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ADAPTATION AS A STRATEGIC ISSUE IN THE CLIMATE NEGOTIATIONS

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About this report

This report is based on a background study and discussions at a seminar on adaptation as a strategic issue in the climate negotiations organised under the auspices of the European Climate Platform (ECP), which is a joint initiative by CLIPORE (Climate Policy Research Program) and CEPS. The seminar was chaired by Bo Kjellén, Senior Research Fellow at the Stockholm Environment Institute, former Swedish Chief Climate Change Negotiator and ECP Co-chair. For further information on the ECP, please see the back cover of this report or visit its website (http://www.ceps.be/Article.php?article_id=484).

The report was presented at the twelfth session of the Conference of the Parties to the Climate Change Convention (COP12) and the second meeting of the Parties to the Kyoto Protocol (COP/MOP 2) in Nairobi on 11 November 2006. It examines how the global climate regime might move forward on cooperative action to adapt to climate change. This is a topic that has been rising in prominence on the agenda of the international climate change negotiations under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) as well as in other international forums. After identifying three key defining characteristics of the adaptation problem and reviewing current activities relating to climate change adaptation, the report discusses a range of institutional options.

A list of the participants in the seminar can be found in Appendix 4.

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Executive summary and recommendations

This report examines the challenge of adequately addressing adaptation to climate change impacts in developing counties by means of international collaboration, and the reasons why it is in the interest of industrialised countries, including the EU, to do so. This is a topic that has been gaining prominence on the agenda of the international climate change negotiations under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) as well as in other international forums. After analysing different approaches to the problem of adapting to climate change and reviewing current efforts to adapt to climate change, the report puts forward a range of options.

The report takes as its point of departure the premise that adaptation is vitally important because climate change is already taking place. Moreover, the communities most vulnerable to the effects of climate change are the poorest. Climate change could seriously compromise their development prospects in the absence of effective, proactive adaptation. Up to now, however, international climate activities have focused mainly on mitigation, and progress on adaptation is thought to be following roughly a decade behind.

I. Key Messages

Adaptation work has matured from discrete, localised solutions towards a more comprehensive development-based perspective. This has drawn policy-makers' attention to the possibility of making adaptation part of development policy, i.e. mainstreaming. Although interest is growing, industrialised countries' development agencies still appear to give relatively little attention to adaptation.

1. Given the magnitude of the challenge, adequate adaptation will require considerable additional financial flows from industrialised countries to developing countries. It is generally accepted that industrialised countries bear a certain legal and moral responsibility to support adaptation in developing countries. Such support is also warranted on the basis of enlightened self-interest, given the fact that, in a globalised economy, severe climate impacts in developing countries would take their toll even in industrialised countries. The key to unlocking significant financial flows lies with a reasonable assurance that developing countries have enough absorptive capacity to use those funds towards effective and efficient adaptation activities. This will require improvements in knowledge and expertise, institutional strength, good governance, transparency and accountability. To facilitate this debate, a discussion about the source of the financing (i.e. how to share the burden) should not wait for all the questions about implementation (i.e. how the financial resources are used for developing country adaptation) to be resolved.
2. The need to support both facilitation and implementation of local adaptation activity poses challenges in terms of integrating across scales, from local to national to international. More knowledge is especially needed on i) effective implementation measures, e.g. through demonstrations and pilot programmes, ii) required technological innovations, iii) capacity building and institutional strengthening and iv) 'scaling-up' of successful local activities, i.e. exchanging and replicating best practices.
3. As to the potential institutional framework, it is as yet unclear what a 'Legal Instrument for Adaptation' (with binding commitments) would look like or whether such an instrument would be the best solution. In theory, existing mechanisms – Official Development Assistance (ODA), the existing United Nations Framework Convention on Climate Change and Kyoto Protocol funds, emerging insurance instruments, etc. – could be used, although it remains to be seen whether they are capable of generating adequate resources and achieving their objectives. Should industrialised countries prefer existing mechanisms and frameworks to a legal instrument, they must ensure that adequate funding would be committed and demonstrate that sufficient adaptation will occur.

II. Six suggestions for the way forward

1. The aim should be to establish a sequential and evolutionary regime, with preparatory work undertaken as soon as possible. This would make it possible to allocate much higher levels of resources to scale up current adaptation initiatives at a later date. Industrialised countries should already start undertaking a number of such preparatory actions to set up adaptation schemes. Such measures could include:
   a) Earmarking funds for risk reduction and disaster management given that a modest amount of prevention and timely response produces a large return in terms of avoided damage to property and reduced human suffering.
   b) Providing funding to learn from demonstrations and develop mechanisms to exchange best practices for adaptation.
   c) Identifying ways to increase the capacity of developing countries to absorb adaptation resources and make effective and efficient use of them:
      i. by identifying the factors that hamper demand for adaptation in developing countries;
      ii. by exploring institutional structures that can facilitate local adaptation activities under accountable and transparent conditions; and
      iii. by improving knowledge on a) implementation measures (e.g. through demonstrations and pilot programmes), b) required technological innovations, c) capacity building and d) scaling up of local initiatives, i.e. exchanging and replicating best practices.
2. Beyond the above preparatory work, investment in basic human development − such as in the context of the objectives of the Millennium Development Goals − must be used to build adaptive capacity and so provide a viable starting point for implementing adaptive responses. The extensive overlap between adaptation and human development makes it possible for past decades of development aid to provide directly transferable knowledge, approaches, institutions and lessons for adaptation activities today. Similarly, the many lessons learned on reducing risk and disaster management should be applied to implementing adaptation activities in the immediate future.
3. Given the fundamental overlap between adaptation and human development, any adaptation instrument or mechanism that is premised on distinguishing 'adaptation' activities from 'human development' activities, for example by attempting to quantify the 'incremental costs' of adaptation over the 'baseline costs' of development, should be questioned. It is doubtful that an unambiguous accounting of incremental costs can work in practice.
4. Developed and developing countries should consider whether to discuss separately the question of financing (i.e. how to share the burden) and implementation (i.e. how the financial resources are used for developing country adaptation). The former will raise questions of responsibility, while the latter raises questions of adaptation needs and the capacity of given countries to effectively absorb the funds.
5. A greater number of informal dialogues on adaptation between developing and developed countries' representatives should be created to build trust and increase understanding. Climate negotiators may also benefit from arrangements similar to those in the GATT (General Agreement on Tariffs and Trade) process, whereby permanent climate delegations would be set up in the same location, giving them ample time to work and interact between formal negotiating rounds. Another possibility is to convene a Climate Change Adaptation Forum − a venue for institutions and stakeholders that deal with adaptation. Many stakeholders, including those already active in the UNFCCC, NGOs, insurance sector actors, adaptation practitioners, local community representatives and academics could meet there to exchange information away from the contentious atmosphere of formal negotiations. As a first step, developed and developing countries could seek to establish what is and what is not currently negotiable on adaptation. This will help distinguish what can be fast-tracked from what will require a more gradual, step-by-step approach in terms of building consensus.

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Report by the European Climate Platform (ECP)

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1 Introduction

Objective, scope and relevance for EU policymakers

It is generally accepted that industrialised countries, including the member states of the European Union, bear a certain responsibility for causing climate change impacts in developing countries and should bear part of the costs of adaptation. It is also in their self-interest to do so. In the globalised world in which we live, insufficient adaptation in developing countries will adversely affect industrialised countries, for example through a decline in world trade activity, an increase in the spread of disease, escalating disaster-relief expenditures and increased migration flows. To the extent that countries might ultimately be held legally responsible for causing climate change in other countries, ignoring the issue might lead to legitimate claims for compensation in the future. Moreover, a global or near-global climate regime may be extremely difficult to negotiate without an effective global framework for addressing adaptation. This is because more support for adaptation is likely to be a condition for developing countries to participate in a meaningful way in mitigation measures of any future climate regime.

In this report we examine how countries throughout the world can adapt to climate change impacts by working together. This is a topic that has been rising in prominence on the agenda of the international climate change negotiations under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) as well as in other international forums.

2 Adaptation concepts

International collaboration on climate change focuses mainly on mitigating greenhouse gas emissions. This is not surprising, if one considers the difference between adaptation and mitigation in terms of their public good characteristics. Given that the benefits of one country's mitigation efforts are shared with all countries, the need for international collaboration with regard to climate mitigation is clear. Individual countries are highly reliant on other countries to undertake action as well in order to ensure that enough mitigation occurs to address the climate problem effectively and to reduce the risks of being put at a competitive disadvantage from undertaking action alone. And, since it does not matter to the climate system where GHG emissions are produced and reduced, international collaboration enables mitigation to occur more efficiently, by motivating reductions to occur where they are most cost-effective.

