

Energy and Development: Climate Change as a Development Challenge
to Asian Development Bank's Operations in Southeast Asia¹
Laurence Delina

Abstract

This paper presents the role of Asian Development Bank (ADB) in climate change mitigation in four developing countries of Southeast Asia namely: Thailand, Indonesia, Philippines, and Viet Nam. I start by discussing the region's economic development and its contribution to growing greenhouse emissions. Henceforth, I provide an overview of the climate change challenge that besets the region tracking the progress made to address the inevitable consequences of anthropogenic global warming with particular interest to international actions such as clean energy initiatives. Here, I seek to critically understand the relations between energy and development.

The central focus of this paper is the role of ADB as a Multilateral Development Bank in financing clean energy projects and programmes as a climate change mitigation strategy. I undertook a portfolio level analysis by reviewing ADB's energy sector portfolio. My central thesis pertains to the assessment of the extent to which climate change has been 'mainstreamed' into ADB's energy sector portfolio as indicated by the extent to which climate change has been 'integrated' into its overall portfolio. This portfolio level analysis does not capture the extent to which vulnerability and adaptation considerations have been mainstreamed into project development and appraisal, as additional analysis is needed to fully assess progress on this count.

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Introduction

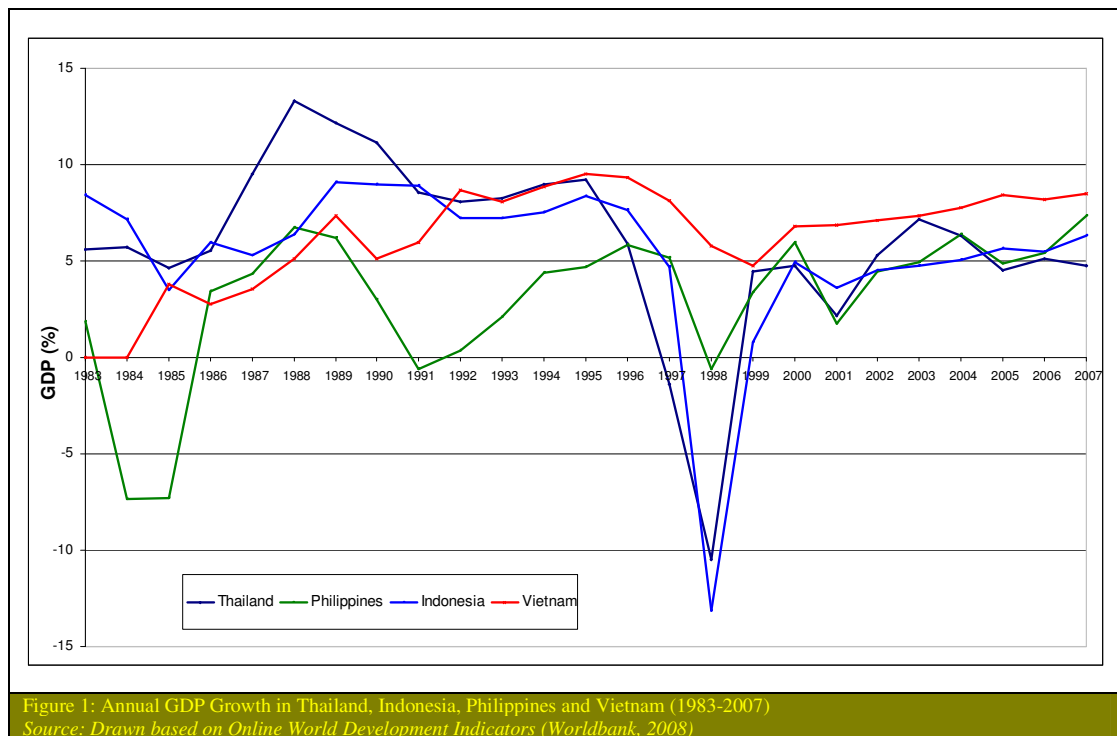
Climate change has become one of the defining development issues of our generation. In 2008, the United Nations had recognised the enormity of climate change as a global problem by making it the central theme of its most important publication *The Human Development Report 2007/2008*. Although the past few years have seen globally divisive positions over the causes and extent of climate change, the debate has shifted from the question of whether or not it is happening to what can be done to address its ill effects. There is now a clear scientific consensus that human activities were responsible for climate change. Al Gore, then United States vice president had made considerable efforts in mainstreaming the issue of climate change particularly with the release of his multi-awarded film *The Inconvenient Truth* in 2006. Successive reports – remarkably the Stern Review (2006) by Lord Nicolas Stern of Brentford for the British Government – have narrowed the space between popular understanding and rigorous economics. In the same vein, IPCC Reports had brought considerable impact in convincing people of the scientific realities of climate change by providing a clear understanding of the scientific evidence. One of IPCC's most important findings is that warming of the earth's climate system is unequivocal, which means that nobody can argue against these realities. One of the Panel's important conclusions is that human signature on climate change has been proven beyond doubt. IPCC's Fourth Assessment Report released in 2007 has much stronger and greater confidence in stating that human influence is impacting on climate change, claiming that it is *very likely* that human activity over the past century has greatly increased the amount of GHGs in the atmosphere which contributed to an average temperature increase of 0.74°C. When IPCC uses the term *very likely*, it represents 90%+ probability that this statement is correct. This is a significant advance over what IPCC had said in its Third Assessment Report (2001) where it used the term *likely* which represented a two-third's probability of this particular finding being correct. The Report has also concluded that 11 of the last 12 years (1995-2006) rank among the 12 warmest years since 1850. According to the IPCC (2007), up to a billion people could be affected by climate change across Asia. Both the UNDP (2007) and IPCC (2007) gave due warnings regarding the high vulnerability of the poor, particularly in urban and urbanising cities of Asia. Whaley (2008b: 16) estimates that about 130 million people are at risk facing hunger by 2050 because of the ill effects of climate change. In addition, nearly 100 million people in the region will face increased risks of floods from annual ocean level increases of 1-3mm (IPCC, 2007). Rainfall is expected to become less predictable, droughts more frequent, and typhoons stronger and more erratic (Whaley, 2008b: 18). Consequences are expected to shake the environmental, economic and social landscape in Southeast Asian region.

