

Financing Emissions Reduction in Asia: Policy Options and Constraints

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Financing Emissions Reduction in Asia: Policy Options and Constraints

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Abstract:

Climate change due to emissions from fast growing developing economies of Asia is sounding an alarm bell for policymakers not only in Asia, but also in the world. This situation raises the urgent need for undertaking measures to control emissions with due consideration of the prevailing socio-economic situation specific to Asia, which still houses large proportions of the poor. Without appropriate price signals, emerging Asia may not trigger technological innovation and leverage private investments towards emissions reductions. Increased public and private financial resources are necessary to fill the gap between the 'business as usual' and low carbon emission scenarios, to work out possible solutions and addressing the capacity barriers, which may exist at different levels. ODA from regionally and financially sound countries such as Japan and China can be an important mechanism for regional and international cooperation, especially where there is a shortage of private investment. In order to establish a green economy, based on low-carbon use and increased human welfare, it is necessary to have a core set of indicators that can be used to measure the progress of a country transiting to a low carbon economy.

Key words: Emission reduction, Environmental policy, Climate change, Asia

JEL Classification: Q52, Q54, Q58, R11

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1. Introduction

Climate change due to emissions from fast growing developing economies of Asia is sounding an alarm bell for policymakers not only in Asia, but also in the world. It is, however, acknowledged that these emerging Asian economies have been taking different measures to reduce emissions without impinging on their national priorities for improving economic welfare. In spite of these efforts, emissions are still showing an increasing trend in these economies. For example, China leads the world in renewable energy investment and in 2010 accounted for half of all global manufacturing of solar modules and wind turbines, with the majority of solar technology production made for export. On the other hand, China ranked the highest energy consuming country in 2010, while also being the country with highest annual CO₂ emissions in 2008, taking about 23% of global total (see Figure 1). This situation raises the urgent need for undertaking measures to control emissions with due consideration of the prevailing socio-economic situation specific to Asia, which still houses large proportions of the poor.

The implication of the present situation is that the process of resource resilient emissions reduction economic growth has not attained its full potential in Asia. Technological innovations and investments play a crucial role in increasing the pace of the transition. Without appropriate price signals, emerging Asia may not trigger technological innovation and leverage private investments towards emissions reductions. Several other key interventions influencing life style consumption and production changes may not necessarily require new technologies but would need public education and right pricing mechanisms. Increased public and private financial resources are necessary to fill the gap between the

‘business as usual’ and low carbon emission scenarios, to work out possible solutions and addressing the capacity barriers, which may exist at different levels.

It is in this context, the present paper analyses different financing options and constraints for emissions reduction for Asia. The following section two discusses the initiatives and constraints in the international and regional domain for emissions reduction. The opportunities and constraints in the case of private sector are examined in section three. The role of national governments in promoting emission reduction technological innovations is discussed in section four. Finally section five brings out the overall conclusions of this study along with policy recommendations for increasing the pace of emission reduction in Asia.

2. Financing Emissions Reductions: International and regional initiatives and constraints

The first attempt to support developing countries to mitigate emissions was the Clean Development Mechanism (CDM) that was defined in Article 12 of the Kyoto Protocol. The CDM was designed to help developed countries meet a part of their emission reduction targets and to assist them in achieving sustainable development. The projects of the CDM provided certified emission reduction (CER) credits, which could be traded or sold, by participants in the projects. The projects provide other benefits to the participating countries, such as, encouraging new investment, the exchange of climate friendly technologies, the improvement of livelihoods and skills, job creation and increased economic activity.

A review (UNFCCC, 2011) conducted on CDM assisted projects showed mixed results. The reviewers found that CDM projects were making a contribution to sustainable development

over and above the mitigation of GHG emissions in their host countries. The sustainable development benefits include increased employment rates, the reduction of noise and pollution and the protection of the natural resources. The reviewers noted that the investment flow under the CDM has been encouraging. The transfer of technologies between countries was found to be slow and modest. By mid-July 2011, there were over 3,200 projects underway that were worth US\$140 billion. About 75 per cent of these projects were in countries in the Asia-Pacific region. A key fund, dedicated to adaptation to climate change, is the Adaptation Fund (AF). The AF is financed through a 2 per cent levy on revenue generated by the CDM and through voluntary contributions, and it is estimated that it will be worth US\$80 million to \$1 billion per annum by 2012.

