

THE BALI ACTION PLAN: KEY ISSUES IN THE CLIMATE NEGOTIATIONS

SUMMARY FOR POLICY MAKERS

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OBJECTIVES OF THE PROJECT

The UNDP project, “Capacity development for policy makers to address climate change” seeks to strengthen the national capacity of developing countries to assess climate change policy options across different sectors and economic activities. The project will run in parallel with the “Bali Road Map” process agreed at the UN Climate Change Conference in December 2007, which includes the “Bali Action Plan” – the United Nations Framework Convention on Climate Change (UNFCCC) negotiations on long-term co-operative action on climate change set to conclude by the end of 2009.

To effectively participate in, and develop positions for, this challenging and complex negotiation process, developing countries – in particular those with medium- and small-size economies – will be required to involve and increasingly co-ordinate various government decision-makers across key sectors at the national level, as well as other relevant stakeholders. This will require raising the awareness about the key issues and elements under discussion and strengthening capacity to develop, implement and evaluate policy options in the context of the international negotiations.

The overall goals of the project are twofold:

- To increase national capacity to co-ordinate ministerial views, participate in the UNFCCC process, and negotiate positions within the timeframe of the Bali Action Plan; and
- To assess investment and financial flows to address climate change for up to three key sectors and/or economic activities.

The project will support these goals by expanding the knowledge base on climate change issues and broadening access to this knowledge so that policy makers, parliamentarians, technical experts, and other key stakeholders can participate and share experiences at the national, sub-regional, regional and global levels. As a result, both the technical understanding of key climate change issues and their economic and policy implications within the context of the Convention will be enhanced.

The assessment of investment and financial flows will play a particularly important role. At the national level, it will help countries understand the magnitude and intensity of the national effort needed to tackle climate change in key sectors and economic activities. It will also help facilitate the integration of climate change issues

into national development and economic planning. At the international level, an assessment of investment and financial flows will help maximize national participation in the international climate negotiations by providing more accurate estimates of funds needed for mitigation and adaptation. By providing useful inputs to the international debate, a financial flows assessment can help provide that an appropriate financial architecture plays a key role in any long-term cooperative action.

To assist policy makers in understanding the complex issues under discussion in the negotiating process, UNDP commissioned a series of background briefing papers on the key issues under the four main “building blocks” of the current international negotiations – mitigation, adaptation, technology and finance – as well as land use, land-use change and forestry (LULUCF).

This document contains summaries for policy makers of these briefing papers. All the briefing papers are available in the UN languages on the UNDP web site at: <http://www.undp.org/climatechange/documents.html>.

THE BALI ROAD MAP

At the United Nations Climate Change Conference in Bali in December 2007, governments from around the world – both developed and developing countries – agreed to step up their efforts to combat climate change and adopted the “Bali Road Map”, which consists of a number of forward-looking decisions that represent the various tracks that are essential to reaching a secure climate future. The Bali Road Map includes the Bali Action Plan, which charts the course for a new negotiating process under the UNFCCC, with the aim of completing this by 2009. It also includes the current negotiations under the Kyoto Protocol, and their 2009 deadline, which focus on further quantified emission reduction commitments for industrialized countries, as well as negotiations on the ongoing work pertaining to key issues including technology, adaptation, and reducing emissions from deforestation.

The Bali Action Plan

The Bali Action Plan, adopted by the Conference of the Parties (COP)¹ as decision 1/CP.13, launched a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session in Copenhagen in December 2009. The COP also decided that the process would be conducted under a new subsidiary body – the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) – that shall complete its work in 2009.

The Bali Action Plan is centred on four main building blocks – mitigation, adaptation, technology and financing. Parties also agreed that the negotiations on a long-term agreement should address a shared vision for long-term cooperative action, including a long-term global goal for emission reductions. Furthermore, the future discussion should address enhanced national/international action, including the consideration of:

- measurable, reportable and verifiable nationally appropriate mitigation commitments or actions by all developed countries, and;
- nationally appropriate mitigation actions by developing country Parties, supported and enabled by technology,

financing and capacity-building, in a measurable, reportable and verifiable manner.

Other subjects for the future discussion include the use of sectoral approaches; approaches to enhance the cost-effectiveness of mitigation actions, including market mechanisms; and the issue of reducing emission from deforestation and forest degradation in developing countries (REDD).

Two-Track Approach: The UNFCCC and the Kyoto Protocol

Future international action is being addressed by a “two-track” approach. In parallel with the Bali Action Plan negotiations under the UNFCCC (also referred to as the Convention), negotiations are also underway under the Kyoto Protocol. Provisions of the Kyoto Protocol also address the key issues being discussed under the Bali Action Plan and there are many linkages between the two processes. For example, on mitigation, Parties to the Kyoto Protocol are currently discussing the next round of commitments after 2012, when the first round of commitments will expire. Furthermore, Parties are working on an analysis of the different tools and rules for developed countries to reach reduction targets and ways to enhance

THE CONVENTION (UNFCCC) TRACK

- Focuses on four “building blocks”: adaptation, mitigation, technology transfer & deployment, financing
- Reducing emissions from deforestation and forest degradation (REDD) also discussed
- Mitigation actions from developing countries
- Mitigation commitments from developed countries

THE KYOTO PROTOCOL TRACK

- Agree on developed country emission reduction targets by 2009. At their third session in 2007, Parties to the Kyoto Protocol took note of the conclusions by the Intergovernmental Panel on Climate Change (IPCC) that greenhouse gas (GHG) emission reduction commitments between 25 and 40% below 1990 levels were needed on the part of industrialized countries for the period beyond 2012 to limit a mean global temperature increase, with GHG emissions peaking within the next 10 to 15 years before going down
- Means to achieve targets: market mechanisms, national policies, accounting issues, role of land use, land-use change and forestry (LULUCF), etc.