International responses have been agreed upon as a result of international treaties particularly the United Nations Framework Convention on Climate Change (UNFCCC) and its subsequent Protocol generated in Kyoto in 1997. While the Protocol had called for the exclusive utilization of market mechanisms to mitigate climate change through the markets via carbon pricing – that is, assigning a cost to GHG emissions – through taxation, regulation, and/or emissions trading, I argue that it is equally important to stress that taking climate action is not just about the money but mainly about limiting the extraction and usage of fossil fuel at levels below the current trend and to shift towards investments and usage of renewable energy. United Nation's Environment Programme's (UNEP) Executive Director Achim Steiner (2008), in his speech at the University of Auckland on the occasion of the 2008 World Environment Day, had stressed the

importance of voluntary initiatives to address the climate change issue such as the move towards renewable energy instead of focusing on carbon markets.

Knowing that the effects of climate change know no boundaries (that is, its effects are encompassing regardless of where and when the emissions occurred), mitigation and adaptation actions to support the development of low-carbon economy should be jointly shared by both developed and developing countries. This support reaches out to the central and significant role for Multilateral Development Banks (MDBs) to facilitate sustainable development strategies in their member/client countries. This paper seeks a better understanding of this significance by assessing clean energy policies through the lens of Asian Development Bank's energy policy in developing Southeast Asian region.

Panglobal financial organisations, particularly Worldbank (2007) and ADB (2008), considered Asia as one of the world's most dynamic regions. In 2007, developing Asia's GDP registered a growth of 8.7%, the fastest recorded rate of growth since 1988 (ADB, 2008b:iii). The four case countries has achieved increased in GDP since the Asian financial crisis of mid1990s and the region's economy has grown at a record pace over the past few decades since then as shown by their growth patterns in Figure 1.



In 2008, ADB (2008b) reported that growth in Southeast Asia inched up to 6.5% against 1997 figures. On a country basis, the Philippines expanded at a 30-year high of 7.3% and Viet Nam continued to grow quickly. Indonesia accelerated to 6.3%, but Thailand moderated due to fading consumer and business confidence in the context of heightened political uncertainty in the country. In the 1980s and 1990s, real per capita GDP rose more than 6% annually while other developing regions in the world struggled to increase per capita income at all (*in World Bank 2005 Global Monitoring Report*).

Energy Use in Southeast Asia

Congruent to the economic growth in the region, ADB projects that by 2030, energy use in Asia will increase 112% making it a consumer of 30%- 36% of the world's energy and as emitter of 42% of global energy-related GHG emissions (ADB, 2007:10; Kuroda, 2008: 4) with most of these emissions coming from GHG-emitting fossil fuels needed to meet the region's energy needs. In the case of Thailand, Indonesia, Philippines, and Viet Nam, the trend in electricity consumption for the twenty-five year period (1983-2005) is presented in Figure 3.

