC also provides guidance for member country decision-making through valuable scientific and strategic research. Despite its long list of achievements MRC faces a number of challenges before an integrated planning approach can be introduced at the basin. Conflicts of interests among riparian countries are a significant barrier to integrated planning; while the primary interest of Thailand and Viet Nam in the Mekong River is as a water source for agriculture, Lao PDR considers the river a primary source of hydropower generation for export, and for Cambodia the Mekong is the main source of fisheries (Gupta 2005). Unless integrated resource management planning is implemented across the basin these conflicts will intensify, threatening sustainable development. However, under the current governance structure the MRC can only act as a coordinating advisory body on the water resources of the Mekong basin and cannot enforce any legally binding

agreements that are needed to cover all the development activities occurring in the basin (Tu 2011). In order to change this, it is vital to establish enabling conditions to realise supranational authority, starting from regional cooperation with benefit sharing among the GMS countries. Reforming the governance structure of MRC with supranational authority would create an enabling environment to allow more involvement in key development decisions across the basin. MRC therefore needs to attain the status of an intergovernmental committee tasked with sustainable development of the Mekong basin, and be led by the heads or Prime Ministers of the member states. Under the existing MRC governance structure, either water or environment ministers of member countries form the MRC Council and act as Chairperson of the National Mekong Committee. However, hydropower development in a transboundary river basin has cross-sectoral impacts and is multi-dimensional in nature, including elements of economy, diplomacy and security. Thus, members of the MRC Council under the current governance structure may lack the required authority to take the necessary joint decisions towards sustainable development in the region. By changing the governance structure as proposed above, the Council and National Mekong Committee would have full authority to approve all development projects in the basin so that MRC could play a mediatory role in establishing coherence between country-level development and the regional development framework. However, as discussed in Box 8.2, in the long run even the above-mentioned restructuring of MRC governance would not be sufficient if China and Myanmar do not join in. Therefore the ideal approach for sustainable regional cooperation would be to involve all six countries of the Mekong basin, including China and Myanmar, in the MRC governance structure. In addition, strengthening regional cooperation through the MRC would create enabling conditions to adopt the nascent transboundary EIA framework for the basin and provide win-win solutions for member countries. Consequently, future conflicts on water security, food security and energy security would be prevented.

5. Conclusions

It is likely that investment in potential hydropower mainstream dams will be increased in the coming years to fuel regional economic growth. Relatively lax enforcement of environmental controls is one of the reasons behind unsustainable dam construction planning in the basin. Moreover, the hydropower projects, both under construction and planning, do not adequately consider transboundary impacts. The Mekong River is a major source of food and livelihood in the region, but current approaches of dam construction do not consider transboundary environmental costs and social costs when estimating net benefits of projects. As a result, food security and livelihoods of millions of people will be under threat. Early recognition of the nexus between hydropower development and cross-border food security, water security and livelihoods can minimise the risk of diplomatic conflicts and social unrest and is only enabled when member states are willing to divert high-level government priorities from national interests to transboundary interests, as implementing the nexus approach throughout the river basin could contribute to reducing trade-offs between hydropower development and basin-wide socio-economy, and increase synergies through implementation of benefit-sharing mechanisms towards win-win outcomes. In this regard, MRC could play a greater role in the transition to sustainable regional integration in resource security.

In order to facilitate and implement the nexus approach towards sustainable resource security throughout the river basin, it is critical to strengthen the MRC's governance structure. Based on the above discussions the following are our recommendations:

- Grant the MRC supra-national authority to enable transboundary water governance in the region, which would provide it a mandate for initiating a move from softer agreement to harder legal rules. To realise this, stronger political commitment of the member states is crucial.
- Revise national water policies and environmental and resource management laws of the member states to reflect the goal of the 1995 Mekong Agreement and the MRC programme. As a precondition, MRC should facilitate a capacity building programme for the National Mekong Committee and water governance-related agencies in the member states.
- Transform the role of MRC from that of coordinator to supranational authority, to enable engagement of river basin stakeholders in all decision-making processes. Through engagement of stakeholders MRC will get more acceptability in decision making on transboundary water resource management.
- Extend the geographical reach of the MRC to the most upstream countries such as China and Myanmar to achieve the status of independent transboundary water governance authority in the region. This will ultimately require China and Myanmar to join the MRC, something that appears unlikely at the present. Member states of the MRC should thus take the initiative in discussions with China and Myanmar governments to set up a timeline in order to ensure they join.

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Chapter 9

Low Carbon Technology Transfer in the Context of Asian Regional Integration

Rabhi Abdessalem

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Key Messages

- Despite broad acknowledgement of the importance of low-carbon technologies transfer and application (LCTT) for sustainable development in Asia, efforts made to date to promote LCTT to and within the region remain somewhat fragmented and weakly uncoordinated.
- Creating and strengthening cooperation initiatives among Asian countries will be necessary to promote LCTT, rather than expecting such promotion to occur naturally as a by-product of greater economic integration and market forces.
- To promote LCTT, the chapter proposes to address LCTT process as a process that is composed of three complementary steps: (i) identification of needs and availability, (ii) matching and testing, and (iii) upscaling and diffusion. Creating and strengthening cooperation initiatives among Asian countries is required at each of those three steps.
- Regional integration can stimulate the transfer of low-carbon technologies, but real determination is needed for effective facilitation.
- This chapter recommends (i) establishing a regional platform for information sharing and matchmaking, (ii) developing a regional low-carbon technology roadmap, (iii) conducting awareness raising and capacity building in key economic sectors, including for small and medium-sized enterprises, and (iv) providing tax benefits and other economic incentives to stimulate demand for low-carbon technologies.

1. Introduction

Promoting the transfer and application of low carbon technologies (LCTT) has been recognised as one of several key factors to achieving sustainable development. In Asia, various initiatives and measures have been taken so far at unilateral, bilateral, and multilateral levels to promote LCTT to and within the region; however, results have fallen short of expectations compared to the efforts and resources dedicated to such. This chapter reviews the current status and provides pointers for a more effective and comprehensive strategy to promote LCTT to, and within the region.

The chapter focuses on outlining a regional framework to promote LCTT, and how such a framework could be formulated in the context of regional integration. It points out that despite the current trend in regional integration within Asian, initiatives regarding LCTT remain somewhat fragmented and weakly coordinated. In particular, it highlights that information on the technologies that exist (hereafter “seeds”) or are in demand (hereafter “needs”) is often lacking or scattered. In addition, the extent of actual matching such seeds with needs is lacking. Much effort has been extolled to stimulate trade and Foreign Direct Investment (FDI) through regional economic integration, but this alone is insufficient for promoting LCTT.

The chapter argues that advancing regional economic integration, with increasing trade and FDI, will not necessarily also stimulate LCTT. In order for regional integration processes to play such a role they need to establish specific LCTT facilitation mechanisms to address issues related to each stage of the LCTT process. The chapter introduces a three-stage model of the LCTT process and provides recommendations on what should be done at each stage.

The remainder of the chapter is arranged as follows. The second section outlines the importance of promoting LCTT to the world in general and to Asia in particular; the third section highlights key factors behind the shortfall in promoting LCTT in Asia; the fourth section provides pointers on how to rectify such factors; and the fifth section provides a summary and conclusion.

2. Low Carbon Technology Transfer: Key to Asian sustainable development

2.1 Importance of LCTT for the world and Asia

Promoting LCTT is widely considered a key means by which to reduce GHG emissions and contribute to climate change mitigation. At the global level for example, according to an International Energy Agency report (“Energy Technology Perspective”), if governments worldwide introduce no new energy and climate policies, energy-related CO₂ emissions will surge from 28.8 gigatonnes (Gt) in 2007 to 34.5 in 2020, and may top 57 by 2050. In contrast, through deployment and diffusion of existing and new low carbon technologies, this figure could be suppressed to about 14 Gt by 2050 (IEA 2010).

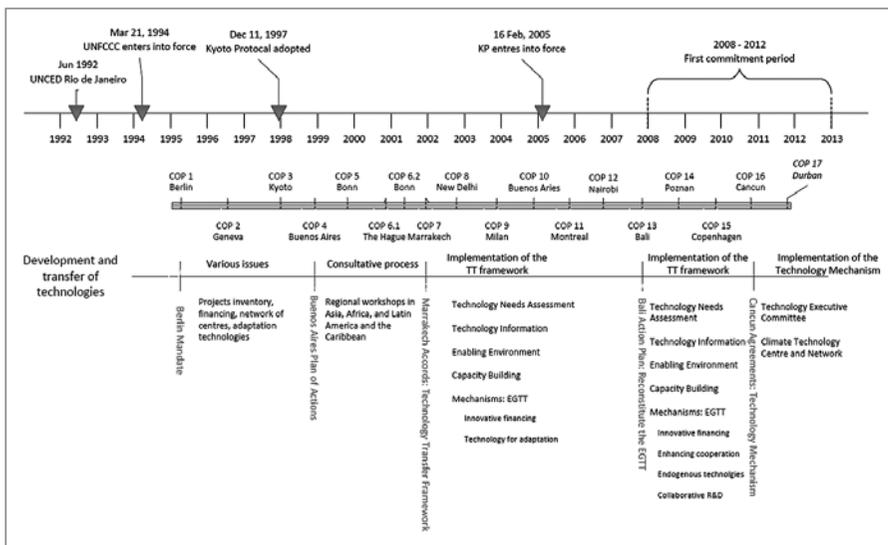
At the Asian region level, CO₂ emissions reduction potential is estimated to be around 6.8 billion tonnes, based on the Technologically Advanced Scenario.¹ This amount accounts for 55% of the world’s total reduction potential, indicating the huge impact Asia could have if low carbon technology transfer (Ryoichi Komiyama 2010) were instigated. Energy saving-related technologies could contribute about 53% to this reduction, fuel switching 31% and Carbon Dioxide Capture and Storage (CCS) 16%. A 3.6 billion-tonne mitigation through energy saving-related technologies in Asia until 2035 would contribute to one-third of total global CO₂ reduction.

At the subregional level, low carbon technologies are projected to boost CO₂ emission reduction in the ASEAN region. According to Ölz and Beerepoort (2010), energy saving and renewable energy technologies could contribute respectively to 319 and 121 Mt CO₂ reductions by 2030 in the ASEAN region. The same study also shows that low carbon technologies are projected to cover 36% of energy demand across Southeast Asia, the most notable of which are solar, wind and geothermal which together could satisfy almost 11% of regional energy demand by 2030.

LCCT will not only contribute to CO₂ emission reduction in Asia but also result in co-benefits in terms of energy security, human health and environmental protection. Further, numerous low carbon technologies offer real economic returns and short payback periods, and can contribute substantially to the economic development of emerging countries (ADB and ADBI 2013). Last but not the least, a regionally coordinated flow of low carbon technology, implemented as quickly and widely as possible, was found to lower GHG mitigation costs of emerging economies; hence, enhancing regional cooperation among Asian countries to promote LCCT should be considered in order to lower GHG mitigation cost in the region.

2.2 Technology transfer: still an urgent topic

The key role of technology transfer in tackling climate change has been acknowledged since the creation of the United Nation Framework Convention on Climate Change (UNFCCC) in 1994, iterated at each session of the Conference of the Parties (COP), and resulted in some developmental progress, but is still considered a hot topic and an urgent challenge (Figure 9.1).



Source: Technology Executive Committee (2011)

Figure 9.1 Discussion on development and transfer of technologies under the UNFCCC process

The continued focus on LCTT is due to the fact that although numerous discussions have taken place on the topic at national, regional and international levels, no consensus has been reached on who, what and how as regards LCTT promotion. The lack of broad consensus is understandable given that LCTT is a complex process and involves a wide variety of stakeholders; however, it could also be related to the fragmental nature of the discussions, which tend to focus merely on particular aspects rather than the big picture, which means that any recommendations or conclusions provided lack comprehensive scope, despite their relevance.