For adaptation, the incentives and benefits are felt very differently from mitigation, in that they are felt most strongly at the local community level, where the efforts are undertaken. The global imperative that is characteristic of mitigation is far more indirect and abstract in the case of adaptation. Furthermore, there is a growing understanding that, to be effective, adaptation efforts − initially viewed as a response to projected or actual changes in climate through changes in practices, processes or structures of systems (Watson et al., 1996) − must also address vulnerability as a central concept, i.e. resilience to stresses on economic, social, political and environmental systems (Smit & Pilifosova, 2001; Turner et al., 2003).

2.1 Clarifying the meaning of 'adaptation'

The close link between climate change and sustainable development is now well established. Human-induced climate change will result in harmful impacts on agricultural and hydrological systems, forests, fisheries, health and economic infrastructure, and other natural and socioeconomic resources. These impacts will exacerbate existing conditions of poverty, malnutrition and illness, thereby posing a threat to the achievement of development objectives, including the Millennium Development Goals (MDGs). Conversely, the selection of development pathways will influence the GHG emission levels that affect future climate change and future capacity to mitigate and adapt.

In this report we adopt a comprehensive definition of adaptation that includes *both* efforts to *implement adaptive responses* (measures adopted in response to existing or anticipated climate impacts) and efforts to *enhance adaptive capacity* (the capacity to identify, assess, modify and implement effective adaptive responses without compromising future adaptive capacity).

Adaptive responses should not been interpreted too narrowly. Localised, technology-based and infrastructure-focused interventions targeted at a specific sector are too limited for a number of reasons (Klein et al., 2005; Patt et al., 2005; Burton & van Aalst, 2004). First, the reliance on climate change projections makes the long-term effectiveness of specific, localised adaptive responses subject to great uncertainty. Second, individual adaptive responses tend to be partial – often short-term – solutions. Third, when the definition of adaptation is limited to responses specific to climate change, it neglects the fact that vulnerability to climate change rarely occurs in isolation, but rather as a syndrome accompanied by other types of vulnerability. For example, it might help to provide a rural agricultural household that grows a particular subsistence crop with a more drought-resistant variety, but a more robust and comprehensive strategy would improve food security generally through, say, a set of coordinated measures that includes agricultural extension, crop diversification, integrated pest management practices and rainwater harvesting.

The concept of building adaptive capacity is yet more fundamental and far-reaching. It recognises that it is not possible to anticipate the exact impacts of climate change or put in place precise defensive mechanisms to deal with them, nor the multiple other stresses that vulnerable communities face. It recognises that these combined stresses create a syndrome of vulnerability that can best be addressed through fundamental investments in building resilience. For example, the household is most capable of successfully adopting the set of measures mentioned above if it has a literate family member, can access investment capital through local financial institutions, is integrated into intact social networks and if there is an open channel for conveying concerns and priorities to local decision-makers.

The report entitled *Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation*, issued by eleven bilateral and multilateral development agencies (African Development Bank et al., 2003), usefully summarises the keys to enhancing adaptive capacity:

- **Supporting sustainable livelihoods** by targeting development efforts at supporting communities' efforts to enhance social capital, preserve and restore natural capital, secure appropriate physical capital, enhance human capital and secure financial capital;
- **Ensuring equitable growth** by fostering growth in areas of the economy that provide opportunities for increased employment and higher returns for poor people's unique assets and contexts;
- **Improving governance** by making public institutions responsive, participative and accountable to those they serve in order to make decision-making processes and implementation activities robust and effective.

The nature of adaptive capacity is thus highly location-specific. Effectively enhancing adaptive capacity is heavily reliant on local knowledge and local involvement in design and implementation (Lim et al., 2005; Downing et al., 2005; African Development Bank et al., 2003). Indeed, "adaptation is largely a place-based activity, and a great deal of it can and should take place spontaneously or autonomously within those sectors and by those people, communities and enterprises most directly at risk" (Burton & van Aalst, 2004).

This highly location-specific nature of adaptation does not mean that adaptation should be wholly local. Adaptation is a combination of *implementation*, which is largely undertaken at the local level, and *facilitation*, which involves roles for actors from local to national to international level. Facilitation includes creating an enabling environment in which the local implementation of adaptation is feasible. It also involves generating and sharing knowledge, building institutional capacity, carrying out coordination and management tasks and providing technological and financial resources.

The link to human development is central to this understanding of the term 'adaptation'. There is considerable overlap between efforts to enhance adaptive capacity and efforts to achieve broad human development goals. Effective adaptation will require not only improved understanding and more institutional capacity, but also significant financial resources. Box 1 provides some estimates of the resources required for 'climate-proofing' capital investments. These estimates do not include a range of other adaptation costs, which may not be direct capital investments, but which are critical elements of adaptation nonetheless.

Box 1. Estimates of adaptation needs in monetary terms

The OECD examined the potential for mainstreaming adaptation into development assistance in six countries. The results showed that the bulk of this assistance was being provided to climate-sensitive sectors. In Bangladesh and Egypt it was about $1-2 billion between 1998 and 2002, and in Nepal it was as high as 50-65% of development aid flowing into the country (Agrawala, 2003).

Taking into account the costs required to 'climate-proof' investments (ODA, foreign direct investments and domestic investment), the World Bank recently estimated the costs of this aspect of adaptation in developing countries could range between $10 billion and $40 billion annually (World Bank, 2006a).

The total amount of resources committed to adaptation (and other related preparatory activities) through UNFCCC channels has come to less than $400 million cumulatively over roughly the last ten years. In contrast, global ODA flows amount to some $100 billion per year, foreign direct investments in developing countries amount to some $160 billion per year and gross domestic investment in developing countries amount to some $1,500 billion per year (World Bank, 2006a**).** The question is whether adaptation will be assigned sufficient priority to mobilise resources on a scale that enables adaptation to be mainstreamed into these other channels. Adaptation efforts can most effectively have an impact by altering and leveraging these much larger flows. If, in contrast, all adaptation were undertaken only as discrete measures isolated from the much larger flows that are associated with ODA, foreign direct investment and domestic investment, then these flows would continue to proceed without adequate regard to climate adaptation needs.

3 Current status of adaptation efforts

Initially, the UNFCCC was focused primarily on mitigation. Adaptation was considered less urgent as it was initially assumed that significant climate change impacts would not be evident for some decades. Today, the international negotiations appear to be looking at all the issues in the context of the four main strands identified for the dialogue on "long-term cooperative action

to address climate change" launched at COP11 in December 2005: sustainable development, technology, adaptation and market opportunities. In reality, however, much of the negotiation effort and emphasis is still on mitigation, and burden sharing is currently discussed only in the context of mitigation. Some analysts have informally observed that the adaptation regime is a decade behind the mitigation regime. They say that adaptation is at a comparatively embryonic stage characterised by institutional development, knowledge generation and preparation, which have to take place before on-the-ground progress can be made.

3.1 Adaptation in the existing climate regime

To the extent that adaptation efforts were initially envisioned in the United Nations Framework Convention on Climate Change (UNFCCC), they were embodied in the first meeting of the Conference of the Parties to the UNFCCC (COP1) guidance to the Global Environment Facility (GEF) to initiate a three stage process of short-, medium-, and long-term support for adaptation. At present, the existing climate regime is channelling some resources toward adaptation through the initial GEF channels, as well as the three funds under the UNFCCC and the Kyoto Protocol: the Special Climate Change Fund (SCCF), the Least Developed Countries Fund (LDCF), and the Adaptation Fund.[1] Most of the resources result from a pledge made by the EU and other industrialised countries in 2001 when developing country support was a key to 'keep Kyoto alive'.[2] The resources committed through this pledge are channelled through the GEF, bilateral and multilateral ODA, and the three funds. The fact that these resources are provided through diverse channels (including 'additional' ODA and the proceeds from the Clean Development Mechanism (CDM) levy) makes it difficult to ascertain whether the pledging countries have met their 2005 commitments and are on track to meeting their 2006 commitments. Deriving financing from these diverse sources and for multiple purposes also makes it difficult to ascertain what proportion of the funds is in fact allocated to adaptation activities. For further details on the pledge, see Appendix 1. For further details on the funds, see Appendix 2.