¹ The COP is the supreme decision making body of the UNFCCC.

the effectiveness of tools such as the market mechanisms. The Kyoto Protocol also addresses adaptation. Under the Kyoto Protocol, the Adaptation Fund was established to finance concrete adaptation projects in developing countries. Parties are currently continuing their discussions to further operationalize this important fund.

Meetings of the AWG-LCA and the body working on new commitments under the Kyoto Protocol – known as the Ad Hoc Working Group on further Commitments for Annex I Parties under the Kyoto Protocol (the AWG-KP) – are held in conjunction with one another. The future relationship between these two tracks (i.e., will they remain separate or will the discussions be brought together) is another question being considered in the negotiations.

The road to Copenhagen: progress to date

The **first session of the AWG-LCA** took place in Bangkok, Thailand, from 31 March to 4 April 2008. At this meeting, the AWG-LCA agreed to undertake its work, seeking progress on all the elements assigned to it by the Bali Action Plan, in a coherent, integrated and transparent manner, and identified specific workshops to be held in 2008. It further agreed to organize its work at each session to include each of the elements, taking into account the interlinkages among them, and the work of the Convention's subsidiary bodies in the context of the Bali Road Map.

The **second session of the AWG-LCA** took place in Bonn from 2 to 12 June 2008. At this session, the AWG-LCA focused its work on building a common understanding of the elements of the Bali Action Plan. The group held three focused in-session workshops on advancing adaptation, transfer of technology, and investment and financial flows. Parties presented a number of concrete ideas and proposals on how to address the “shared vision”, mitigation, adaptation, technology and finance. The AWG-LCA concluded by inviting Parties to submit specific textual proposals on the elements contained in the first paragraph of the Bali Action Plan, which spells out the key issues to be addressed, taking into account the interlinkages among the elements.

The main focus of **third session of the AWG-LCA** in Accra in August 2008 was to continue to exchange ideas and clarify key elements of the Bali Action Plan (decision 1/CP.13), including a “shared vision for long-term

cooperative action,” mitigation, adaptation, technology and finance. Two in-session workshops were held on:

- Cooperative sectoral approaches and sector-specific actions, and policy approaches; and,
- Policy incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries (REDD), and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

The Accra climate change talks resulted in the adoption of conclusions on long-term cooperative action and on the 2009 work program under the AWG-LCA. Parties also agreed to compile ideas and proposals on the elements of the Bali Action Plan for discussion at COP 14 in December 2008 in Poznan, Poland.

Ongoing work under the Kyoto Protocol

At its most recent session, held in Accra alongside the AWG-LCA, the AWG-KP focused on the means for industrialized countries to reach emission reduction targets, with delegates addressing the flexible mechanisms (the market-based mechanisms under the Protocol) and land use, land-use change and forestry (LULUCF). Parties also considered an agenda item on “other issues” comprising: greenhouse gases; sectors and source categories; approaches targeting sectoral emissions; methodological issues; and spillover effects.

UN Climate Change Conference in Poznan (December 2008)

The next sessions of the AWG-LCA and the AWG-KP will be held in conjunction with COP 14 in Poznan, Poland. COP 14 will be an important stepping stone on the way to COP 15 in Copenhagen. Countries have agreed that in Copenhagen, an ambitious climate change agreement will be reached to follow on the first phase of the Kyoto Protocol, which expires in 2012. At Poznan, Parties to the UNFCCC will take stock of progress made in 2008 and map out in detail what needs to happen in 2009 to get to that agreement.

POLITICAL OUTCOMES FROM PREVIOUS SESSIONS OF THE COP

COP 1	Berlin Mandate	Launched a process to decide on stronger commitments for Annex I Parties
COP 2	Geneva Declaration	Renewed the momentum of the Kyoto Protocol negotiations (taken note of, but not adopted)
COP 3	Kyoto Protocol	Set legally binding targets and timetables for cutting the greenhouse gas emissions of Annex I Parties
COP 4	Buenos Aires Plan of Action	Set out program of work on issues under the Protocol; Established deadline for completion as COP 6 in 2000
COP 5	No declaration	Held “exchange of views” on selected topics during the high-level segment (seen as mid-point toward COP 6)
COP 6 parts I-II	Bonn Agreement	Part I could not reach agreement, so resumed in Bonn Part II reached the Bonn Agreement (political package) Between Part I & II, the US announced it would not ratify the Kyoto Protocol
COP 7	Marrakesh Accords	Translated Bonn Agreement into decisions setting out detailed rules for the implementation of the Protocol and took important steps toward implementation of the Convention
COP 8	Delhi Declaration on Climate Change and Sustainable Development	Reaffirmed development and poverty eradication as overriding priorities in developing countries and highlighted the importance of adaptation
COP 9	No declaration	President’s summary of round table discussions included in report of the session
COP 10	Buenos Aires Programme of Work on Adaptation and Response Measures; seminar of government experts	Calls for action on issues to address the adverse effects of climate change and response measures; seminar to promote an informal exchange of information on mitigation and adaptation, and on policies and measures
COP 11/ CMP 1	Decisions establishing the AWG-KP and Dialogue	Under the Protocol, a new working group was established to discuss future commitments for developed countries for the period after 2012. Under the Convention, a dialogue on long-term global cooperative action to address climate change was also launched. Parties to the Kyoto Protocol also formally adopted the “rulebook” of the 1997 Kyoto Protocol, the so-called ‘Marrakesh Accords’, which sets the framework for implementation of the Protocol
COP 12/ CMP 2	Nairobi Work Programme on Impacts, Vulnerability and Adaptation	The program was adopted by the SBSTA and subsequently re-named by the COP. Decisions related to financial flows were adopted and the two Montreal processes made progress
COP 13/ CMP 3	Bali Road Map	Includes a number of forward-looking decisions that represent the various tracks. It includes the Bali Action Plan, which charts the course for a new negotiating process designed to tackle climate change, with the aim of completing this by 2009