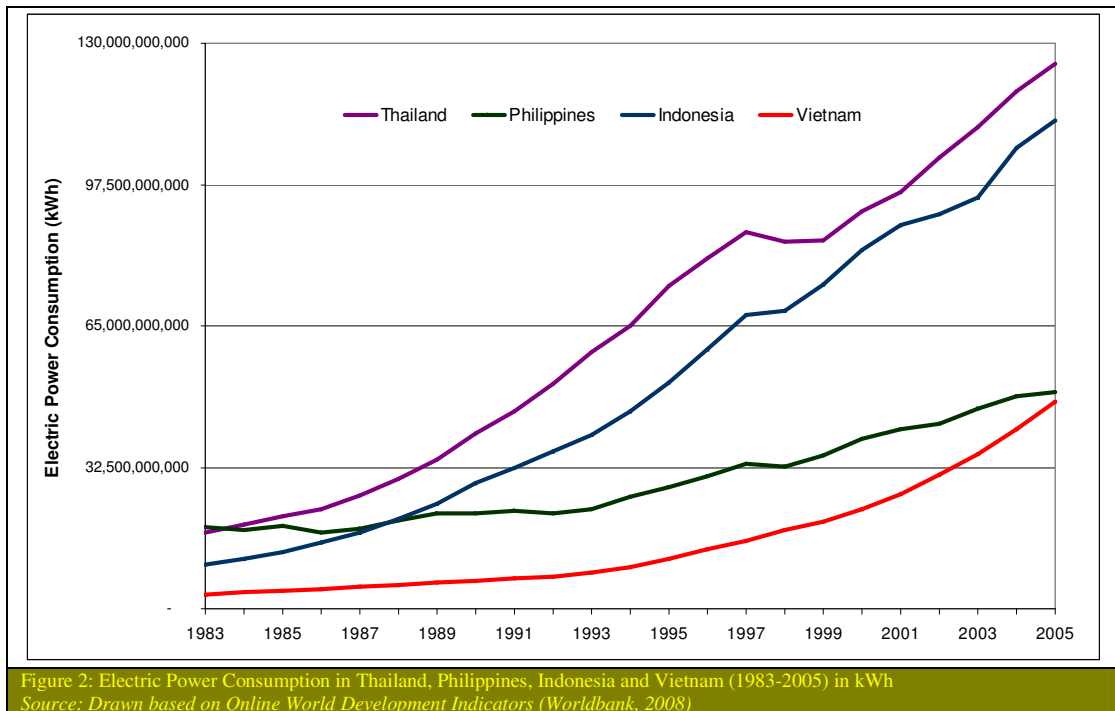


Figure 2 tells as a compelling generalisation that the four case countries had consumed an increasing amount of electric power to fuel its economy. Thailand tops the list at 125.3 MWh. Within a quarter of century, Viet Nam had almost doubled its energy usage increasing by 93%, Indonesia by 91%, Thailand by 86%, and Philippines by 62%. And within the same period, these four Southeast Asian countries had increased their carbon dioxide emissions as shown in Figure 4.

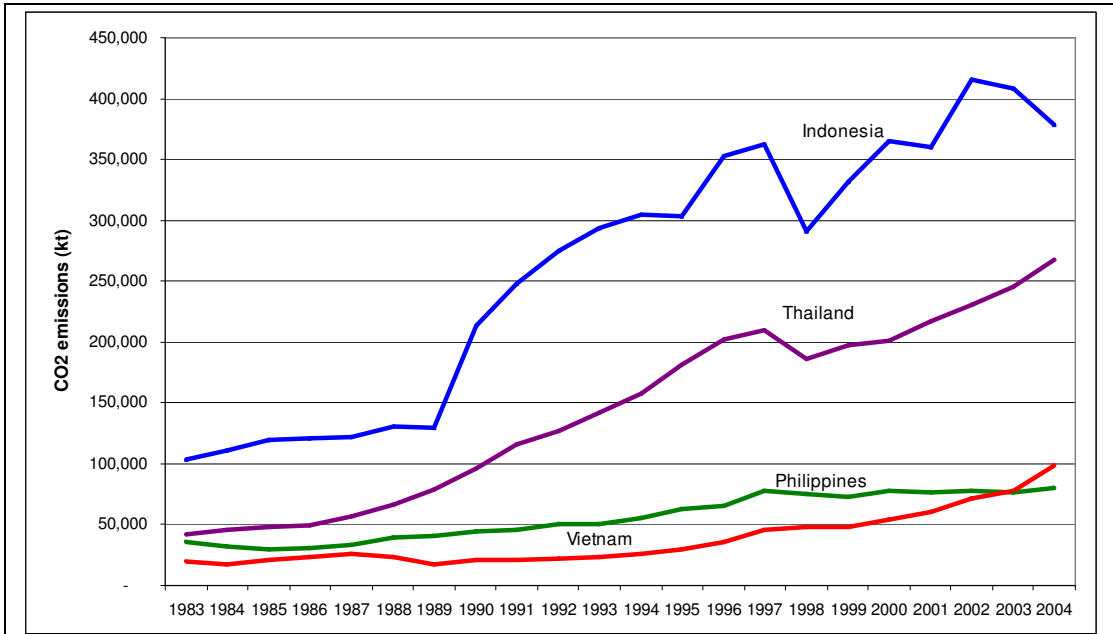


Figure 3: Carbon dioxide emissions in Thailand, Indonesia, Philippines and Vietnam (1983 – 2004)
 Source: Drawn based on Online World Development Indicators (Worldbank,2008)

It can be concluded from Figures 2 and 3 that the intensity of energy consumptions, and their resulting emissions at the four case countries had massively increased over the period 1983-2005 which also implies an absolute increase in carbon emissions per capita which is further shown in Figure 4. Figure 4 likewise shows the startling gap between the four Southeast Asian countries and the two industrialised countries of the US and New Zealand in terms of electric power consumption per person.

