Chapter 3

Mitigation and Adaptation – Sectors and Actors

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Introduction

Focussing upon climate change related issues within selected sectors or topics, this chapter summarises how Part II of the White Paper addresses the impacts of climate change on key sectors and policy responses from around the Asia-Pacific region. Four priorities were identified in Chapter 2 for consideration by the region's policymakers: (i) achieving global participation in the future climate regime through more effective involvement of developing countries in the Asia-Pacific; (ii) enhancing the adaptive capacity of the region's vulnerable populations; (iii) seeking the best use of the power of market mechanisms (predominantly for mitigation); and (iv) realising the vision of a sustainably developed but low carbon society through effective design of policies with joint climate and sustainable developmental benefits. These four priorities are being explored in much greater depth through a series of ongoing research projects being undertaken by the Institute for Global Environmental Strategies (IGES). Broadly, Part II of the White Paper outlines four sectoral studies and two studies of the key actors, drawing from IGES' ongoing strategic research. Some of the key questions addressed in Part II are as follows.

What is the current status of climate change aspects of sectoral policies in the region?

Most of the current sectoral policies in the region have yet to recognise, let alone adequately deal with, the impacts of climate change. There are a few pilot projects where mitigation and adaptation to climate change are being promoted by the multilateral development banks and there is an emerging financial mechanism for such projects through the Global Environment Facility (GEF). Where clean development mechanism (CDM) projects are available, sectoral agencies in developing countries have taken advantage of a new funding mechanism for projects.

However, most sectoral agencies have not yet formed an adequate understanding of how their own sector will be impacted by climate change (a subject that is dealt with in greater detail in subsequent chapters of the White Paper) or how their sector may have climate change impacts on other sectors. They understand in broad terms that average temperatures may rise, extreme climate events may become more frequent, sea level may rise, glaciers are likely to melt faster, etc., but this general knowledge has rarely been translated into specific changes, specific locations and specific time frames that would indicate when and where a specific kind of policy response will be needed. Hence, most sectoral agencies and sector policymakers have taken a "wait and see" attitude.

As the climate is likely to change over a long period of time, the impacts may not be obvious or serious for several decades, and while mainstream mass media maintain that there is still considerable uncertainty regarding climate change, policymakers are reluctant to act hastily. They may be more convinced by “no regrets” strategies that achieve climate change control goals while simultaneously meeting other sectoral goals, at minimal or no additional cost. However, they are not yet ready to implement transformative policies that would attack directly the underlying production and consumption drivers.

In Chapters 4, 5, and 6, the White Paper examines sectoral policy responses to climate change mitigation in three key sectors—forestry, energy and waste management. By way of contrast, Chapter 7 focuses on another sector, water, where adaptation is likely to be crucial under the conditions projected for the latter part of this century.

It is clear that current climate change policies in Asia-Pacific are not adequate, in virtually all sectors. Much deeper cuts in greenhouse (GHG) emissions will be needed to keep atmospheric levels to historic norms. Much faster and more comprehensive adaptation measures will be needed in low-lying countries in danger from sea level rise, continental countries dependent on glacial melt to support agricultural production, and countries already suffering from accelerated desertification. The national commitments to global agreements on climate change are taken seriously in too few countries in the region. Sectoral policies to address climate change, where they exist, are not being implemented rigorously as most countries believe there is still plenty of time to watch the impending climate changes unfold. In some cold countries, decision-makers may even believe that they will be better off with a warmer climate, so see no need to take precipitous action.

What are the priorities for national and regional policymakers to move from environmental policy as mere rhetoric to robust transformation of production and consumption sectors?

To bring climate change to the fore of policymaking, any lingering uncertainty driven by the oil and coal industry and supported by parts of the mass media needs to be systematically answered. The Intergovernmental Panel on Climate Change (IPCC) and Al Gore’s movie (An Inconvenient Truth) have gone a long way in raising public awareness of climate change issues and the need for policy change. Thanks to such efforts, in most countries, an increasing number of policymakers are now fully aware of climate change and the associated potential risks. However, there are still some who remain skeptical of climate change.

Once there is adequate acceptance that climate change is real and is caused by human action, the next greatest need in the developing countries of Asia and the Pacific is to find policy solutions that simultaneously address poverty alleviation and climate change. In the region’s developed countries, the policy challenge is to continuously and drastically decouple energy use and economic growth, without transferring energy intensive (and polluting) industries to developing countries. In all countries, policies that hasten technology change and improved energy efficiency must continue. In almost no country has there been an effective set of policies to reduce energy intensive consumption. This may prove to be the greatest challenge of all, as people in all developing countries hope to emulate the consumption luxuries of the USA and Europe.