Increased attention to adaptation since COP8 in New Delhi culminated in the adoption of a Five-Year Programme of Work on Impacts, Vulnerability and Adaptation to Climate Change at COP11 in Montreal. This five-year work programme for the SBSTA (Subsidiary Body for Scientific and Technological Advice) is intended "… to improve understanding and assessment of impacts, vulnerability and adaptation, and to make informed decisions on practical adaptation actions and measures …" [3] It left unspecified whether this five-year effort is focused exclusively on advancing *knowledge* (i.e. stocktaking, assessments, sharing of experiences, methodological development, data management and dissemination, etc.), or whether it allows for *implementation* of concrete adaptation measures.

The COP decision adopting the five-year programme specifies several "implementation modalities" that do not entail the implementation of concrete adaptation measures, although the decision does leave room for the adoption of additional modalities that could include implementation. This issue was heavily debated at COP11 and at the ensuing SBSTA24 in May 2006, which was given the task of further developing the arrangements modalities of the five-year programme, consistent with the SBSTA mandate as an advisory body. The developing

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[1] Decision 7/CP.7 and decision 10/CP.7, respectively.

[2] The EU plus Canada, Iceland, New Zealand, Norway and Switzerland have pledged $410 million (€450 million at July 2001 exchange rates) per year by 2005 in climate change funding for developing countries (see also Appendix 1).

[3] Decision 2/CP.11 taken at COP 11 (reported in FCCC/CP/2005/5/Add.1, 30 March 2006) (unfccc.int/resource/docs/2005/cop11/eng/05a01.pdf).

countries argued strongly in favour of an action-oriented approach that emphasises practical implementation and learning-by-doing. The course of the debates on the five-year programme closely mirrored the discussions surrounding the other sources of adaptation funding (GEF, SCC Fund, LDC Fund, Adaptation Fund) and resources for adaptation under the UNFCC Convention and Kyoto Protocol generally. It is worth noting that when the COP first introduced the Five Year Programme of Work (in Decision 1/CP.10), it also decided that the GEF should support implementation of pilot or demonstration projects (1/CP.10 7(b)(v) along with several other capacity building and knowledge enhancing activities.

Until recently, the GEF had no explicit Operational Programme on adaptation, and its adaptation activities were secondary to its existing focal areas, which target global environmental benefits rather than locally needed adaptation. The three Marrakech funds are more directly targeted at adaptation activities, but the SCCF and the LDCF are funded through discretionary pledges, and the Adaptation Fund is subject to the uncertainty of the scale of the CDM and the market value of Certified Emissions Reductions (CERs).[4]

The above points suggest that adaptation is an underdeveloped and fragmented part of the climate regime. The feeling, especially among developing countries, is that despite the widespread instances of climate impacts now being witnessed, the COP has not yet created sufficient elements of the climate regime aimed at implementing adaptation. One reason for this situation is that the past decade has been a period of preparation. Implementation on the ground can only take place once this has been done. Another reason is the small level of resources. Contributions to adaptation funding to date have been voluntary, have not been directly tied to any particular underlying rationale, measurement of obligations or indicator of needs and have thus been small in relation to the scale of the challenge. This is despite the fact that, by ratifying the UNFCC Convention, signatories have accepted a legally-binding commitment (within Article 4 of the UNFCCC, Article 11 of the Kyoto Protocol and in the Marrakech Accords) to provide financial resources in support of adaptation. Today, investment in adaptation *per se* is a minute fraction of the estimated need (see Box 1). The question remains as to whether adaptation funding based on voluntary pledges and a CDM levy can grow to the scale that is consistent with the adaptation challenge, and if not, then what type of framework would facilitate funding on the scale that is needed.

3.2 Bringing adaptation into mainstream development thinking

Given that adaptation is intrinsically linked to the broader development agenda, efforts to address adaptation can only be successful if they are integrated into mainstream development thinking. While such integration[5] has long been accepted in the case of mitigation, the same realisation has only dawned slowly when it comes to adaptation (Klein, 2006).

Although not much has happened in the recent past in terms of integrating adaptation into ODA (Agrawala et al., 2003 a-d; McGuigan et al., 2002; Burton & van Aalst, 2004; Klein et al., 2005; Klein, 2001), it is now emerging as something that policymakers widely agree on. This was demonstrated at the recent meeting of the OECD Development Assistance Committee and the

[4] It has also frequently been pointed out that the Adaptation Fund surcharge on the CDM is, ironically, a tax on developing country Parties insofar as it reduces both the volume of CERs traded (in favour of domestic reductions, emissions trading and Joint Implementation) and the revenue available for the Clean Development Mechanism host countries.

[5] It is widely accepted that energy-based reductions can be effective only when mainstreamed into energy policy through comprehensive, sector-wide measures such as, for example, carbon taxes, renewable portfolio requirements and efficiency standards.

Environment Policy Committee in April 2006, where the development and environment ministers of the OECD nations adopted a Declaration on Integrating Climate Change Adaptation into Development Cooperation.[6] The key element of the ministers' declaration was a commitment "to better integrate climate change adaptation in development planning and assistance". Simultaneously, the OECD development and environment ministers issued a Framework for Common Action around Shared Goals, which reaffirms that threats to the environment have serious implications for poverty reduction and seeks to improve the coherence of efforts by development cooperation and environmental agencies in OECD countries in support of poverty reduction and the MDGs. The OECD is currently carrying out a survey on how development agencies incorporate climate change into their activities. The first results of this survey are due by the end of 2006.

In a recent report, the World Bank (2006b) stated that it will focus on enhancing risk management approaches to enable development institutions and their partner countries to better address the growing risks from climate change and, at the same time, make current development investments more resilient to climate variability and extreme weather events. Many development agencies and NGOs (such as the Red Cross) are investing in efforts to learn from their long-standing experience with risk and crisis management of disasters in developing countries, including those caused by extreme weather events, so that they can apply the knowledge gained to the question of how to address adaptation to climate change. An overview of key questions on mainstreaming adaptation into the ODA system is given in Appendix 3.

Ultimately, the purpose of integrating adaptation into development decision-making is to prevent climate change from being separated from the other stresses and trends that affect development as experienced by vulnerable citizens. However, it is important to note that development is primarily driven by the vast majority of investments that are *not* part of ODA. As Box 1 shows, non-ODA foreign and domestic investment is more than an order of magnitude larger than ODA. Integrating adaptation into mainstream development, therefore, will ultimately need those much larger non-ODA investments to be guided by decision-making that accounts for climate stresses as well. This ambitious objective implies not just a change in thinking, but changes in terms of institutional capacity, knowledge and human and financial resources.

3.3 EU views and projects on adaptation in developing countries

EU thinking on adaptation has been progressing, especially in the past year. Adaptation has been referred to in several EU policy documents, including the 2005 Commission Communication entitled "Winning the Battle Against Global Climate Change", the "Sustainable Development Strategy" and the "EU Consensus for Development". Generally, concrete commitments to undertake adaptation activities, and particularly to do so in developing countries have been lacking. Some attention to adaptation in developing countries was given in the March 2003 Communication entitled "Climate Change in the Context of Development Co-operation". It contained a long list of actions, many of which focused on adaptation and led to the Council of the EU adopting an Action Plan on Climate Change in the Context of

[6] Declaration on Integrating Climate Change Adaptation into Development Co-operation Adopted by Development and Environment Ministers of OECD Member Countries at the Meeting of the OECD Development Assistance Committee and the Environment Policy Committee, 4 April 2006, OECD Headquarters, Paris, France (www.oecd.org/dataoecd/44/29/36426943.pdf). The ministerial declaration recognises that "responses to climate change should be co-ordinated with social and economic development in an integrated manner, taking into account the legitimate priority needs of developing countries for the achievement of sustainable economic growth and the eradication of poverty".

Development Cooperation[7] in the autumn of 2004. This action plan contains several provisions under the heading of 'support for adaptation' but has not yet included financial commitments. An evaluation of the action plan is due by the end of 2006.[8]

Further Commission activities include two bilateral workshops on adaptation with China and India, organised for the autumn of 2006. These workshops are primarily of a technical nature with a focus on sharing experiences in implementing adaptation projects. Adaptation has also received attention in the European Climate Change Programme (ECCP),[9] which dedicated one working group to the theme (although the principal focus was on adaptation inside the EU rather than collaboration with developing countries). In December 2006, the European Commission will host a conference at which it will launch a Green Paper on Adaptation to Climate Change to kick-off debate and consultation. As with the ECCP, focus will be on adaptation within the EU. Nevertheless, spillovers may emerge from the EU-based adaptation discussion that can be used for adaptation in developing countries. A clear pointer in this respect is the recently adopted Council conclusions which contain the EU's position for COP12/MOP2. They devote considerable attention to adaptation in developing countries, suggesting the issue has risen on the list of EU priorities.[10] In particular they highlight "the need to finalise the five-year programme of work on impacts, vulnerability and adaptation to climate change to enable early implementation of agreed activities" and "the importance of reaching agreement on the governance of the Adaptation Fund and of making it operational as soon as possible in supporting concrete adaptation projects and programmes".[11] Another pointer may be the forthcoming post-2012 Commission Communication, expected in early 2007.