At the 2000 Cancun Climate Change Conference in Mexico, it was agreed to establish a new Green Climate Fund (GCF) to support climate change action in developing countries. A Transitional Committee was created in 2011 to design the new funding mechanism. The Cancun Agreements built on the climate change financing framework set by the Copenhagen Accord, which was released in 2009. The Accord recognized the commitment undertaken by developed countries to provide new and additional resources for developing countries, to a level approaching US\$30 billion, for the 'fast-start' period of 2010-2012. To ensure transparency, developed countries were to provide annual reports to the UNFCCC on their progress in delivering 'fast-start' funds. As the financial mechanism of the UNFCCC, the GEF provides policy, finance, capacity, and technology support to developing countries in their efforts to reduce GHG emissions. The GEF had approximately \$250 million per annum in grants that were available for mitigation during 2006–2010.

The World Bank and the United Nations have established carbon funds to support climate change projects. There are 13 different carbon funds, which assist climate change projects, increase private-sector investor confidence and provide capacity building for climate change. The major carbon funds are the Forest Carbon Partnership Facility (FCPF) and Community Development Carbon Fund (CDCF) that assist developing countries in managing carbon emissions in their domestic economies. The FCPF assists developing countries in reducing emissions from deforestation and forest degradation, while the CDCF supports developing nations in adapting to climate change.

While the carbon funds provide assistance for mitigation of climate change and adaptation, there is also international funding available specifically for adaptation in developing countries. The main vehicle for such funding is the UNFCCC which has four funds relevant to adaptation. These funds are: The Least Developed Countries Fund (LDCF), established to help developing countries prepare and implement their National Adaptation Programmes of Action (NAPAs); The Special Climate Change Fund (SCCF), which supports a number of climate change activities such as mitigation and technology transfer, but with special focus on adaptation; Trust Fund's Strategic Priority for Adaptation (SPA), which supports piloting of 'operational' approaches to adaptation; Adaptation Fund (AF), which was established under the Kyoto Protocol (IEA, 2009).

Official Development Assistance (ODA)

Developed countries, especially those in the OECD, traditionally provide bilateral aid in the form of grants, loans and technical cooperation for the promotion of the economic development and welfare of developing countries (Honto, 2010). Official Development

Assistance (ODA) financial flows are comprised of contributions of donor government agencies, to developing countries and to multilateral institutions. During 1998-2000, ODA accounted for nearly 92 per cent of financial flows to the less developed countries for development initiatives (Aalst & Agrawala, 2005) The Millennium Development Goals (MDGs) were agreed on at the United Nations Millennium Summit in September 2000. The goals have eight targets for reducing extreme poverty and hunger, improving health and education, empowering women and ensuring environmental sustainability by 2015. The ODA is assisting developing countries to achieve their MDGs, through the commitment of the OECD countries to allocate 0.7 per cent of their Gross Domestic Product (GDP) by 2015. The Funds addressing climate change are not part of this commitment (Kalirajan, Singh, Thangavelu, & Venkatachalam, 2011). The ODA is used for climate change activities but it is difficult to separate the contribution made to climate change from the contribution made to adaptation. This is an issue particularly as there are strong links between climate change initiatives and poverty alleviation (Kalirajan, Singh, Thangavelu, & Venkatachalam, 2011). As the OECD countries are presently facing budgetary constraints, they cannot be expected to contribute more for climate change efforts in developing countries over and above what has been committed as ODA.

Asian Development Bank

The Asian Development Bank (ADB) is a regional development bank that aims to assist member countries in Asia and the Pacific to reduce poverty and improve the quality of life for the people in the region. The Asia and Pacific region has one third of the world's poorest people. Six hundred million people in the region live on \$1 a day or less. The ADB's funding methods include loans, equity investments, guarantees, grants and technical assistance. Funding

for climate change and adaptation is provided by the ADB through different projects and a number of funding mechanisms have been devised as shown in Table 1.

In 2005, ADB launched its Energy Efficiency Initiative (EEI) with the aim of expanding the Bank's clean energy program, enhancing the capacity for the Bank's operations departments to develop clean energy projects and establishing new and innovative financing instruments for clean energy investments. The Initiative set the annual clean energy investment target at \$1 billion. In 2008, Developing Member Countries (DMCs) of the ADB surpassed the target by \$690 million in 2008 (see Figure 2). This was an important achievement as this happened in the middle of the Global Financial Crisis, where most people expected using cheap energy based on fossil fuels to be common (Peters, Marland, Le Quere, Boden, Candell, & Raucph, 2011).