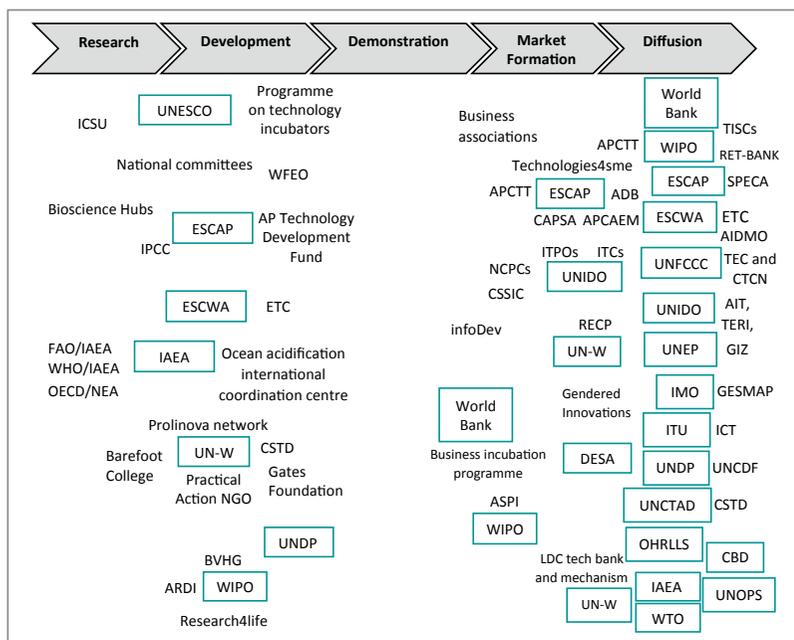
In the Asian context, the issue of technology transfer has been addressed in most recent agreements in the region, such as Asia Pacific Economic Cooperation (APEC),

Comprehensive Economic Partnership in East Asia (EPEA), Asia Pacific Partnership (APP). The importance of LCTT has been discussed intensively at high level events such as the Singapore Declaration on Climate Change, Energy and the Environment, and the East Asia Low Carbon Growth Partnership Dialogue. For instance, the Singapore Declaration states that “actions would be taken in encouraging the deployment of clean technology in the region through various means, such as investment, technical and financial assistance, technology transfer,...”. The importance of technology transfer was also recognised during the second East Asia Low Carbon Growth Partnership Dialogue, held in Japan in April 2014. The main theme of the Dialogue—as a result of the prime ministerial instruction “to formulate a proactive diplomatic strategy to address global warming by which Japan contributes to the international community with its technology”—was technology.

3. Status of LCTT in Asia

3.1 Fragmented, uncoordinated initiatives

Various stakeholders in Asia are making significant efforts to promote LCTT and a large number of partnerships, programmes, projects and instruments in the region are managed by United Nation organisations (Figure 9.2). However, no regional framework, agreement, assessment or monitoring mechanism currently exists to bind them all together, which means they are becoming ever more fragmented and uncoordinated in terms of objective, content and country coverage. Most of them only focus on specific sectors or particular regions and involve major overlaps, with most contributions focusing on either research and development or transition from market formation to diffusion.



Source: Author (based on UN Secretary General report A/67/348 (2012))

Figure 9.2 Overview of United Nations contributions (boxes) and selected partnerships (without boxes)²

In the absence of an effective coordination mechanism, addressing all the stages of technology transfer and coordinating between such initiatives is a challenging task. Hence, a regional technology facilitation mechanism that builds on this work and reaps synergy through networking and partnerships is urgently required.

3.2 Lack of information on ‘seeds’ and ‘needs’

In terms of manufacturing and export of low carbon technology, several developing countries in Asia have become world leaders, and some are also emerging as key users. South-South clean technology transfer is also increasingly becoming more important. Hence, the availability of information on what technologies exist on the supply side (hereafter ‘seeds’) and which technologies are needed on the demand side (hereafter ‘needs’) is crucial to kick-off the matchmaking process between seeds and needs. For most countries in Asia, comprehensive databases on seeds and needs do not exist, or are difficult to access or scattered among institutions. Most of the focus hasn’t been on creating and sharing such information (i.e., through development of Technology Need Assessment (TNA) and Technology Availability Assessment (TAA)), and instead has centred on crafting policies related to market transformation to absorb available technologies. Although TNAs exist for some countries they are not updated regularly, and for most countries TAA and TNA still await development.³

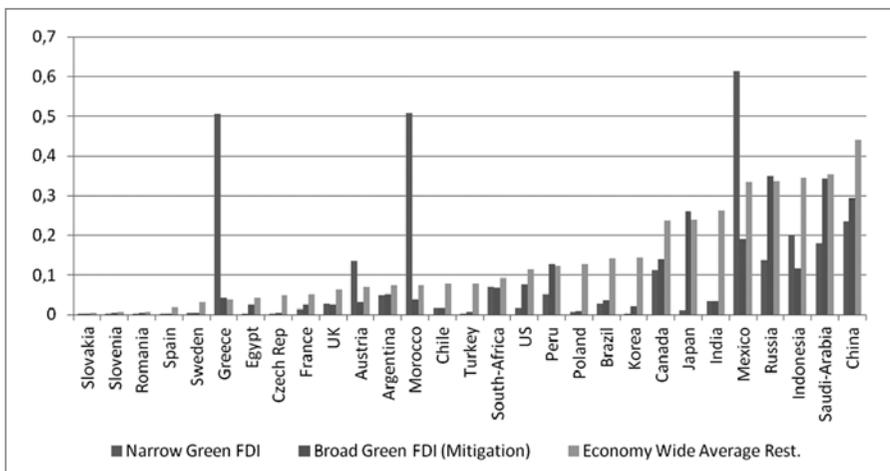
3.3 Little action on pilot/demonstration projects

As depicted in Figure 9.2 above, most initiatives in the region focus on either research and development or transition from market formation to diffusion, rather than on demonstration or linking demonstration with market formation. In addition, significant efforts and resources have been allocated to conduct feasibility studies (FSs) on the application of technology to specific conditions, whereas little action is taken to follow-up on such FSs. For instance, in 2012 a total of 60 FSs in the field of electricity generation, forest conservation, transportation and waste management were conducted in East Asia by Global Environmental Facility (GEF); In 2013, about JPY 7.6 billion (USD 76 million) was earmarked for model projects in addition to FSs in the same region⁴; Japan is the current leader in number of FSs under the Joint Crediting Mechanism (JCM) scheme, where more than 165 have been conducted by governmental agencies through the Global Environmental Centre foundation (GEC), Japan International Cooperation Agency (JICA), and others.⁵ However, only a few projects have actually been implemented on the ground.

3.4 Significant barriers still exist to using trade and FDI to promote LCTT

Trade and FDI are widely acknowledged as key channels for technology transfer (Schneider et al. 2008; World Bank 2008). However, trade and FDI flows in Asia are uneven across sectors and regions. For example, while trade between India and China is growing, this process does not involve all regions or all sectors of South Asia. At the same time, the intra-subregional trade share among members of the South Asian Association for Regional Cooperation (SAARC) is less than 6%.

Although numerous free trade agreements (FTAs) have been concluded in the region to accelerate the flow of trade and FDI, their impacts have been limited and are viewed as “trade light”. The level of restrictions by major economies in Asia remains high compared to USA and other countries in Europe (Figure 9.3). FTAs have been largely limited to tariff cuts and only tackle non-tariff regulatory barriers to a low extent. They are also bedevilled by differing rule of origin (ROOs) within and between agreements, causing confusion and added administrative costs for businesses (Sally 2010).



Source: Golub, S. S. et al (2011).
 (Note: Y axis shows the level of restriction, ranging from 0.0 to 1.0, where 0.0 refers to fully opened and 1.0 to fully closed)

Figure 9.3 Severity of restrictions on economy in general and on green FDI in particular, by country

Current efforts to tap the potential of using trade and FDI to promote LCTT in the region appear lacking. For liberalisation of trade and FDI to effectively promote LCTT, it needs to provide preferential treatment to low carbon technologies compared to other “brown” technologies, such as the case of the agreement reached in 2012 among participating countries in the Asia-Pacific Economic Cooperation Forum (APEC). The countries agreed on a list of 54 environmental goods for which import tariffs would be reduced to 5% or less by 2015. Initiatives to provide preferential treatment to green and low carbon technologies remain limited in the region.

Furthermore, even if trade and FDI agreements are crafted to provide preferential treatment to LCTT, there is still scope to do more to address the last stage of LCTT, namely deployment and diffusion. Thus, trade and FDI policies themselves could be helpful, but are insufficient in promoting technology transfer in general and LCTT in particular. This chapter argues that to promote LCTT, all stages of the LCTT process should be addressed in a cooperative and coordinated manner. More details about such stages and what could be done in each of them are given in the following section.

4. Aspects of strategy

Against the above background, and as part of a strategy to promote LCTT to and within Asia, the chapter proposes a 3-stage LCTT process, identifies key issues related to each stage, and provides pointers on how to rectify such issues. The overall focus is to explore how the inter-stakeholder cooperation framework can be modified to address each stage of the LCTT process in a synergistic manner, instead of simply waiting for integration in general to work its course and promote LCTT through market forces.

4.1 LCTT as a three-stage process

As depicted in Figure 9.2 above, the technology cycle follows a well-known path through different stages from research to development, demonstration, market formation, and

eventual diffusion in the market place, in which technology could be transferred from the supply to the demand side at any stage. In addition, the current thinking regarding the LCTT process comprises mainly a traditional supply-side focus, which often doesn't match the needs of buyers. In order to provide a foundation for a strategy, this chapter proposes to rethink the technology transfer process as a process of matchmaking, composed of three stages: The first stage consists of identifying 'seeds' (technology available on the provider side) and 'needs' (that needed on the recipient side). This involves coordination among various stakeholders from both supply and demand sides in order to identify the technologies which are available on the supply side and needed on the demand side, and which are transferable and applicable to local contexts. The second stage consists of matching the seeds with the needs, and involves cooperation among various stakeholders, on both the supply and demand side, to conduct joint actions to actually perform the transfer and apply the technology in the recipient country (possibly at the site level) through feasibility studies, demonstration cases (pilot projects), impact assessments, awareness creation and capacity building, for example. The third stage consists of scaling-up the matching process of seeds and needs to diffuse the technology more widely in recipient countries (cluster, sector, or nationwide) and involves creating an enabling environment to enhance the diffusion of the technology through conventional channels, especially FDI and trade. This process of technology transfer is schematically shown in Figure 9.4 below, although the overall process is, of course, much more complex and much less mechanistic than that shown.

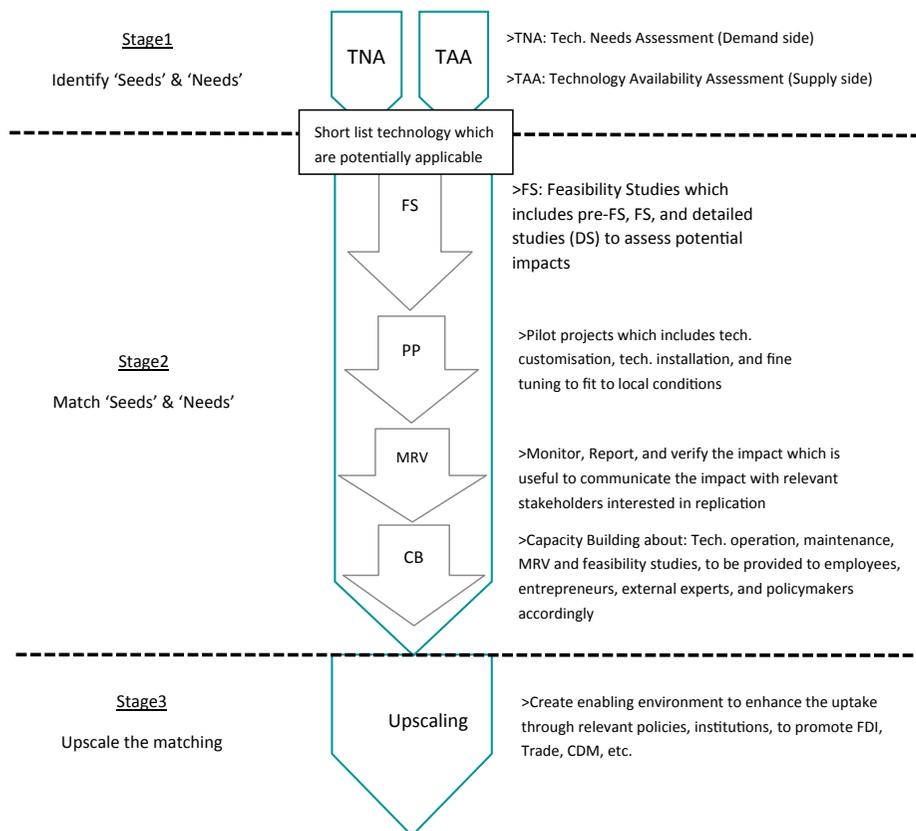


Figure 9.4 Technology transfer process as viewed in this chapter⁶

The following discussion traces the structure of the proposed LCCT processes and highlights several issues related to each stage of the process.