In terms of funding, it continues to be generally difficult to identify what sums have been allocated to adaptation, as projects funded by the European Development Fund or directly from the Community budget do not specify adaptation as a separate category. Nor is there an appropriate overview of activities geared towards adaptation in developing countries undertaken by the individual EU member states.

Generally, attention to adaptation within Europe and to the issue of integrating climate change into mainstream development cooperation is rising within EU member states. For example, Denmark has launched a project on integrating climate change into mainstream development cooperation activities, including the development of a tool kit.[12] Several other member states have similar activities. In July 2006, the Finnish EU Presidency supported a conference on living with climate variability.[13] The upcoming German EU Presidency in the first half of 2007 will support a conference on climate change adaptation and the European water dimension.[14]

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[7] For an analysis of decision-making in the EU Council on the Action plan, see Van Schaik (2006) and Hudson (2006).

[8] EU member states and the European Commission are currently discussing the terms of reference for this evaluation.

[9] The ECCP is a Commission-sponsored multi-stakeholder dialogue, serving as background for policy-making.

[10] Agence Europe – Bulletin Quotidien Europe, No. 9293, 25 October 2006.

[11] Climate Change – Council Conclusions, press release of the 2757th Council Meeting, Environment, Luxembourg, 23 October 2006, 13989/09 (Presse 287).

[12] For an overview of the Danish activities, see: http://www.climate.dccd.cursum.net.

[13] See: http://www.livingwithclimate.fi/en/en_18.html

[14] See: http://www.climate-water-adaptation-berlin2007.org

4 An adaptation regime: Looking forward

Given the magnitude of the climate change challenge ahead, both local and international resources will be needed in the future to cover costs related to building adaptive capacity and implementing adaptive responses in developing countries. This will inevitably entail transfers from industrialised to developing countries. A key question is how to obtain the level of political acceptability needed to create and expand the financial resources required to support adaptation efforts (Parry et al., 2005). Various explanations can be put forward as to why the EU and other industrialised parties would choose to provide substantial resources for implementing adaptation in developing countries.

First, there is a political argument for funding adaptation as a means of engaging developing countries. It is thought that extending meaningful adaptation assistance to developing countries will help to encourage them to participate in mitigation aspects of the climate regime as well. Developing countries have unambiguously staked out a position that they are entitled to funding for adaptation and that it should be provided by industrialised countries, and that without this funding a more substantive form of participation in the mitigation aspects of the regime would be unlikely. Indeed, little further progress in international negotiations can be expected without taking these concerns into account (Ott et al., 2004).

The second explanation, like the first, is also based on enlightened self-interest. This argument justifies industrialised countries funding adaptation as a means of ensuring that developing countries remain viable partners for economic growth, global governance and international security. Climate change without proactive adaptation could arguably cause significant damage to the economies and governance systems of developing countries, and generate a flow of environmental refugees.[15]

The third explanation has its origins in the ethical and legal context in which the debate about climate change is unfolding. It argues that industrialised countries have a responsibility to contribute resources towards adaptation in developing countries. It is discussed in considerably more detail in the following section, as a) it carries the greatest sense of inevitability as a motivator of EU investment in developing country adaptation, b) it may offer some quantitative measure of the obligation industrialised parties may have to fund adaptation in developing countries, and c) it helps in the development of a fundamental principle around which a future adaptation regime can be envisioned.

4.1 Fundamental characteristics of adaptation

Building on the earlier sections of this background document, this section sets out three fundamental characteristics of adaptation that provide a framework within which proposals for a future adaptation regime can be considered.

4.1.1 The link to human development

The first fundamental principle derives from the intrinsic connection between effective adaptation and human development. As discussed in section 2, to be successful, the definition of adaptation in any regime must include both adaptive responses and efforts to increase adaptive capacity. The most effective adaptation strategy in the long-term is to provide secure livelihoods, foster equitable economic growth and improve governance. As articulated in the interagency report (African Development Bank et al., 2003), "adaptation requires the development of human capital, strengthening of institutional systems, and sound management of

[15] See, for example, Byravan & Rajan (2005) and Barnett & Adger (2006).

public finances and natural resources. Such processes build the resilience of countries, communities and households to all shocks and stresses, including climate variability and change, and are good development practice in themselves".

If an adaptation regime is to induce the most effective adaptation, then a major component of its objective must be identifying and promoting those activities that can most effectively enable and accelerate these 'good development practices'.

4.1.2 Responsibility

The second characteristic relates to the scale of the adaptation challenge, not just in terms of creating institutions and generating knowledge, but in terms of additional costs that will have to be borne, either to make adaptation possible or to compensate damages (see Box 1.) The need for such resources inevitably raises the question of the responsibility of nations for causing climate change and, in turn, damages caused by this climate change. As Baer (2006) writes:

> That it is wrong to harm others (or risk harming them) for one's own gain, and that one owes compensation if one does such harm, is as close to a universal ethical principle as exists. It is a principle that is justified in all kinds of ethical or moral frameworks, from divine revelation to deontological ethics to social contract theory and others. It is in fact a prime example of what some philosophers call common (or commonsense) morality.

Over time this common moral principle has become firmly encoded in national case law and legal reasoning with respect to environmental pollution within national boundaries. International law, too, echoes this same principle. The Stockholm Declaration of 1972 declares in the famous Principle 21 (reaffirmed in Principle 2 of the Rio Declaration) that states have "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction" and reiterates in Principle 22 that "States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction" (UN Conference on the Human Environment, 1972).

The UNFCCC, however, specifically avoids establishing legal responsibility for climate damage,[16] although it does potentially lay the basis for recognising state-based responsibility in a manner that is reiterated in the Kyoto Protocol and the Marrakech Accords. UNFCCC Annex II countries are obligated to assist developing countries in meeting adaptation costs under specific circumstances (as expressed in Articles 4.3, 4.4, 4.8, 4.9 and 4.11). In particular, Article 4.3 commits UNFCCC Annex II countries to "provide new and additional resources to meet the agreed full incremental costs of implementing measures…" including "preparing for the adaptation to the impacts of climate change". In addition, Article 4.4 states that UNFCCC Annex II countries "shall also assist the developing country Parties that are particularly

[16] As Tol & Verheyen (2004) discuss, the industrialised nations successfully resisted any codification of state-based responsibility for compensation for climate damages at the time of the UNFCCC negotiations. In response, and in anticipation of the future evolution of the climate regime or legal action, several Alliance of Small Island States (AOSIS) states issued a declaration that "…signature of the Convention shall in no way constitute a renunciation of any rights under international law concerning state responsibility for the adverse effects of climate change…" Such a clause was in fact unsuccessfully proposed for inclusion in the UNFCCC text itself (see submissions of Vanuatu on behalf of AOSIS, Elements for a Framework Convention on climate change, in a set of informal papers provided by delegations, related to the preparation of a framework convention on climate change, UN Doc. A/AC.237/Misc.1/Add3).

vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects". Some have interpreted this latter clause as "an implicit acceptance of responsibility for causing climate change" but this has not been unambiguously established.[17] The Kyoto Protocol (Article 11) further requires that the "implementation of these existing commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among developed country Parties".

4.1.3 Facilitating and implementing local solutions

The third fundamental characteristic is the fact that effective adaptation, like human development itself, is ultimately a highly localised process that defies generic solutions. Vulnerable communities and households suffer from constellations of stresses with complex and location-specific interactions, and the interventions that build resilience tend to be similarly location-specific. As discussed in section 2, effective adaptation therefore requires both *facilitation* and *implementation* of location-specific efforts to adapt to environmental change.