UNDP BALI ACTION PLAN BRIEFING PAPERS: SUMMARIES FOR POLICY MAKERS

To assist policy makers in understanding the complex issues under discussion in the negotiating process, the following section contains summaries of six background briefing papers prepared by UNDP. The papers discuss key issues for the four main “building blocks” currently under discussion in the international negotiations – mitigation, adaptation, technology and finance – as well as LULUCF, and include short histories of the international negotiations for each of these topics.

Summary of “Climate change mitigation negotiations, with an emphasis on options for developing countries”

by Harald Winkler, Energy Research Centre, University of Cape Town

Mitigation – the reduction of emissions of greenhouse gases (GHGs) – has been at the heart of the climate negotiations from the outset. As the next round of negotiations focuses on what developing countries might do on mitigation, the topic takes on an increased importance. However, reaching agreement on action on mitigation presents a major challenge. What is common for both developed and developing countries is that they take “measurable, reportable and verifiable” mitigation action, as called for under the Bali Action Plan. For developed countries, these should be in the form of commitments to absolute emission reductions. For developing countries, mitigation actions need to be developed in a bottom-up manner to achieve reductions relative to baseline emissions, and be supported by technology and finance. There are a number of specific proposals under consideration by Parties and developing country policy makers will need to carefully consider the implications of different approaches for their respective countries.

A wide variety of approaches to future actions have been proposed. These approaches reflect differing views among governments on the criteria to be used for considering these actions. The key concern of some countries is that any agreed actions be equitable, such as ensuring equal entitlements to emit for each person.

Some approaches emphasize the need to ensure continued economic development, while other proposals focus primarily on technological approaches. The proposals, many of which are complex and detailed, are briefly highlighted below:

- *Kyoto-style fixed targets:* These targets take the form of an agreed percentage reduction against annual emissions in a base year, 1990. An absolute number of tons of CO₂ to be reduced is calculated. By starting from the countries’ own emissions, the approach “grandfathers” existing differences between countries in emissions. This is the approach for industrialized countries under the Kyoto Protocol.
- *Per capita:* The “per capita entitlements” approach takes as its starting point the equal right of each person to use the atmosphere as a global commons. In a pure per capita approach, there is no reference to current emissions levels, but simply a global budget allocated equally to countries based on population. Some developing countries favor per capita approaches. However, the approach is less attractive to less populous nations, who would argue that there is more than one dimension to equity.
- *Brazilian Proposal:* The Brazilian proposal bases its burden-sharing approach on historical responsibility for change in temperature to individual countries. A key difference to most other approaches is the use of cumulative historical emissions rather than current annual emissions. For the Brazilian proposal, of

particular significance are the gases and sectors (forestry) chosen; the end date for analysis; and the representation of atmospheric chemistry in the model. The approach requires significant data, and this may limit applicability.

- *Emissions intensity:* This approach requires reductions of emissions relative to economic output (i.e., emissions compared to GDP) and therefore allows for growth in emissions if there is economic growth. To account for different national circumstances, commitments could be formulated as a percentage decrease from each country’ own emissions intensity. These goals would be harder to meet if economic growth remains lower than expected, given the reduced capacity. If successful, reduced intensities should assist in de-coupling emissions from economic growth. The approach is often considered “softer” than absolute targets since it quantifies emissions in relative terms.
- *Sustainable development policies and measures (SD-PAMs):* This approach suggests that developing countries themselves identify more sustainable development paths and commit to implementing these with financial support. It starts by considering a country’s own long-term development objectives. Next, policies and measures are identified to make the development path more sustainable. Each country would define what it means by making development more sustainable, but when registering SD-PAMs, the international community would have to agree.
- *Evolution of the CDM:* A major way in which developing countries are already engaging in mitigation is through the Kyoto Protocol’s CDM. The CDM is a project-based mechanism that allows cooperative action between countries that have a cap on emissions and those that do not. This shifts the focus from where mitigation takes place to who pays for mitigation. Extending the CDM beyond a “project basis” is not a commitment to reduce emissions domestically, but it could be an important form of nationally appropriate mitigation action in developing countries.
- *Global Triptych:* The Triptych approach focuses on three sectors – electricity generation, energy-intensive industries and “domestic sectors” (including residential

and transportation). Triptych was originally used to share the burden of the Kyoto targets within the European Union. Analysis has considered extending this sectoral approach to all countries. Apart from taking a sectoral approach, Triptych also takes into account the technological opportunities available in various sectors.

- *Sectoral Approaches:* People can mean many different things when they use the term “sectoral” – including: sectoral CDM; benchmarks across trans-national sectors; technology transfer in specific sectors; the sector-based Triptych approach; and sectoral crediting mechanisms. Given the various types of sectoral approaches, two distinctions may help: *Is the proposal to implement at the domestic, national level only, or transnational?; Is the focus on a new agreement, or the efforts that Parties make?* Different ends of the spectrum would then be domestic sectoral efforts and transnational sectoral agreements.

