



Development and Adaptation Days Bulletin

A Summary Report of the Development and Adaptation Days at COP 12

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SUMMARY OF THE DEVELOPMENT AND ADAPTATION DAYS AT COP 12: 11-12 NOVEMBER 2006

The “Development and Adaptation Days at COP12” (D&A Days) event took place at the Hilton Hotel in Nairobi, Kenya, from 11-12 November 2006. The event was organized by the International Institute for Environment and Development (IIED), the International Institute for Sustainable Development (IISD), the Stockholm Environment Institute (SEI), the African Centre for Technology Studies (ACTS), and the RING Alliance of Policy Research Organizations. The event was held in parallel with the twelfth Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC) and the second Meeting of the Parties to Kyoto Protocol taking place in Nairobi from 6-17 November 2006.

The event featured more than 30 speakers and numerous extended discussions and question-and-answer sessions. Over 400 participants attended the two-day meeting, including representatives of governments, international organizations, academia, research institutes, business, and non-governmental organizations.

The event is held in the context of a growing call for knowledge sharing on the links between climate change and poverty. The purpose is to provide a platform for individuals and organizations working on the issues of development, adaptation and climate change to exchange experiences, and discuss challenges and emerging ideas on how to reduce the vulnerability to climate change.

D&A Days started as an Adaptation Day in 2002. The Development Day was added in 2004 to bring in development practitioners who would not normally attend the Conference of the Parties (COP), but have relevant information to share and whose work might be influenced by the work of the climate change community. The Development Day calls on development researchers and practitioners to share their knowledge and experiences on the ground with a wider audience. Similarly, the Adaptation Day is intended to provide an opportunity for those more closely involved in the UNFCCC policy process to share knowledge, experiences and ideas on adaptation policy.

The Development Day took place on Saturday, 11 November, with sessions focused on energy and sustainable development, agriculture and food security, and water. A high-level panel discussion was held at the end of the day. The Adaptation Day took place on Sunday, 12 November, and included sessions on: science, tools and adaptation; community-based adaptation; and experience with least developed countries (LDCs) national

adaptation programmes of action (NAPAs). The day closed with a panel debate on adaptation in a post-2012 international climate regime.

A BRIEF HISTORY OF CLIMATE CHANGE ADAPTATION AND DEVELOPMENT ISSUES

Climate change is considered to be one of the most serious threats to sustainable development, with adverse impacts expected on the environment, human health, food security, economic activity, natural resources and physical infrastructure. Global climate varies naturally, but scientists agree that rising concentrations of anthropogenically produced greenhouse gases in the Earth’s atmosphere are leading to changes in the climate. According to the Intergovernmental Panel on Climate Change (IPCC), the effects of climate change have already been observed, and scientific findings indicate that precautionary and prompt action is necessary.

While mitigation has traditionally been the pivotal issue for many climate change experts, adaptation to the effects of climate change is now acknowledged as necessary for responding effectively and equitably to the impacts of both climate change and climate variability. In recent years, it has become a key focus of the scientific and policy making communities and is now a major area of discussion in the multilateral climate change process. Adaptation has been implicitly and explicitly linked with development-focused action, particularly as the IPCC has underscored that developing countries are disproportionately vulnerable to climate change and lack adaptive capacity. Similarly, development processes and trajectories will be influenced significantly by the rate of climate change, and this is especially important for developing countries with growing economies. Particular attention will need to be paid to the management of water and other natural resources, agricultural activities, and the sources and generation of energy.

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Adaptation is a cross-cutting theme under the UNFCCC. While COP 1 in 1995 addressed funding for adaptation (decision 11/CP.1), it was not until the adoption of the Marrakesh Accords in 2001 that adaptation began to be more widely seen as a prominent area for action, as set out in decision 5/CP.7 (adverse effects of climate change). Following the conclusion of consideration of the IPCC's Third Assessment Report, COP 9 initiated a discussion on adaptation in 2003. At that time, the COP requested the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) to initiate work on scientific, technical and socioeconomic aspects of, and vulnerability and adaptation to, climate change (decision 10/CP.9).

Parties reached a milestone in 2004 at COP 10 with decision 1/CP.10, known as the Buenos Aires Programme of Work on Adaptation and Response Measures. COP 10 set up two complimentary tracks for adaptation: the development of a structured five-year programme of work on the scientific, technical and socioeconomic aspects of vulnerability and adaptation to climate change, which was adopted at COP 11 in 2005 (decision 2/CP.11); and the improvement of information and methodologies, implementation of concrete adaptation activities, technology transfer and capacity building. Negotiations on the programme of work are ongoing. Funding for adaptation through the Kyoto Protocol Adaptation Fund is the current focus of intense discussion and debate in the UNFCCC process.

REPORT OF THE EVENT

Saleemul Huq, IIED, opened the event on Saturday 11 November, and welcomed participants. He stressed the knowledge-sharing aspect of the D&A Days, acknowledging the large number of participants from the development community who are new to the climate change policy process. He said over 100 high-quality paper abstracts had been received for the event, of which more than 30 authors had been selected to introduce a snapshot of their work in brief presentations.

Welcoming participants, Ratemo Michieka, ACTS, said that discussions during the first week of COP 12 have underscored the importance of development and adaptation issues. He noted the role of the D&A Days in providing an opportunity to network and exchange ideas and experiences.