While implementation of adaptation is largely undertaken at the local level, facilitation relies on actors at local to national to international levels. Generating and sharing knowledge across these scales is challenging. Even more challenging is to mobilise resources and distribute them to local levels. But successful strategies have evolved over time within the development community. These tend to be participatory, stakeholder-driven undertakings. They are often based on the close involvement of local civil society organisations, place strong value on local information and knowledge, and invest a lot in building local trust in and acceptance of the undertakings as well as building durable links between the different levels (Lim et al., 2005, for example). As explained in the interagency report (African Development Bank et al., 2003), "in Southern Africa numerous adaptation techniques are used by poorer farmers to deal with anticipated drought. These include water and soil management techniques, resistant crop varieties and food production methods. However, these techniques are often known only locally, or to certain ethnic groups."

The challenge then for an adaptation regime is to move between the local, regional and national levels and effectively channel knowledge and resources to the local sites where they are needed for the implementation of adaptation.

4.2 Commitments to support effective adaptation?

As the impacts of climate change become more keenly felt in the coming years, adaptation is likely to continue to rise in prominence within the UNFCCC dialogue. However, it remains unclear how adaptation will be addressed within the UNFCCC. A regime that successfully manages to support adaptation will face the challenges of i) respecting the close link between adaptation and development, ii) creating an acceptable framework for recognising responsibility for generating adaptation funds and iii) developing instruments that support the objectives of facilitating and implementing local adaptation activities via good coordination between the local, regional and national levels.

Importantly, before any legally binding commitments are accepted, an adaptation regime will need to inspire a high level of confidence that adaptation will be supported in a manner that is *effective* and *efficient.* Securing adaptation funding will not be easy, and, without significant assurances that resources would be efficiently and equitably allocated to adaptation activities,

[17] Tol & Verheyen (2004) quoting P. Sands, 1992, "The United Nations Framework Convention on Climate Change", *RECIEL* (1:3).

those funds will not be forthcoming. Indeed, seeking to mobilise the resources at too early a stage would be a mistake. The notions of effectiveness and efficiency cover several elements:

1. Efficient institutions and mechanisms, which allow resources to contribute directly to adaptation without their being wasted on bureaucracy and or diverted due to corruption.
2. Assurance that resources are being put towards *bona fide* adaptation activities rather than activities that would be taking place anyway.
3. Governance structures that enable equitable decision-making and instil trust in the governments providing resources, those requiring resources and the communities who are in need of adaptation.
4. Sufficient absorptive capacity of developing countries make effective use of adaptation funding will need to be established. This does not exist today and will not exist without improvements in knowledge and expertise, institutional strength, good governance, and transparency and accountability.
5. A specific legal instrument for adaptation must not 'ghettoise' adaptation, and make it harder, rather than easier, to ultimately integrate adaptation into mainstream development activities (as well as other multilateral environmental agreements and trade agreements).

With these points in mind, we now consider each of the three fundamental characteristics of adaptation in turn with respect to their ramifications for an adaptation regime.

1. The link to human development

In today's regime, UNFCCC Annex II countries have sought some assurance that the money they provide is going towards new activities in developing countries rather than 'business as usual' activities directed towards existing development objectives.[18] One can anticipate that this concern with 'additionality' will only grow more pressing if the climate regime progresses beyond the current stage in which commitments to finance adaptation efforts are voluntary and contributions are donated under the banner of philanthropy, and evolves into a regime in which Parties accept legally-binding commitments to contribute resources towards adaptation. However, given that a major objective of an adaptation regime is to build adaptive capacity, which entails investments in fundamental improvements in livelihoods, equitable growth and democratic governance, then it might prove counterproductive if UNFCCC Annex II countries cling to the additionality construct with respect to adaptation activities. Firstly, as argued in section 2, it will be genuinely difficult to distinguish many adaptation activities *per se* from broad-based development activities in general. Secondly, attempts to demonstrate additionality would be likely to direct attention towards those adaptation activities that may be the most easily discernible as additional, but not necessarily the most important urgent, or cost-effective contributors to adaptive capacity. This phenomenon – sometimes referred to as the 'paradox of additionality' (Sugiyama & Michaelowa, 2001) − favours separate and immediate project-based activities, often focused on well-defined marginal improvements to localised infrastructure rather than broad-based and long-term activities that may much more effectively address the underlying drivers of vulnerability and build adaptive capacity.

[18] The most explicit example of this is the CDM in which mitigation must be 'additional' to ongoing technological and sectoral change. In the adaptation realm, it manifests itself as the requirement for 'incremental cost' accounting.

2. Responsibility

In order to generate sufficient funding for adaptation or, in the words of the Convention, to ensure 'adequacy and predictability' and 'appropriate burden sharing' in funding adaptation, the climate discussion will have to evolve from general acknowledgement of ethical and legal principles to specific definitions of responsibility and their quantification. As a starting point for more concrete discussions, a typology of quantitative indicators of responsibility has recently been produced by the World Resources Institute (Baumert & Markoff, 2003).[19] As adaptation funding requirements are assessed, with due account taken of the magnitude of anticipated climate change impacts, the obligation to provide funding would then be allocated to Parties according to an agreed definition of responsibility.[20]

There should be no illusions that a discussion of responsibility will be easy. Industrialised Parties will continue to be extraordinarily wary of any obligations that commit them to providing significant additional adaptation funds. Moreover, it would be unwise to establish any system to generate significantly more financial resources for adaptation before there is substantial progress on how those resources would be deployed. Yet initiating the discussion will still be useful. It would encourage industrialised country Parties to articulate very clearly the conditions under which they could be confident that adaptation resources would be used effectively. More generally, it would advance the global dialogue, which began at the global climate change summits in Stockholm and Rio de Janiero, on responsibility for transboundary environmental impacts.

3. Local solutions with accountability

Any attempt to use adaptation funds to facilitate and implement dispersed and fragmented activity at the local level will bring with it the challenge of addressing the need for transparent management and accountability. It will be necessary to ensure accountability to those providing the funding as well as to the recipient communities. Industrialised countries will not willingly fulfil their responsibilities to provide resources for adaptation if the recipient countries do not also transparently uphold their responsibility to undertake the intended adaptation. An adaptation regime involving legally-binding commitments would therefore need to allow for oversight and ensure accountability, while avoiding micro-management and keeping decision-making authority and discretion within the host countries and communities.

The balance of control between the Party providing the funds and the Party (or community) receiving the funds will be a challenging one to strike. From the perspective of the Party providing the funds, relinquishing any control may be unappealing and may undermine their willingness to accept an adaptation regime. On the other hand, from the perspective of the Party receiving the funds, these funds may be considered obligatory payments as a result of ongoing climate change damage caused by the Parties that emit high levels of pollution, and thus control should rightfully be in the hands of the recipient. The basic tension is between an implicit charity mentality versus a perspective of compensation or liability.

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[19] Negotiating an acceptable indicator of responsibility will be challenging. Parties can be expected initially to put forward proposals that favour their interests, and rationalise them as "appropriate burden sharing" in keeping with "their common but differentiated responsibilities". In addition, Parties may need to resolve issues such as the attribution of emissions to importers or exporters and the distinction between 'luxury' and 'subsistence' emissions. One method, for example, is the proposal put forward by AOSIS to fund an International Climate Fund, which equally considers a Party's emissions and GDP in assigning national contributions (AOSIS, 1991).

[20] One can also anticipate this leading, as in the case of mitigation, to issues concerning compliance.

4.3 Options for achieving adequate adaptation

Below we set out a few of the primary types of financial delivery channels that have been put forward as options within the climate regime[21] for achieving adaptation, and consider each in the context of the three fundamental principles raised in section 4.1.

Option 1: Expand ODA infrastructure to accommodate the required adaptation

One option for achieving adaptation is to internalise adaptation in the existing bilateral and multilateral ODA infrastructure. Resources would be provided to ODA agencies, which would be responsible for administering the undertaking of adaptation in developing countries.[22] Although not all developing countries receive ODA, and this is not the only source of financing going from industrialised countries to developing countries, it is nevertheless an important source, specifically for those countries heavily reliant on ODA.

The link to development

Given the close link between building adaptive capacity and development, ODA agencies are a somewhat natural option for addressing adaptation. The ODA system should hold much transferable knowledge and applicable infrastructure for adaptation. One clear challenge is that ODA has so far not yet successfully internalised climate change. It is just beginning to undertake the process of mainstreaming adaptation and mitigation into ODA practices.[23]

Responsibility

One possibility is an ODA-based adaptation regime in which industrialised countries are assigned adaptation commitments according to some indicator of responsibility, which they then discharge by investing specified amounts in adaptation activities through their own (or other) ODA agencies. Such commitments would need to be of a scale that is consistent with the challenge.