Agreeing to actions that are measurable, reportable and verifiable – known as MRV mitigation actions – is a key component in the Bali Action Plan and central to the negotiations about the future of the climate regime. Indeed, MRV is central to the balance between action on climate change and support, since it applies to both nationally appropriate mitigation actions and to the provision of technology, financing and capacity building. A way of making some progress may be to focus on details – clearly defining what is meant by measurable, reportable and verifiable.

Summary of “National policies and their linkages to negotiations over a future international climate change agreement”

by Dennis Tirpak, in collaboration with Sujata Gupta, Daniel Perczyk and Massamba Thioye

Developing country policy makers will need to consider the national policy instruments they will need to contribute to the fight against climate change.

As discussions on the international level are underway through the Bali Road Map, a national level discussion can help governments reflect on the types of policies they should use, as well as how to seek internal and external financial resources and how to reflect their views in the negotiations of a future climate change agreement.

There is a rich array of policy instruments being used by developing countries to achieve national objectives, such as improving local air pollution and reducing poverty. Most of these policies also reduce emissions of greenhouse gases. These policies, measures and instruments include: regulations and standards, taxes and charges, tradable permits, voluntary agreements, informational instruments, subsidies and incentives, research and development, and trade and development assistance. Depending on the legal frameworks available to countries, these may be implemented nationally, regionally or locally. They may be supplemented with rules, guidelines and other administrative mechanisms to achieve different goals. They may be legally binding or voluntary and they may be fixed or changeable:

- *Regulations and Standards:* Specify abatement technologies (technology standard) or minimum requirements for pollution output (performance standard) to reduce emissions.
- *Tradable Permits:* Also are known as marketable permits or cap-and-trade systems. This instrument establishes a limit on aggregate emissions by specified sources, requires each source to hold permits equal to its actual emissions, and allows permits to be traded.
- *Voluntary Agreements:* An agreement between a government authority and one or more private parties to achieve environmental objectives or to improve environmental performance beyond compliance to

regulated obligations. Not all are truly “voluntary” – some include rewards and/or penalties associated with joining or with achieving commitments.

- *Taxes and Charges:* A levy imposed on each unit of undesirable activity by a source.
- *Financial Incentives:* Direct payments, tax reductions, price supports, or the equivalent from a government to an entity for implementing a practice or performing a specified action.
- *Information Instruments:* Required public disclosure of environmentally related information, generally by industry to consumers. Includes labelling programs and rating and certification.
- *Research and Development (R&D):* Direct government spending and investment to generate innovation on mitigation, or physical and social infrastructure to reduce emissions. Includes prizes and incentives for technological advances.
- *Non-Climate Policies:* Other policies not specifically directed at emissions reduction but that may have significant climate-related effects. These include: policies on poverty, land use and land use change, energy supply and security; international trade, air pollution, structural reforms; and population policies. These policies could offer an opportunity to assess and develop synergistic sustainable development strategies.

Evaluating policy options presents many challenges, since the policy making process of most governments involves complex choices involving many stakeholders.

These include the potential regulated industry, suppliers, producers of complementary products, labor organizations, consumer groups and environmental organizations. The choice and design of virtually any instrument has the potential to benefit some and to harm others. For example, standards set at a high level may be achievable by large firms, but not by small or new firms entering the market. Voluntary measures, often favored by industry because of their flexibility and potentially lower costs, are in many cases opposed by environment groups because of their lack of accountability and enforcement.

In formulating or further enhancing a domestic climate policy program, a combination of policy instruments may work better than a single instrument.

Also, the design of instruments may need to consider how they interact with existing institutions and regulations in other sectors of society. When comparing instruments, adjusting for different levels of stringency is important. For all instruments, stringency may be set at different levels. Over time, all instruments need to be monitored, adjusted and enforced. Also, an instrument that works well in one country may not work well in another country with different economic circumstances, social norms and institutions.

In terms of the policy making process for mitigation policies and measures, an essential first step may entail enhancing awareness within ministries and across the government to ensure consistency and synergies in policy making and implementation. Each country has a policy making process that, regardless of the form of government, is complex and unique. It is often the case that while individuals may be aware of the benefits of actions that have both local and climate change benefits, that awareness is not always extended to the whole set of governmental decision makers.

Second, information may be insufficient for adequate policy design, for example – developing marginal abatement cost curves. Trying to assess the benefits of a policy and the costs of inaction may be hindered or impeded by fragmentary information. Overcoming this barrier may require competing for budgetary resources with other programs, and national priorities or finding funding from other sources and governments.

Third, national capacity to elaborate scenarios – economic, energy and climate – and to model future trends and the evolution of key variables, is sometimes limited in developing countries. This can impair the quality of decision making, or reducing the scope of policy options being considered. At worst, that capacity may be missing and the necessary analysis that informs policy design may consequently be missing.

While these constraints are inherent to policy making in developing countries, it is recognized that climate change intensifies the effect of such constraints because it creates new challenges. Climate change adds an additional dimension to efforts to promote sustainable development. On one hand, because resources otherwise needed to alleviate poverty or enhance income distribu-

tion, among other goals may need to be channelled to address climate change impacts or to facilitate mitigation policies that may be initially be more expensive such as, the deployment of the some renewable energies technologies. On the other, uncertainty on the nature, intensity, frequency and timing of impacts may artificially enlarge the magnitude of resources needed to tackle the problems of adaptation thereby creating additional financial constraints and diminishing economic efficiency. Finding synergies between sustainable development goals and responses to climate change is therefore important.