4.1.1 Stage 1: Identification of 'seeds' and 'needs'

Information on technologies related to the seeds and needs is not always available. Crucial starting points in the promotion of LCTT are considered to be the sequencing and prioritisation of low carbon technologies at the sector and economy levels (from the perspective of transferor and transferee) through conducting a technology needs assessment (TNA) and technology availability assessment (TAA). Thus, TNA and TAA are both crucial in terms of time and effort in order to initiate matching seeds with needs.

Nevertheless, TNA and TAA availability represent just one initial step, as some technologies could be identified as available in TAA as well as identified as needed in TNA but not actually be transferable and applicable to local conditions due to technical, environmental, social, financial, or other reasons. Hence, after developing the TNA and TAA, the potential for LCTT between each pair of countries needs to be analysed, which produces a shorter list of technologies that are not only available and needed but also potentially applicable in the recipient country concerned. Furthermore, given that technology transfer is a dynamic process—as are the conditions surrounding such—the identified shortlist of technologies should be updated often, and shortened further if possible, based on ongoing analysis of the conditions through feasibility studies and detailed studies.

Identification of seeds and needs should not be limited to merely arriving at a shortlist of potentially transferable technologies; it should also include identification of the surrounding conditions affecting the transfer of such technologies in terms of identifying and analysing the opportunities and risks relating to the transfer, preferences from businesses and government perspectives, carbon emission potential, and so on. Also, it should include the identification, collection, analysis, documentation, and dissemination of motivations for their transfer, in terms of investment potential, related policies, regulations, incentives, standards and so on.

From the above, a map of identified technologies and surrounding conditions could be developed, the information of which could be shared and made accessible to all stakeholders. Information sharing could be also coupled with knowledge building by developing a matrix that illustrates the potential for matchmaking (technology to geographic location; technology to incentives/regulations; stakeholder to stakeholder, etc.). The outputs (technology map and matrix) could form the input for a national public database or through an online knowledge platform that all relevant stakeholders, at national, regional and international levels, could access. This would represent a crucial step forwards in matching seeds with needs.

Mobilising funds from the private sector to create and share such information may be difficult, however. Individual companies are focused on selling their own technologies, which may or may not be the best match for specific users, while providing matchmaking services might not be profitable enough to be provided by a private company. Therefore, the necessary financial resources may need to come from the public sector, with the NGO sector providing technical support.

4.1.2 Stage 2: Matching seeds with needs

Some low carbon technologies are applicable to all countries and under any conditions, but others, although at the commercialisation stage on the supply country side, may

require more work to match them with local conditions in the recipient country. It is the latter group of new-to-the-market or new-to-the-firm technologies that are addressed in this subsection. Matching such technologies to local conditions requires conducting feasibility studies to identify to what extent they need to be modified. Feasibility studies need to be followed by demonstration projects as well as impact assessments and capacity building in order to accurately assess whether matching is possible or not. For instance, although feasibility studies (FS) and detailed studies (DS) can be conducted at the site level, and although technologies can be customised for local conditions based on such FS/DS, the results on the ground starting from pilot project implementation could differ from expectations. In addition, although technologies can be customised for local conditions, further intervention may be necessary after implementing the pilot projects, for fine tuning, adjustment and 'hand holding' to deal with conditions that could not be anticipated, which may affect the results estimated during FS studies. Furthermore, external factors such as the price of energy could fluctuate significantly between the time of FS/DS and post-pilot project implementation⁷. Thus, a project which has been identified as economically feasible before actual implementation may become exceedingly costly afterwards. This means that pilot project implementation is of crucial importance as it reveals actual impacts of applying technologies rather than making decisions based solely on feasibility studies.

Monitoring, reporting and verification (MRV) of the impacts of implementing a technology in a recipient country are also vital as they evaluate the benefits and co-benefits of the implemented technology. This in turn will be vital when communicating the findings to the relevant stakeholders, such as government organisations, financial institutions, business associations, and engaging them in the diffusion process. MRV activities should be conducted for a sufficient period of time, before and after pilot project implementation. The results from MRV activities should be documented, soundly analysed and easy to explain. For instance, MRV issues have been overlooked in most FSs and pilot projects implemented under Official Development Assistance (ODA) projects, which raises questions about the efficacy of these activities when promoting LCTT on a larger scale.

Matching seeds with needs also includes building the recipient's capacity in terms of operation, maintenance, trouble-shooting of the provided technology. In its report, Asian Development Bank (ADB) argues that without developing the capacity to absorb and use the transferred knowledge, the returns on technology transfer are likely to be limited (ADB and ADBI 2012). Capacity could be developed through direct interaction with end users by providing onsite training. It should also be provided to other experts and professionals as regards concepts, functioning, and especially how to conduct feasibility studies and assess the impacts of the provided technology. This could be done via 'training of trainers' (ToT) programmes and provision of materials and toolkits, preferably in the native language.

Hence, matching seeds with needs is not limited to matching technology to local conditions, and also embraces matchmaking involving related stakeholders in the region, especially those of the Business to Policymakers (B2P) and Business to Business (B2B) nature. At this stage, it may be still difficult to mobilise funds from the private sector to facilitate such matching, so the financial resources to conduct such activities would need to be secured from the public sector or via a public-private partnership programme, with technical expertise from the private sector. Research institutions, NGOs/NPOs, and so on could be assigned as intermediaries to facilitate this stakeholder matchmaking.

4.1.3 Stage 3: Technology up-scaling and replication

Creating an enabling environment to enhance trade and FDI is a key measure to scale up technology transfer, as they are both widely recognised as the main channels for technology transfer (Schneider et al. 2008). The World Bank reports that dismantling trade barriers in many developing countries over the past two decades has dramatically increased developing country exposure to foreign technologies, and that the easing of restrictions on FDI also has contributed to technology diffusion within developing countries (World Bank 2008). Economic and Social Commission for Asia and the Pacific (ESCAP) argues that trade and investment can contribute to mitigation of GHG emissions if producers switch from using fossil fuel-based technologies to climate smart technologies (CSTs), particularly renewable energy technology (RETs) (ESCAP 2011). FDI should be coupled with complementary measures such as streamlined green governance at company and government levels to attract low carbon FDI (Rabhi and Shiga 2012).

Creating the enabling environment for trade and FDI could include creating a supportive institutional infrastructure as well as introducing investment policies that respond to specific needs and situations, such as by strengthening intellectual property rights (IPR), tax holidays, tariff adjustments, industry parks, making markets more transparent, to stimulate markets for low carbon technology transfer. Policymakers could also reduce or eliminate subsidies for fossil fuels as well as include environmental costs in the overall price of energy services to make low carbon technology financially and economically attractive. Furthermore, policymakers could develop product standards, instituting industry codes and certification procedures that favour low carbon technologies and could also introduce and showcase low carbon technologies in state-owned companies, through public procurement, which would provide a model for the private sector to follow.

Trade and FDI policies can lead to more widespread adoption of technologies; however, they do not differentiate between low carbon and other technologies and therefore may not create favorable conditions for the former in particular. For trade and FDI policies to promote the transfer and diffusion of low carbon technologies they need to provide preferential treatment of such technologies. For example, the level of technology standards, tariff reduction, IPR, incentives for attracting FDI, etc. could be crafted to be proportional to the level of GHG emission reduction potential of the transferred technology. This could limit the flow of 'brown' technologies and the entry or relocation of businesses searching for 'pollution heaven'.

Creation of an enabling environment to enhance trade and FDI is not only the role of policymakers. It also requires the involvement of various intermediaries such as research institutes, business associations, chambers of commerce, civil society, regional and international organisations and academia, who could enhance the enabling environment through their activities and capacity of matching related stakeholders, especially in the business to business (B2B), business to funding institutions (B2F), and business to policymaker (B2P) realms.

For instance, various national policies could be in place to promote trade and FDI and to promote LCTT in general; however, businesses, especially SMEs, funding institutions and civil society might not be aware of these policies. In addition, various stakeholders are working on the promotion of low carbon technologies and their work often overlaps. Creating a matchmaking process to enhance synergy among the related stakeholders, from supply and demand sides, is therefore crucial.

4.2 Creating and strengthening cooperation initiatives among stakeholders

Countries in Asia are slowly but surely taking steps towards the deeper and more strongly coordinated cooperation necessary to promote LCTT, to and within the region. Establishment of new subregional and regional institutions as well as consolidation and strengthening of existing ones are perhaps the first steps toward creating more effective institutions to support LCTT. The next logical step will be to link these institutions to tap existing synergies and to explore other potential areas of cooperation. Creating and strengthening cooperation initiatives will be necessary at each stage of LCTT explained above. This could be facilitated through the establishment of a regional technology innovation system focused on each step and that seamlessly bridges the significant gaps existing between the stages. More details covering what could be done at each stage are given below.

4.2.1 Creating and strengthening cooperation initiatives to identify seeds and needs

Each country in Asia should conduct country reviews and profiles to identify, collect, analyse, document, and disseminate their needs as well as availability in terms of technologies, best practices, resources, and so on related to low carbon technologies. They should also do the same for low carbon technology investment potentials, related regulations, incentives, standards, and so on that will reduce GHG emissions. Patent protection and intellectual property rights also need considering. Creating national, public databases at the country level to make all of this information accessible through an online knowledge platform system would foster dissemination. To do this, development of national information systems for mapping available and needed technologies, as well as coordination units among relevant stakeholders (i.e., focal points) should be put in place.

Naturally, not all countries in Asia are able to carry out all the above on their own, so creating and strengthening cooperation initiatives among several countries on bilateral and multilateral bases could be considered. Assistance in this regard could be provided from relevant regional and international institutions among those given in Figure 9.2 above. Once the seeds and needs are identified by each country in Asia, coordination among countries at the bilateral or multilateral level should be carried out to identify gaps, priority areas, partners, solutions (open-source or commercial), and so on. This could be done through involving relevant intermediaries from national, regional and even international levels, who would facilitate the coordination processes between countries to identify the gaps. Intermediaries, such as research institutes, civil society, NGOs/NPOs, could develop a matrix of long lists of identified seeds and needs and then merge them and narrow them down to develop a shortlist of technologies potentially applicable in recipient countries and prioritised from the perspective of supply and demand. Developing a regional information system for mapping technologies available and needed as well as establishment of an online regional knowledge platform could be considered. To this end, financial support from the public sector as well as regional and international organisations such as UNEP, ADB could be considered. Stakeholders could coordinate their efforts through regional and sub-regional coordination mechanisms.

4.2.2 Creating and strengthening cooperation initiatives to match seeds with needs

Cooperation within Asia is needed especially regarding technologies new to the market and new within recipient countries. To this end, promoting partnerships among related stakeholders in the region, including government organisations, research institutes, NGOs/NPOs, academia and especially the private sector, has to be considered. Under

such partnerships, each stakeholder could play a specific role. For example, financial support could be provided by governmental agencies, technical support from the private sector, and other consultancy and facilitating of the matchmaking processes could be provided by research institutes, NGOs/NPOs and so on.

Engaging experts and businesses from the supply side to conduct FS, capacity building, monitoring, etc. is crucial, which could be done through a resource pool of experts from partner institutions. Conducting pilot projects under specific national, regional or subregional initiatives would identify how to customise and adapt technologies and good practices, and here an intergovernmental mechanism could be established for impact assessment of new technologies. Again, regional and sub-regional cooperation mechanisms could be formed to facilitate the matchmaking process among related stakeholders.

Intra-Asia coordination at this stage could also include mutual outreach and awareness activities—especially for the end users—involving regional peer learning, exchanges, and training programmes. Establishment of inter-governmental or expert dialogues in specific sectors, including bilateral and regional cooperation, as well as a regional information system for mapping successful case studies of cooperation, pilot projects, advice, consultation and so on would also be useful. Some of the measures could be supported or handled by regional or international initiatives, such as under Climate Technology Centre and Network (CTCN), the Climate Technology Network and Finance (CTNF) programme, or the ADB assisted broker model.

Cooperation among Asian countries could also include agreements to create favorable conditions for low carbon technologies in general, and especially for those which are new to market, such as through lowered import taxes or even tax exemption for the latter.