3. Financing Emissions Reductions: Private sector opportunities and constraints

Funding available for emissions reductions is not adequate to meet the needs of the Asian countries, and there is a need for additional funding from the private sector. A problem associated with financing emissions reductions at the national level in any country is that public funding is not enough, and private funds are generally hesitate to provide their money to economic growth based on emissions reductions. However, if the participation of firms in industries with emission reducing technologies results in sufficient profit, then private finance institutions become more eager to supply funding to such firms. Prior to investment decisions being made it is important to raise awareness of emission reductions among the community at large, and establish a system of information collection and performance monitoring.

Research has shown that public/private financial partnerships are crucial in financing emission reduction. Governments could act as facilitators and could monitor emission reduction and financing. Governments could also play a large part in creating an enabling environment, providing direction for emission reduction and improving the investment climate for private sector investment. According to UNFCCC estimates, in response to climate change, private sector investments contributed up to 86 per cent of the global investments and financial flows. Strong financial institutions are vital for the effective functioning of economic growth and development, as demonstrated during the global financial crisis in 2008.

Private sector participation is extremely important as the magnitude of the investment to manage emission reduction is huge, and the public sector alone cannot meet the challenge. The involvement of the private sector is crucial for energy-efficient technological innovation and transfer. In this context, Japan's approach of providing ODA and funding for official collaboration with the private sector is a good model for other developed countries to follow. A market mechanism with private sector participation seems to be more effective and cost-effective in addressing emission reduction in many countries in Asia. For developing Asian countries, as (Anbumozhi, 2010) points out, it is difficult to make the right choices in allocating scarce resources, in the light of more pressing needs to develop, industrialize and get out of poverty trap. Therefore, economic growth based on emission reduction is often viewed by these developing Asian countries as a longer-term concern that must be traded off against short-term priorities.

Although private sector financing makes up the bulk of funding for emission reduction initiatives at the global level, private financing for emission reduction in the Asian region has yet to be developed. This apparent lack of funding from the private sector, and the inability of many governments to provide their own funding, makes it necessary to explore specialized private financing mechanisms. Currently, the ADB is playing a regional financing role in partnership with donor countries in the region, such as Japan, Korea, China, Australia and New Zealand. The ADB also provides bilateral assistance to countries in the region.

A strategy to be considered by developing countries is, to use where feasible, their own resources to fund green growth, or to seek assistance from other countries within the region. Some Asian countries, such as China and those of ASEAN, while spending large amounts of funds for green growth, have the capacity to also provide funding for the needy countries in the region. It is to be noted that China and Japan are the second and third largest economies respectively in the world and 6 out of the 8 countries, with large foreign currency reserves, are in Asia, as reported in the *Global Finance* December 2011 issue.

Several reports highlight the lack of coordination between aid agencies and governments in addressing emission reduction. For example, there is lack of coordination between the aid agencies in Nepal regarding work on the Tsho Rolpa project, where the most dangerous glacial lakes in Nepal are being lowered through drainage (Kim, 2011). Also, the lack of domestic capacity to respond to the needs of the aid agencies is cited as another reason for not accounting for emission reduction activities in the government policy strategies (Gagnon-Lebrun & Agrawala, 2006). This raises the issue of training and capacity building of people in developing countries to address climate change activities.

4. Governments' role in promoting emission reduction industries

Developing industries with low level of emission is strategically important in most countries, and has become a new growth engine for sustainable development in developing economies. There are several ways that governments can finance such growth. An important way is for governments to assist low emission technologies and the so called 'green industries' by using subsidies and tax incentives. Fiscal policy is an important tool for greening the economy and a fiscal expansion could effectively raise the demand for environmental goods and services. Thus, appropriately designed fiscal policies are a prerequisite to increase private investment in emission reducing technologies.

Governments need to encourage private institutions, including the capital market, to participate in financing emission reducing technologies. As most emission reducing technologies are in the early stages of development and need long-term investments to achieve outcomes, there is the difficulty that these investments are considered to be of high risk. To make efficient financing possible through banks and capital markets, governments must offer incentives and prepare policy solutions to deal with potential obstacles in the financing process.

Another innovative policy tool that governments could use to boost a low-carbon economy is to use market-based instruments. Compared to the 'command-and-control method' in the past, 'market-based instruments' can provide price signals on carbon emissions, and firms can then reduce emissions efficiently and cheaply. A carbon trading market and carbon tax are examples of these market-based instruments. Many countries have agreed to consider introducing a carbon trading market and carbon pricing schemes.

5. Conclusions and Policy Recommendations

One of the constraints is finance, and regional cooperation can play a major role in removing the constraint. ODA from regionally and financially sound countries such as Japan and China can be an important mechanism for regional and international cooperation, especially where there is a shortage of private investment. Developing countries have particular problems of infrastructure development, initiatives for poverty reduction and sustainable development, training and capacity development in their own countries. Regional cooperation, not only through ODA, but through other means of communications and cooperation such as joint ventures are important in creating these enabling conditions for green growth and sustainable development. Nevertheless, ODA should be used for green growth not at the cost of activities aimed at poverty reduction.

