Low-Carbon Green Growth in Asia
Policies and Practices

Asia is at a crossroads. As the world’s most populous region, with high economic growth, a rising share of global greenhouse gas emissions, and the most vulnerability to climate risks, Asia must be at the center in the global fight against climate change. Simply stated, Asia’s current resource- and emission-intensive growth pattern is not sustainable, with further gains in human well-being constrained by the environmental carrying capacity. This study recognizes low-carbon green growth as an imperative—not an option—for developing Asia.

The region has taken on board the message that it must change, and it is starting to move toward low-carbon green growth. Many emerging economies have started the shift toward a new sustainable development paradigm that brings competitiveness to its industries and serves growing green technology markets.

The goal of this study is to share with developing nations the experiences of advanced Asian economies and the lessons they have learned, while widening and deepening actions in both. The study reviews and assesses the low-carbon and green policies and practices taken by Asian countries while identifying gaps and examining the new opportunities for low-carbon green growth.
Low-Carbon Green Growth in Asia: Policies and Practices

Executive Summary
About this volume

This booklet is an executive summary of *Low-Carbon Green Growth in Asia: Policies and Practices* for anyone interested in the issues dealt with in this volume.
Low-Carbon Green Growth in Asia: Policies and Practices

Executive Summary

Asia is at a crossroads. Robust economic growth is lifting millions of people out of poverty, but is also driving resource and energy consumption to unsustainable levels. Climate change exacerbates the challenges of growth and development. The developing economies of Asia are highly vulnerable to the changing climate. A warming of $2^\circ$C would lead to losses in high income countries and a global loss of about 1% to 2% of gross domestic product (GDP), but Asia’s middle- and low-income countries could lose as much as 6% of GDP. Climate change is harming many economies in the region, diverting resources from development programs, and making it more difficult for people to escape poverty.

Asia accounts for about 40% of global greenhouse gas (GHG) emissions and this share will rise to almost 50% by 2030 in a business-as-usual scenario. Yet some 650 million people in Asia lack access to clean fuels for cooking and heating, and millions more lack electricity. However, developing countries cannot simply follow the carbon intensive development path taken by industrialized countries. It is estimated that, by 2050, 67% of the people in Asia will live in cities. This increasing urbanization will require a massive expansion in transportation infrastructure, urban development, energy production, and agricultural output. This is a forceful reminder that finding low-carbon solutions for Asia is neither a luxury problem nor a climate problem. It is foremost a reality that will require a new development paradigm.

Low-carbon green growth is an avenue toward development that decouples economic growth from carbon emissions, pollution, and resource use, and promotes growth through the creation of new environment-friendly products, industries, and business models that also improve quality of life. Thus, low-carbon green growth entails: (i) using less energy, improving the efficiency with which resources are used, and moving to low-carbon energy sources, (ii) protecting and promoting the sustainable use of natural resources such as forests...
and peat lands, (iii) designing and disseminating low-carbon technologies and business models to reinvigorate local economies and, (iv) implementing policies and incentives that discourage carbon intensive practices.

How close are the emerging economies of Asia to turning their aspirations for a new development paradigm into a reality? What policies, institutions, and financial factors accelerate or inhibit a shift to resource-efficient green growth? What is the potential for the private sector, technology, financing, and regional cooperation to become drivers for future economic growth? This book aims to answer these questions by reviewing the low-carbon policy initiatives taken by Asian countries at the national, sectoral, and local levels, while assessing the achievements, identifying the gaps and examining new opportunities for low-carbon green growth. The goal of this study is to share the experiences and lessons of several Asian countries with other developing nations and make recommendations for actions by the countries in the region, while deepening the actions of leading economies. This book is based on the recognition that benefits from low-carbon green growth are an imperative, not a luxury, for developing Asia. Asia must also find an answer to the mounting international competition for resources—energy, raw materials, water, and fertile agricultural land—that will dominate the coming decades.

**Changing Perspectives, Converging Policies and Transformation Strategies**

On the move toward low-carbon green growth, a great deal is happening in Asia. Compared to the economies of other regions, Asia has the highest rate of policy innovations and commitments to low-carbon economic development. Many countries of the region have incorporated low-carbon growth components in their national development plans to attain a better balance between the environment, the economy, and social welfare. Heavily dependent on imported resources and energy, the emerging economies of Asia have been pursuing a new, low-carbon development paradigm that is improving industrial competitiveness and serving burgeoning green technology markets. The People’s Republic of China, India, and Indonesia, for example, are becoming market leaders in a variety of low-carbon technologies such as wind turbines, solar cells, electric vehicles, and biofuels, among others.