Case studies

The case studies provided in this paper offer some insights into the approaches used by developing country governments and the constraints they face. Several of them exemplify situations where explicit multiple policies were used successfully to achieve national objectives. For example, in promoting energy efficiency programs, China has used regulations, financial incentives, R&D and information instruments to achieve its objective. Kenya, over a long period and with support from others, has used R&D, financial incentives and information instruments to develop and disseminate improved cooking stoves, while India has used a combination of instruments to encourage the deployment of wind power. Several of the case studies relied almost solely on financial incentives, e.g., the promotion of wind power in Argentina and natural gas vehicles in Bolivia. Only one of the case studies, i.e., the case of an energy efficiency labelling program in Brazil, contains an example of a voluntary agreement with industry.

Summary of “Adaptation to climate change: The new challenge for development in the developing world”

by Dr. E. Lisa F. Schipper, Stockholm Environment Institute; Maria Paz Cigarán, Libélula Communication, Environment and Development, Peru; and Dr. Merylyn McKenzie Hedger, Climate Change Institute of Development Studies at the University of Sussex.

Developing country policy makers will need to reflect on their national positions on the key issue of adaptation, as important decisions will be taken in the run-up to COP 15 in late 2009. The Bali Action Plan identified the need for action on adaptation, particularly for enhanced action on the provision of financial resources, investment and technology to support action on adaptation.

Adaptation to climate change is a complex and multi-faceted topic that presents a number of challenges, particularly for the developing world. Climate change impacts are already affecting developing countries, particularly the poor and most vulnerable, because they have fewer social, technological, and financial resources for adaptation. Millions of people, particularly those in developing countries, face shortages of water and food and greater risks to health. Adaptation measures that reduce vulnerability to climate change are critical, especially in countries where the risks are “here and now”. Climate change also affects the sustainable development of countries, as well as their abilities to achieve the UN Millennium Development Goals (MDG) by 2015.

The approximate costs of adaptation are high by all estimates. The UNFCCC Secretariat has estimated that in 2030 developing countries will require \$28-67 billion to enable adaptation to climate change. Although the figure is large in absolute terms, this corresponds to 0.2-0.8% of global investment flows, or just 0.06-0.21% of projected global GDP in 2030. According to the World Bank, incremental costs to adapt to projected climate change in developing countries are likely to be of the order of \$10-40 billion per year. While there are difficulties and uncertainties in calculating an exact figure, one fact remains clear: the amount needed to adapt to climate change will be considerable and far exceed what is currently available through existing UNFCCC funds and other sources.

An important challenge in considering adaptation is defining and understanding what is meant by the term “adaptation”. Adaptation is currently the topic of numerous studies that offer a range of definitions. The IPCC offers a starting point by providing a broad definition of adaptation: adjustment in natural or human systems to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Adaptation therefore involves a process of sustainable and permanent adjustment in response to new and changing environmental circumstances. Given its far-reaching nature, it is nonetheless a difficult topic to define, particularly in operational and financial terms. However, some key points may provide a helpful framework:

- *Adaptation is not a “stand alone” issue.* It has clear synergies with important issues such as economic development, poverty reduction and disaster management strategies. A sustainable development path is vital for an adaptation process to succeed.
- *Adaptation will need to be integrated into all development planning.* This includes the national and international levels. Successful adaptation measures will require long-term thinking and explicit consideration of climate change risks at the regional (cross-national), national, sub-national and local levels.
- *Adaptation will also require the capacity for both short- and long-term planning.* Strategies will be needed to address long-term climate change impacts, such as those predicted by the IPCC. At the same time, strategies for shorter-term adjustments may also be necessary, such as those prepared for shorter-term climate variability.
- *Adaptation will require substantial funding.* All indicative estimates available suggest that the costs of adapting to climate change in the developing world are in the order of tens of billions. However, there are many difficulties and limitations in estimating the exact costs of adapting under various scenarios, as well as the ability of countries to self-finance adaptation.

In the UN climate negotiations, recognition of the need for all countries to take action on adaptation has

grown over time, as the impacts of climate change have become increasingly evident. The international effort to date has delivered considerable information, resources and capacity building. However, progress on adaptation has also suffered from some of the ambiguities in the regime itself. Adaptation is not defined explicitly in the Convention, but is referenced only in the overall context of climate change. How adaptation is defined in operational terms will have significant political and financial implications. It could affect level of financing to be expected in the light of the commitments under the Convention. Much of the negotiations on adaptation have therefore focused on finance and there has been lack of agreement on how it should be addressed.

While all countries recognize that developed countries should fulfil their commitments under the Convention and provide finance, technology and capacity building support to developing countries, progress on these issues has been slow and unsatisfactory for many developing countries. Many have expressed frustration at the slow progress on the funding mechanisms. Indeed, it took about three years for current funds to be made operational following their establishment in Marrakesh in 2001. Many developing country concerns regarding finance to adaptation relate to:

- The relatively small amount of funds currently available to address adaptation under the Convention and, if the current replenishment trend continues, that these would not sufficiently address their needs.
- The experiences of developing countries in accessing and receiving support through existing funds, owing both to the complex design of the funds and to problems of implementation of the guidance.
- The recognition that additional financial flows will be needed to cope with adaptation needs.