One can expect considerable debate as to the extent to which commitments would be new and additional to already existing ODA flows, or merely a relabelling of existing development activities. Here again the tension between considering adaptation funding as charity or as compensation comes to the fore.

Local solutions with accountability

The ODA system has become increasingly capable, over the years, of internalising 'bottom-up', locally-appropriate responses. Given the difficulty of implementing this successfully, it is still maturing in this area and still has its critics. One difficulty is that ODA is based on a donor model: resources are provided voluntarily by donor countries, which maintain a high degree of control over the quantity of funds, the choice of recipient countries, the selection of local counterparts and the content of the projects they support. The need to embrace local solutions would require that significant adjustments be made, to bring in local voices and confer a greater deal of autonomy to the recipient countries and communities (Müller, 2006a and 2006b).

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[21] One can imagine a climate regime that incorporates various different manifestations or combinations of these prototypical options. It is even conceivable that a portfolio of options exists that could emerge in a piecemeal manner rather than be implemented through a formal international climate regime.

[22] Note, whether or not ODA is *the* primary channel for delivering adaptation, in order to remain effective under a changing climate, it will nonetheless have to mainstream adaptation.

[23] See Appendix 3 for a brief outline of questions that would need to be addressed in order to make current ODA efforts more consistent with climate change.

Option 2: Create or extend a globally centralised fund

A single, centralised entity could be created or extended to channel global adaptation resources, just as such an entity has been considered the natural home of the Adaptation Fund of the Kyoto Protocol. There has been an active debate regarding the suitability of such an entity as the manager of the Adaptation Fund. Generally speaking, industrialised countries have favoured the GEF as the managing entity, while developing countries have favoured an entity modelled on the governance structure of the Montreal Protocol Fund, which would keep authority within the COP. Developing countries, particularly smaller developing countries and Least Developed Countries (LDCs), have expressed concern about GEF procedures (which might or might not apply to the Adaptation Fund), such as the formulation underlying the Resource Allocation Framework (which seems to favour large and rapidly growing countries) and the application of incremental costs and global environmental benefits to adaptation projects (UNFCCC, 2006; Muller, 2006a and 2006b; UNFCCC, 2006).

The link to development

Large, centralised entities with a development mandate currently exist, and work with varying degrees of success. A centralised entity might be more effective at ancillary activities, such as capacity building, institutional strengthening and technology transfer.

Responsibility

If a system were in place to assign funding commitments to individual Parties based on responsibility, it would be straightforward to couple those commitments to the replenishment of a centralised global fund.

Local solutions with accountability

There is some experience with global, centralised funds supporting highly locally-based activities. For example, the GEF Small Grants Programme focuses on assisting civil society activities, although it is a small portion of its work. Accountability to local communities who are the intended recipients of adaptation resources would need to be more fully developed.

Option 3: Create locally-focused funds such as Autonomous Adaptation Funds

The concept of autonomous development funds would leave significant authority in the hands of local agencies and communities.[24] This idea, which was launched in the 1990s in an African context, could be particularly attractive for adaptation. The objective would be to establish funds at national/sub-national levels to respond to local adaptation needs. The funds would receive grants from Parties consistent with their commitments to contribute to adaptation funding and potentially from other sources as well (multilateral and bilateral ODA, international financial institutions, NGOs and local contributions). They would, to a large extent, be governed and managed locally, close to the recipients. Such funds could provide non-bureaucratic and efficient support for concrete action. A similar construct, which was put in place in various Latin American states as a way of minimising the negative impacts of structural adjustment programmes in the 1990s (and continues to operate today), has also been identified as a viable mechanism for achieving adaptation (Cruz, 2005).

[24] For a discussion, see for example: African Association for Public Administration and Management AAPAM, Nairobi, and the Dag Hammarskjöld Foundation, Uppsala, Sweden under the title "Autonomous Development Funds in Africa. Report of the Expert Consultation on the role of Autonomous Funds as intermediaries in channeling money for social and economic development in Africa." Kampala, Uganda, 4-6 April, 1995.

The link to development

Autonomous development funds are development-focused by their very nature.

Responsibility

If a system were in place to assign funding commitments to individual Parties based on responsibility, it is not difficult to imagine how it could be coupled to a system of autonomous development funds. One complication would be to coordinate what proportion of the total developed Parties' funding commitment was allocated to each country or region.

Local solutions with accountability

By design, autonomous development funds are structured to provide 'bottom-up', locally-driven activities. A superstructure could be provided at the global level that assists in learning, technology transfer and other activities for which some degree of coordination is helpful. Given the high level of local control, this option would require innovative thinking on control and accounting procedures to reassure the Parties providing adaptation funding.

Option 4: An insurance mechanism for adaptation

Article 4.8 of the UNFCCC and Article 3.14 of the Kyoto Protocol specifically call on UNFCCC Annex II Parties to consider actions, "including insurance", to meet the specific needs and concerns of developing countries in adapting to climate change. More detailed examination is currently going into this idea.

Insurance is not a well-defined concept in climate change discourse and has been used in different ways by different authors. Some refer primarily to market-based financial instruments for pooling risk among a population of firms or individuals who can afford the premiums (Mills & Lecomte, 2006). Others refer primarily to a mechanism whereby UNFCCC Annex II parties compensate developing countries suffering catastrophic impacts of climate change, such as floods caused by rising sea levels[25] (Germanwatch, 2005; AOSIS, 1991). Others consider hybrid mechanisms that may combine some subsidies from UNFCCC Annex II parties with innovative market-based insurance instruments (Bals et al., 2005; Linnerooth-Bayer & Mechler, 2006).

Many questions arise from this range of options. Here are some particularly germane ones:

a. How would the insurance scheme be funded? Insurance mechanisms must have a net inward flow (premiums plus external subsidies and net investment income must be greater than total claims) and premiums can in fact be considerably greater than the claims paid out (e.g., by a factor of three for the Caribbean region (Linnerooth-Bayer & Mechler, 2006)). Affordability for poor communities and households is thus an issue. In some cases, cross-subsidies have been worked into insurance schemes to make them affordable to the poorest.

b. Given that some sort of subsidy will be required to insure much of the world's vulnerable population, how would one avoid crowding out commercial insurance schemes where they may be appropriate?

c. How would one integrate an insurance mechanism (which provides compensation for damage) with adaptation?[26] To be effective and avoid perverse effects, the insurance mechanism would have to be designed so as to avoid the moral hazard risk of diminishing the incentive to undertake adaptation. It is important to note that a timely and adequate

[25] This could be managed in a fund, similar to the newly established UN Central Emergency Response Fund.

[26] This question is particularly relevant for adaptation efforts aimed at increasing adaptive capacity.

response to impacts is itself an adaptation measure, in that it enables a rapid recovery and thereby decreases indirect damages.

d. How would claims be assessed and payments delivered? As with disaster relief, there must be an infrastructure in place for assessing losses and transferring payments. The infrastructure must not suffer from excessively high transaction costs, corruption or inefficiency.

e. How would insurance schemes deal with 'uninsurable' losses? Insurance generally applies to risks that can be reliably estimated but for which there is uncertainty with regard to timing and consequences. Very gradual and predictable risks, such as sea-level rise and desertification, are generally considered uninsurable (Linnerooth-Bayer & Mechler, 2006).

Despite these challenging questions, there are insurance schemes now being put in place (e.g. in Malawi, India, Turkey, Mexico, (Bals et al., 2005; Linnerooth-Bayer & Mechler, 2006)) for various forms of catastrophic and weather-related risks, from which lessons are being learned. Given the difficulty of distinguishing climate change impacts from those of natural variability, insurance approaches might only be workable if they cover both. Building adaptive capacity, or reducing disaster risk, could be encouraged by requiring recipient countries to put in place relevant measures to qualify for coverage, or, if they are sharing in the costs, by offering discounted 'premiums' to those with rigorous adaptation strategies (Ministerial Indaba, 2006).

The link to development

In general, insurance proposals focus on compensation for damage rather than adaptation. Some proposals explicitly refer to requiring developing countries to implement certain adaptation measures in order to qualify for insurance coverage, but none discuss in much detail the nature of adaptation cooperation and the linkage to development-focused efforts to build adaptive capacity.