Given the great potential of renewable energy sources and energy efficiency
in most Asian countries, feed-in-tariffs and renewable energy portfolio standards could serve to attract investment and promote a national energy transition. Other policy innovations in industry, transportation, and urban sectors are also making low-carbon technologies affordable for many middle- and low-income countries. Asia’s policy experiences and aspirations in tackling climate change through multi-sectoral, multi-level approaches show that there are co-benefits from these approaches in the short term, as well as the medium to long term.

Asia’s experiences across different sectors show that technological innovation for increased resource efficiency is a catalyst for change. To encourage this change, governments should reduce the cost of technologies, support research and development (R&D), and improve education to generate low-carbon green growth. To conquer the cost barrier of new technologies, several Asian governments and industries have cooperated successfully in generating a mutually reinforcing cycle of market expansion and cost reduction. This has not only resulted in large-scale deployment of low-carbon technologies but also has provided the means for other countries to overcome cost barriers. A strong partnership between the public and private sector ensures an effective flow of financial resources to firms and households that reinforce the long term implementation of programs organized around market-based incentives. Most of the finance required will be for investment in new or improved infrastructure. This means these public finance mechanism must facilitate investment in productive capital with a long life span where costs can be amortized over the life of the assets. The key therefore will be to link public finance mechanisms to sources of private finance suitable for low-carbon infrastructure investment. The private sector is also partnering with governments to implement governance circles, ensuring appropriate monitoring and reporting activities. Low-carbon development thus requires a contribution not just from environmental policy, but also from finance, trade, science, technology, governance, and other policy areas.

The table on pages 4-5 summarizes actions some countries are taking that could be rolled out across the region.

The analysis also shows that developing Asia needs to worry not only about the effects of climate change, but also whether they are locking themselves into a high-carbon future. Emerging Asia is growing comparatively faster than other regions of the world. The infrastructure resulting from the high growth era and development introduces an element of inertia that locks in carbon footprints
### National Level Sector Specific Policy Actions for Accelerating Low-Carbon Green Growth

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<th>Energy</th>
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<tr>
<td><strong>Seek cost-effective, market-based solutions for the uptake of existing technologies</strong></td>
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<tr>
<td>• Invest in reducing the cost of existing low-carbon technologies such as solar, wind, and bio-energy.</td>
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<td>• Continue to focus on lowering energy intensity and improving carbon productivity by changing the energy mix away from an over-reliance on fossil fuels.</td>
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<td>• Gradually remove fossil fuel subsidies, introduce true energy pricing, and promote mechanisms such as feed-in tariff (FIT) and renewable portfolio standards (RPS)</td>
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<td>• Progressively amend laws in order to scale up renewable energy in a competitive market dominated by fossil fuels</td>
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<th>Energy Efficiency</th>
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<tr>
<td><strong>Improve energy efficiency through a combination of regulations and market-based instruments</strong></td>
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<tr>
<td>• Launch top-runner programs for industrial technologies and electrical appliances</td>
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<tr>
<td>• Expand energy saving labeling programs and begin to test carbon labeling programs</td>
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<tr>
<td>• Develop a focused and well-packaged regulatory system for SMEs that integrates efficiency standards and targets by assisting with compliance mechanisms, including providing funds and matching grants with goals</td>
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<td>• Develop sectoral guidelines and training to achieve energy efficiency standards</td>
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<th>Transport</th>
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<tr>
<td><strong>Develop new regulations, policies and financing mechanisms to alter current fleet growth patterns</strong></td>
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<tr>
<td>• Introduce new performance-based targets and incentive systems, such as tax exemption for low-carbon vehicles for the transport sector</td>
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<tr>
<td>• Progressively improve the fuel efficiency and pollution standards for passenger cars and light-duty vehicles</td>
</tr>
<tr>
<td>• Introduce retail sales of biofuels such as ethanol in urban and rural markets</td>
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<tr>
<td>• Develop a consistent framework for integrating externalities such as local air pollution and use to promote efficient and seamless multi-modal transport systems</td>
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### Agriculture & Forestry

**Identify and implement the immediate actions needed to restore carbon sinks**

- Introduce new market-based incentives for restoring degraded forests and providing rural employment
- Increase inspection capacity and tighten penalties for illegal logging
- Scale up pilot schemes for enhancing carbon stock such as land sequestration and reduction of water and fertilizer use
- Extend awareness of market-based instruments to isolated communities and poor farmers

### Urban Sector Measures

**Scale up coordinated policies for land use planning, urban infrastructure and finance**

- Change regulations and standards in buildings that lead to the inefficient use of energy and materials.
- Pilot market-based mechanisms such as carbon pricing and cap-and-trade to encourage the efficient use of public resources
- Encourage and provide advice on low-carbon lifestyle choices and mentoring programs for neighborhoods
- Remove barriers to mass transit networks, improving inter-modality of transport and urban freight solutions, etc.