At the national level, governmental institutions (ministries, regional governments and agencies), private entities and non-governmental organizations (NGOs) will need to consider integrating – or more broadly integrating – climate change into their planning and budgeting in all levels of decision making, and coordinate their actions among themselves. Many developing countries already have adaptation efforts underway. Most

developing countries that are a Party to the UNFCCC have already developed their first national communication and, in case of an LDC, a National Adaptation Plan of Action (NAPA). Some are already developing their second national communication, which will have information about measures to facilitate adequate adaptation to climate change.

Successfully adapting to climate change at the national level will likely require a set of conditions and elements at the national level. Some possible elements for a strategy include:

- Adequate institutional arrangements, including systematic planning capacity in a cooperative institutional setting consistent policies and measures and regulatory frameworks;
- Strong coordination of ongoing activities on a sub-national level, which could include activities that are driven by NGOs, research institutions, the private sector and by local and sub-national governments;
- Scientific and technical capacities to understand the problem and its effects at the national and sub-national level, model its long-term impacts, and elaborate responses and adaptive strategies to the level of implementation;
- Program and project preparation capacities;
- Citizen awareness and participation that sustain and prioritize climate change actions.

Summary of “Negotiations on additional investment and financial flows to address climate change in developing countries”

by Erik Haites, Margaree Consultants, Inc.

Finance has been identified as a key issue for the discussion on a post-2012 climate change agreement.

For future long-term cooperation to address climate change, developing country Parties will need considerable financial assistance for mitigation, adaptation and technology cooperation. They will therefore need to assess the current arrangements for financial assistance under the Convention and its Kyoto Protocol, as well as options in the current negotiations on additional international investment and financial flows to address climate change.

The exact amount of investment and financial flows needed is not known, but it could amount to tens of billions of dollars per year. Addressing climate change will require significant shifts and an overall net increase in global investment and financial flows. While the changes appear large in absolute terms, they are small relative to total investment. **Approximately half of the shifts and net increase will need to occur in developing countries.** Mitigation investments in developing countries are more cost-effective, resulting in larger emission reductions per dollar invested. Furthermore, developing countries are estimated to suffer more damage as a percentage of their Gross Domestic Product (GDP) than developed countries. Indeed, many studies conclude that developing countries, especially the poorest and those most vulnerable to the adverse impacts of climate change, will need considerable international financial support for mitigation and adaptation.

The Convention and its the Kyoto Protocol already foresee financial assistance from developed country Parties to developing country Parties and contain a number of provisions to address this issue. This assistance may be through bilateral, multilateral or regional channels or through a financial mechanism defined in the Convention. The Global Environment Facility (GEF) has been designated as an operating entity of the financial mechanism of the Convention on an on-going basis, subject to review every four years. Developed countries must also provide information on their bilateral and multilateral assistance in their national communications. The Kyoto Protocol created the CDM to

assist developing countries in achieving sustainable development and to assist developed countries in meeting their emissions limitation commitments. A small share of credits issued for most projects under the CDM is contributed to the Adaptation Fund, which aims to assist developing country Parties that are particularly vulnerable to the adverse impacts of climate change to meet the costs of adaptation.

In the current negotiating processes under the Convention and Kyoto Protocol, a number of options to enhance international investment and financial flows to developing countries have been suggested or proposed:

- Some options seek to **increase the scale of contributions** by developed countries to existing mechanisms under the Convention and Kyoto Protocol.
- Others seek **additional contributions by developed countries** toward new bilateral and multilateral funds.
- Some proposals would be funded by **defined contributions from developed countries**, notably proposals for a Convention adaptation fund, technology fund and insurance mechanism, as well as for an “umbrella” financial mechanism under the Convention.
- Others are based on **contributions from developed and developing countries**, while some would raise funds based on **more stringent commitments by developed countries**.
- Parties are also considering numerous **proposals that would draw from other sources**. These include an extension of the 2% levy on CDM to other market mechanisms under the Kyoto Protocol, an international air travel adaptation levy, an international maritime emission reduction scheme, access to renewable energy programs in developed countries and debt-for-clean-energy swaps.

Ensuring adequate, predictable and sustainable financial resources for mitigation, adaptation and technology cooperation as an essential component of a post-2012 agreement to address climate change will require reaching agreement on a mix of investment and financial flows, including:

- **Increased funding for the financial mechanism of the Convention.** The fourth review of the financial mechanism will inform the fifth replenishment of the GEF. Those funds will be disbursed over four years beginning in 2011.

- **More stringent commitments for developed countries under the Kyoto Protocol to generate additional demand for credits from the CDM and possibly other mechanisms.** Changes to the eligible project types and crediting mechanisms may be required to increase the supply of credits.

- **New sources of funds for mitigation, adaptation and technology cooperation.** Several options for new funds on the scale needed are available. They need to be assessed in terms of their political acceptability and their ability to provide predictable financial and investment flows on a sustained basis.

Raising substantial additional funds for mitigation, adaptation, and technology cooperation will give rise to **important governance and delivery issues** that will need to be addressed if the funds are to be used effectively.

- **Governance:** At present the Convention funds are managed by the GEF with guidance from the COP. Operation of the GEF is directed by the GEF

Council, which has different representation and rules of procedure than the COP. The Adaptation Fund has its own Board elected by, under the authority of, and accountable to the supreme decision making body under the Kyoto Protocol. Many new proposals involve the creation of new funds for specific types of mitigation actions, adaptation needs, and technology development and transfer. Governance issues apply both to the funds collected and to the manner in which those funds are disbursed. Governance issues include accountability to the COP, balanced representation of all Parties, transparency, and ease of access to the funding.