4.2.3 Creating and strengthening cooperation initiatives to scale up the matching process

Strengthening cooperation initiatives within Asia's countries by creating a supportive institutional infrastructure and introducing investment policies that respond to specific needs and contexts could stimulate markets for LCTT. Such could be brought about through establishing basic climate change policies covering regulation, taxation and subsidisation by strengthening IPR, tax holidays, tariff adjustments, cap and trade, industry parks, improved market transparency and so on. Governments within Asia could reduce or eliminate subsidies for fossil fuels, add environmental costs to the overall price of energy services, and introduce low carbon technologies in state-owned companies through public procurement mechanisms. Furthermore, policymakers in the region could develop product standards, industry codes and certification procedures favourable for low carbon technologies. Enhanced trade and production integration throughout the countries in Asia would increase the flow of trade and FDI, and could be directed to ensure low carbon technologies are given preferential treatment over the dirty 'brown' technologies.

Further, national policies of the region could be combined to increase coherence and focus on (i) creating the enabling policy and business environments to enhance the replication of technologies and good practices; (ii) dissemination of research results and lessons learnt; (iii) creating an inventory of technology clearing-houses; (iv) facilitating intergovernmental or expert fora/dialogues; (v) considering technology transfer in the context of publicly-funded technologies and public procurement, on concessional and preferential terms. The provision of small loans and grants, including concessional loans and risk-capital grants could be also considered.

Other recommendations include (i) promoting partnerships with various intermediaries, (especially the private sector) through joint ventures and FDI in line with developing country priorities; (ii) providing funding through small loans, grants programmes, technology prizes, etc. (iii) establishing a market place for low carbon technologies and catalyse more investment from public and private sectors. This can include establishing a low carbon matching platform linking potential technology sellers and buyers.

The following initiatives could be considered as well: (i) a regional clean technology venture capital fund (risk capital fund); (ii) regional technology centres such as under ESCWA and ESCAP; (iii) economic partnership agreements on green technology transfer and deployment (including sustainable energy trade agreements); and (iv) a regional network of centres of excellence, partnerships and hubs related to low carbon technology transfer.

Many of these recommendations are not necessarily new. However, their adoption in the region has been limited, so it is worthwhile emphasising them in the course of examining more recent trends towards further economic integration.

5. Conclusion

Despite broad acknowledgement of the importance of LCTT for sustainable development in Asia, measures taken to date to promote LCTT to and within the region have fallen short of expectations.

Efforts to improve on this situation are currently fragmented and largely uncoordinated. Ongoing economic integration had the potential to facilitate LCTT; however, its influence has been limited due to the ongoing challenges related to non-tariff regulation, ROOs, as well as insufficient preferential treatment to LCTT over more traditional and more polluting technologies.

The chapter argues that addressing the issues related to non-tariff regulations, ROO, and crafting FDI policies in a manner to provide preferential treatment to LCTT in the region are necessary measures but still will not be sufficient. More efforts will be needed to address the last stage of LCTT, namely upscaling.

The chapter points out the need to promote LCTT by addressing all three stages, and it calls for creating and strengthening cooperation initiatives among Asian countries for each stage. Such cooperation initiatives should be created to first identify the seeds and needs, then to facilitate the matching of seeds and needs, with special emphasis on demonstration and pilot project implementation (small scale), and finally to scale-up the matching over a broader area. Such matching should not be limited to simply finding the right technology to suit local conditions but should also include ensuring the relevant stakeholders are matched, on both the supply and demand sides.

Creating and strengthening cooperation initiatives among Asian countries will be necessary to promote LCTT, rather than expecting such promotion to occur naturally as a by-product of greater economic integration and market forces. Creating and strengthening such cooperation initiatives is not only the role of policymakers—it also requires the involvement of various intermediaries such as research institutes, business associations, chambers of commerce, civil society, regional and international organisations and academia, who are already engaged in this field, to tap existing synergies as well as to explore other potential areas of cooperation.

Notes

1. Technologically Advanced Scenario analyses how global energy demand and supply could evolve if countries adopted all policies currently on the table related to energy security, CO₂ emissions and technology transfer, and advanced technology widely deployed globally (Komiya 2010).
2. Abbreviations in Figure 2:
 ADB, Asian Development Bank; AIT, Asian Institute of Technology; AP, Asia-Pacific; APCAEM, United Nations Asian and Pacific Centre for Agricultural Engineering and Machinery; APCTT, Asian and Pacific Centre for Transfer of Technology; ARDI, Access to Research for Development and Innovation programme; ASPI, Access to Specialized Patent Information programme; BVHG, BIO Ventures for Global Health; CAPSA, Centre for Alleviation of Poverty through Sustainable Agriculture; CBD, Convention on Biological Diversity; CSSIC, Centres for South-South Industrial Cooperation; CSTD, Commission on Science and Technology for Development; CTCN, Climate Technology Centre and Network of the Framework Convention; DESA, Department of Economic and Social Affairs; ESCAP, Economic and Social Commission for Asia and the Pacific; ESCWA, Economic and Social Commission for Western Asia; ETC, Technology Centre of the Economic and Social Commission for Western Asia; FAO, Food and Agriculture Organization of the United Nations; Gates Foundation, Bill and Melinda Gates Foundation; GESAMP, Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection; GIZ, Deutsche Gesellschaft für Internationale Zusammenarbeit; IAEA, International Atomic Energy Agency; ICSU, International Council for Science; IMO, International Maritime Organization; infoDev, infoDev programme of the World Bank; IPCC, Intergovernmental Panel on Climate Change; ITCs, international technology centres; ITPOs, investment and technology promotion offices; ITU, International Telecommunication Union; LDC tech bank and mechanism: technology bank and mechanism for the least developed countries; NCPCs, national cleaner production centres; NGO, non-governmental organization; OECD-NEA, Nuclear Energy Agency of the Organization for Economic Cooperation and Development; OHRLLS, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States; RECP, network for resource efficiency and cleaner production; RET-Bank, renewable energy technology bank of the Asian and Pacific Centre for Transfer of Technology; SPECA, United Nations Special Programme for the Economies of Central Asia; ; Technology4sme, web-based technology transfer facilitation mechanism of the Asian and Pacific Centre for Transfer of Technology (Technology4sme.net); TERI, the Energy and Resources Institute (India); TISCs, technology and innovation support centres; UNCDF, United Nations Capital Development Fund; UNCTAD, United Nations Conference on Trade and Development; UNDP, United Nations Development Programme; UNEP, United Nations Environment Programme; UNESCO, United Nations Educational, Scientific and Cultural Organization; UNFCCC, United Nations Framework Convention on Climate Change; UNIDO, United Nations Industrial Development Organization; UNOPS, United Nations Office for Project Services; UN-W, United Nations Entity for Gender Equality and the Empowerment of Women; WFEQ, World Federation of Engineering Organizations; WHO, World Health Organization; WIPO, World Intellectual Property Organization. WTO, World Trade Organization.
3. TNA country reports are available at the following link: http://unfccc.int/ttclear/templates/render cms_page?TNR_cre (last access Jun. 9th 2014)
4. <http://www.thegef.org/gef/whatisgef>
5. <http://gec.jp/>
6. Abbreviations used in the figure: TNA: Technology Need Assessment; TAA: Technology Availability Assessment; FS: feasibility Study; PP: Pilot Project; MRV: Monitoring, Reporting and Verification process; CB: Capacity Building.
7. Under a project conducted by IGES-KRC in India, the gas price rose from 28Rs/SCM to 42Rs/SCM between the date of FS (Dec. 2012) and the date of actual pilot project implementation (Dec. 2014).

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Chapter 10

Building Capacity for
Environmentally Sustainable
Trade in Asia: Toward a Coherent
Approach

Eric Zusman, Paul Ofei-Manu and Mark Elder

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Key Messages

- Trade-related capacity building (TRCB) is intended to help developing countries address market distortions, supply-side bottlenecks and other constraints created by increased market access and economic integration. To date TRCB has paid insufficient attention to environmental sustainability and cross-programme coordination.
- Strengthening the environmental sustainability components of TRCB programmes can address environmental problems created by expanding markets. This strengthening is urgently needed at the regional level alongside accelerating regional economic integration.
- Aid-for-Trade (AfT), which allocates official development assistance (ODA) for TRCB, could make trade more sustainable in Asia. However, this chapter shows much of the current TRCB landscape is made up of short-term, piecemeal efforts.
- The chapter therefore recommends that international and regional organisations cooperate to assess national environmental needs in TRCB programmes at the regional level and devise a more coherent, forward-looking set of activities.
- Different countries and stakeholders have different capacity building needs. For governments, the proposed assessment framework could include tools and knowledge to assess the environmental impacts of relevant national policies and international negotiating positions. Here, experiences related to Trade and Sustainability Impact Assessments in the European Union and elsewhere could be useful.
- Existing TRCB programmes, especially programmes under the WTO, should strengthen their environmental components, UNEP should play a greater role in strengthening these components and its implementation capacity should be boosted accordingly.

1. Introduction

In the late 1990s, scholars concluded that having sufficient institutional capacities to formulate and enforce environmental regulations was critical to avoiding the potentially adverse environmental effects of expanding international trade and investment (Panyatou

1997). In the years that followed, international organisations and research institutes devoted resources to integrating environmental dimensions into trade-related capacity building (TRCB) programmes. TRCB is intended to help developing countries address market distortions, supply-side bottlenecks, and other constraints that arise when economic integration expands market access. Incorporating environmental considerations into TRCB programmes could address concerns about the potentially negative effects of increasing trade and economic integration on the environment.

Recently there has been a need to make TRCB more environmentally sustainable at the regional level due to the apparent acceleration of regional economic integration. Aid-for-Trade (Aft)—an initiative launched in 2005 that allocates official development assistance (ODA) for TRCB—may help fill this need in Asia. However, environmental components are weak in these efforts, so it is not clear how effective they have been. These efforts may also be hindered by the short-term, piecemeal perspective that frequently pervades ODA.

This chapter reviews the research and history of environmentally sustainable elements of TRCB. It shows that the current TRCB landscape places a limited emphasis on environmental components and lacks the content, delivery, and coordination mechanisms needed to capture the benefits of more sustainable trade practices. Therefore, this chapter recommends that international and regional organisations should enhance the environmental content and evaluate the effectiveness of TRCB in Asia. The WTO's TRCB work under Aft should be a place where these efforts are concentrated. The environmental components should be coordinated by UNEP, and UNEP's implementation capacity should be strengthened. A coherent framework assessing the knowledge needed to formulate, implement and review impacts of environmentally-robust trade policies, trade-sensitive environmental policies and corresponding negotiating positions is desirable. There is already a significant body of research related to Trade Sustainability Impact Assessments in the European Union that could further inform these efforts (Kirkpatrick and George 2006).

The chapter is divided into four sections. The next (second) section observes that trends in both the literature and policy place capacity building at the centre of work on trade, development and environment. The third section evaluates the content, delivery, and coordination of a sample of six existing TRCB programmes and then outlines core elements of a framework for assessing government needs, mainly at the national level. The concluding section reviews the main findings and recommendations and considers the way forward.

2.1 Literature review: economic integration, developmental assistance, and environmental policy

The starting point for this chapter is the three branches of literature that collectively underline the need for strengthening institutional capacities to make trade environmentally sustainable. Before reviewing this literature, it is important to note that the chapter focuses chiefly on the trade of goods and merchandise. The same arguments advanced here also often apply to the movement of capital (both portfolio investment and FDI) and services but these are not the focus of the chapter.

The first branch of relevant literature maintains that trade can be good for economic development; however, institutional and human capacity is required for trade and FDI to deliver on this promise. This set of claims comes from research on trade and development, albeit not necessarily sustainable development. Much of this literature underlined that the positive relationship between trade and development depended on an enabling environment that included sufficient human capital, infrastructure, and supportive institutional and regulatory reforms (Bolaky and Freund 2004).

A second branch of literature suggests that *developmental assistance* could play an important role in building capacities (Hallaert 2010). The positive relationship between trade and aid also found support from research that noted that aid, by itself, could not boost development. When aid was packaged with trade-related capital flows, however, there was often underexploited potential to enhance the developmental impacts of both aid and trade (Cali and te Velde 2011).

A third branch of literature warned of potential negative environmental effects of economic integration and the need for sufficient capacities to avoid these adverse effects. These unwanted effects could come from changes to economic structures and/or the weakening of environmental policies. The concerns over economic structural changes are rooted in beliefs that economic integration and trade-induced growth would lead to increases in the scale of economic production; shifts to more environmentally harmful sectors; growth in the manufacture of pollution-intensive products; and direct environmental harm from trade-related projects. The concerns over the possible weakening of environmental policy were premised on claims that economic openness would unleash cost competitiveness pressures that could entice policymakers to weaken environmental regulations. A related set of fears involved countries adopting international trade or investment negotiating positions that could undermine national environmental policies or environmental treaty commitments (IISD and UNEP 2005).