DEVELOPMENT DAY

The Development Day included sessions on energy and sustainable development, agriculture and food security, and water. The day concluded with a high-level panel discussion. Throughout the sessions, participants asked numerous questions and made several comments on the presentations.



High Level Panel Discussion. L-R: Madeleen Helmer, Red Crescent/Red Cross, Netherlands; Jonathan Pershing, World Resources Institute; Frode Neergaard, Danish Ministry of Foreign Affairs; Ratemo Michieka, ACTS; and Christine Pirenne, Ministry of Foreign Affairs, the Netherlands

SESSION 1: ENERGY AND SUSTAINABLE

DEVELOPMENT: This session was chaired by Richard Klein, SEI, and John Drexhage, IISD, who noted that this was the first time a session on energy was held during the D&A Days.

Presentations: José Alberto Garibaldi, Energeia, Mexico, presented on adaptation, mitigation and energy policy in relation to glacial retreat in the Andes. He said that glacial retreat and climate variability, including the impacts of El Niño, have adverse impacts on energy production in Peru. He said the adverse impacts of glacial retreat include reduction in potable water, land slides, floods and diminished power generation capacity, since most of the power generation plants are situated in glacial regions. Regarding carbon finance, he suggested that improved energy policies could support adaptation, where the long-term policy objective is transition to a climate-resilient lower-carbon energy sector.

S.A. Abdullah Al Mamun, Practical Action, Bangladesh, gave an overview of domestic biogas plants. Explaining that biogas is a sustainable energy source, generated from animal dung and used mainly for cooking and lighting, he observed that 55% of household energy requirements are met by traditional energy sources, with 8 million households cooking with traditional wood stoves, which cause pollution and are not energy efficient. Highlighting the benefits of biogas energy use, he explained that the household workloads have been reduced, carbon released by burning biomass has been minimized and forests have been protected. On the downside he noted that the plants occasionally produce a noxious odor, have to be charged daily, and do not always produce the anticipated quantity of gas.

Rob Bailis, Yale School of Forestry and Environmental Studies, summarized the context of Kenya's energy economy, noting: the heavy dependence on wood for fuel; low access to electricity in rural areas; the thriving photo-voltaic (PV) market and the successful improved cook stoves programme in urban areas. He estimated that 80% of the urban population relies on charcoal for their energy needs, adding that this is unsustainable. He indicated that the poor do not use PV due to limited credit facilities, adding that the systems installed in rural households have a capacity of only 25 watts, limiting usage for income generation. Bailis recommended reducing legal ambiguity in the wood fuels sector, and called for effective legislation and regulation of the charcoal industry and definition of responsibilities across government institutions and incentives for private investment.

Carlos Pérez, Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica, presented a project on tropical forests and adaptation taking place in Asia, Central America and West Africa. He stressed the increasing importance



Saleemul Huq, IIED

of hydroelectric power generation given the high cost of oil, adding that hydroelectricity potential in Central America is relatively high, therefore making it critical to manage water sources. He said that ecosystem services, such as regulation of water flows and soil erosion reduction, and identification of relevant forest ecosystems are crucial for adaptation. In conclusion, he stressed: the increasing importance of hydroelectric power generation; the importance of forest ecosystems services; reduced water availability resulting from climate change; the need for adaptive management and financial mechanisms for implementation; and forests as key to carbon sinks and adaptation.

Etiosa Uyigue, Community Research and Development Centre (CREDC), Nigeria, spoke on the project Promoting Renewable Energy and Energy Efficiency in Nigeria (PREEN). He explained that Nigeria relies on many energy sources whose use cause adverse social, health and environmental impacts. The goal of PREEN is to increase public awareness of energy efficiency and engage civil society to advocate for sustainable energy, by training “renewable energy advocates.” The project aims to initiate a national dialogue on renewable energy, engage the government and other stakeholders, and write a “Green Paper” to guide national policies and laws on renewable energy. He said one of the main challenges so far is inadequate funding.

Alex Bozmoski, Georgetown University, presented on a localized framework for assessing Kyoto Protocol’s Clean Development Mechanism (CDM) project risks. He described a study to assess how developing country firms in Brazil and India perceive risk, and how this affects their decisions to initiate CDM projects. He said there is a need to take into account the context in which the firms operate, especially given the high uncertainty associated with climate change. One of the objectives of the study is to understand the discrepancy between sectors in different countries by engaging the firms in the discussions. He noted that so far there has been no longitudinal study on carbon risks.

Shirene Rosenberg, City of Cape Town, South Africa, gave an overview of Cape Town’s energy strategy. She explained that the strategy aims to address greenhouse gas emission reductions, as well as examine the major consumptive sectors such as transport, households and industry. She observed that responding to a “cleaner energy path” requires reduced dependence on fossil fuels, energy efficiency promotion, resource conservation and an efficient transport network.



Shirene Rosenberg, City of Cape Town, South Africa

She emphasized that energy is a cross-cutting issue that usually lacks effective coordination amongst the relevant governmental entities, and called for clear policy and institutional frameworks, as well as the enhanced use of financial mechanisms such as the CDM.