- **Effective disbursement:** Disbursement of substantially larger amounts for mitigation, adaptation and technology cooperation will raise important delivery issues, including:
 - o The share of the available funds to be allocated for mitigation, adaptation and technology cooperation;
 - o Whether the funds are distributed by country or project type;
 - o Whether funds are distributed for individual projects (like the GEF) or for “national programs”; and
 - o Whether, or under what conditions, funds can be provided through “direct access”.

Summary of “The Mitigation Technology Challenge: Considerations for National Policy Makers to Address Climate Change”

by Martina Chidiak and Dennis Tirpak

Reducing greenhouse gas emissions to levels that will prevent dangerous anthropogenic interference with the climate system presents a major technological challenge.

The good news from the IPCC is that many mitigation scenarios for the medium term (i.e., until 2030) suggest that there is considerable economic potential for reducing GHG emissions at costs ranging from negative to about \$100 per ton of CO₂. However, to stabilize GHG emissions, for example, at current levels by 2030 as a first step, additional mobilization of investment and finance flows in the order of \$200 billion (mostly aimed at the energy supply and transportation sectors) would be needed. These additional flows are large relative to the funds currently available, but low as compared to global GDP and investment.

A mix of existing and new technologies and practices will be necessary to achieve the relevant mitigation levels predicted in the IPCC stabilization scenarios.

While there is considerable economic potential for reducing GHG emissions, the costs of different mitigation options (technologies) vary considerably. There is also a large potential for no-cost mitigation, mostly related to improving energy efficiency in buildings, which imply negative costs (i.e., net benefits) if implemented, but require specific action and policies to deal with implementation barriers.

Many existing and emerging technologies can help achieve a low carbon future and other goals. Each is at a different stage of the research, development, demonstration and deployment cycle (RDD&D). They are not being developed and diffused at the rate required because of a number of technological, financial, commercial and regulatory barriers. Nonetheless, recent evidence indicates that, due to policies in some countries, investment in clean energy technologies is growing and that new financial products and markets are being developed worldwide. Some key technologies include:

- *Advanced fossil fuel power generation:* The efficiency of coal-fired power plants averaged about 35% from 1992 to 2005 globally, but the best operating plants

can achieve 47%. The efficiency of most plants is therefore well below the potential offered by state-of-the-art technologies. Retrofitting existing plants or installing new generation technology can achieve improved efficiencies.

- *Biomass and bioenergy:* Biomass – i.e., organic material grown and collected for energy use – is a source of renewable fuel that can be converted to provide heat, electricity and transport fuels. The scope for biomass to make a large contribution to global energy demand is dependent on its sustainable production, improved efficiencies in the supply chain, and new thermo-chemical and bio-chemical conversion processes.
- *Wind power:* Wind power has grown rapidly since the 1990s. Global installed capacity reached new heights in 2007 with more than 40 countries having wind farms. In 2007, global capacity increased by 40%. The outlook is for continued double digit growth.
- *Buildings and appliances:* Residential, commercial and public buildings encompass a wide array of technologies in the building envelope, including: insulation, space heating and cooling systems, water heating systems, lighting, appliances and consumer products. Buildings are, however, often refurbished – heating and cooling systems are often changed after 15-20 years. Choosing the best available technology at the time of renovation therefore is important to long-term energy demand.
- *Electricity transmission and distribution technologies:* Much of the electricity that is produced is never used. Transmission and distribution losses account to 8.8% of the electricity produced worldwide. Developing countries often have short falls in electricity production that are met by curtailing electricity to different regions at certain times of the day. There are several technological options available or under development to improve efficiencies of the grid.

Given the urgency of the climate change problem, policy makers in developing countries need to consider how they will contribute to reducing the rate of growth of GHG emissions in their countries. This involves consideration of their unique circumstances and special

technology needs, and ways to encourage innovation and the diffusion of the technologies using both public and private finances. They also need to consider how the international community could help their countries through a “full package” approach, consisting of equipment, software, enhanced human capacities, regulatory and institutional support and financial mechanisms designed for each element.

Under the UNFCCC, Parties are currently discussing ways to enhance innovation and expand the deployment, transfer and commercialization of new technologies, particularly in developing countries. For some technology-related issues, the ongoing international debate reflects a growing international consensus, while others remain highly controversial.

- **A growing consensus is being reached on important issues**, such as the key technologies needed to achieve low-cost mitigation (in particular for developing countries and in the energy sector), the main (information and incentive) barriers, the need to stimulate international technology cooperation and the existence of a substantial financing gap that needs to be filled.
- **Other issues remain controversial**, for example: how quickly a low carbon energy world can be achieved, the policy approach necessary to accelerate technology development and deployment (climate policies alone or additional technology policy instruments), and ways to achieve a significant shift in investments to sustainable technologies in an efficient manner.
- There is also debate on **the role of intellectual property rights (IPRs)** for the development and deployment of climate-friendly technologies (new international mechanisms to purchase IPRs for key technologies and licensing policies or IPRs and long lived patents for innovators to provide sufficient incentives).

- In addition, there is debate on **the form that international RDD&D cooperation** should take (should this be decided in the framework of the UNFCCC) and the role and ultimate scope of carbon markets and the CDM for technology transfer.

Parties have put forward a number of “proposals” in their recent submissions, which policy makers will need to consider in the light of their country’s experience and specific circumstances.