Some suggested that the best way to avoid negative environmental effects and weakened environmental policies was to gradually calibrate the degree of openness with the ability of national governments to avoid harmful environmental impacts (IISD and UNEP 2005). More concretely, avoiding the environmental costs of integration necessitated providing the knowledge and tools to analyse how economic integration was affecting the scale of economic production, shifts in the economic structure, increases in pollution-intensive products and direct environmental effects from trade-related projects. It would also involve sufficient human and institutional resources to formulate policies and international negotiating positions that would safeguard against those effects. In sum, ensuring that trade delivered environmental benefits would require capacities to analyse possible environmental impacts of trade as well as formulate and implement policies and negotiating positions grounded in that analysis. Completing the circle, environmentally sustainable TRCB could potentially fill this role by helping countries perform and integrate into policy the same kinds of analyses that illustrated the need for TRCB in the first place.

2.2 From Trade-Related Capacity Building (TRCB) to Aid for Trade (Aft)

At its most basic level, TRCB is not meant to build capacities related to environmental policy. Rather TRCB is a central plank of trade facilitation, and trade facilitation is intended to help developing countries address a range of barriers to increasing market access that can surface during economic integration. The earliest efforts to introduce TRCB came during the Uruguay Round that resulted in the establishment of the World Trade Organisation (WTO). In 1997 the World Bank helped establish an Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries (LDCs). As its name implied, this so-called Integrated Framework (IF) was meant to deliver trade-related technical assistance that focused on LDCs rather than all developing countries.

The Doha Round negotiations, which began in the early 2000s, aimed to cover an expanding range of countries and development issues. As the scope of the trade negotiations widened, so too did support for safeguarding against the negative environmental externalities from trade. In 2004, UNEP and UNCTAD formed a Capacity

Building Task Force on Trade, Environment and Development (CBTD). The CBTD was a pioneering effort to identify existing and needed capacities for environmentally sustainable trade. Foreshadowing an issue that will become increasingly important in this chapter, the task force aimed to move “capacity building beyond a ‘meeting-by-meeting approach,’ to become part of a systematic, demand-driven effort” (UNCTAD and UNEP 2004).

The expanding scope of trade negotiations also led to mounting demands from developing countries for firmer commitments on technical assistance and capacity building. These demands were supported by the central claims in this chapter’s literature review: if trade was going to be good for development, developing countries needed capacity to translate the results of trade negotiations into beneficial outcomes. Developing countries wanted the capacity to compete in an increasingly integrated marketplace—and to ensure that they could capture the benefits of integration (Finger 2007).

A key milestone that helped to expand TRCB was the Sixth WTO Ministerial Conference, held in Hong Kong, China in 2005. In the lead up to this meeting, the World Bank proposed to channel resources for this expanded approach through the existing IF, while many other stakeholders desired to establish a new programme to develop potential synergies between trade and ODA (UN Millennium Project 2005; Zedillo et al. 2005; the Commission for Africa 2005, Page and Kleen 2005). Arguments for this broader synergistic approach gained momentum when the European Union, the Organisation for Economic Co-operation and Development (OECD), the G8, the WTO and several major bilateral donors pledged “far more money than the IF had ever received” for the creation of AfT, the aforementioned programme that linked aid and trade (Winters 2007). The same coalition secured agreements from many bilateral donors to dedicate resources from ODA budgets to support TRCB. In February 2006 the WTO established a Task Force to “operationalise” AfT (Halleart 2012).

In the years that followed, TRCB generally and AfT specifically were impeded by the unexpectedly slow progress of negotiations in the Doha Round. The Doha Round suffered numerous obstacles, especially over whether and to what extent a key non-tariff barrier, agricultural subsidies, could be lowered. More generally, the participation of more countries with widely diverging interests as well as the 2008 global economic crisis converged to stall the global Doha round negotiations.

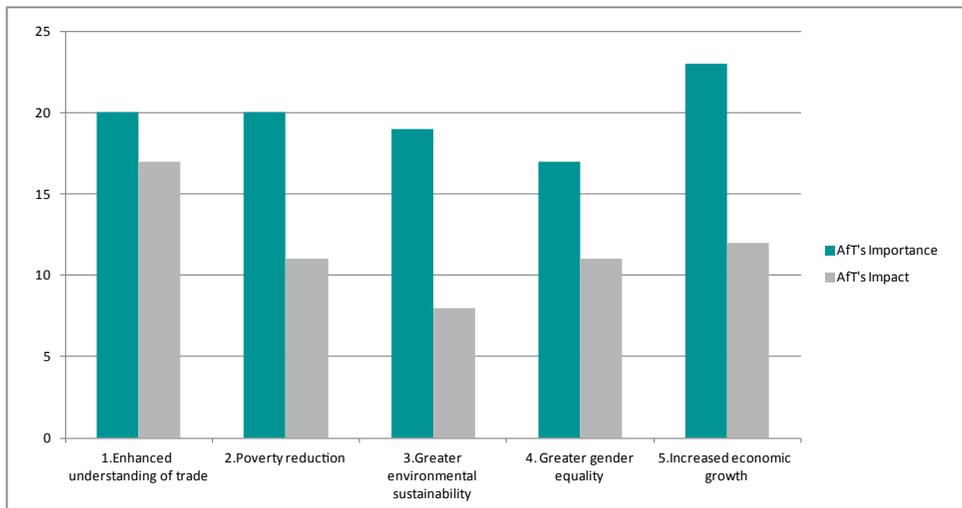
2.3 The challenge: toward a coherent approach to environmentally sustainable TRCB

The WTO identifies four main elements of AfT as indicated in Table 10.1.¹ It is evident that for the WTO, AfT is fundamentally about promoting trade itself, not the environment or sustainable development.

Table 10.1 The four main elements of Aid for Trade (Aft)

Element	Examples
Technical Assistance	Helping countries to develop trade strategies, negotiate more effectively, and implement outcomes
Infrastructure	Building the roads, ports, and telecommunications that link domestic and global markets
Productive Capacity	Investing in industries and sectors so countries can diversify exports and build on comparative advantages
Adjustment Assistance	Helping with the costs associated with tariff reductions, preference erosion, or declining terms of trade

Nevertheless, almost from the inception of Aft, a growing number of issues have been included under its umbrella, including gender equity, poverty alleviation, and, particularly relevant to this chapter, environmental sustainability.² Rising expectations for boosting support for environmental issues under Aft in Asia were demonstrated by the responses of foreign affairs and economic ministries to a questionnaire for the fourth review of global Aft. The results for the ten Asian countries participating (Figure 10.1) reveal gaps in 1) the significance attached to Aft for the above five issues with links to trade (dark coloured bar); and 2) the impact that Aft was having on that issue (light coloured bar). The gap for “greater environmental sustainability” was equal to or greater than that for any of the other assessed variables. A year after this survey in 2009, donors appeared to be taking this message seriously as the amount of resources from Aft with environmental objectives reached nearly 50% of the entire programme.³ These trends look likely to continue in the wake of the 2012 Rio+20 meeting and its conclusion to produce a set of sustainable development goals (SDGs) that will help guide development as a part of the post-2015 development agenda.

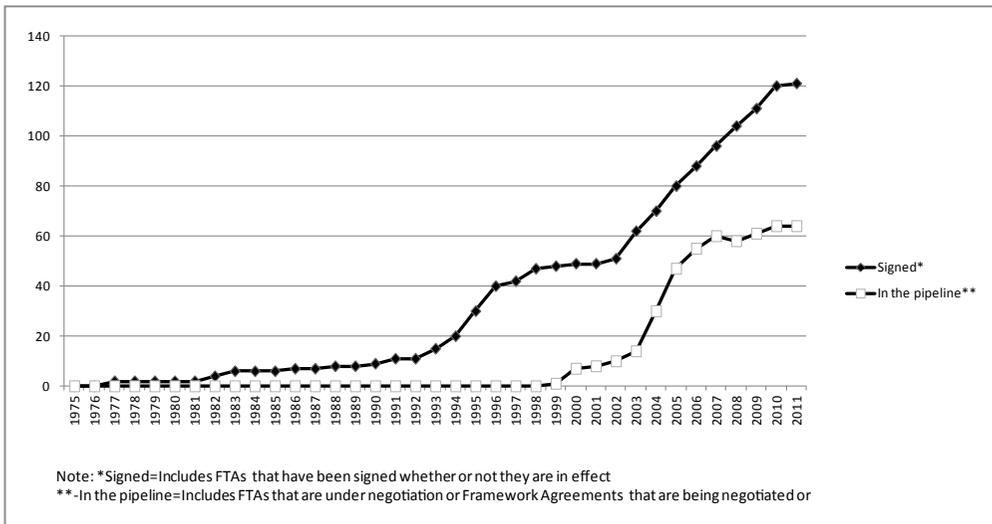


Source: Data extracted from OECD (2012)

Note: Responding countries were given the options of 3=very significant, 2=significant, 1=not-significant, and 0=not applicable. The highest composite score would be 33 if all 10 countries answered 3 (very significant), as demonstrated in the composite scores for those 10 countries.⁴

Figure 10.1 Views of selected Asian countries on the importance and impact of Aid for Trade for different issues

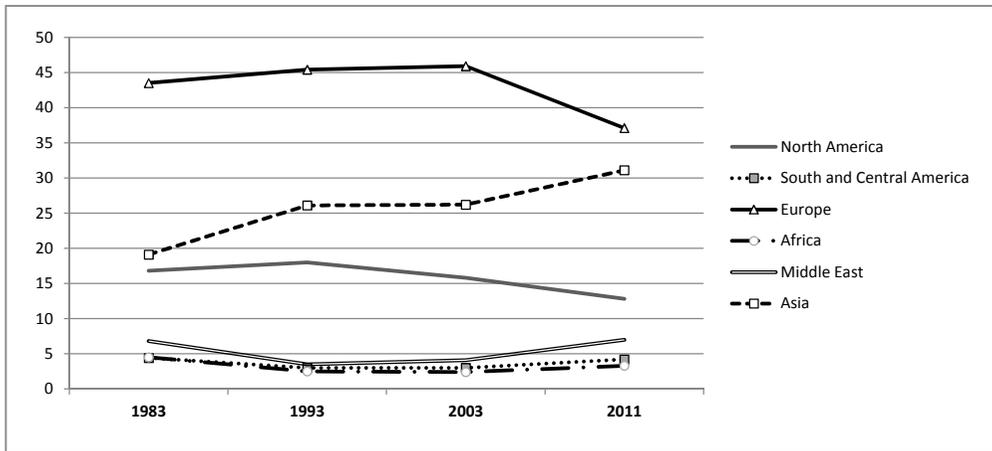
Strengthening the environmental aspect of Aft is especially important in the Asia Pacific. This is partially because the pace of regional integration has not slowed. Even as an expanded global trade agenda has struggled to gain ground, regional trade agreements (RTA) have proven far easier to negotiate than global agreements due to fewer countries and areas of contention. Some of these RTAs have also moved forward with the inclusion of measures aimed at trade facilitation (See Figure 10.2). In the Asia Pacific for instance, about one third of the 102 signed RTAs include trade facilitation provisions (Misovicova 2007). But, similar to trade agreements at the global level, some studies have noted the need for a coherent approach to capacity support in RTAs (Maur 2008).



Source: ADB (2011)

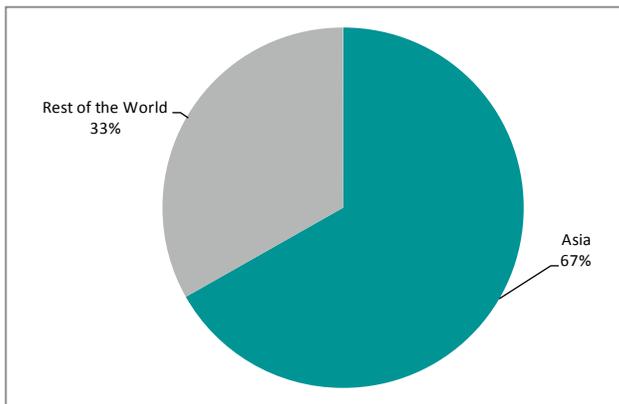
Figure 10.2 Growth in FTAs in Asia and the Pacific

There are several reasons this support is needed at the regional level. These reasons begin with the fact that Japan, Republic of Korea, Taiwan, Singapore, China, and many parts of Asia have capitalised on the trend towards greater regional integration by adopting export-led development models to fuel economic growth. Recent data, for instance, show Asia is currently home to nine out of 10 of the world's largest container shipping ports, and two-thirds of the world's exports from the 50 largest ports pass through the region (World Shipping Council 2014). Moreover, Asia has seen its global percentage of merchandise trade rise from slightly under 20% in 1983 to slightly above 30% in 2011, with a marked upturn between 2003 and 2011 (WTO 2014).