Discussion: The distribution of CDM projects generated debate during the ensuing question-and-answer session, with participants lamenting the virtual absence of CDM

projects outside China, India and Brazil. Responding to this issue, participants stressed that the size of the economy is relevant, where Africa in particular experiences suppressed energy demands, and many governments are politically and economically unstable. Possible strategies for distributing projects equitably were considered, including placing levies that vary according to project location, maximum quotas for projects in specific countries or a Certified Emission Reductions premium on CDM projects implemented outside China, India and Brazil, cautioning against distorting the credit market.

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SESSION 2: AGRICULTURE AND FOOD SECURITY:

This session was chaired by Louis Verchot, Consultative Group on International Agricultural Research (CGIAR), and Gustavo Best, UN Food and Agriculture Organization (FAO).

Presentations: Tharsis Hyera, Environmental Protection and Management Services (EPMS), Tanzania, outlined a project assessing the effects of climate change on crop production in his country. He stated that decreased crop yields have led to redrawing of crop suitability zones in favor of drought tolerant crops like sorghum and cassava. Hyera proposed a number of adaptation strategies, including: government intervention to improve value-adding food-processing technologies; awareness raising campaigns on negative impacts of climate change on farmers; change of farming types; and adoption of new crop varieties. Hyera urged LDCs to acknowledge climate change and institute adaptive measures, including to: use irrigation infrastructure and technology; adopt drought-resistant crop varieties; and improve animal husbandry.

Peter Cooper, International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), emphasized that coping with current climate variability is a prerequisite for future adaptation. He said that variability in the semi-arid tropics has led to low and uncertain crop production. Lack of understanding of the impacts of rainfall variability has rendered rainfed agriculture a risky business. Cooper attributed persistent poverty and vulnerability to existing risk-avoidance coping strategies. He proposed: building livelihood resilience for successful adaptation through the promotion of farming innovations that can overcome climatic vulnerability; learning from historical long-term climate data tools; and identifying innovations with a high probability of success in the context of long-term climate variability. In conclusion, Cooper called for “climate proofing” development.



Peter Cooper, International Crop Research Institute for the Semi-Arid Tropics (ICRISAT)

Tabet-Aoul Mahi, Association de Recherche sur le Climat et l'Environnement (ARCE), Algeria, spoke on the impact of climate change on rain-fed winter wheat in Algeria. He described a project to assess the impact of climate change on grain yield, stressing that water availability is one of the biggest challenges to grain production in Algeria. He noted that Algeria imports wheat to meet demand that cannot be met by domestic production. Mahi pointed to high variability in rainfall, recurrent droughts, floods and heat waves, soil salinity and erosion as factors affecting crop yields. The key finding of the study is that rainfed agriculture needs to be supplemented by a large amount of additional water from various sources.

Marie Rarieya, Rensselaer Polytechnic Institute, US, spoke on climate change as a "new vulnerability," outlining impacts on agriculture and food security in Kenya. She described two sites in Kenya that are being examined in a comparative study to understand the different impacts of climate change on farmers. She cited numerous factors that exacerbate climate change impacts, including population growth, increased frequency of floods and droughts and environmental degradation. She called for interdisciplinary approaches with dialogue and collaboration among different fields, appropriate technology, and communication and dissemination of vital climate information. She proposed an "Agrocomplexity" framework that acknowledges the need for multiplicity and interplay of variables, trends and scales that impact food production and availability.

Carol Kayira, Action Aid Malawi, presented the results of a study to understand smallholder farmer perspectives on climate change. Elaborating on how changes in weather patterns are affecting livelihoods, she cited the increased incidence of droughts and floods, upsurge in diseases such as malaria and cholera, and changing rainfall patterns and temperatures that force farmers to shorten the growing season and switch to expensive hybrid crops which are more costly to produce and sensitive to changing rainfall patterns. She expressed concern that limited income opportunities in the face of increased floods and droughts have forced women to engage in unsafe sexual practices. Regarding Malawi's NAPA, she said it faces capacity constraints at the district levels and lacks coordination among various sectors.

Discussion: In the ensuing discussion, participants addressed shifting crop production by adopting more drought resistant varieties such as sorghum, rather than maize. Cooper urged participants to use long-term historical data to verify that climate change is taking place, in order to avoid basing adaptation projects on incorrect assumptions.



Agriculture and Food Security session panelists. L-R: Sithabiso Gandure, Action Aid, Malawi; Marie Rarieya, Rensselaer Polytechnic Institute, USA; Tabet-Aoul Mahi, ARCE, Algeria; Peter Cooper, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT); Tharsis Hyena, EPMS, Tanzania; Louis Verchot, Consultative Group on International Agricultural Research (CGIAR); and Gustavo Best (FAO)

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SESSION 3: WATER: The session was chaired by Monirul Mirza, Environment Canada, and Gina Ziervogel, SEI.

Presentations: Jeroen Aerts, Institute for Environmental Studies, the Netherlands, presented a film on Kitui sand dams, a case of local adaptation. The film described sand dams in Kitui district, Kenya, which are constructed to store water for use during dry periods. The water is stored in the sand, thereby minimizing evaporation, and can be extracted by wells and pumps for irrigation and drinking. The film underscored the importance of community-based adaptation, and the need to involve local communities in construction and management, suggesting that the approach should be adopted by other vulnerable communities.