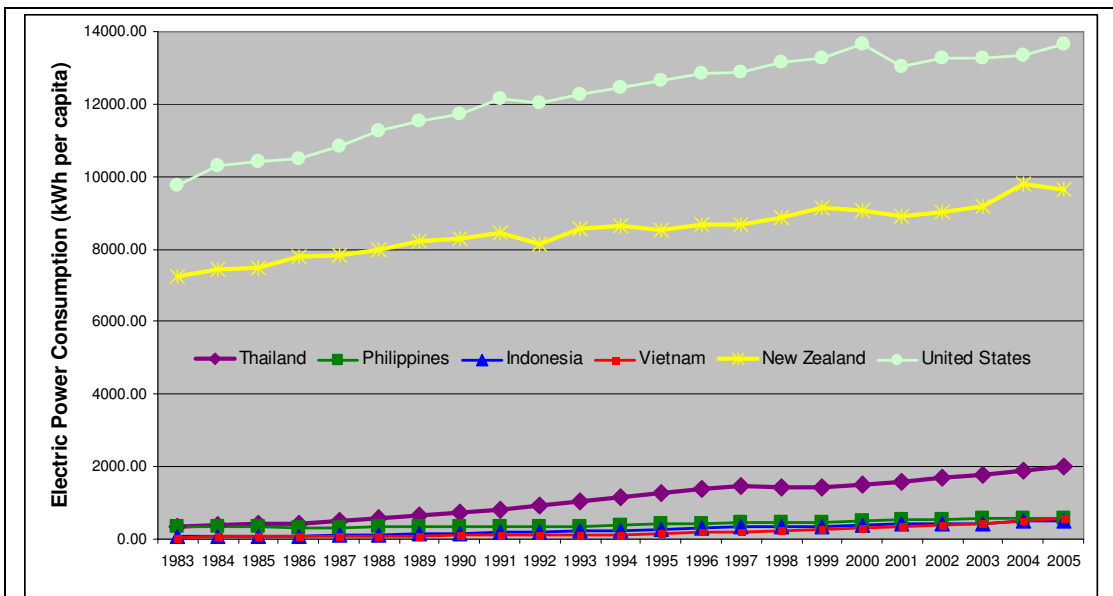


Figure 4: Energy use per capita in Thailand, Indonesia, Philippines and Viet Nam in comparison with that of the US and New Zealand (1983-2007)
 Source: Drawn based on Online World Development Indicators (Worldbank,2008)

From Figures 2, 3 and 4, we can deduce that there is a direct relationship between the case countries' economic growth and their emission levels. These emission trends highlight the scale of the challenge ahead. Visibly from Figures 3 and 4, carbon dioxide emissions have increased sharply since 1990, the reference year for the reductions agreed under the Kyoto Protocol. The key question, therefore, is how to support the economic growth of the four case countries in particular and Southeast Asia in general while addressing the global concern of climate change.

Inequalities in Anthropogenic Emissions

At this point, let us put into context the carbon dioxide emissions of the four case countries and contrast these with the emissions of two industrialised countries namely the US and New Zealand (see Figure 5). While a discussion along this line has no major bearing in this paper, I just want to show the conspicuous differences between the two industrialised countries at the top of the table and the four Asian economies at the bottom in terms of per capita CO₂ emissions.

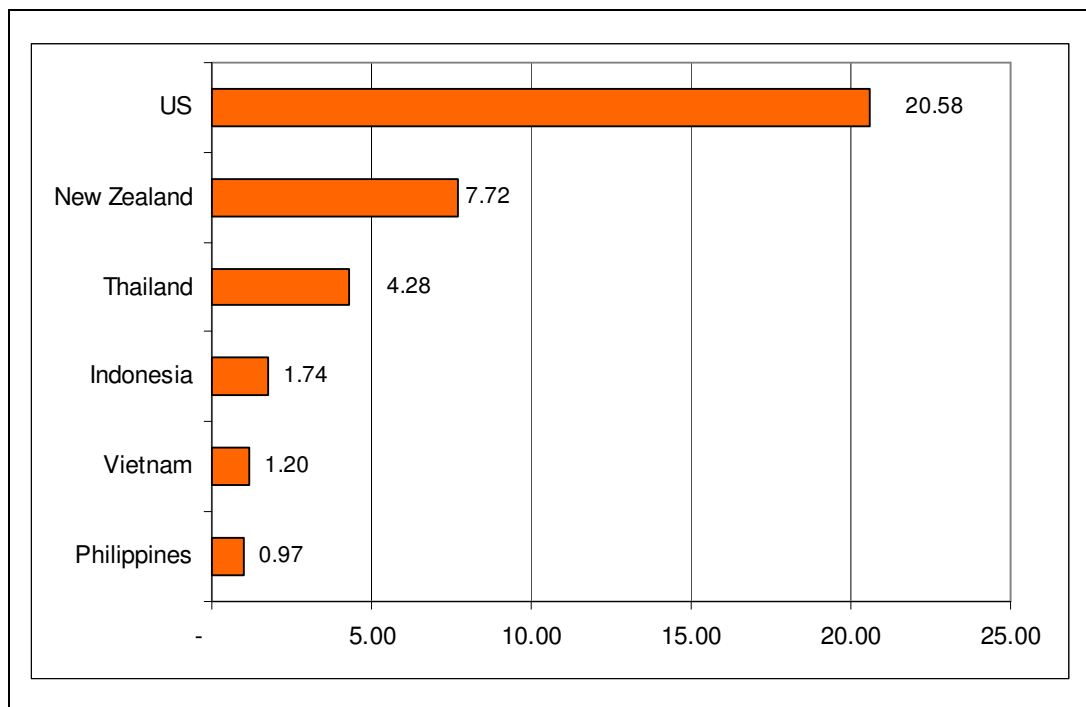


Figure 5: Carbon Dioxide per capita emissions in four Asian economies in comparison with two Industrialised Countries of the US and New Zealand in 2004
 Sources: Drawn based on Online World Development Indicator (Worldbank, 2008)

Figure 5 tells us that in 2004, each resident in the United States was emitting as much CO₂ as 22 Filipinos, 18 Vietnamese, 12 Indonesians, five Thais and three New Zealanders. It informs us further that if these four Asian countries were to emit CO₂ at the per capita levels currently typical of the industrialised countries, the consequences for climate change would be catastrophic. Mahatma Gandhi, in his time, once reflected that nine planets would be needed if India were to follow Britain's pattern of industrialisation. These inequalities in per capita carbon footprints are intimately related to wider inequalities as they mirror the relationship between economic growth, industrial development and access to modern energy services.