Source: Data from WTO (2012b)

Figure 10.3 Regional shares of global merchandise trade (%)



Source: Data from the World Shipping Council (2014) <http://www.worldshipping.org/about-the-industry/global-trade/top-50-world-container-ports>

Figure 10.4 Asia's share of trade volume from the 50 largest ports in 2013 (million twenty-foot container equivalent units)

A related reason is that Asia's growth model has been far from sustainable. Most of the cities in the region have ambient concentrations of particulate matter (PM) that exceed internationally recommended levels of $20 \mu\text{m}^3$ by several orders of magnitude (WHO 2014). High levels of air pollution are also evident in national assessments that show that eight of the ten countries with the most polluted air are in Asia (EPI 2014) (see also Chapter 7). Moreover, while still at relatively low levels on a per-capita basis, greenhouse gas (GHG) emissions have increased sharply over the past decade, leading to concerns that GHG reductions in some developed countries actually resulted from shifts in energy-intensive manufacturing sectors to developing countries. While some sources argue the region could leverage trade to acquire climate-smart technologies (ESCAP 2011), more work is needed to verify whether this actually happening.

3. Surveying international trade-related capacity building programmes and assessing national needs

3.1 International trade-related capacity building programmes

This section surveys the main TRCB programmes, looking not only at their substantive coverage but also elements related to their design and delivery. This survey provides a preliminary overview of programmes based on publicly available sources relating to the overall landscape; a deeper analysis would be needed to comment on the specific details of any particular organisation's approach. The surveyed institutions were chosen to provide the reader with the 'big picture' of activities in the region. There are many other actors working on trade, development and environment—and increasingly they are non-traditional donors or non-governmental organisations.

Three dimensions of these programmes and activities were examined:

- The first is the extent to which the content covers environmental and sustainability issues in Asia. Many of the TRCB programmes do not have an environmental or regional component.
- The second is programme design and delivery mechanisms. Building capacity is not a linear process. To enhance both individual and institutional capacity requires delivery mechanisms that enable sustained engagement with gradually more advanced learners and learning materials.
- The third is the coherence between different capacity building programmes. Leveraging synergies with other related programmes is important for effectiveness (see Table 10.2).

In general, these existing TRCB programmes seem to mirror the often fragmented ODA landscape in design and implementation, which may be related to the tendency to use ODA resources for TRCB.

World Trade Organization (WTO)

The overall design, delivery mechanisms, and monitoring protocols for the WTO TRCB programmes appear to be the most advanced of the surveyed institutions. Most of the programmes are under AfT. The core of the WTO's 2012–2013 capacity building programme is a progressive learning strategy (PLS). PLS provides for two streams of learning activities and varied levels of progressively advanced knowledge on trade. The first is a generalist stream for policymakers wanting an overview of trade institutions and related processes; the second is an expert stream that targets operational staff needing a detailed understanding of how different processes function. To help reach as many trainees as possible, the programme relies on both in-person training and e-learning. To help strengthen programme delivery, the WTO works to evaluate knowledge prior to, during, and after completion of each level of the programme. The programme also coordinates with regionally- and thematically-focused partners. In Asia, the WTO engages with the Economic and Social Commission for Asia and the Pacific (ESCAP) to cover some of the environmental elements of TRCB (WTO 2012a).

The World Bank

The World Bank's role as an international development bank and architect of the IF programme has influenced the resources devoted to TRCB. The World Bank provided USD 3.1 billion of concessional interest-free loans and grants to support trade and policy regulations, economic infrastructure, and building productive capacity such as helping to modernise customs (World Bank 2013). The World Bank has also made extensive efforts to reach trainees; 48 country- and region-based trade-related training sessions were held resulting in an average of 14,000 participant training days annually from 2006 to 2007. In addition, the World Bank has attempted to tailor training to low- and middle-income countries. Examples include China and Viet Nam receiving training on WTO accession, Thailand on FTA negotiating experiences, and Bangladesh on services trade (World Bank 2013). While offering a strong commitment to countries in Asia, a review of publically available information suggests that the overall design and contents, and coordination with relevant institutions with thematic expertise on environmental issues are not as developed as the WTO (World Bank 2013).

Asian Development Bank (ADB)

Much of ADB's work on TRCB began in 2004 when it became involved in the Trade Finance Facilitation Programme (TFFP) in Asia. In recent years, it has employed two basic approaches to TRCB. The first has involved working with ADBI and ESCAP to offer training courses and seminars covering free trade agreements (FTA), rules of origin, sanitary and phytosanitary (SPS) measures, and trade facilitation and logistics to 700 government and private sector representatives. The second consists of information dissemination and knowledge management through, for instance, a working paper series on trade related issues or trade indicators and data from the Asia Regional Integration Centre (ARIC). While coverage of environmental issues is limited, the ADB appears to play an important coordinating role since it serves as the secretariat for the Regional Technical Group on Aft for Asia (ADB and WTO 2011). A brief review of publicly available information suggests that the ADB has a generally well-designed capacity building programme, though limited content related to the environmental implications of trade integration. Therefore room exists for greater coordination with institutions possessing knowledge of the environment (ADB and WTO 2011).

United Nations Environment Programme (UNEP)

As mentioned previously, UNEP has pioneered efforts to build capacity for environmentally sustainable trade at the global level. These efforts have been led by its Economics and Trade Branch (ETB), which include a capacity building programme of activities to support and strengthen the integration of environmental objectives into trade and development policies since the early 1990s. The TRCB approaches used by UNEP include 1) promotion of multi-stakeholder participation; 2) empowering institutions and local experts to develop strategies, methodologies and plans which are relevant and adaptable to each country's needs and priorities; and 3) capacity building for integrative assessment of environmental and socio-economic impacts of trade liberalisation at the country level (UNEP 2002). UNEP also 1) publishes and disseminates assessment and policy development tools; and 2) organises seminars and meetings directed at fostering collaboration and coordination among aid agencies, regional organisations, non-governmental organizations, intergovernmental organisations and policy research institutes. In recent years, UNEP has sought to link its support for a green economy with TRCB (UNEP 2012).

Economic and Social Commission for Asia and the Pacific (ESCAP)

ESCAP's approach to TRCB is broadly aligned with promoting socially inclusive and environmentally sustainable growth in Asia. Part of that mission entails providing knowledge and capacity building tools to institutions and governments in Asia (ADB 2011). Its hands-on approach to capacity building aims to leverage learning and knowledge sharing networks among researchers, technical experts, and policymakers. The most notable example is its technical assistance programme, which ESCAP has continued to modify in coordination with the WTO since its launch in 1999 (WTO 2010). ESCAP further hosts a series of multi-stakeholder dialogues with researchers and policymakers called the Asia Research and Training Network on Trade (ARTNeT). It also offers a series of TRCB delivery tools including 1) the Pacific Trade and Investment Agreements Database (APTIAD) that help users compare regional trade agreements with a view to greater integration; and 2) the Global Compact ESCAP that is specifically targeted at private sector actors with an interest in sustainable development (UNIDO 2013).

United Nations Conference on Trade and Development (UNCTAD)

UNCTAD has been one of the leaders in TRCB activities. UNCTAD's TRCB strategy stems from its core functions of addressing national development strategies while simultaneously acting as the UN hub for integrating trade and development issues. As a member of the WTO Advisory Board on AfT, UNCTAD was involved from the beginning in formulating key aspects of AfT, including its definition as well as components and modalities for implementation (UNCTAD 2008). UNCTAD's approach to AfT works on demand-driven requests from beneficiary countries. It also seeks to act as a think tank to assist with the formulation and support for implementation of country-specific regional AfT programmes, intergovernmental policy dialogues, research and policy analysis and consensus-building. It further aims at building regional coordination/cooperation mechanisms to promote regional institutional development. UNCTAD serves on a few UN trade committees and consequently contributes to enhancing coordination and coherence of AfT activities among UNEP, UNDP and others (UNCTAD 2008).

Other institutions

There are several other international and bilateral programmes active in the TRCB space that could be added to this assessment. For example, IF, mentioned above, includes work by the International Trade Commission (ITC), United Nations Development Programme (UNDP), and the International Monetary Fund (IMF). Just as importantly, the role of non-traditional donors is growing, and appears likely to increase in the future.

Table 10.2 Survey of selected Aft and trade-related capacity building programmes

Organisation running the programme	Degree of content related to environment and sustainability issues	Programme design	Coordination/integration mechanism
WTO	<ul style="list-style-type: none"> Limited direct coverage of environmental issues 	<ul style="list-style-type: none"> Progressive learning strategy (PLS) Two streams targeting generalists and experts Three levels of progressively more advanced knowledge Both in-person and e-learning training classes 	<ul style="list-style-type: none"> Coordinates with relevant organisations (ESCAP)
The World Bank	<ul style="list-style-type: none"> Limited direct coverage of environmental issues 	<ul style="list-style-type: none"> Commitment to meeting demand driven requests Ranges from training to technical assistance Training workshops Dissemination of knowledge products 	<ul style="list-style-type: none"> No information
ADB/ADB I	<ul style="list-style-type: none"> Limited direct coverage of environmental issues 	<ul style="list-style-type: none"> Organising trade policy training courses Information dissemination and knowledge management (mostly for academics) Training workshops Dissemination of knowledge products 	<ul style="list-style-type: none"> Serves as Secretariat for the Regional Technical Group on Aft
ESCAP	<ul style="list-style-type: none"> Some coverage of environmental issues 	<ul style="list-style-type: none"> Provides technical assistance on regional implications of Doha round Serves as a platform for networking and knowledge sharing. Hosts Research and Training Network on Trade (ARTNeT) Organises workshops Provides tools for environmentally sustainable and socially inclusive trade 	<ul style="list-style-type: none"> Coordinates with relevant organisations (such as the WTO)
UNEP	<ul style="list-style-type: none"> Focus on sustainable development, green trade, and green economy 	<ul style="list-style-type: none"> Provides policy support on environmental issues and creates a platform for policy dialogue User manuals Supports multi-stakeholder workshops, meetings and seminars 	<ul style="list-style-type: none"> Seeks to strengthen coordination with relevant organisations
UNCTAD	<ul style="list-style-type: none"> Limited direct coverage of environmental issues 	<ul style="list-style-type: none"> Provides support for implementation of country-specific Aft programmes Supports intergovernmental policy dialogue, research and policy analysis and consensus building Provides policy tools such as a trade database 	<ul style="list-style-type: none"> Promotes regional coordination/cooperation mechanisms

Source: Authors

Three key points emerge from the overall picture presented in Table 10.2. First, coverage of environmental issues is limited in the programmes managed by the WTO and the multilateral development banks. Only UNEP, and to some extent ESCAP, emphasise environmental aspects.

Second, to a certain extent different organisations appear to be struggling with their own in-house capacity to meet diverse and complex needs. More capacity (both financial and human resources) for capacity building is needed to accommodate the pairing of trade with a broader range of development concerns, including the environment.

Third, there are many ongoing activities but limited coherence and coordination in substance and delivery. There are inherent difficulties in coordinating different international organisations with diverging mandates, and this happens in many areas, not just TRCB. To a certain extent, the lack of coordination is attributable to the decision to integrate aid and trade. ODA is frequently criticised for a lack of coordination. AfT could potentially be subject to the same criticisms that are made of ODA programmes. This is especially true of the insufficient coordination between aid programmes of different donors. This lack of coordination may exhaust the already scarce capacities of the recipient countries that aid flows are intended to strengthen. These concerns have gained renewed emphasis with the proliferation of non-traditional aid donors and capacity building programmes (Kharas 2007). These concerns are especially salient in the field of environmental policy, given the increasingly specialised subject matters and target audiences.