Courtenay Cabot Venton, Environmental Resources Management, UK, described a study on cost-benefit analysis of disaster preparedness in India. She outlined adaptation responses in Bihar and Andhra Pradesh, noting that these include raised hand pumps to extract groundwater for domestic use, so they may be accessible during floods. The cost-benefit analysis of installing hand pumps in both sites shows that the activity is cost-effective during floods. Similarly, the investments required for installing hand pumps on the ground could be considered "wasted." She noted that cost-benefit analysis is a powerful tool for getting policymakers to understand the impacts of climate change and the need for response measures.

Francis Mugabe, Midlands State University, Zimbabwe, overviewed a study on dam responses to varied climatic regimes in Zimbabwe, noting that 65% of Zimbabwe's land area is semi-arid, receives low and erratic rainfall and experiences drought in three out of five years. He explained that crop yields are influenced by rainfall and said droughts cause crop failure, lack of grazing pasture and cattle mortality. Mugabe named remittances and relief food as survival responses and cited constraints to productive use of dam water including insufficient water quantities, high surface water evaporation and lack of knowledge on the volume of stored water. He presented evidence that increased dam water use results in higher incomes and crop yields.

Zac Morse, Fiji School of Medicine, presented a pilot project on climate change adaptation to protect human health, which incorporates seven countries from different ecosystem zones and with varied health risks. He outlined the expected benefits as: a reduction in the burden of climate sensitive diseases; better cross-sector integration of planning and implementation; and reduction of the effects of climate change on human health. The activities include a focus on water-stress prevention, response measures and intensification of surveillance logs for hydro-meteorological disasters and climate sensitive diseases.

Ranjashami Mohanraj, Bharathidasan University, India, presented on sustainable water management strategies in the Noyal river basin in India. Observing that decades of low rainfall have left the river extremely dry, he said that rising populations and an export-led textile industry have

increased pressure on water harvesting structures and sewerage treatment facilities. He discussed 718 dyeing and bleaching units established since 1990, which discharge dyeing effluents downstream and result in vegetation loss. To mitigate these effects, measures include: common effluent treatment plants using a reverse osmosis technique, wetland treatment systems, and recycling the sludge produced in textile production for brick making.

Dénis Ouedraogo, University of Bobo-Dioulasso, Burkina Faso, discussed climate change and livestock development in eastern Burkina Faso, highlighting a case study on pastoralist adaptation strategies. Underscoring the importance of livestock production in terms of GDP, he discussed how pastoralists are adapting to changes in pasture, rainfall patterns and natural assets used as inputs in livestock production systems. He emphasized that the lack of water is a major constraint for extensive livestock production systems, further noting the limited use of agricultural by-products and industrial secondary products in traditional animal breeding.

Discussion: Participants discussed the viability of reverse osmosis, portable water quality and water-related health issues and their relevance to climate change and adaptation. One participant raised the upsurge of malaria, which has led to the re-introduction of DDT, listed as a persistent organic pollutant under the Stockholm Convention, calling for synergy between the UNFCCC and the Stockholm Convention. Responding to a question on alternatives to dams, Sam Mutiso, Sahelian Solutions Foundation, noted that sand dams are below-surface dams used where few alternatives for accessing water exist and that they have positively impacted on water harvesting and conservation, and are effective in terms of design and functionality.

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SESSION 4: HIGH-LEVEL PANEL DISCUSSION:

This session was chaired by Saleemul Huq. Panel members discussed their views on development and climate change.

Pablo Suarez, Boston University, US, described an incident at a climate change conference hosted by Walmart, where a keynote speaker said that society does not take climate change warnings emanating from scientists seriously, and suggested that companies like Walmart reach out to society in a more credible way. Suarez said this demonstrates the failure of the development and adaptation community to communicate messages about the urgency to respond to climate change in a way that is likely to trigger change, and urged more creativity and "brain power" to improve this.



Pablo Suarez, Boston University, US

Christine Pirenne, Ministry of Foreign Affairs, the Netherlands, explained that without considering climate change in development policies, overseas development assistance (ODA) investments are at risk. She said that projects need to be explicit about how adaptation and climate change are considered. She described a new approach taken by the Netherlands, in which Dutch diplomatic missions in developing countries will integrate climate change awareness into national development assistance policies and plans. To be successful, Pirenne urged developing country governments to put climate change adaptation on their national development agenda.



Christine Pirenne, Ministry of Foreign Affairs, the Netherlands

Ratemo Michieka called for a clear agenda and fundraising strategies for climate funding from developing countries and economies in transition from sources such as the Global Environment Facility (GEF). He added that such meetings should continue beyond the COP and evolve into "South-South" collaboration.

Frode Neergaard, Danish Ministry of Foreign Affairs, stressed the interlinkages between adaptation and broader development goals for improved human well-being and suggested that integration of adaptation into the development agenda is critical. He proposed "climate proofing" investments within ODA and said that common donor tools and standardized guidelines on mechanisms for integrating climate change in development are being designed across various sectors.

Bert Metz, Netherlands Environment Assessment Agency, expressed caution on the terminology of "adaptation" and proposed "making development sustainable and less vulnerable to climate change," adding that adaptation requires an every day investment in all development aspects. Metz stressed that terminology is key because it defines who wields decision-making influence. He stated that the "how" to integrate adaptation and development is not easy and needs to be a collaborative effort, identifying stumbling blocks to integration as: lack of in-depth understanding of climate change; institutional problems related to "turfs" and a danger of "mainstreaming overload." He called for a high-level political commitment, including resource allocation, tapping local knowledge and rural development experiences. He concluded that taking a development perspective would ease tension between adaptation and mitigation.