How are developing countries approaching mitigation in key sectors?

Most developing countries in Asia and the Pacific find it rather unfair to be asked to contribute to reduction of GHG emissions, especially when their per capita emissions are so much lower than developed countries. Now we live in a globalising world, in which developed and developing countries are intrinsically linked. A significant portion of the production from developing countries is consumed in developed countries, and large volumes of e-waste, for example, are transferred to developing countries for extraction of valuable embedded materials. Indeed, globalisation of industry makes it more difficult to know where ultimate responsibilities for GHG emissions lie. There is always willingness, however, for developing countries as part of a globalised economy to contribute to global mitigation efforts under specific conditions that meet their national economic and social welfare interests.

For example, countries that are interested in maintaining or expanding national forest cover need to find a good economic argument to keep valuable resources "locked up" or to prevent landless farmers and illegal loggers from abrogating state ownership and control of the forest resources. If wealthy developed countries are prepared to pay for carbon sequestration in the forest domain of developing countries, then this can be a win-win situation. The international community is now attempting to extend this win-win logic to "reduced emissions from deforestation and degradation in developing countries" (REDD). As it is not in the interests of the global community to have countries continuously releasing the second largest source of GHG emissions through deforestation, then perhaps developed countries could also pay for the climate benefits of avoided deforestation. This approach would have the added benefits of preserving biodiversity in tropical forests and maintaining critical ecosystem functions, such as protection of watersheds, although there are some technical issues to resolve first. How would such arrangements impinge on forest dependent communities, often with inadequate tenure rights over their traditional forest areas? Would payment for carbon sequestration in the tropical forests of Asia-Pacific assist or detract from sustainable development? Would the inclusion of REDD in global carbon trading schemes have adverse impacts on the price of carbon or should there be a separate market? These and other related aspects of the complex world of climate change and forest policy in the Asia-Pacific are addressed in Chapter 4.

A remarkably similar set of policy calculations are implied in Chapter 5, dealing with the controversial issue of biofuels. Here the interests of developing countries lie in creating a new export product and/or enabling a degree of national energy security. From an economic perspective, countries with abundant land, water and sunlight, plus cheap labour should have a comparative advantage in producing biofuel crops for a rapidly growing global market. Mandatory requirements to achieve certain levels of biofuel use as part of developed country responses to climate change have helped to create a sizable market opening for biodiesel and bioethanol production in developing countries.

In the rush to develop biofuel crops (like oil palm and sugar cane), the impacts of biofuel production on sustainable rural development and food prices are beginning to become clearer. If agricultural land is devoted to biofuel crops, then the opportunity cost of land becomes tied to global energy policy and pricing and is divorced from its critical role in food production and food security. It is also possible that excessive development of biofuel crops may lead to renewed pressure for deforestation, paradoxically linking these two responses to climate change mitigation in a conflicting

manner. Oil palm plantations on converted tropical peat land may actually increase GHG emissions rather than contribute to climate change mitigation.

Chapter 5 indicates that a preferred course of development for biofuel production would be to focus on waste as raw material, rather than occupying valuable land needed for food production or destroying tropical forests. For example, if cost-effective second generation biofuel technologies are developed, wasteland (like the large areas of alang alang grassland in Asia) could be used for production of cellulosic ethanol, or municipal solid wastes could be used to produce compressed natural gas from controlled landfills. Combining waste recycling and biofuels production is another means of integrating sustainable development and climate change. Further technological development and economies of scale may be needed, however, before the waste-to-biofuel route is a viable policy option.

Chapter 6 provides a further link to the role of wastes in mitigating climate change, but from a slightly different perspective. It focuses on the linkages between municipal organic waste management and climate change in developing nations of the Asia-Pacific. The current practice of dumping unsorted municipal waste in landfill sites is not a sustainable solution in the long term. Organic wastes in traditional landfills normally degrade under partly anaerobic conditions and generate methane emissions. Methane is a more potent GHG than carbon dioxide (CO_2) and is a major contributor to climate change. Collecting and using landfill gas, composting and biogas production from organic wastes are examined as possible ways of minimising this GHG. A life cycle analysis approach is adopted to narrow down the most appropriate policy responses to deal with methane emissions from municipal waste. Extracting energy (and raw materials) from waste is consistent with the “reduce, reuse, recycle” (3R) approach being adopted as part of sustainable development strategies and is further evidence of how the climate change and sustainable development can be integrated.

What about adaptation?

