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INTRODUCTION

The Kyoto Protocol, signed in 1997, was intended as a first step towards meeting the ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC), agreed five years earlier. This ultimate objective is:

“to achieve ... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system ... within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”

Under the Kyoto Protocol developed countries collectively committed to reduce overall emissions of six greenhouse gases by 5.2% compared to the year 1990, calculated as an average over the five-year period of 2008–2012 (the “first commitment period”). National targets range from 8% reductions for the European Union and some other countries to 7% for the United States, 6% for Japan, 0% for Russia, and permitted increases of 8% for Australia and 10% for Iceland. In the event, action has not matched commitment: the only significant reductions (35% compared to 1990) have occurred in countries with economies in transition, for reasons other than climate change. OECD countries have actually increased their emissions by around 10%. The US and Australia reneged on ratifying the Protocol (though Australia has now done so), Canada announced that it was unable to meet its target, and many other countries are not close to meeting theirs either.

In 2005, Parties began to consider emission reduction commitments for developed countries during the second commitment period of the Kyoto Protocol, opening up a first negotiating track for a future agreement post-2012. A second negotiating track under the UNFCCC was started at the 13th Conference of the Parties (COP-13) in Bali in December

2007, allowing also the United States and developing countries to engage in mitigation efforts. The second negotiation track as agreed in the Bali Action Plan sets out guidelines for negotiation on long-term cooperative action on the four building blocks of global climate policy: mitigation; adaptation; technology development and transfer; and financing. Eventually it is expected that both negotiation tracks will merge for a final agreement to be adopted by COP-15, which will meet in December 2009 in Copenhagen.

International non-climate policy

With a membership of 192 Parties, the UNFCCC is the only international policy framework for addressing the causes and consequences of climate change. However, other international policy regimes and initiatives influence country positions and how climate policy is legally framed. For example, trade-related discussions such as those on technology transfer and energy exports are affected by rules, regulations and ongoing disputes in the World Trade Organization (WTO), especially the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), and provisions on environmental goods and services. The 2005 Paris Declaration on Aid Effectiveness and the 2003 Rome Declaration on Harmonization influence how donor assistance is used and disbursed, which affect the discussions on support to developing countries under the UNFCCC. The UN Convention to Combat Desertification (UNCCD) and the Convention on Biological Diversity (CBD) were signed along with the UNFCCC at the UN Conference on Environment and Development in Rio de Janeiro in 1992. Climate change is a factor in both desertification and the loss of biodiversity, and action taken under the UNCCD and CBD will influence climate change mitigation and adaptation processes. The Hyogo Declaration and the Hyogo Framework for Action 2005–2015 focus on reducing vulnerability to hazards and building resilience to disasters, both of which are integral to climate change adaptation.

MITIGATION AND ADAPTATION

With climate change taking place and bound to continue, a strong and immediate focus on adaptation has become a necessity. But without a simultaneous and similarly strong focus on mitigation, climate change is likely to reach a point where adaptation becomes impossible for some natural systems, while for most human societies it would involve very high social and economic costs. The European Union considers a global mean temperature increase of more than 2°C to be dangerous (cf. the aforementioned objective of the UNFCCC). To stand a reasonable chance of not exceeding this limit, global greenhouse gas emissions would have to peak before 2015 and be reduced by 80–90% by 2050.

Regardless of any agreement on mitigation, the world will already experience a further warming of almost 1°C as a result of past emissions. This will adversely affect millions of people through:

- impacts on water availability and food security;
- an increased likelihood of floods and cyclones;
- the spread of infectious diseases such as dengue, malaria and cholera; and
- loss of lives and livelihoods.

The hardest hit by these changes will be people in the least developed countries, especially those already living in marginal and exposed areas.

Successful mitigation and adaptation both require technological, institutional and behavioural action, the economic and policy instruments to encourage such action, and research and development to enhance its predictability, effectiveness and efficiency. But because mitigation concerns the protection of a global public good (the atmosphere), each country needs other countries to engage in mitigation as well, or the climate problem will not be solved: international collaboration is in everybody's best interest.