### Industry & Trade

**Create competitive markets focused on high value-added, low-carbon products and services**

- Integrate low-carbon targets and objectives into central and local level industrial policy
- Link industrial promotion incentives and private sector innovations to carbon performance
- Reduce the tariff rate for low-carbon environmental goods and services and strengthen intellectual property regimes
- Provide information and training on existing and emerging technologies, management practices, and related green business opportunities available internationally

### Fiscal

**Identify and implement immediate actions needed to introduce market-based instruments**

- Pilot budgetary reforms with gradual increase in energy taxes or carbon pricing
- Introduce performance-based tax incentive systems for achieving sectoral emission targets
- Explore innovative financing instruments and accelerate R&D support for future industries
- Improve efficiency, transparency, and accountability in the financial sector by including rating programs and/or carbon credit schemes with measuring, reporting and verification (MRV) requirements.
for many years. Power plants and factories have lifetimes of between 15 to 40 years, while road, rail, and power distribution networks can last 40 to 75 years, or more. Decisions on land use and urban planning have effects that can last more than a century. Hence, opportunities to shift from high- to low-carbon infrastructure must be seized sooner rather than later. Delaying action by a decade could increase the cost of mitigation two to five times.

**Going Green as an Inclusive Growth Strategy**

The outlook for developing Asia’s carbon emission growth is substantial in absolute terms. Many inefficiencies drive today’s high-carbon intensity. High-carbon energy consumption could be cut 45% by changing lifestyle choices and improving energy efficiency in factories, buildings, transportation, agriculture, and electricity generation. Such climate-smart development initiatives would trigger investments in new technologies and create green jobs. These green jobs could employ as much as 1% to 2% of Asia’s workforce. This figure could be even higher in poorer countries because of the greater need to improve the environment and adopt more sustainable infrastructure, as well as the greater scope for increasing employment in forestry and agriculture.

If countries are to achieve major benefits from green jobs, active labor market policies will be required, not least to cushion the potential impact of green growth policies on employment in high-polluting and resource-intensive sectors. Macroeconomic policies must stimulate demand while ensuring that debt-financed spending supports economic activities with high social returns.

Inclusive growth remains the foremost goal for emerging Asia. Many of the great benefits of low-carbon green growth are rarely quantified. Providing access to clean energy will vastly improve people’s education, employment, and quality of life—in particular, cleaner, more affordable energy for cooking will reduce the toil of women and the devastating health effects of indoor air pollution among the 600 million people in developing Asia. Lower emissions from transport will improve air quality and lead to health benefits in urban areas. Large populations in developing countries depend on climate-sensitive sectors such as agriculture, forestry, and animal husbandry: the natural resources that underpin these, such as soil, water, grazing land, biodiversity, and forests, are subject to degradation as a result of the changing climate and their exploitation for short-term benefits. There are several measures, such
as low-till agriculture, afforestation, and community forest management that simultaneously reduce degradation, sustain the livelihoods of the rural poor, cut emissions, and increase forest carbon stocks.

**Regional Cooperation for Seizing the Opportunities**

Scientists argue that delaying climate change mitigation by 10 years would likely make it impossible to keep global warming from exceeding 2°C. The carbon dioxide emitted today will remain in the atmosphere for a century and temperatures will continue to rise for a few centuries after GHG emissions in the atmosphere have stabilized. Therefore, today’s decisions will determine tomorrow’s options. Action to limit global warming to 2°C by the end of this century will be feasible only if all countries play their part in mitigation.

The international climate financing architecture currently delivers an estimated $171 billion annually to projects in developing countries, from sources including Development Finance Institutions ($70 billion), project developers ($65 billion), corporate actors ($13 billion) and commercial financial banks ($12 billion). The private sector share of climate finance in developing countries is around 57%. However, investment of more than $6 trillion will be needed in the region by 2030 in the energy sector alone. Filling the financing gap will require all the tools at our disposal, spanning efficiency gains, reform and integration of carbon markets, and the creation of innovative financing instruments. Clean development mechanisms (CDM), among other carbon market mechanisms, can be termed a success but it is still very uncertain whether it can deliver the required financial resources to developing countries due to oversupply and low demand caused by international and national policies, and financial and economic crises. As agreed at the Copenhagen Climate Change Conference in 2009, long-term funding to support climate action in developing countries should reach $100 billion annually by 2020 through various sources.