The success of the global fight against emissions reductions requires institutions and financing arrangements to take a major role at the regional level. In particular, regional financing arrangements have a very special and even unique role in promoting emission reduction technologies. There is a growing need, at the sub regional level in the Asian region, to establish new financing arrangements on emission reduction in organizations such as the ASEAN, CAREC, and SAARC. Such sub regional financing arrangements are expected to address sub region-specific issues, such as the 2011 floods in Thailand. Many regions of the world face potentially catastrophic local climate change impacts. These need to be addressed at the regional level, which is likely to be more effective than a global approach. Thus, another important priority is to create specialized regional funds to address key region-specific emission mitigation needs. To augment the resources for fighting emission reduction

at all levels, private sector financing operations at the regional level (e.g., a regional clean energy equity fund) should be generally supported. At the same time, there is a need to support the establishment of new and innovative regional private financing mechanisms especially for risk transfer and insurance instruments.

Despite wide diversity across countries, governments need to encourage low-carbon initiatives as these initiatives and the resulting green economy will promote more socially inclusive development. For example, poverty alleviation reduces disparity between rich and poor and reduces environmental degradation. It also provides opportunities to deal with the impact of rapid population growth and contribute to the achievement of the MGDs.

In order to establish a green economy, based on low-carbon use and increased human welfare, it is necessary to have a core set of indicators that can be used to measure the progress of a country transiting to a low carbon economy. These indicators should capture emission reduced growth, sustainable development and poverty reduction initiatives, beyond the traditional indicators such as GDP per capita. International collaboration in this regard is important. It is important to note that the UNEP is working closely with other organizations, including the UN Statistics Division (UNSD), other UN agencies, the World Bank, EUROSTAT, and the European Environment Agency (EEA), to develop a common set of core indicators for the low carbon emission economy.

The consensus about emission reduction policy across the countries in the world can directly affect the efforts in low carbon growth and emission reduction financing. Weak outcomes from the Copenhagen and Cancun meetings over two years made many countries hesitate to pursue

strong low carbon growth policy. There is still hope that the 2012 Rio+20 could bring more promising assurance on these issues.

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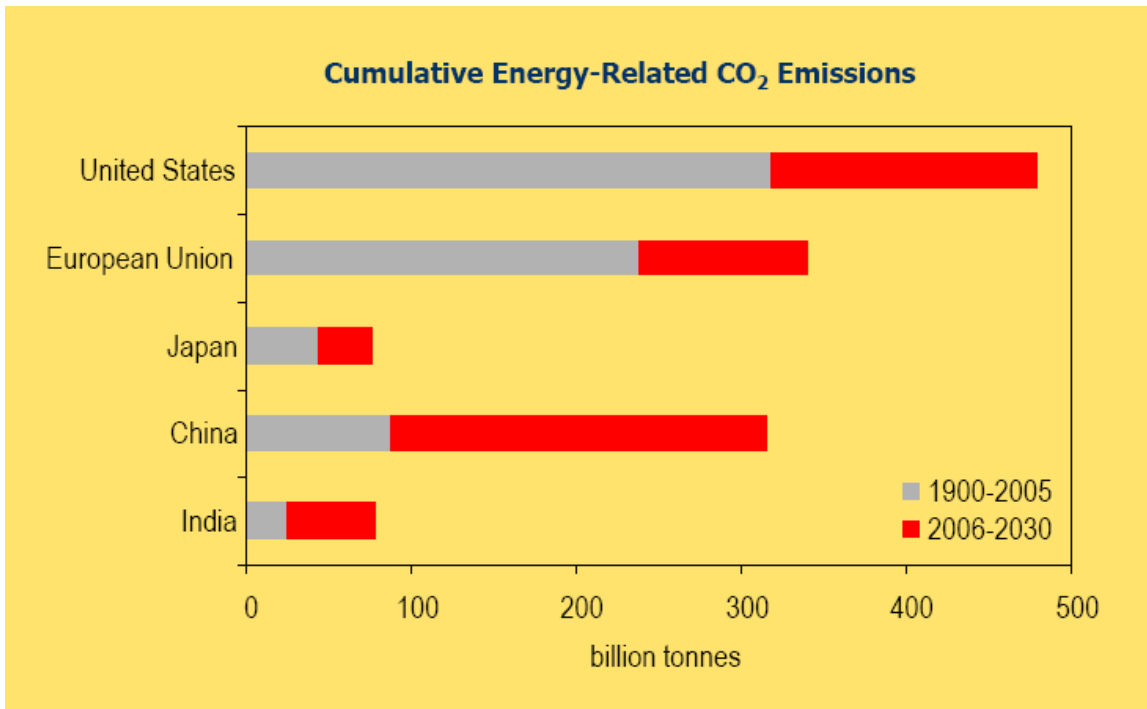
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Table 1: Key funding mechanism of the Asian Development Bank for environmentally related projects