In some cases, however, specific programmes appear to have a sound structure. The review of information for the WTO's PLS programme, for instance, suggests it is not only well-conceived in terms of overall design and delivery but also has in place protocols for measuring effectiveness (WTO 2012a). Moreover, the programme is meant to work with regional or environmental organisations to fill any gaps in substantive knowledge (e.g., most notably with ESCAP). Some organisations have also instituted admirable practices to help fill those gaps (WTO 2010). In another admirable practice, UNCTAD has built needs assessments into its programmes, to understand the demands of participating countries before delivering capacity building.

At the same time, if capacity building programmes are going to address the three potential need areas outlined in section 3.1, then the division of labour could be improved. UNEP is arguably the organisation best positioned to lead this improvement, since it is the only one with the environment as its central mandate. The challenge for UNEP is whether it has sufficient capacity to build capacities for national governments. Especially in UNEP regional offices, staffing and funding may be a challenge.

3.2 Trade-related capacity needs

The previous section provided an overview of current supply side of TRCB (with a focus on AfT). This section focuses on the demand side and possible needs. Capacity building needs can vary a great deal across stakeholders and countries. One could envisage very different needs for a country that is just beginning to open markets compared to one that is deeply integrated into a global economy. Further, there are many potential recipients of capacity building. For instance, some types of capacity building can help firms develop eco-friendly businesses or civil society organisations to track flows of green products. This chapter will not focus on this kind of capacity.

Instead, this chapter focuses chiefly on the capacity of trade and environmental officials and how to provide them with the knowledge needed to formulate and implement more sustainable-trade policies, trade-sensitive environmental policies as well as negotiating positions on trade and economic partnership agreements based on such analysis (many of the current programmes appear to focus on trade negotiations). It should be noted that many of the skills associated with these need areas have already been developed for use in the European Union to incorporate environment and sustainability safeguards into trade and investment agreements (Kilpatrick and George 2006). In reviewing the literature on trade and environment (in section 2.1), three sets of needs for governmental officials emerge regarding TRCB.

The first set includes basic information on trade/investment and environmental issues for government officials. This includes basic information on existing agreements, related domestic policies, international negotiating processes and procedures, and possibly domestic policy coordination procedures. Environment ministries typically know very little about the history or background of trade negotiations and processes, or the issues related to specific economic sectors that are usually central to the negotiations. This makes it very difficult for them to participate effectively in domestic discussions on a country's position, and even less so in international negotiations. Conversely, trade and economic ministries, which are typically in charge of trade and investment negotiations, may have little information about environmental issues or how they are connected to trade and related negotiations.

The second set includes the ability of governments to evaluate the environmental impacts of trade. This could focus more narrowly on environmental impact assessment, or more broadly on sustainability impact assessment as practiced by the EU, and would include ex-ante assessments of possible future trade and investment agreements as well as ex-post assessments of existing agreements. Government agencies do not necessarily need to know how to conduct this analysis themselves, which could be outsourced to academics or consultants familiar with modelling frameworks to assess the potentially harmful scale, structure, sectoral and direct and indirect effects covered in section 2.1. Existing methodologies could be used to address possible questions, such as identifying what are the environmental impacts of boosting steel exports on air, water and soil quality. After the basic capabilities are established, multi-stakeholder involvement in assessments could be incorporated.

The third set of capacity needs includes the ability to use this knowledge to inform the government's position on trade-related negotiations (especially relating to environmental clauses and dispute resolution mechanisms), implement trade-related agreements in an environmentally sustainable manner, and develop more effective environmental policies by taking trade implications into account. It is particularly important to develop capacity for environment ministries and agencies, since they often have very little knowledge of issues related to trade or specific industries. However, it may also be useful to build this capacity together with other relevant ministries, including foreign affairs, since crafting relevant negotiating positions and policies will likely require multi-sector cooperation. Economic sector and foreign affairs ministries are often not familiar with environmental issues or the importance of addressing them in trade and investment agreements. Further, capacity will not only be needed for establishing new policies but also for enforcing existing ones; environmental ministries in particular may need more human and financial resources to gain compliance with existing laws and regulations. It is especially critical to ensure that international trade and investment agreements do not undermine national environmental policies or existing commitments to multilateral environmental agreements (Prowse 2002).

It should be emphasised that these knowledge areas include requirements for both assessing needs and informing policymaking. It is therefore not meant to impose a one-size-fits-all approach on countries. As noted previously, both countries' needs and the contents of the three types of knowledge are likely to vary from one country to the next. At the same time, it is also intended to provide international and regional organisations with a simple guide that can be used to tailor capacity building programmes for different countries.

4. Discussion and conclusions

This chapter has shown that although there is much to gain from integrating environmental considerations into TRCB in Asia, these gains may be going unrealised. There are three main reasons. First, environmental and sustainability aspects are not sufficiently emphasised in many of the programmes. Second, the organisations conducting TRCB themselves do not necessarily have sufficient capacity, especially regarding environment-related contents. Third, the organisations offering the TRCB lack a coherent approach to the content and provision of these programmes. The chapter then surveyed several of the main existing TRCB programmes conducted by international organisations and multilateral development banks, and outlined three main types of broad-based knowledge that should be provided through TRCB.

It is nonetheless worth highlighting that the lack of coherence with existing TRCB programmes is not the only factor behind the slow progress in building up the environmental and sustainability aspects of TRCB in Asia. The extent to which national leaderships, trade ministries and economic ministries actually support environmental sustainability aspects is not entirely clear, and not easy to determine; in any case, it is beyond the scope of this chapter. Further, recent studies have shown trade generally does not affect even core policy concerns such as poverty directly but rather indirectly through various channels (Higgins and Prowse 2010). Though this research does not include environmental aspects, it is likely that there are also various indirect channels through which trade affects environment. As such, the overall potential for AfT to promote both environmental protection and poverty reduction is limited and the effects of mechanisms to incorporate either goal into trade reduction may also be indirect. Nevertheless, the knowledge resulting from the analysis to be conducted as a result of the capacity building recommended by this chapter could help clarify the benefits of environmental and sustainability aspects of TRCB for national leaders and trade and economic ministries, as well as encourage their support for it.

Strengthening the environmental component of TRCB should involve two main elements. First, UNEP should be responsible for overall coordination of the environmental component and expand its efforts, since it is the most experienced global international organisation related to the environment. Still, to do so, UNEP's own capacity (both financial and human resource) would need to be strengthened. Second, UNEP should work more actively with existing TRCB frameworks. If possible, it is better to use existing frameworks rather than create new ones. The WTO and other organisations working in this area should mainstream the environment into their TRCB programmes. The WTO and other frameworks lack sufficient expertise on the environment, so they would need to make more efforts to include other organisations with appropriate expertise such as UNEP to implement it.

Specifically regarding environment or sustainability impact assessments of trade agreements, this is a specialised technical skill that may be difficult for developing countries to develop; even in the EU they are typically outsourced to specialised consultants. This could also be done in the Asia Pacific. If specific regional experience is considered desirable, then such capacity could be developed within an international organisation in the region.

Besides TRCB, there is a wide range of other capacity needs in the Asia Pacific. In the long run, capacity development for TRCB and other environment/sustainability areas could be included in a regionally centred environmentally capacity building hub. (Elder and Olsen 2012). The proposed hub could also reach out to consumers and other constituencies

not featured in this chapter, such as businesses who could affect and be affected by developments in trade and environment policy. The hub may also serve as a regional platform for consolidating and disseminating the knowledge needed to mainstream environmental safeguards into regional agreements and institutions.

Moreover, while this chapter has focused chiefly on the activities of international organisations, it would be useful for countries themselves to consider their own internal capacity building—for instance, instituting regularly scheduled exchanges between environmental and economic ministries within the country or with related academic and research institutes.

In the medium to long term, the example of the Southeast Asian Ministers of Education Organisation (SEAMEO) could be a useful model for a regional approach to creating a foundation for moving away from a donor-driven focus to a more country-led approach to capacity building. SEAMEO has served as a regional organisation for promoting understanding and cooperation in education, science and culture for nearly 50 years (see Box 10.1). SEAMEO has 21 specialist institutions or centres located in the member countries that implement various capacity building programmes. In the areas of education, science, and culture, these currently include 1) technical and scientific expertise, 2) governance and management skills, 3) collaborative partnerships and networking skills, and 4) research, creativity, and innovative skills. Recently it has focused on climate change education, environmental awareness and activism, and eco-school projects (SEAMEO 2011). While SEAMEO facilitates contacts with external institutions and agencies to cooperate with its member states, it is governed by the SEAMEO Council which comprises Ministers of Education of member countries. The setting up, management and funding of most of these centres are the responsibility of the host country.

Environment ministers could consider a similar arrangement, building on existing environment ministers meetings—for example the ASEAN Ministerial Meeting on Environment, or broader ones like the Forum of Ministers and Environment Authorities of Asia Pacific, or APEC. Alternatively, environment ministers in Southeast Asia could choose to work in collaboration with SEAMEO's existing framework.

Box 10.1 ASEAN SEAMEO Capacity Building Centres for Sustainable Development

The Southeast Asian Ministers of Education Organisation (SEAMEO) was established in November 1965 by 11 Southeast Asian countries. It is a regional intergovernmental organisation focused on promoting regional understanding and cooperation in education, science and culture. As depicted in the figure below, SEAMEO comprises 21 specialised regional centres with subject matter expertise. Three are briefly described below.



- **SEAMEO Regional Open Learning Centre (SEAMEOLEC):** its overall strategy is to enhance the competency of university students, school teachers and university teachers through organised workshops, etc. Course contents include climate change, green schools and water sanitation. Teaching methods include use of face-to-face interaction, individual and group practical work, project evaluation and online feedback. Learning tools include downloadable electronic books that are accessible via several devices. Feedback on the web/blogs from graduates is one method of programme performance evaluation.
- **Regional Centre for Quality Improvement of Teachers and Education (QITEP):** its overall strategy is to use lecturers and practitioners as trainers of graduate teachers of secondary schools based on both formative and summative assessments. Topics covered include climate change, waste management, biodiversity, ecosystems services and conservation. Inquiry-based learning is one of the favoured teaching methods, and a post-training questionnaire is used for measuring programme performance.
- **Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA):** its overall strategy is providing capacity building on cross-cutting competencies like project development and management with a focus on middle to senior researchers, academics and decision-makers in agriculture and rural development. Teaching methods include seminar-type presentations, simulations and exercises, participatory methods, and online courses using video lectures delivered by a distance learning university. Ways of measuring performance include use of formative and summative evaluative instruments and post-training questionnaires.

Finally, it should be noted that if these TRCB programmes are to be appealing for developing countries, then guarantees that such programmes will not take resources away from other forms of ODA should be provided. A frequently voiced concern is that such efforts are not additional; rather they are simply a relabelling of aid originally intended for another purpose. There is a long history of discussion regarding additionality, predictability and conditionality of aid. These arguments should be revisited if international organisations plan to build not only capacity but trust for environmentally sustainable trade.

Notes

1. "Aid for Trade Fact Sheet" https://www.wto.org/english/tratop_e/devel_e/a4t_e/a4t_factsheet_e.htm.
2. It is important to point out that the IF has continued to exist in parallel with AfT, retaining a narrow focus on LDCs and trade facilitation narrowly conceived.
3. This has understandably raised concerns about additionality of aid flows. These concerns will be discussed in greater detail at the conclusion of the paper.
4. It is not readily apparent which staff in the respective countries were responding to the survey and how representative their views were of national governments. This evidence should therefore be treated as preliminary.

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Chapter 11

Conclusions: Steps to Greening Integration

Magnus Bengtsson and Satoshi Kojima



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This book illustrates how countries in Asia could benefit from green integration—in other words, closer, better coordinated collaboration at the regional level to protect the environment and address social issues. In order to live up to the designation ‘Asian Century’ attached to the region, it must, as a whole, form new development models that realise healthy ecosystems, better-managed natural resources, cleaner environments and more social cohesion. These needs become more and more pressing the more governments fail to take action due to unfounded concerns over strengthened environmental and social policies weakening international competitiveness. The regional level could be seen as an arena in which mutual cooperation could lead to joint solutions. To entice governments to enter such space the final chapter offers practical steps that can be taken in the direction of green integration.

1. The case for greening integration

Asia is facing a multitude of challenges that will likely undermine its prospects for future prosperity. Many parts witness climate-related disasters of increasing frequency and severity. Rising air, water and soil pollution, destruction and shrinkage of natural forests and other ecosystems offer little in terms of societal value; land is becoming less productive and fertile soil is disappearing; freshwater resources are being consumed by multiple sectors; and fish stocks are fast vanishing. These trends, which are anything but abstract, already affect the lives of millions, threatening health, livelihoods, and overall security, with the low income groups being the worst hit. The deteriorating environment has even begun to impact on economic growth itself, as seen in the agricultural sector where air pollution and water shortages are causing significant and increased losses in production.