As many developing countries in the Asia-Pacific are relatively minor contributors to global warming, but all countries are likely to be affected by the consequences of global climate change, their primary interest is often directed towards adaptation rather than mitigation. The need for adaptation has a high level of awareness especially in Pacific Island countries, but is gradually receiving greater attention in other low-lying areas as well. Any comprehensive plan to address climate change will need to pay equal attention to mitigation and adaptation. Virtually all sectors will need to have adaptation plans.

As climate change will have major impacts on the region’s freshwater resources, ranging from increased floods to increased incidence of droughts, depending on location and season, this topic has been chosen for analysis in Chapter 7. Much of the Asia-Pacific region relies on groundwater as a major source and store of freshwater. Unfortunately, existing pressures on this resource have led to overexploitation and serious pollution of groundwater, particularly in densely populated urban areas. Chapter 7 examines whether climate change will make this existing situation better or worse, and where it is made worse, what adaptation measures might be proposed. The difference between “no-regrets” adaptation measures and more anticipatory measures that might result in needless expenditure and their respective levels of benefit is

documented. As in the other chapters in Part II, this chapter also highlights why climate change adaptation is an integral part of sustainable development planning.

How are the key actors responding to the climate change challenges?

The first institutional reality to face is that everyone is in this climate change mess together, as the atmosphere is a clear example of a global commons, meaning that a wide range of partnerships across all countries is needed. No single group will be able to tackle all of the dimensions of climate change on its own. Public-private partnerships may help in seeking changes in industrial production, energy and transportation systems. Consumers need to be encouraged to make lifestyle changes that will reduce pressure on the global climate, but such encouragement may come in the form of public policies that will often be unwelcome. Sectoral agencies need to cooperate under executive leadership. Above all, courageous political leadership is needed to fend off the pressure from vested interests and to take resolute action even when uncertainty lingers.

Chapters 8 and 9 analyse the key actors in the climate change scenario playing out in the Asia-Pacific region. The first observation reinforces the recommendation of Part I that global participation in the future climate regime is crucial and countries in the Asia-Pacific region should take a more proactive role in future negotiations. While each country tends to view climate change from different angles, all countries will be affected to some extent and, therefore, all countries need to participate in finding solutions. This means that not only all countries need to be given space to express their differing perspectives, but also that all interest groups within each country must feel that they have been given adequate opportunity to participate.

Chapter 8 explores how governments in the Asia-Pacific region have responded to the challenges of climate change since ratifying the UNFCCC. What institutions have been created, what legislation has been enacted, and what policies have been adopted? This chapter identifies the most promising and/or effective institutional options. If institutions matter, as demonstrated in earlier chapters, then Chapter 8 lays out the existing institutional foundation for future climate change regimes and identifies the emerging institutional challenges, as the region comes under increasing global pressure to take a more proactive role in mitigating the impacts of climate change. Chapter 8 demonstrates that there is a danger that the separate focus on climate change and sustainable development in the Asia-Pacific region will become institutionalised, as difficulties in cross-ministry communication is a common feature of government administrations in developing countries. Chapter 8 examines global best practices for a more integrated approach to environmental governance.

Chapter 8 also looks at how the principle of subsidiarity is employed in the region and how this may affect decentralised institutional arrangements for dealing with climate change. There is considerable evidence from developed countries that sub-national and municipal governments often have more active and practical environmental programmes than the central government. This has spilled over into the area of climate change, especially in those governments which tend to adopt a “wait and see” attitude. The relationship between the different layers of administration and how clear roles regarding mitigation and adaptation can be defined is examined from the perspective of governments with differing views on how to deal with climate change.

Chapter 9 addresses the issue of energy efficiency (EE) solutions from the perspective of the industrial sector. Business responsibilities in this region have expanded gradually from profit-making to multiple responsibilities including clean air and corporate environmental and social responsibility (CESR). CESR encompasses business responses to climate change, ranging from EE audits to carbon neutrality.

As the debate on climate change has been elevated in international policy regimes, all stakeholders are now looking to businesses as solution-providers for mitigation and adaptation strategies. Business appears to be increasingly aware of its responsibility, but operates in an environment of high complexity and uncertainty. Chapter 9 discusses the role of business in improving EE in the industrial sector, as industries are responsible for a significant portion of emissions and must factor climate change responses into future technology choices and investment. By illustrating business cases of short payback periods and increased profits, the chapter shows that EE can be a no-regrets strategy or “low hanging fruit” for companies of all sizes.

As shown in Part I of the White Paper, acceptance of new ways to address climate change depends on a shift in the perceived benefits of making those changes by a critical mass of affected stakeholders. Chapter 9 analyses the constraints faced by industries to invest in EE, and examines corrective actions to be taken by policymakers and other stakeholders.