Climate Policy

Given the magnitude of the climate change challenge, Stern (2008) considers the pricing of GHGs as the heart of good climate policy in the same stand as UNDP (2007) considers it as among the most important of the policies. Price-oriented mechanisms involve pricing an externality in a variety of ways: carbon trading, carbon taxation, and implicit pricing via regulations and standards. Taxes have the advantage of being implemented by individual governments without international agreement. Tradable quotas, on the other hand, have been traded, for example, in the European Union Emissions Trading Scheme (EU ETS) since January 2005. The EU ETS is currently the largest multi-country, multi-sector GHG ETS worldwide. ETS is one of three flexible mechanisms provided by the Kyoto Protocol (the other being Clean Development Mechanism and Joint Implementation).

Response to Climate Change Beyond the Markets

Curtailling GHG emissions is not just about the market and making money out of carbon taxes or trading pollution credits. Blühdorn (2007), speaking about the conceptual umbrella of *ecological modernization*, had lucidly illustrates how market-based policy is seen as a powerful tool. However, Blühdorn (2007:85) posits that the exclusive reliance in environmental policy on the paradigm of ecological modernization has reduced the ecological problematique to concerns about resource consumption and waste emissions and completely eclipses all other dimensions of the ecologist critique. Separating environmental protection from economic expansion is essentially important. With this distinction, it is possible to argue that economics is not the only explanatory and theoretical principle capable of advancing arguments and solutions to the vast, interrelated cosmos of environmental problems (Irwin, 2008:49). In contrast to panglobal organisations which limit their strategies to already existing ideological structures such as scientific positivism and neoliberalism, Irwin (2008) recommends for the regulations and additional infrastructure as better means for encouraging significant change in energy consumption and GHG emissions.

For the world as a whole, ‘addiction’ to fossil fuels is mainly represented by around two-thirds of the total emissions coming from energy-related activities. This simply tells us the magnitude of the required radical changes regarding the way we source and use energy. These changes can bring strong benefits elsewhere. For instance, cleaner energy can provide greater energy security and energy access while giving reductions in local air pollution. In addition, cleaner transport facilities can increase life expectancy.

However, while affluent communities enjoy easy access to energy, living without electricity continues to affect many dimensions of human development (UNDP, 2007). Energy services play a critical role not just in supporting economic growth and generating employment, but also in enhancing the quality of people’s lives. Around 1.6 billion people in the world lack access to such service (World Energy Outlook 2006). Figure 6 shows the link between poverty and access to electricity of the four case countries compared to OECD.

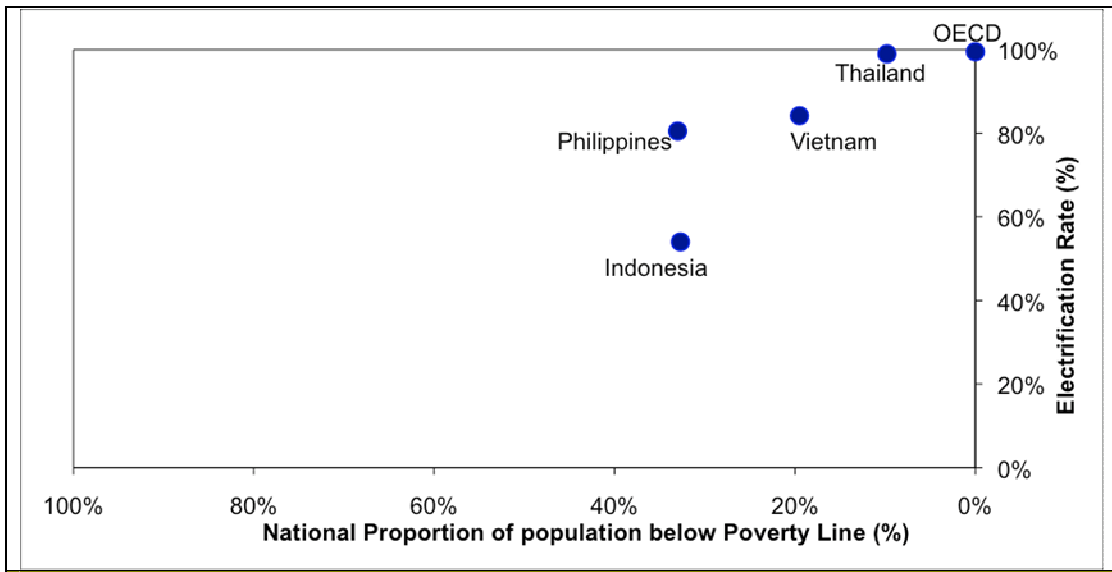


Figure 6: Link between Poverty and Access to Electricity (2004)
 Sources: Drawn based on Poverty Indicators from ADB (2008) while Electricity Access from World Energy Outlook 2006 (IEA, 2008)

This vast deficit in access to basic energy services has to be considered alongside concerns over the rise in CO₂ emissions from developing countries. In 2006, the number of people in Thailand, Indonesia, Philippines and Vietnam who are living without access to modern electricity is around 131 million or 29% of the entire population (World Energy Outlook 2006). These are people who live without so much as a light bulb in their homes and rely on firewood for cooking. While access to energy is increasing across the developing world, progress remains slow and uneven, holding back advances in poverty reduction. Thus, changing this picture is vital for human development, and the challenge therefore is to expand access to basic energy services while limiting increases in the depth of the developing world's per capita carbon footprint.