In contrast, the benefits of adaptation are felt mainly in the setting where it is carried out. International cooperation on adaptation as part of a future global agreement is nonetheless important. It relies in part on the acceptance of moral responsibility by developed countries towards developing countries. It also reflects the need to create global human security, to prevent conflicts over dwindling resources such as fresh water and to avoid large-scale migration of people displaced by the impacts of climate change.

The development challenge

For adaptation to be effective, it must be recognised that the impacts of climate change do not occur in isolation, but as part of a pattern of vulnerabilities that has historically impoverished those communities that will be most affected. Adaptation is therefore often similar to, and sometimes indistinguishable from, development. This means that adaptation action need not wait for more precise analyses of local climate impacts or for improved adaptation technologies. Adaptation can already be integrated into national and sectoral planning and policies. Development agencies and NGOs can use their decades of experience in poverty alleviation and sustainable development to assist the poorest countries to meet the adaptation challenge.

Seen in the context of ongoing development, the true scale of the mitigation challenge also becomes clear. Demand for energy services and transportation will continue to increase in China, India, South Africa and the rest of the developing world as these countries attempt to generate the necessary growth for social and economic development. The mitigation challenge also requires a reduction in emissions from deforestation. This has benefits for development as well, as forest conservation supports livelihoods in local and indigenous communities.

Only a global climate agreement that recognises the needs and limitations of both developing and developed countries can succeed. This demands an unprecedented level of global cooperation, and a readiness for developed countries to supply the technological and financial means to ensure that developing countries can reduce their vulnerability and progress along a low-carbon path.

Negotiations on adaptation are therefore different from those on mitigation. They concentrate mainly on two ways in which adaptation efforts in developing countries can be assisted by developed countries: the provision of relevant data, information and knowledge; and the provision of finance and technology. Discussions on global institutional issues include the question of how to link adaptation with disaster risk reduction and development.

TECHNOLOGY DEVELOPMENT AND TRANSFER

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change has found that with technologies that are currently available or expected to be commercialised within the coming decades, it would be possible to stabilise atmospheric green-

house gas concentrations at a level close to what is needed to stay below the EU temperature target of 2°C. This assumes that appropriate and effective incentives are in place for the development, acquisition, deployment and diffusion of technologies and for addressing related barriers. The available technological options include:

- renewable energy sources, including solar photovoltaic, solar thermal, wind, hydro, geothermal, tidal, ocean thermal, and biomass;
- energy efficiency improvements, especially in building insulation and transportation;
- nuclear energy; and
- carbon capture and storage (CCS).

Since the development and transfer of technology are crucial for meeting ambitious mitigation targets, the UNFCCC commits developed countries to engage in technology transfer with developing countries (Article 4.5):

“The developed country Parties ... shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly to developing countries to enable them to implement the provisions of the Convention.”

Technology development and transfer is also essential when preparing for the impacts of climate change in developing countries. Technologies for adaptation include soft technologies such as insurance schemes or crop-rotation patterns; hard technology such as irrigation systems, drought-resistant seeds and sea defences; as well as a combination of both, such as early-warning systems for climate disasters.

Despite the early recognition of the need for technological cooperation to address climate change, there is little clarity on what such cooperation might involve. For example, there are few developed ideas about the kind of institutions that are needed at the national and global level to enable technology access and transfer. Another important issue is that often even publicly available technology is not accessible to poor communities that may need it the most.

The risks of large-scale deployment of untested technologies must also be considered, especially with respect to CCS, genetic modification (in agriculture, forestry and food), and various geo-engineering schemes.

Finally, technological fixes and “end of pipe” measures may weaken people’s resolve to make the necessary changes in lifestyle and consumption patterns that would reduce vulnerability or lead to lower emissions of greenhouse gases.

FINANCING

As climate change continues, the costs of both mitigation and adaptation are set to rise. A recent UNFCCC study estimates that USD 200–210 billion in additional investment and financial flows will be needed in 2030 to return greenhouse gas emissions to current levels (i.e. mitigation). This amount is relatively small compared to global GDP (0.3–0.5%) and global investment (1.1–1.7%), and the costs of doing nothing would be substantially higher: the Stern Review on the Economics of Climate Change estimates these as equivalent to 5–20% of global GDP. Still, the amount required is large compared with the level of funding that is currently available.