Responsibility

Some of the proposed schemes (AOSIS, 1991; Germanwatch, 2005) explicitly address responsibility by requiring indemnification by UNFCCC Annex II Parties. Such schemes could fairly straightforwardly be made consistent with a more comprehensive and Party-specific indicator of responsibility. For example, Tuvalu has proposed a Climate Change Insurance Fund to cover the costs associated with climate change that would be financed in part through a levy on fossil fuel sales in UNFCCC Annex I (Government of Tuvalu, 2005).

Local flavour and accountability

Few insurance proposals focus on the details of designing and implementing locally-based, location-specific adaptation measures, as the focus is on compensation for damages.

Embryonic ideas

Below we briefly refer to three additional ideas of potential interest. These are less-well documented than the options discussed above and are not yet sufficiently developed to be analysed in terms of their links to development, responsibility, and local flavour and accountability.

Market-based mechanisms for achieving adaptation

There has been some discussion, though little detailed elaboration, of market-based mechanisms to encourage adaptation by creating a market in 'adaptation credits' or 'vouchers' (e.g. Schelnhuber & Cornell, 2003), which could be traded among Parties that have a responsibility for facilitating adaptation or paying compensation to satisfy certain "adaptation targets". Adaptation credits would presumably be allocated and transferred to private sector entities.

The obvious difficulty with such a scheme is that it requires adaptation to be quantified and translated into a fungible commodity, which private sector actors could then capably deliver based on a profit-driven incentive. A further concern is that any market that permitted the fungibility of adaptation and mitigation may invite the risk of under-mitigating and place too much confidence in future adaptation opportunities. Finally, there are uncertain transaction costs.

It is possible to consider combining some these options with various mechanisms for generating adaptation funding. Among the funding mechanisms that have been raised are the following:

A tax on aviation fuels

An idea which has been floated in the EU, promoted by France and to a lesser extent by Germany and other EU member states, is to establish a tax on aviation fuels at international level and to use the revenues it would generate to finance climate-related activities in developing countries, including adaptation activities (Müller & Hepburn, 2006). The advantages of such a tax system would be that it puts a price on the pollution caused by aviation and that it would result in new resources for funding adaptation. The Chicago Convention of 1944, under which signatories have exempted aviation fuels from taxation on international flights to ensure 'fair international competition', is a barrier to the introduction of such a tax. The current US government objects to removing this exemption, and also to the imposition of any taxes on intra-European flights carried out by US airlines (Swiss Agency for Development Cooperation, 2005).

A similar tax could be envisaged for other fuels, such as 'bunker' fuels used for ships. A tax could also be introduced on airfares instead of on the fuel used for the flight. A tax on GHG emissions, or GHG intensity, could be introduced. This has the benefit that it is most directly connected to total national emissions and national responsibility.

A levy on Assigned Amount Units (AAUs) obtained through Emissions Trading and Emission Reduction Units (ERUs) obtained by Joint Implementation (JI) projects, similar to the levy on CDM projects

In the UNFCCC negotiations developing countries have raised the issue of why only a levy on CDM projects exists to cover the costs of adaptation. A similar construct could be envisaged for JI projects. Countries currently benefiting most from JI, i.e. countries with economies in transition with large surplus emissions, are opposed to this idea.

5 Closing comments

In summary, a climate regime that attempts to address adaptation is faced by a number of recurrent questions including the following:

- How can the link to human development be internalised into adaptation efforts? There are intrinsic similarities between activities that enhance adaptive capacity and those that advance basic development. This suggests that it may be counterproductive to attempt to draw a firm distinction between adaptation projects and other development efforts. It also suggests that there are significant lessons to be learned from ODA experience, and that there is much known that can be used to start investing in adaptive capacity immediately.
- How and to whom should responsibility be attributed? A certain amount of climate change is now inevitable, and adaptation to limit the damages will require considerable resources, especially in developing countries. Industrialised countries have a certain legal and moral responsibility to provide resources, as well as practical reasons for wanting to do so.

- How can adaptation needs be identified and prioritised in a manner that respects the local nature of adaptation? Implementing adaptive responses is a very location-specific endeavour, implying that an the intimate involvement of local communities is a key ingredient for effective implementation. At the same time, activities at higher levels (sub-national, national, or international) can provide a facilitate role, in order to enable successful local adaptation.
- What would be effective and appropriate institutions or mechanisms for achieving adequate levels of adaptation? In other words, what institutions or mechanisms would effectively take into account the intrinsic links with development, the twin objectives of facilitation and implementation of local responses, and the need to provide adequate resources by relating funding commitments to national responsibility.

The scientific and empirical findings that have led to an increased sense of urgency with regard to mitigation also are now also precipitating a more urgent response on adaptation. The dialogue at the October ECP seminar focused on issues related to constructing an adaptation regime with the aim of supporting and achieving adaptation in developing countries at a level that is commensurate with the challenge. In this report, we have sought to set out some of the relevant background, including three fundamental characteristics for consideration when attempting to define a viable adaptation regime.

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Appendix 1. Political Declaration on Financial Support for Developing Countries, Bonn, June 2001

The pledge for new and additional funding was issued by Belgium (on behalf of the European Community and its member states, along with Canada, Iceland, New Zealand, Norway and Switzerland) in the following Political Declaration on Financial Support for Developing Countries:

> ‘‘We, the aforementioned Annex II Parties to the United Nations Framework Convention on Climate Change, fully recognize the need to provide financial resources to developing countries, in accordance with our commitments under Article 4.3, 4.4, 4.5, 4.8 and 4.9 of the Convention….”
>
> “We reaffirm our strong political commitment to climate change funding for developing countries. We are prepared to contribute US$410 million, which is 450 million Euro, per year by 2005 with this level to be reviewed in 2008. Funding to be counted can include: contributions to GEF climate change related activities; bilateral and multilateral funding additional to current levels; funding for the special climate change funds, the Kyoto Protocol Adaptation Fund and the LDC fund; and funding deriving from the share of proceeds of the Clean Development Mechanism following entry into force of the Kyoto Protocol. We invite all the Parties to contribute also”. [Implementation of the Buenos Aires Plan of Action, Statements made in Connection with the Approval of the Bonn Agreements on the Implementation of the Buenos Aires Plan of Action (Decision 5/CP.6) (FCCC/CP/2001/MISC.4, 23 October 2001].

The five-year programme of action has two sub-themes. The scope of work for the ‘Impacts and Vulnerability’ sub-theme comprises: “(i) Promoting development and dissemination of methodologies and tools for … assessments…, (ii) Improving … information on current and historical climate and its impacts [and] … , (iii) ... on projected climate change; (iv) Promoting understanding of impacts .. and vulnerability…, (v) … [including] the socio-economic aspects …” The scope of work of the “Adaptation Planning, Measures and Actions” sub-theme comprises: “(i)…Promoting … methods and tools for adaptation…, (ii) Collecting, analysing and disseminating information on … practical adaptation…, (iii) Promoting research on adaptation…, (iv) Facilitating communication and cooperation… , (v) Promoting understanding and measures, methodologies and tools including for economic diversification…”

Appendix 2. Funds for adaptation under the UNFCCC and Kyoto Protocol

Support for adaptation is provided by the Global Environment Facility (GEF), the Special Climate Change Fund, the Least Developed Country Fund and the Adaptation Fund. See Table A1 for an overview.

GEF support for adaptation comes in three stages. Stage I provided support for the national communication process, a portion of which is the vulnerability and adaptation assessment.[27] Stage II provides further assistance for other capacity-building efforts for adaptation. The forthcoming Stage III is intended to support actual adaptation activities, including insurance, and has been implemented in the form of the GEF Strategic Priority on Adaptation. In Stage I and II, the available resources for adaptation assessments are not particularly large given that the product is intended to be comprehensive enough to support development planning.

With respect to Stage III, the start of actual adaptation activities has been hampered by several issues: the challenge of applying the GEF incremental cost and global benefits criteria to adaptation; the disinclination of GEF donors to commit GEF funds to what they may view as open-ended adaptation, and a lack of success by developing countries to secure guidance to the GEF to support Stage III adaptation. Mace (2005) gives the example of the repeated calls on the part of the Small Island Developing States "for insurance mechanisms to enhance their adaptive capacity to increasingly frequent and severe extreme weather events, and to storm surges worsened by sea level rise. These calls have been burdened by linkages with Organization of Petroleum Exporting Countries (OPEC) issues, and undermined by US efforts to downplay any relationship between extreme weather events and human-induced climate change". (Mace, 2005). Overall, the adaptation resources from GEF have supported preparatory work and assessments, but not yet covered substantive implementation of actual adaptation measures. As expressed in a submission from Canada, "the priority assigned to the Strategic Approach to Adaptation isn't, in our view, consistent with the increased attention being paid to adaptation in the convention and COP decisions" (Canada, 2005).