Technology Transfer

Acknowledging that we cannot simply leave the correction of externalities to carbon markets or taxation, Stern (2008:25) views that policy in the area of technology is of great importance. We all gain from reduced emissions if others adopt cleaner technologies quickly. Stern (2008) argues that unless financing flows for the extra costs of reducing emissions are available to developing countries, they are extremely unlikely to join the effort on the scale and pace required. These countries feel the inequities of the situation and phenomena acutely arguing that since they are just beginning to overcome poverty, in part by rapid growth, they should not be asked to slow down. Stern (2008) suggests that financing, together with technology demonstration and transfer, will be needed to convince them that moving to a low-carbon growth path is not the same thing as moving to a low growth path. Therefore, technology demonstration and transfer is urgent; financial resources must be made available and institutional arrangements designed.

Funding Infrastructures: Trends in Development Assistance

The availability of financing is critical for energy supply projects because of their capital intensive nature (Miller, 2008). Development institutions are expected to take the lead in

finding ways to address this issue (Whaley, 2008:13). In the world's leading industrialised nations' (the G8) 2005 meeting in Gleneagles, MDBs were called upon to broaden and accelerate their activities on access to energy and climate change mitigation and adaptation through clean energy programs (MDB, 2008). Lately, the 2007 Bali Action Plan adopted through the UNFCCC reiterate the emphasis on MDB's role to support developing countries in identifying suitable actions to address climate change at national levels (Nakhooda, 2008:1-2).

MDBs provide financing, policy advice, and some grants to developing and transitioning country governments and finance private sector actors (through debt, equity and guarantees) on behalf of the international community. Sixty-seven member governments (48 from the Asia and Pacific region and 19 other OECD countries), for example, own the ADB. MDBs exist to realise an ambitious agenda, that is, the elimination of poverty and fostering sustainable development. Their core work includes financing and policy advice related to agriculture, transport, energy, and infrastructure that are essential for economic development yet also have substantial implications for climate change. The climate challenge, therefore, for MDBs is to help their client countries identify opportunities to reduce the GHG emissions associated with economic development and to identify the additional costs of pursuing these opportunities.

Integrating Climate Change Mitigations into ADB Operations

ADB is the only MDB based in Asia. Over the past decade, ADB (2007:12) claimed that more than 10% of its portfolio is spent on projects with environmental components – reaching 20% in 2006. In its 2007 Annual Report, ADB reported that its investments in energy sector totalled \$1.4 billion (or 14% of total 2007 lending of \$10.11 billion). However, only in 2008 that ADB had started refocusing its operations on the environment particularly climate change through the wider umbrella of its Strategy 2020 which refocuses the Bank's operations into five core specialisations, amongst is the environment including climate change. In 2008, ADB released its climate change strategy aiming to help its 'DMCs move their economies onto low-carbon growth paths' by: (a) improving energy efficiency; (b) expanding the use of clean energy sources; (c) reducing fugitive GHG emissions, such as methane released from landfills; (d) modernising public transport systems; and (e) arresting deforestation (ADB, 2008a: 14).

ADB Financing Arrangements: Clean Energy Programme

Oftentimes, climate change mitigation is equated with 'energy.' ADB has recognised that GHG emissions from energy represent about half of all GHG emissions in Asia. To mitigate energy-associated emissions, energy efficiency improvements, and low-carbon and zero-carbon solutions need to be adopted. This is achieved through ADB's clean energy and environment programmes, including ADB's Energy Efficiency Initiative (EEI), Carbon Market Initiative (CMI), and Sustainable Transport Initiative (STI) (ADB, 2007:16). The EEI was established in June 2005 with the aim of increasing investments in clean energy up to \$1 billion per year starting in 2008.

I assess the degree to which climate change concerns are reflected in ADB's country strategies and energy lending portfolio. To deliver the assessment, I ask two questions: (1) At conceptual level, how does ADB acknowledges climate change considerations and the need for 'mainstreaming' climate change into its Southeast Asia country operations; and (2) At operational level, how does ADB incorporates opportunities to mitigate GHG emissions and reduce climate risk in its strategies and project development?

To answer question 1, I assessed the degree to which climate change concerns are reflected in ADB’s Country Partnership Strategies (CPSs) and the succeeding Country Operations Business Plans (COBPs). Each Strategy and/or Plan were assessed based on the indicators as to whether it (1) identified priority sectors that will be affected by climate change and are central to climate change mitigation, (2) set any goals to mitigate GHG emissions in these identified sectors, (3) consider the additional costs of adaptation, and (4) consider options that will meet costs of low carbon development.

Next, I took a look at ADB’s energy lending portfolio to answer Question 2. Since energy is central to the challenge of climate change mitigation, I assume that this portfolio reflects the extent to which climate change issues have been mainstreamed into the Bank’s overall operations. I accomplished this by reviewing documents for all energy projects supported by ADB between 2000 and 2007 and assessed each energy sector loan by asking the following questions: (1) Were GHG emissions associated with the project accounted for? (2) Were alternative climate friendly approaches considered? And, (3) were other options to access additional resources to meet the costs of less GHG intensive technology considered? The conclusion would be, if a project answered ‘yes’ to two or three of the criteria, then climate change have been “incorporated”; if one then climate change has been “cited”; and if none, then climate change is “disregarded”.