Jonathan Pershing, World Resources Institute, US, highlighted the dichotomy between the climate change and development agendas, asking whether the D&A Days can act to bridge the gap and create synergy between adaptation and development. He noted that infrastructure development in China and India is primarily derived from internal resources, and not ODA. He called for incentives on the development agenda to compel these countries to change their policies, underscoring the necessity for China, India, South Africa and Brazil to take appropriate domestic decisions related to energy efficient policies. Acknowledging the impact side of the climate change debate, he lamented that political will has been insufficient to respond to pertinent climate change issues.

Madleen Helmer, Red Cross/Red Crescent Climate Centre, the Netherlands, said that people are experiencing changes in weather and do not need to know about climate science to understand this. She stressed that uncertainty in science should not delay action to respond. She welcomed the engagement of civil society organizations and called for a “Stern report” on adaptation. In conclusion, she underscored that adaptation “can solve the climate change problem.”

Discussion: On issues of finance, participants questioned whether adaptation financing should be additional to ODA, and discussed whether adaptation should be part of development, or considered separately. Questions were raised on the barriers to reaching agreement on the Adaptation Fund, and how domestic resources can be used for adaptation. Participants stressed the “polluter pays principle” and compensation, and noted that existing development projects may be wasted investment if climate change impacts are not considered. Other comments highlighted the need for public-private civil society partnerships, and the role of faith communities and the Church in raising awareness.

In response, panelists commented that the discussion at D&A Days needs to be held in the context of the COP discussions, but also cautioned that funding should not be restricted to the money in the UNFCCC funds. Metz commented that without mitigation, the climate change problem will become so big that adaptation will not be possible. Neergaard stressed the need to bring together the climate change and development communities. Suarez pointed to institutional deficit caused by HIV/AIDS, and how this affects capacity building and retention.

Closing the session, Huq stressed that the next five to ten decades will be disastrous if climate change mitigation efforts are not implemented. Regarding the 10-20 year perspective, he said poor people in LDCs will suffer the most, since mitigation will not help them. He underscored the relevance of the Adaptation Fund, but cautioned that the Fund will not resolve all the problems.

ADAPTATION DAY

The Adaptation Day, on Sunday 12 November, included sessions on: science, tools and adaptation; community-based adaptation; experience with NAPAs and finished with a panel debate on adaptation in a post-2012 international climate regime.

SESSION 1: SCIENCE, TOOLS AND ADAPTATION:

This session was chaired by Neil Leary, global change SysTem for Analysis, Research and Training (START), and Anthony Nyong, International Development Research Centre (IDRC).

Presentations: Anne Hammill, IISD, gave an overview of the development, structure and implementation of CRiSTAL, a tool for integrating climate change adaptation into development projects. She explained that the tool focuses on reducing vulnerability of



Neil Leary, global change SysTem for Analysis, Research and Training (START)

communities to climate-related hazards and climate change through ecosystem management and restoration of sustainable livelihood activities. On findings and lessons learned, Hammill pointed out that: CRiSTAL provides a good framework for making linkages on climate change, vulnerability and impacts on livelihoods; can be used at different levels; and serves to raise awareness. She cautioned that CRiSTAL cannot analyze information, adding that participatory testing is time-consuming and expensive.

Anna Taylor, SEI, presented a study on technology receptivity in adaptation projects, which seeks to draw together existing lessons on creating a local enabling environments to complement the international level work of the UNFCCC. The study undertook 16 case studies in six countries and represents a shift in focus from: mitigation to adaptation; hardware (artifacts) to software (process) and “orgware” (institutions); centralization to decentralization; and technology transfer (supply) to receptivity (reception of technologies in a people-centered manner). Taylor highlighted elements to support technology reception, including: a people-centered approach; idea and information sharing on available technology options; adoption and innovation; encouraging open-source technologies; and monitoring and evaluation, modification, reassessment and learning.

Anthony Patt, International Institute for Applied Systems Analysis, Austria, spoke on applying meteorological data and climate forecasts to decision-making in Africa. He pointed to the need to identify actual benefits realized from using data and climate forecasts in the areas of food security, agriculture, health, disasters and water resources. He described critical decisions for each of these sectors, and discussed how the information could be applied in each case. Patt expressed hope that integrated use of seasonal climate prediction and weather monitoring data will reduce losses associated with climate variability, and urged building institutional and human capacity to use the information for this purpose.

Pierre Mukheibir, University of Cape Town, South Africa, described a Municipal Adaptation Plan (MAP) developed for the City of Cape Town. He explained that the UNFCCC process focuses on the national level, and many efforts are being undertaken with a local focus, but few studies or initiatives focus on the municipal level. He described the MAP process to integrate the existing development agenda with the climate agenda. Mukheibir expressed hope that through a process of ongoing monitoring and evaluation the MAP activities will become integrated into sectoral plans.

Suruchi Bhadwal, The Energy and Resources Institute (TERI), India, discussed policy design in a world of uncertainty, change and surprise. She observed that climate change introduces huge unknowns for policymaking, noting that the challenge lies in designing robust policies that are able to adapt to both anticipated and unanticipated changes in underlying



Anne Hammill, IISD



Suruchi Bhadwal, The Energy and Resources Institute (TERI), India

conditions. Bhadwal pointed to examples from India relating to index-based weather risk insurance for agriculture, where automatic adjustment is triggered by climate information, and another case where agriculture price policies are adjusted to take into account parameters such as the cost of production, changes in the price of inputs and other market dynamics. Underscoring the importance of learning from policy case studies, she concluded by saying that “no regret”

policies and automatic adjustment based on triggers improve adaptive capacity to anticipated conditions.