For adaptation, the UNFCCC estimates the additional investment and financial flows needed worldwide to be USD 60–182 billion in 2030. The largest uncertainty in this estimate is in the cost of adapting infrastructure, which may require USD 8–130 billion in 2030, one-third of which would be for developing countries. The UNFCCC also estimates that an additional USD 52–62 billion would be needed for agriculture, water, health, ecosystem protection and coastal-zone protection, most of which would be used in developing countries. In total, USD 28–67 billion in additional investment and financial flows is estimated to be needed for adaptation in developing countries in 2030.

Others arrive at similar estimates for adaptation. The World Bank concludes that the incremental costs of adapting to projected impacts of climate change in developing countries are likely to be approximately USD 10–40 billion per year, while Oxfam International estimates this number to be over USD 50 billion per year. The UN Development Programme suggests that aid financing for adaptation could amount to USD 86 billion per year by 2015.

Existing resources under the Global Environment Facility (GEF), which currently operates the financial mechanism of the UNFCCC, are not sufficient to cover the estimated needs. Financial resources available so far in the various funds managed by the GEF

for the period 2007–2010 amount to USD 1.3 billion to support mitigation, adaptation and technology transfer. Likewise, bilateral and multilateral official development assistance (ODA) provides only a small fraction of what is required to address the challenge of climate change.

Hence considerably more financial resources are needed. The Adaptation Fund is the first financial instrument under the UNFCCC and its Kyoto Protocol that is not based solely on voluntary contributions from donor countries. It receives a 2% share of proceeds from project activities under the Clean Development Mechanism (CDM) and can also receive funds from other sources to fund concrete adaptation projects. The actual amount of money that will be available from the fund depends on how much the CDM is used and on the price of carbon. According to a World Bank estimate it is likely to total USD 100–500 million by 2012.

The Adaptation Fund is the first example of the use of market-based options to generate substantial financial resources to address climate change. The carbon market, created by the Kyoto Protocol, has the potential to move huge financial flows to developing countries for mitigation and adaptation. It could make a future climate agreement self-financing: if carbon emission targets were ambitious the price of carbon would rise significantly, which would increase financial flows to developing countries.

INTERNATIONAL CLIMATE POLICY: AN ISSUE OF TRUST

As climate change science becomes ever more convincing, the urgency for global action is no longer concealed by debates about scientific uncertainty. It has also become clear that climate policy cannot be separated from development policy. Unless marked achievements are made in tackling the development crisis and meeting the Millennium Development Goals (MDGs), it is unlikely that the required levels of mitigation and adaptation will be met.

Global action on climate change will require unprecedented global cooperation, but the prospects for such cooperation are clouded by a “trust deficit”

between developed and developing countries. Questions of equity and fairness in climate policy extend to virtually all agreements that require North–South cooperation. Within climate policy, developing countries question the good faith of developed countries because of the failure of many of them to meet their Kyoto commitments. There is also little faith in the promise of new and additional finance for developing countries. Notwithstanding the strong global consensus behind the MDGs, the financial resources required to meet these goals have not materialised (and neither have the necessary institutional and governance changes). Earlier, the achievement of Agenda 21 targets was hindered by a lack of financial resources, and the target reaffirmed most recently in Monterrey of providing 0.7% of GDP as conventional ODA has been achieved by only a handful of countries.

Another potential area of distrust on the side of developing countries is the neutrality of processes or institutions through which agreements are implemented, money is disbursed, and disagreements are resolved. This includes not only questions concerning the neutrality of international financial institutions, but also those of donor conditionalities.

In conclusion, the challenge for a climate policy agreement in Copenhagen in 2009 is for developed countries to commit to deep cuts in their emissions and to provide incentives to rapidly growing developing countries (including financial support and technology transfer) also to take on mitigation commitments. At the same time substantial resources will need to be committed to adaptation to help developing countries prepare for and cope with the adverse impacts of climate change. The trust deficit will hobble an agreement in Copenhagen unless during the next two years developed countries can gain trust by addressing the equity, fairness and institutional concerns of developing countries.

While funding is instrumental to climate policy, it is political will, flexible institutions and above all commitment and awareness that will drive the necessary changes to ensure human security in this century.

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