Review of ADB’s Country Strategies

Country	Document Type/Date	Priority Sectors with significant implications for climate change	Climate change mitigation – specific indicators or goals/targets	Includes climate adaptation – specific indicators or goals/targets	Explores options to finance costs of low carbon development
Thailand	CPS/April 2007	Infrastructure, Energy	Yes - energy efficiency and renewables in energy sector	No	Yes – sale of carbon credits under CDM
Indonesia	COBP/October 2008, and CSP/October 2006	Agriculture, Energy, Transport	Yes – energy efficiency, renewables	Yes – flood management	Yes – sale of carbon credits under CDM
Philippines	COBP/October 2008, and CSP/June 2005	Infrastructure, Energy, Agriculture, water supply, Infrastructure	Yes - energy efficiency and renewables in energy sector	No	No
Vietnam	COBP/October 2007, and CSP/September 2007	Agriculture, water supply, energy, transport, forestry	Yes – energy efficiency, notes GHG emissions in energy and agriculture sectors, renewable energy in energy sector	Yes – increased capacity for disaster management /mitigation	Yes – considering opportunities for ADB’s Carbon Market Initiative

Table 1. Assessment of ADB’s Country Strategies for the four case countries

Recent ADB country strategies have increasingly made note of opportunities to reduce GHG emissions. Of the four Country Strategies reviewed, all recognised the need to improve efficiency and reduce GHG emissions associated with interventions in the energy sector. Of these strategies, CPS for Indonesia notes the need to enhance efficiency and reduce dependence on oil, and then sets goals to reduce air emissions and also notes the need to find CDM opportunities to finance some of these lower emission options. CPS for Vietnam makes explicit mention of vulnerability concerns. It also identifies specific outputs and targets to increase resilience to the likely impacts of climate change. Generally, Strategies and Plans for the reviewed countries do not consistently note vulnerabilities specifically related to the expected impacts of climate change.

Review of ADB’s Energy Portfolio

Figure 8 shows that climate change has tended to be a marginal consideration in energy sector projects at ADB until 2006. In 2007, however, shortly after ADB launched its new programs on clean energy and climate change, a significant improvement is observed in the extent to which climate change considerations are reflected in project documentation. This improvement seems to stem in part from implementation of the Bank’s Energy Efficiency Initiative, which involves screening all projects for efficiency opportunities, and monitoring efficiency components in its energy portfolio, an observation which Nakhooda (2008:10) also noted. It remains to be seen whether this emphasis will be sustained, and whether these changes are supporting transformative reductions in GHG emissions from energy sector projects in the four Southeast Asian case countries.

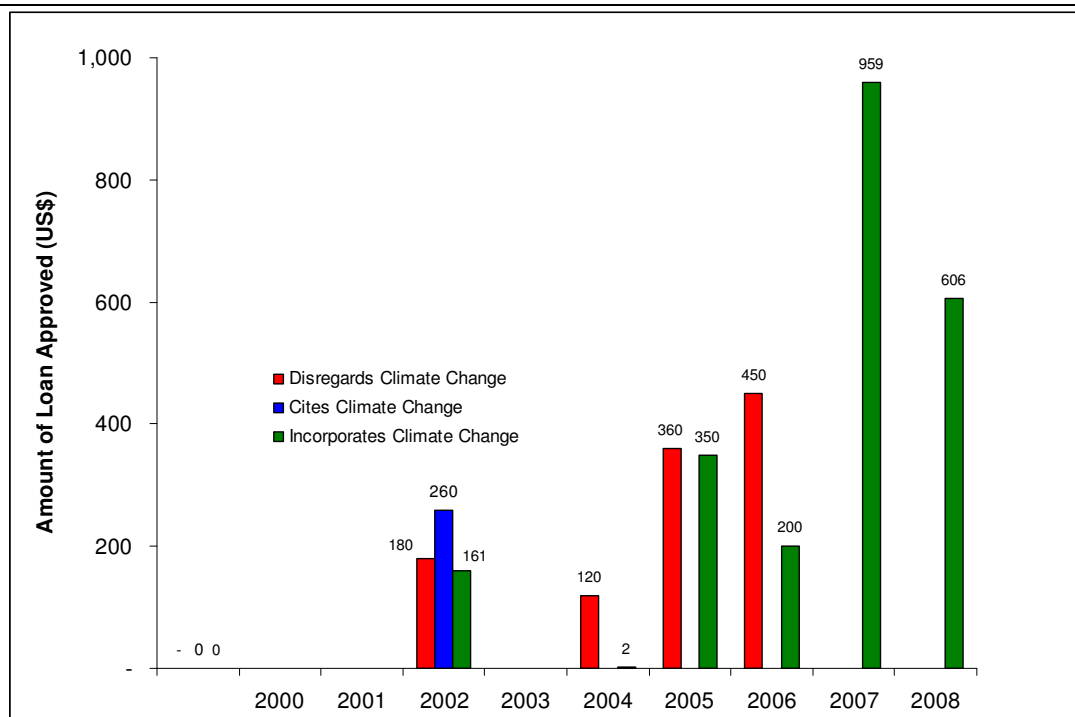


Figure 7: ADB support for energy projects in Thailand, Philippines, Indonesia and Viet Nam, 2000-2008

It should be noted that funding levels for projects do not tell the whole story. The trend presented in Figure 7 with respect to ADB's investment in climate friendly technologies has been promising. However the challenge for climate policy is the need to move quickly to promote changes on a much larger scale than before.