Mozaharul Alam, Bangladesh Centre for Advanced Studies (BCAS), reported on a project on opportunities and risks from climate change and disasters (ORCHID). Explaining that aid investments are at risk from climatic impacts, he underscored the necessity of combining disaster risk reduction with climate change adaptation. Giving an overview of the ORCHID climate risk management methodology, he explained that the objective is to reduce climate-related vulnerability by integrating adaptation and risk reduction into development cooperation, explaining how the UK Department for International Development (DfID), among other donors, is developing and piloting the use of climate risk management to assess and address climate risks to development programmes. Highlighting how ORCHID undertakes country-based portfolio screening of projects and programmes, he noted that the process prioritizes high-risk key planned and ongoing activities and presents good opportunities for risk and vulnerability reduction.

Discussion: Participants discussed adaptation technology, including technology for addressing disaster risk. Other comments stressed that loans, debts and climate change are undermining the ability of local level implementation of coping strategies and suggested a focus on the multilateral level. Panelists encouraged groups working on adaptation tools to engage in dialogue and share experiences.

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SESSION 2: COMMUNITY-BASED ADAPTATION:

This session was chaired by Saleemul Huq and Atiq Rahman, BCAS.

Presentations: Angie Dazé, CARE Canada, presented a pilot project for strengthening institutional capacities to effectively respond to climate change in three communities in Tajikistan. She focused on work with the high altitude community of Panjhok, which experiences a harsh environment and is inaccessible for several months of the year. A vulnerability assessment at the village-level revealed that risk factors include shifting winter seasons and increasing snow pack. Based on the assessment, the project designed adaptation strategies

to lengthen growing season for 15 households and provided training on food preservation to improve food security during the winter. Dazé highlighted the project's adaptation-mitigation linkages, which are energy efficient stoves to reduce the need for fuel and improve heating in schools during winter, conserving energy and ensuring continuity in education. She concluded that adaptation work needs to be undertaken with other vulnerability factors in mind and emphasized partnerships with local institutions for building local capacity and linking climate issues with existing priorities.

Moisés Vicente Benessene, National Institute of Meteorology, Mozambique, spoke about local disaster risk management in his country. He described a project focused on implementing early warning systems in the Buzi river basin, with partners in government, schools, civil society, private farmers, and bilateral agencies. The objective is to educate and build capacity in local communities, and apply climate data to early warning systems. Benessene said volunteers monitor rainfall and river flow and disseminate warning information to the communities in the basin. Other activities include evacuation and rescue training, and managing refuge shelters.

Siri Eriksen, University of Oslo, Norway, spoke about adaptation in the context of conflict in Kitui district, Kenya. She described drought-prone communities in an area with a history of ethnic conflict. Outlining the impacts of droughts on the livelihoods of the resident ethnic groups, she noted that more frequent and severe droughts have triggered greater cooperation and less conflict with the nomadic pastoralists. Eriksen stressed that conflict resolution is a pre-requisite for adaptation in the region, including improved security, social welfare support, and the provision of water and services in grazing areas. In conclusion, she questioned whether funding for adaptation would support conflict resolution.

Charles Nhemachena, Center for Environmental Economics and Policy in Africa, University of Pretoria, South Africa, spoke on assessment of farmers' adaptation strategies to climate change in southern Africa. He noted the high dependence on agriculture for livelihoods, and the sensitivity of agro-ecosystems to climate change, coupled with low adaptive capacity and limited financial and technological resources. He described existing adaptation measures, including crop diversification and increased use of irrigation. Nhemachena said barriers to adaptation include: lack of information, credits, seeds, and knowledge about how to adapt. He said government policies need to help alleviate these barriers and provide farmers with appropriate technology.

Suruchi Bhadwal discussed vulnerability to climate variability and climate change through an assessment of adaptation issues and options. She outlined an information-sharing project, conceived to enhance coping strategies for dealing with climate variability and long-term climate change, currently under consideration for GEF funding under the UNFCCC Special Climate Change Fund.



Charles Nhemachena, Center for Environmental Economics and Policy in Africa, University of Pretoria, South Africa

Highlighting the use of information technology as a tool for disseminating information to the grassroots in order to reduce risks, she lamented that information-sharing systems are mostly market oriented and have limited information related to climatic factors.

Mxolisi Sibanda, WWF Southern Africa Regional Programme Office, presented on climate change adaptation in Malawi. Observing that increased droughts and floods have direct and indirect impacts on the livelihoods of the Chikwana community and the natural resource base, he explained that the project's objective is to discern local perspectives on climate change and the type of adaptation measures and activities being undertaken. He observed that community perceptions suggest that the frequency of droughts has increased, negatively impacting on rainfed agriculture in the uplands. Sibanda cited maladaptive responses, including encroaching into floodplains despite associated risks of flooding and resource extraction from protected areas. Regarding conservation agriculture, which aims to increase productivity of farming in the region, he said that trials have been successful. He concluded by underscoring the importance of making the connection between pressures experienced by communities and intervention strategies undertaken, and of using of community role models to promote activities.