Some useful criteria could help guide this effort. For expanding technology research and promoting innovation, does the proposal ultimately encourage or discourage institutions from undertaking R&D on technologies of importance to the country, and the requirements needed to take advantage of the new proposal.

For problems relating to the deployment, commercialization and transfer of technology:

- *Do these problems warrant an international mechanism (and its associated bureaucracy) or would they be more appropriately addressed on a case-by-case basis?*
- *Can the “proposal” be implemented to the benefit of all or only a few countries?*
- *Will it result in additional investments for technology and capacity building?*

For financing aspects:

- *Is each part of the RDD&D cycle addressed appropriately by the proposal?*
- *Does it address each element of the “full package approach”?*

Finally, it is important to recall that the international community will need to determine how to monitor, report and verify any agreement to enhance RDD&D of technology.

Summary of “Key issues in negotiations on Land Use, Land Use Change and Forestry, with an emphasis on developing countries”

by Carmenza Robledo and Jürgen Blaser, *Intercooperation*

The land use sector, including forestry and agriculture, is an important source of anthropogenic GHG emissions.

Land use change, mainly deforestation, contributed to about 20% of the emissions from anthropogenic sources between 1989 and 1998. When adding all emissions from the LULUCF sector the share is over 30%. In addition, the land use sector has great potential in mitigating climate change.

Accordingly, the role of LULUCF activities in the mitigation of climate change has long been recognized.

The UNFCCC includes commitments relating to the sector and much of the initial discussion relating to LULUCF focused on GHG inventories. The main issues of concern were how to compile activity data (a particular difficulty for poorer countries with problems in accessing satellite imageries, inventories or historic data) and how, based on this information, to accurately estimate emissions and removals by sinks.

During the negotiations that led to the Kyoto Protocol in 1997, many countries highlighted the importance of including sinks and emissions from LULUCF in the Protocol’s commitments, subject to concerns about definitions, timing and scope. As a result, several articles of the Kyoto Protocol make provisions for the inclusion of LULUCF activities by Parties as part of their implementation efforts and contribute to the mitigation of climate change. Notably, in 2001 Parties agreed that limited LULUCF activities could be eligible for inclusion as activities under the CDM (afforestation and reforestation activities – known as A/R CDM).

A proposal on “reducing emissions from deforestation in developing countries and approaches to stimulate action” (REDD) was first considered by the COP in 2005. Since early 2006, discussions under the UNFCCC process have focused on: the identification of drivers for deforestation; scientific, technical and methodological issues relating to estimating and monitoring emissions from deforestation; and costs and technical barriers for the implementation of activities to reduce deforestation. Parties have also been considering a range of policy approaches and positive incentives and deliberated

the advantages and disadvantages of various financing options.

At COP 13, the Bali Action Plan was adopted, which states that: “Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”. Also at COP 13, another major decision to stimulate action was adopted, which provides a mandate for several elements and actions, including further strengthening ongoing efforts and support for capacity-building, technical assistance and transfer of technology. In 2008, a program of work is being undertaken on methodological issues, such as finding ways to measure forest degradation.

Negotiating LULUCF in the framework of the UNFCCC and its Kyoto Protocol has been demonstrated to be very difficult for both Annex I (developed) and non-Annex I (developing) Parties. The fact that the contribution of LULUCF to Annex I Parties’ reduction commitments was agreed after the establishment of Kyoto targets constituted a major difficulty for using the whole potential of LULUCF as a means for mitigating climate change. That happened mainly because LULUCF was seen during the previous negotiations as a way to offset emissions, i.e., to avoid changing energy and consumption paths of the major emitters.

Based on the first experiences with LULUCF, stakeholders directly involved in the implementation of LULUCF activities expressed a desire for simpler or more cost-effective ways to support the overall objective of the Convention through forestry activities. Some developed countries want more flexibility to achieve their targets, while some developing countries would prefer larger markets for CDM or other credits. For other developing countries, the concern is creating appropriate incentives.

There are a number of technical and methodological issues that have evolved with the negotiations. Technical and methodological issues for carbon accounting have been developed to accurately quantify the mitigation potential of a particular LULUCF activity. Technical and methodological issues relate mainly to how to define a baseline or a reference scenario, how to treat leakage (sometimes called “displacement of emissions”), permanence (carbon in reservoirs can be emitted at any time, e.g., a forest could burn, making emission reductions

non-permanent) and additionality (what additional emissions reductions came about because of the project), and how to monitor and report emission reductions or carbon sinks. These technical and methodological issues might need – in general terms – to be reassessed and complemented according to the LULUCF activities that become an eligible in a post-2012 agreement. In particular, there is the possibility that REDD and/or forest restoration becomes eligible.

LULUCF will therefore play a key role in any post-2012 international climate change regime emerging from the current negotiating processes under the United Nations. Currently there are three major negotiation processes under the UNFCCC: the AWG-KP (Kyoto Protocol), the AWG-LCA (UNFCCC discussion on the Bali Action Plan) and the ongoing discussions on REDD by one of the subsidiary bodies.

In the majority of the submissions for the first meeting of the AWG-LCA, LULUCF is mentioned as an important option for mitigating climate change in developing countries. A major issue for discussion focuses on which activities to include. In the submissions, the following activities were mentioned: REDD, forest conservation, sustainable forest management and enhancements of sinks. Some Parties also mentioned afforestation and reforestation as well as forest management. In the discussions on REDD, there have been a number of submissions containing proposals on financing mechanisms.