The **Special Climate Change Fund** was established to finance developing country activities in (1) adaptation, (2) technology transfer, (3) key sectors (energy, transport, industry, agriculture, forestry and waste management), and (4) economic diversification for countries with economies dependent on the fossil fuel sector. There are projects approved or in the pipeline in Tanzania, Ecuador, Barbados, Fiji, Uzbekistan, Jordan, the Andean Region, Pacific Islands and India. The SCCF funds are available on a sliding scale, as a percentage of the full projects costs (ranging from 25% to 50% depending on project size, with any larger portion of SCCF funding requiring a justification for the additional support). Developing countries (including AOSIS and the LDC Group) have registered concerns that the co-financing required by the sliding scale will preclude many countries from accessing the fund.

The **Least Developed Country Fund** was established to support preparation and implementation of National Adaptation Programmes of Action − a prioritised list of urgent and immediate adaptation projects, identifying those priority activities "whose further delay could increase vulnerability, or lead to increased costs at a later stage" (*decision 28/CP.7*). Contentious discussions continue regarding which activities will be eligible for full-cost funding and which will require co-financing.

[27] The total allowance for the combined mitigation and V&A assessments was capped at $130,000 (of the $350,000 budget) per 1st National Communications, and expanded to $150,000 (of the $420,000 budget) per 2nd National Communications.

The **Adaptation Fund** is intended to fund concrete adaptation projects and programmes in developing countries that are particularly vulnerable to the adverse effects of climate change. The funding is provided by a 2% levy on proceeds from Clean Development Mechanism (CDM) projects (excluding those undertaken in LDCs), and "other sources". The total scale of the Adaptation Fund will therefore depend on the volume of CERs purchased through the CDM and the market value of those CERs. Based on a World Bank estimate (Gorman, 2006) of current CDM projects in the pipeline and an assumed CER market value of $15/CER,[28] the fund would hypothetically stand at $102 million at present. Low and high estimates (of 900 million tonnes of carbon equivalent (MtC) and 2000 MtC respectively) for the 1st Commitment Period volume of CERs yield estimates of $270 million and $600 million for the total scale of the Adaptation Fund.

Table A1. Overview of UNFCCC-related funds for adaptation support

Fund	Purpose	Amount earmarked ($)	Amount disbursed (or in the pipeline) ($)	Disbursement basis
GEF I	To fund first and second national communications[a]	$130m	$80m	Full cost funding
GEF II	Capacity building for adaptation	$60m		Full cost funding
GEF III Strategic Priority on Adaptation	Pilot and demonstration projects that both address local adaptation needs and generate global environmental benefits in the GEF focal areas Also, community-based adaptation activities under the GEF's Small Grants Programme	$50m $5m	~$15m	'Incremental cost' for generating global environmental benefits
LDCF	Prioritisation and implementation of most urgent and immediate adaptation projects to address the needs of LDCs based on National Adaptation Programmes of Action (NAPA)	$41.4m	$9.6m	'Additional costs' for meeting adaptation needs
SCCF	Activities, programmes and measures in: (1) Adaptation, (2) technology transfer, (3) economic diversification, and (4) key sectors (energy, transport, industry, agriculture, forestry and waste management)	$32m	~$32m	Sliding scale: 25%-50%, depending on project size
Adaptation Fund	Concrete adaptation projects and programmes in developing country Parties that are particularly vulnerable to the adverse effects of climate change	2% of CDM revenue $270-600m (based on low – high 2012 estimate)[b]	$102m (Based on current CDM pipeline)	Yet to be determined

[a] The funding for vulnerability and adaptation corresponds only to part of the allocated funds, ~35% for 2nd national communications.

[b] According to figures cited in "Institutional Arrangements for Adaptation Fund: World Bank view", presented at the UNFCCC Workshop on the Adaptation Fund, 3 May 2006, Edmonton, Alberta, Canada, by Steve Gorman of the World Bank, Global Environment Operations.

[28] The value of the Adaptation Fund levy would depend on the market price of CERs, which is impossible to predict.

Appendix 3. Mainstreaming adaptation into the ODA system

When considering the option of achieving adequate adaptation by internalising it into the existing bilateral and multilateral ODA infrastructure, it is worth starting by looking at how ODA as it is today would need to change to become *consistent* with the challenge of climate adaptation. To be more consistent with the existing adaptation challenge, three overarching questions need to be taken into account.

Quantity of ODA efforts*: What implications do climate change vulnerability and adaptation have for the total quantity of ODA demanded by the challenge of global development?*

The impacts of climate change clearly make it harder to achieve development objectives. In the words of UN Secretary General Kofi Annan,[29] "all countries must now do their utmost to combat climate change and to keep it from undermining our efforts to achieve the Millennium Development Goals". Attaining development goals will require more ambitious development cooperation efforts when taking climate change into account. Relative to total ODA flows, estimates of the total economic costs of climate change impacts (see Box 1) are not insignificant, which implies that extra ODA will be needed to address the impacts felt by poor communities and households.

Choice of ODA efforts*: What does climate change vulnerability and adaptation imply for the choice of ODA efforts?*

ODA portfolios may need to change in response to the threat of climate change and the need to integrate adaptation. For example, measures aimed at involving communities in replanting and protecting mangrove (World Bank, 2003; Box 5) might become a more necessary development intervention in the context of a changing climate, as opposed to competing interventions (e.g. shrimp farming) that have traditionally been favoured for their immediate economic growth benefits (Klein et al., 2005). More development cooperation attention might also need to be given to disaster preparedness and disaster relief, owing to the expected increase in extreme weather events and droughts caused by a changing climate.

Design of ODA efforts*: What does climate change vulnerability and adaptation imply for the design of ODA efforts?*

The prospect of a changing climate and increased climatic variability imply that there are additional risks for long-term development investments that need to be screened (Burton and van Aalst, 2004; Klein et al., 2005, World Bank, 2006b) to:

1. identify where the development activity itself is vulnerable and suggest ways to make the activity more robust to climate variability and change
2. recognise how climate change may alter the ability of a vulnerable community (or ecosystem) to benefit from the development activity
3. discover how a project may affect the target community's vulnerability to climate change, either positively or negatively

(These three steps in particular are sometimes referred to as 'climate proofing' development.)

The ability to answer these questions and internalise the necessary changes into the ODA system is necessary in and of itself, but it also seems to be a precondition before the ODA system could bear the additional burden of delivering the full range of adaptation activities that will be needed.

[29] Statement by the Secretary General upon acceptance of the Russian Ratification of the Kyoto Protocol, 18 November 2004 (http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=412&ArticleID=4668&l=en).

Appendix 4. List of Participants at the ECP Seminar on Adaptation, 3-4 October 2006, Brussels

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About the European Climate Platform ECP

The ECP is a joint initiative of the Climate Policy Research Programme (Clipore) of the Swedish Foundation for Strategic Environmental Research (Mistra) in Stockholm and the Centre for European Policy Studies (CEPS) in Brussels. Established in 2005, the ECP aims to facilitate interaction within the policy research community, mainly but not exclusively in Europe. Its working methods consist of bringing together a select number of policy-makers, negotiators and experts to vigorously debate key topics in the area of international climate change policy and to widely disseminate its conclusions. The ECP actively seeks dialogue with policy-makers and other stakeholders while being dedicated to academic excellence, unqualified independence and policy relevance. The ECP is governed by a steering group, drawn from government and academia. For further information, see: http://www.ceps.be/Article.php?article_id=484 .

About the Climate Policy Research Programme CLIPORE

Clipore is an international research programme that aims to stimulate policy-oriented research that contributes to moving forward global efforts to combat climate change. A steady and integrated process of research and dialogue with stakeholders lies at the foundation of the Clipore programme: spawning, developing, sharing, scrutinizing and refining ideas. The programme is comprised of two large climate policy research projects, independent university positions and the Clipore Policy Forum. For more information see: http://www.clipore.org

About the Centre for European Policy Studies CEPS

Situated in the nexus between academia, business and policy-making, CEPS performs a unique role as an independent analyst and critic of European policy. CEPS' core expertise is the conduct of policy research on European affairs including climate change and the broad dissemination of its findings through a regular flow of publications and events. (See: www.ceps.be on CEPS in general and for a description of its energy, climate change and sustainable development programme: http://www.ceps.be/Article.php?article_id=12).

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