Jeff Woodke, JEMED, Niger, discussed adaptation by nomadic pastoralists in Niger. He elaborated on how nomadic pastoralists have developed ideas to adapt their lives and livelihoods to cope with frequent droughts and other climate variability. Underscoring the need for an integrated community-based solution, he discussed the establishment of fixation points, which provide access to clean water, health care, education and food while still enabling communities to maintain their nomadic lifestyles. He also noted that these fixation points facilitate the regeneration and management of rangelands. Emphasizing the importance of appropriate land tenure provisions to facilitate adaptation, he highlighted the role of education in enabling the next generation of pastoralists to be better equipped to undertake effective adaptation measures.



Jeff Woodke, JEMED, Niger

Discussion: Participants addressed: how barriers to adaptation such as land tenure in Niger are being addressed; strategies used by WWF in Malawi to scale up best practices; examples of mobile service delivery in West Africa that are compatible with nomadic livelihoods; and whether the fixation points in Niger have a strong profit motive.

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SESSION 3: EXPERIENCE WITH NAPAS: The session was chaired by Tom Downing, SEI, and Bubu Jallow, LDC Expert Group Chair. At the close of the session, a documentary produced by IIED's Capacity Strengthening of LDCs for Adaptation to Climate Change Fellows entitled "Voices from the Development Day COP 12" was shown, highlighting perspectives on the Development Day.

Presentations: Isabelle Niang-Diop, University of Dakar, Senegal, provided some insights into her experience with the NAPA process, explaining that it is the first initiative to link adaptation and development under the UNFCCC. She stressed that ultimately, people on the ground need to adapt. She cautioned against raising their expectations unrealistically, and pointed to the need to identify relevant stakeholders to enhance project ownership. Niang-Diop urged: a truly multidisciplinary approach; vigilance in the process of prioritizing adaptation measures in the NAPA; and harmonization of funding quantities. In conclusion, she questioned how the second national communications within the UNFCCC will respond to medium- and long-term adaptation needs.



Isabelle Niang-Diop, University of Dakar, Senegal

Nagmeldin Goutbi Elhassan, Sudan, outlined his country's experience in preparing the NAPA. He said UNFCCC LDC funds will not be sufficient, and encouraged the integration of adaptation into national planning. He described the extensive consultation process for the NAPA preparation, during which numerous stakeholders were involved and awareness enhanced.

Mohammad Reazuddin, Bangladesh, discussed his country's NAPA experience, explaining that it has prioritized agriculture, water, coastal zones and health. Lamenting the slow progress in preparation and implementation, he urged LDCs to finalize their NAPAs, stressing that they should result in projects funded by the GEF. In conclusion, he outlined Bangladesh's country framework to mainstream climate risk management and adaptation in order to achieve climate resilient development.

Mama Konate, Mali, explained that his country's NAPA is nearing completion. Reiterating the effectiveness of a participatory, multidisciplinary approach, he said it helps to identify broader adaptation strategies. Konate also questioned whether available funds can adequately implement anticipated NAPA projects.

Discussion: One participant asked how NAPAs address equity, sustainability and stakeholder involvement including conflict resolution mechanisms where consensus on proposed projects is lacking. Another asked for clarification on how the NAPA process identifies immediate needs for adaptation, and the mechanism to ensure equal access to NAPA funds. A question was also raised on the interface between NAPA and national communication processes.

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SESSION 4: PANEL DEBATE: ADAPTATION IN A POST-2012 INTERNATIONAL CLIMATE REGIME: This session was moderated by Roger Harrabin, BBC, who opened the debate on the merits, feasibility and scope of a possible legal instrument on adaptation under the UNFCCC. Showing a film on the most vulnerable people in Bangladesh, he noted that there is currently no legal instrument to obligate the financing of adaptation, and invited panelists to defend a position for or against a hypothetical “Adaptation Protocol.”

Benito Müller, Oxford Climate Policy, UK, spoke in support of a separate legal instrument to support adaptation. He described the background of the issue, noting that the concept first emerged in the policy process in 2002, and since then discussions have centered on the scope, content and rationale for such a legal instrument. He said three factors would



Benito Müller, Oxford Climate Policy, UK

justify such an instrument: if legally binding contributions are established; if international levies on greenhouse gas emitting activities are implemented; and if a regime on compensation is established. He concluded that adaptation must have legal standing to ensure that it is funded and not forgotten.

Farhana Yamin, Institute for Development Studies, UK, acknowledged the need for advancing the adaptation agenda,

but argued that an independent legal instrument on adaptation would not be helpful. She outlined an alternative “São Paulo Proposal” that looks to integrate adaptation needs into the post-2012 architecture by adjusting the existing mechanisms and instruments, including the Kyoto Protocol. The key elements of the proposal include: stable and increased financing for adaptation; institutional coherence within the UNFCCC process; and policy coherence between the UNFCCC and other bodies dealing with the adaptation, development and disaster linkages. She said such a framework would help bring adaptation forward.