Climate Change Fund (CCF)	The CCF was established in 2008 to provide grant funding for climate-related projects, research, and development, to assess causes and consequences. Funding is provided for projects that lead to the reduction of GHG emissions or adaptation to climate change.
Clean Energy Financing Partnership Facility (CEFPF)	The CEFPF was established in 2007 and provides grant funding to member countries in the region for improving energy security and transitioning to low carbon economies, through cost-effective investments in technologies and practices. In addition to the funds allocated to CEFPF by the ADB, the fund receives contributions from countries such as Australia, Japan, and Norway.
Asia Pacific Carbon Fund (APCF)	The APCF was established in 2007 as part of the ADB's Carbon Market Initiative (CMI). The APCF provides financial assistance for clean energy projects. The APCF receives funding commitments from several European countries such as Belgium, Finland, Luxembourg, Portugal, Spain, Sweden, and Switzerland.
Future Carbon Fund (FCF)	The FCF was established in 2008 and provides funding for projects that will generate carbon credits for GHG reductions after 2012, to improve energy efficiency and renewable energy.
Water Financing Partnership Facility (WFPF)	The WFPF provides financial resources and technical support for water services and river basin water management.
Poverty and Environment Fund (PEF)	The PEF is multi-donor trust fund, administered by ADB that promotes mainstreaming of environmental considerations into broader development strategies, programs and projects.

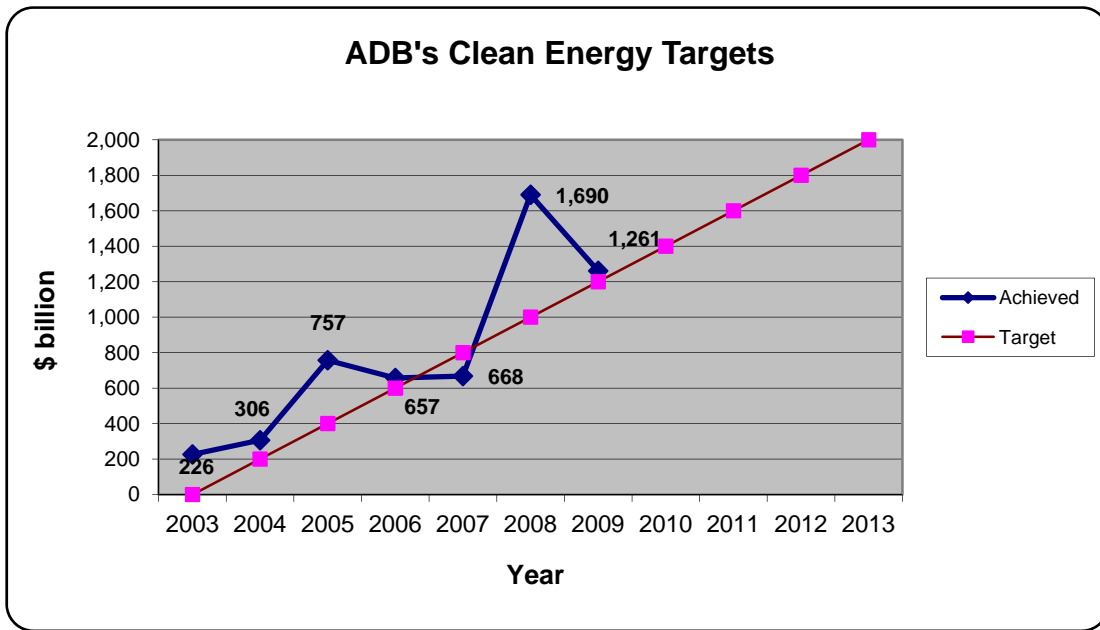
Source: (Sharan, 2008)

Figure 1: Cumulative Energy-related Carbon Emissions



Source: (Kalirajan, Singh, Thangavelu, & Venkatachalam, 2011)

Figure 2: ADB's Clean Energy Targets



Source: (Lockhart, 2011)