Financing from developed countries will be key as it is also in the global community’s interest for developing Asia to cut emissions. From the perspective of equity and historical responsibility, developed countries should show leadership and share responsibility in filling the significant financing gap. This must be done in addition to official development assistance, if growth and development are not to suffer.
Effectively engaging the private sector is crucial to filling the financing gap for mitigation. The pricing of carbon through taxes or implementation of emissions trading schemes can provide strong incentives to improve efficiency as market participants seek the lowest cost abatement options wherever they occur. Setting a price on carbon will also influence the consumption and investment decisions of billions of households and firms that are consuming subsidized high-carbon fuels. As many low-carbon projects have a long payback time, governments can play a catalytic role by setting up guarantee mechanisms, risk sharing schemes, low-carbon funds, and changing tax policies and subsidies to mitigate private investment risks.

But carbon pricing alone will not generate the needed flows of technology across borders. Developing Asia and other advanced economies should work together to embrace the challenge of diffusing low-carbon products, services and innovations. Liberalization of trade and reduced tariff rates for low-carbon green products and services would accelerate technology transfer, and developing Asia would benefit too from the knowledge created by emissions reduction activities in advanced economies.

Cooperative action in the region would be in the political interest of all governments for the following three reasons. First, a more direct, region-wide push on energy efficiency, technology, investment, and deforestation is essential to add credibility to the voluntary pledges and national targets without losing economic competiveness. Second, given the scale of investment required and the deterioration of public finances in many countries, cooperation, consultation and coordination among governments in the region can leverage private sector capital. Third, because it will take time to agree on the details to implement a global climate deal, it is important to advance with concrete actions to provide the international community with experience and lessons for increased financial and technical assistance to developing Asia.

Developing Asia is expected to be at the center of the global agenda on low-carbon green growth. Asia has much at stake in the fight against climate change as the region is the world’s most populous and has had high economic growth with a rising share of global GHG emissions, and Asia’s sub-regions are among the most vulnerable to looming climate risks. Nowhere are production, resource consumption, and emissions growing faster than in developing Asia. Action on the ten key issues listed on the facing page is crucial to achieving low-carbon green growth in Asia.
Regional Level Actions for Accelerating Low-Carbon Green Growth in Asia

Regional Carbon Market
- Promote the linkage of national carbon trade schemes, which will require the creation of a regional public–private policy dialogue and framework to prepare the ground for the linkage of carbon trade schemes including transparent agreements and rules (for instance, MRV systems) and institutional arrangement.
- Encourage investment in cross-border low-carbon energy infrastructure and transport projects

Regional energy partnership
- Promote a regional partnership on renewable energy, setting national renewable energy targets and favorable feed-in tariffs and renewable energy portfolio standards.
- Promote the partnership to work toward a set of applicable national efficiency standards developed and applied to a limited but critical range of energy-intensive industrial and consumer goods, and buildings. Governments may also develop energy efficiency labeling for electrical appliances, consumer products, and industrial manufacturing processes, building on work currently under way according to a mutually agreed timetable.

Private Sector Participation
- Implement capacity development program to help create an enabling policy and legal environment to attract private sector participation. International development institutions, national governments and financial institutions should use risk-mitigating products (e.g., political risk guarantees, credit risk guarantees, etc.) to encourage private sector investment in low-carbon infrastructure development.
- Promote a regional public–private portfolio of several large-scale integrated smart city and smart grid demonstration projects across different regulatory regimes.

Technology Transfer
- Establish a network of regional low-carbon innovation centers modeled on the Consultative Group on International Agricultural Research, to help developing countries accelerate the uptake of low-carbon technology. Regional development institutions such as ADB may play a leading role in promoting climate technology transfer and diffusion, helping countries learn from each other.
- Forge a free-trade agreement within Asia for high-impact green and low-carbon technologies and services.

Finance
- Encourage the phasing out of pervasive fossil fuel subsidies, using a regionally coordinated approach. This should be done as a prelude to introducing fiscal reforms that encompass a range of pricing and taxation instruments, including taxes on fossil fuels and other resources.
- Set up a regional platform to encourage REDD+ (reduced emissions from deforestation and degradation) projects. This platform should be hosted by key forest nations of the region and involve the international community, regional financial institutions, civil society and the private sector.
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