How mainstream is climate change to ADB operations?

Although there has been some improvement in the past few years, the difficulty remains in identifying a trend towards systematic incorporation of climate change issues into ADB's operations. Thirty percent of financing for the energy sector from 2000 to 2008 has not considered climate change at all (see Figure 8). As of November 2008, 52 percent of its financing has comprehensively integrated climate change considerations.

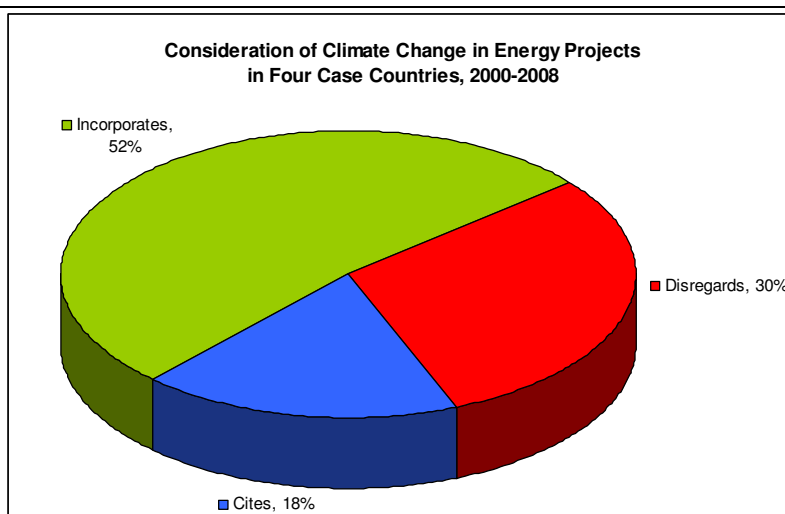


Figure 8: Consideration of climate change in ADB's energy projects in Thailand, Philippines, Indonesia and Viet Nam, 2000-2008

Attention to climate change, as measured in the Bank's energy portfolio has varied significantly from year to year as shown in Figure 7. This is in part because support for the energy sector tends to be 'lumpy,' often involving several large scale discrete projects. Renewable energy projects are often smaller in scale than conventional projects, and therefore absorb a smaller share of institutional resources per project. While ADB has significant discretion over which issues will be prioritised in the Strategies and Plans, inconsistent attention to climate change in the Strategies may reflect, partly, the priorities of its DMCs' national development agendas (which may not always place due emphasis on climate change).

Afterthoughts

If ADB is going to remain engaged in energy intensive and fossil fueled sectors, then it is essential that it does so in the most climate sensitive and energy efficient ways possible. While conventional energy projects are often lucrative commercial investments, it may not always deliver real sustainable development outcomes. ADB needs transformative changes in key sectors to steer investment towards low carbon, environmentally sustainable choices; this will be difficult to achieve when it remain invested in many BAU projects and policies. Several examples of strong practice in integrating climate change considerations into Country Strategies and project appraisals are available that need to become universal practice. ADB must follow through on its public commitments to help its clients address climate change, particularly in the energy sector. Progress along these lines must be measurable and measured – and made much more rapidly than it has been to date. ADB needs to consider supporting renewable energy and efficiency projects for which stable and robust rates of return on an investment may not always be guaranteed, and higher levels of risk may need to be tolerated. Banks are often still too conservative when it comes to investments in energy efficiency and renewable energy technologies. While the structure and flow of returns from such investments may be less familiar, there is a growing body of evidence to suggest that such investments are in fact far less risky than they are often perceived to be.

The exigency to respond to climate change, should not, however, lead to the imposition of a new form of conditionality where the Bank compels clients into reducing emissions at the expense of meeting economic development needs. Instead, ADB must constantly help its DMCs to assess the full collection of options for low carbon, climate resilient development. Along these lines, there is a need, therefore, to:

1. Implement thorough and transparent GHG accounting methodologies. Country Strategies could consider options to work with and support local capacity to reduce GHG emissions, especially in the context of renewable energy and efficiency. ADB can help through capacity building of actors and institutions in DMCs to measure and manage GHG emissions.
2. Evaluate alternative approaches that might help DMCs lessen carbon emissions while still meeting their development objectives.
3. Identify in Country Strategies how sectoral policies will affect emissions trajectories in client countries and how these strategies will be affected by predicted impacts of climate change. Climate change should be incorporated to considerations in Country Strategies rather than included as an afterthought.
4. Raise support to low carbon technologies to significant levels. ADB can play an important role to support the commercialisation and deployment of low carbon technologies and approaches to help reduce future GHG emissions. Such projects may be smaller in scale than conventional energy investments and therefore more transaction intensive but the ‘value added’ of ADB support for such efforts is much greater. While ADB has adopted specific targets to increase support for renewable energy and energy efficiency respectively, there remains colossal scope to scale up these efforts. ADB needs to be less conservative when investing in renewable energy and energy efficiency.

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