Many of these challenges are underpinned by rapid urbanisation and industrialisation, which have drastically transformed the lives of hundreds of millions in just a few short decades. These processes have also simultaneously separated humans further from natural systems, and created a false reality in which we freely deny nature as the key component to our existence, in which we blindly proceed without care for the planet’s life support systems.

Inequality is rising, and human rights abuses and poor labour conditions remain common. Whilst Asia is booming and many enjoy improved material standards, the benefits are not

felt by all. This is true for the region as a whole as well as for individual countries. Wealthy countries face social issues such as shrinking workforces and rising older generations requiring care.

The rich-poor gap has grown in many countries, creating a winner-loser mentality which threatens to undermine social cohesion and political stability. On a basic level, the region's economic success is also linked with human costs of a very direct kind, with communities being chased from land bestowed by ancestors, labourers forced to work under dire conditions under threat of human rights violations, and with inadequate occupational health and safety measures.

Responding to these multiple challenges requires new formulas for progress. Governments, leaders at various levels, and national elites in Asia are becoming aware of the need to make the region's development more robust and inclusive, that the conventional development model needs an overhaul to bring it into the 21st century. Efforts are being made in line with these budding insights, but the more game-changing actions that could usher in an era of sustainability are still lacking.

One obstacle is competition. In a globalised economy where governments, together with the key players believe that comprehensive sustainability policies interfere with trade and short-term profits, and that strong policies and effective enforcement would disadvantage domestic businesses, discourage foreign investors, slow down economic growth, and increase unemployment, it is not surprising only limited progress can be made. Further, there is no empirical evidence in support of such claims. Governments also fear to tread with untested policies. Acting in concert at the regional level, based on a vision of green integration, for example by establishing regional minimum standards and rules, would help overcome the above mindset and offer encouragement to governments to try new solutions.

The region already hosts a large number of mechanisms for international cooperation and integration, but ASEAN, APEC as well as RCEP and TPP are mainly focused on trade, investments and economic growth; environmental protection and social safeguards generally receive only token mention in these processes and fora. Such priority setting is short-sighted and ignores the many synergies that exist between environmental protection and social betterment—such as the huge potential for green jobs and the role of ecosystem protection for poverty alleviation. As a result, present regional integration efforts do not address the challenges outlined above and thus are not well tuned to promoting the long-term interests of the region.

Governments in Asia remain somewhat ambivalent to regional integration. Despite being involved in a large number of cooperation and integration processes and welcoming common strategies and declarations, they generally shy away from binding agreements, meaning many of the regional activities in reality have little impact at national and local levels. Nonetheless, regional integration is set to deepen in the decades ahead, which will gradually strengthen regional institutions and harmonise more rules and standards. Such developments are already envisaged, for example in the ASEAN Charter.

While integration processes take firmer hold and exert more influence over time, interdependencies within the region, as well as the related challenges, will continue to demand international coordination. Countries in Asia therefore need to take proactive steps and not squander the opportunities that exist at the regional level, in line with the vision of green integration. Doing so will provide stepping-stones to stronger international agreements in general, including at the global level, reflecting Asia's increasingly important economic and geopolitical role.

2. Three elements of greening integration

This book presents studies in seven areas in which regional integration intersects with sustainable development, and where there is potential to strengthen the synergies between the two. All chapters analyse current challenges and provide recommendations on how green integration could help address these more effectively, which can be summarised under three headings: (i) make trade and investment work for sustainable development, (ii) strengthen and repurpose regional institutions, and (iii) build capacity at national and sub-national levels.

(i) Make trade and investment work for sustainable development

Trade liberalisation is at the vanguard of existing and emerging regional integration efforts. This book underscores the importance of ensuring that increasing volumes of trade and investment do not degrade the ecological systems upon which current and future economic prosperity and human wellbeing depends and do not degrade the social fabric by increasing income disparities, lowering working conditions, or threatening livelihood opportunities of vulnerable groups. However, it is also recognised that economic integration can help further sustainability objectives. Making trade and investment work for sustainable development involves two main tasks: (i) to establish effective mechanisms for safeguarding against the sustainability risks associated with increased trade and investments, and (ii) to design trade agreements and economic partnerships that fully exploit the sustainability opportunities of increased trade and investments—for example by facilitating trade in more sustainable products and services.

A general recommendation related to sustainability safeguarding is to take a cautionary approach to market liberalisation for countries with low governance efficacy and issues with transparency and accountability, as neglecting this could cause serious and irreparable harm to these countries, their natural environment and their peoples.

The following specific recommendations, drawn from the studies presented in this book, indicate how trade agreements and economic partnerships can be made more sustainable. They should be considered by governments that negotiate such agreements.

Sustainability Impact Assessments of trade and investment agreements. Countries should make it mandatory to assess the potential impacts of economic integration agreements from a sustainability perspective (Chapters 3 and 7). This is still not regular practice in Asia. Many countries still lack the capacity to conduct such assessments, so pooling expertise at the regional level could prove beneficial.

Preferential treatment for sustainable products. Trade agreements should include mechanisms such as preferential tariffs to promote goods and services with high sustainability performance. The Environmental Goods and Services (EGS) list developed by APEC could act as a good basis. Since trade tariffs are already low or non-existent for many products, agreements should consider including other forms of facilitation mechanisms for goods and services that meet high sustainability standards (Chapter 9).

Regional information tools. Information tools that identify sustainable products and processes should be established to guide decisions of businesses, consumers and government entities (Chapter 6). Where national systems already exist, these could be linked up and harmonised regionally. However, care is needed to prevent national standards being eroded by regional harmonisation—by enabling national systems to override regional systems.

Support for sustainable public procurement. New and revised trade agreements and economic partnerships should allow for, ideally encourage, sustainable procurement by national governments and other public entities. Trade rules that may prevent or discourage public buyers from using environmental and social criteria for their procurement should be avoided (Chapter 5).

Sustainability reporting. All businesses above a certain size should be required to produce public reports on their environmental and social performance on a regular basis (Chapter 5). This should apply to both private and publicly owned enterprises. Regionally harmonised reporting formats would streamline this process and reduce compliance costs.

Greening of finance. Banks and other financial institutions should be required to establish and apply environmental and social criteria for lending (Chapter 5). They should also be obliged to disclose comprehensive information on the sustainability aspects of their investments, including for example exposure to financial risks associated with fossil fuels and climate change.

(ii) Strengthen and repurpose regional institutions

Several chapters of this book (especially Chapter 4 on ASEAN and Chapter 8 on water management in the Mekong region) identify the need for strengthened, more capable regional institutions, equipped with adequate financial and other resources, appropriate staff and mandates that allow them to play a proactive role in agenda-setting, coordination, and monitoring and evaluation. Regional institutions should embody environmental protection and social equity as part of their mission, their mandate, and within all their work programmes and projects. Strengthening the region's institutional architecture also calls for better exploiting synergies between existing organisations and frameworks in order to reduce duplication and fragmentation.

In order for stronger regional institutions to emerge, countries in the region need to partially relinquish national sovereignty. Fears over national authority being eroded by regional integration in a globalised economy obscure the fact that regionally coordinated initiatives can enable governments to regain some *de facto* power, to regulate in the public interest. Stronger regional organisations, with more ownership from Asian countries themselves and less dependence on donor priorities, would also strengthen the region's voice in global policy fora.

Partnerships between regional institutions with specific expertise in Asian circumstances and global organisations with technical expertise in other world regions is a model with significant potential.

This book identifies a number of roles to be played by regional institutions in the context of greening integration and where strengthened capacities, additional resources, and revised mandates are needed, including the following:

Monitoring and evaluation. Regional institutions can play an important role by monitoring and assessing environmental and social characteristics across the region. This already takes place but requires upgrading—to analyse trends and generate scenarios and forecasts in particular. Peer-to-peer reviews between countries would allow policy frameworks and specific institutional settings to be compared.

Research and knowledge brokerage. Regional institutions can also support countries through research and knowledge brokerage. The Economic Research Institute for Asia (ERIA) provides a model for joint research at the regional level, and experiences gained therefrom could help in forming new research institutes. Effective knowledge brokerage requires two-way communication to both avail stakeholders of the relevant scientific knowledge and identify salient knowledge needs in the region, and to link scientific expertise with Asian decision-makers to enable dialogue and joint learning.

Sharing of good practices. Regional institutions can play an important role by facilitating the sharing of good practices, such as via websites and newsletters as well as more directly through site visits, staff secondment and training. Compliance and enforcement of environmental laws and regulations are key here—areas that challenge many countries. South-south and ‘triangular collaboration’ practice sharing should also be considered.

Capacity building. Regional institutions are in a good position to coordinate capacity building on a regional or sub-regional basis and in collaboration with institutions from outside the region. This can follow the ‘hub and spokes’ model, as used in SEAMEO, where thematic regional centres engage expertise from individual countries and draw from each country’s strengths and experiences (Chapter 10).

Regional funding mechanisms. Regional institutions can host targeted funding mechanisms to support sustainable development and to complement existing large-scale regional banks and funds. Potential areas abound for financial support, such as in developing and scaling-up sustainable business models and technologies (Chapter 9) and supporting the attainment of Sustainable Development Goals (Chapters 4) by individual countries.

Leadership for new regional initiatives. Regional institutions with stronger mandates means regional collaboration and new initiatives can be tackled more proactively—joint plans for shared river basins and ecosystems as well as common technical and administrative standards for sustainability could be instigated faster, for example. Establishing common minimum standards is a cornerstone of green integration (e.g., Chapter 7).

(iii) Build capacity at national and sub-national levels

Enhanced mechanisms to strengthen capacity at national and sub-national levels are the key to improved regional collaboration and integration, and hence a prerequisite for green integration (Chapter 10). Countries would be more willing to enter into ambitious international agreements if effective, well-resourced regional mechanisms were on hand to improve their capacity, and the lack of such (especially in governments and public institutions and other actors) is a major impediment to sustainable development. Capacity constraints should therefore be addressed urgently, bearing in mind much time will be needed to ensure sufficient capacity is in place across the region.

This book identifies broad areas where governmental and public institution capacity needs to be bolstered:

- In the ability of governments at national and sub-national levels to effectively engage key stakeholders, to formulate and implement appropriate policies, and to monitor and evaluate policy outcomes;
- In facilitating the mainstreaming of environmental protection into all major policy areas;

- In enabling integrated planning and policy-making across traditional policy areas and economic sectors;
- In enabling governments to play active roles in regional and global policy processes, thereby realising the potential benefits of these processes more effectively.

3. The need for broad-based dialogue

This book makes the case for green integration and shows how it could be pursued but it does not offer definitive answers. Its chief goal is to stimulate broader, more active discussion on how regional integration could contribute to sustainable development in Asia. It interrogates the actual development ethos underpinning current processes, and offers an alternative vision—one of shared human wellbeing in harmonious coexistence with nature.

The themes mentioned above will gain more relevance when the ASEAN Economic Community comes into being at the end of 2015 and in light of RCEP, TPP and similar partnerships. Concurrently, governments are now negotiating a set of global Sustainable Development Goals (SDGs), expected to be adopted in September 2015. The launch of this new development agenda for the period 2016–2030 thus offers a unique opportunity for Asian countries to ponder on the direction in which they are headed, to formulate new objectives and to undertake reforms of policies and institutions. It is also an opportunity for them to re-examine their regional institutions and collaborative frameworks—to review whether their objectives and mandates are aligned with the SDGs and to make them more fit for purpose.

While all these processes may appear to be only of a technical nature fit for specialists and government officials, they actually have direct implications on how countries develop and will affect the lives of every single person throughout the region. Everyone needs to know what governments are negotiating on or agreeing to on their behalf, which heightens the need for transparency in these processes. Here, the media's role will be to keep the public informed and to closely scrutinise those in power, as all levels of society need to participate in the key decisions.

In conclusion, there is a need for broader democratic deliberation on what regional integration needs to deliver. The authors of this book hope they have succeeded in enlivening discussion on how sustainable development can be placed at the very core of Asia's integration, to ensure that these processes provide greater benefit for all in the region, not only in the short term but also for the future.

ISBN 978-4-88788-187-7



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