Saleemul Huq said that climate change exists in a world far removed from the negotiating process, adding that perceptions and perceived solutions have also evolved over time. Underscoring the inevitability of human-induced climate change which is “already locked into the system,” he said that even poor people in rich countries will be affected, citing hurricane Katrina as an example. He pointed out that climate change will be perceived as a human rights issue in light of the pending publication of the IPCC Fourth Assessment Report. On compensation for human-induced climate change, where damage could be attributed, he questioned whether the UNFCCC and Kyoto Protocol could address this dimension.

Emphasizing the duality of the debate, John Drexhage argued against an adaptation protocol. He discussed how mitigation and adaptation are critically linked responses to climate change. Noting that pro-adaptation protocol advocates could lose political leverage by becoming side tracked away from the broader negotiations, he called for a realistic approach

in terms of what is achievable under the existing climate change instruments. He urged an integrated understanding of the issues as well as focus on energy policies.

Discussion: Participants addressed numerous comments and questions to the panel, including whether: the human rights dimension of climate change can be addressed under the current instruments; if Africa would actually benefit from an adaptation protocol; and the feasibility of reducing Adaptation Fund levies for those countries that mitigate effectively. Other comments addressed the form of legally binding instruments and the nature of environmental litigation and dispute resolution.

Questions also highlighted pre-requisites for successful adaptation and effective environmental governance in terms of financing and policy coherence. On the issue of funding, participants asked whether funds should be voluntary and queried the feasibility of a new fund. They urged information sharing relating to experience with funds. A call was made for engaging the private sector in the adaptation discussion.

Participants asked whether policy organizations and institutions should be consolidated or new organizations created to coordinate old ones, pointing to past failures of such an approach. A participant stressed that a change in the thinking and belief systems is needed. Transforming the climate change problem by framing it as a justice and human rights issue was also proposed. Noting that large humanitarian relief exercises take place in areas with high climate variability, one participant lamented the absence of discussion of relief activities.

Some participants supported the view that the UNFCCC and Kyoto Protocol are not being fully utilized for adaptation. Another participant challenged the debate, calling it “false” and “almost useless,” and argued that the UNFCCC and Kyoto Protocol are inadequate and inequitable, cautioning that an adaptation instrument will not be effective nor drive the adaptation agenda forward.

In response, Huq stressed mechanisms for ensuring that those accountable for emissions take responsibility for the costs of responding. He suggested an awareness-raising strategy that depicts the impacts of climate change as far more destructive than terrorism, and proposed making a case for prevention in order to avert a disastrous scenario. Responding to the issue of a legal mechanism for the resolution of environmental disputes, Huq called for an instrument that would emphasize prevention of adverse effects and go beyond the limits of adaptation. In conclusion, he stressed the need for adaptation issues to take center stage, whether through a negotiated instrument or not.

Yamin said that the answer to the justice question lies in the framing of the UNFCCC itself, which is based on the principle of “common but differentiated responsibilities.” She agreed that a focus on the source of emissions is fundamental and said compensation is a secondary issue. Yamin lamented that a preventive principle is not under discussion. She pointed out that while the voluntary and



Farhana Yamin, Institute for Development Studies, UK

consensual nature of international law may be seen as limiting, it is nevertheless useful, adding that it is poor institutions and governance that cause poverty. Yamin underscored the contribution made by civil society in lobbying for climate change provisions, saying that the UNFCCC and Kyoto Protocol contain “something worth fighting for.”

Drexhage expressed concern about the “ideological tone” of the discussion. He explained that the definitions of eligible sinks under the CDM have significant impact on the eligibility of most African countries. He underscored the need for practical tools to understand funding requirements. Drexhage emphasized the importance of ensuring that adaptation concerns are integrated into development priorities and ODA. Cautioning that climate change cannot be avoided, he said that it is a complex moral and conceptual issue.



John Drexhage, IISD

Müller said that the delay in the entry into force of the Kyoto Protocol opened a door for adaptation to take a more prominent place on the negotiations agenda, but noted that once mitigation takes center stage again, adaptation will be sidelined. He thus called for a separate instrument on adaptation to counterbalance mitigation in the negotiations. He reiterated the need to consider issues such as legally binding commitments for adaptation, global levies and damages for compensation.

CLOSING REMARKS

Closing the event, Richard Klein remarked on the large number of participants vis-à-vis previous years. He thanked the participants and sponsors: IDRC, the Swedish International Development Cooperation Agency (SIDA), and the German Technical Cooperation Agency (GTZ); and looked ahead to the next Development and Adaptation Day event in 2007.

UPCOMING MEETINGS

3RD FUTURE ENVIRONMENTAL TRENDS CONFERENCE: ENERGY, ENVIRONMENT, AND DEVELOPMENT - ANALYZING OPPORTUNITIES FOR REDUCING POVERTY: This meeting will take place from 14-16 December 2006, in Bangalore, India. It is organized by the Institut Veolia Environnement (IVE), The Energy and Resources Institute (TERI), and the Institute for Sustainable Development and International Relations (IDDRI). For more information contact: Ulka Kelkar, TERI India; e-mail: eed@teri.res.in; Internet: http://www.teriin.org/events_inside.php_id_17298

JOINT INTERNATIONAL CONFERENCE ON DESERTIFICATION AND THE INTERNATIONAL POLICY IMPERATIVE: Organized by the UN University International Network on Water, Environment and Health (UNU-INWEH), in collaboration with other international agencies, this conference will take place from 17-19 December 2006, in Algiers, Algeria. For more information, contact: Caroline King; tel: +1-905-525-9140 ext. 24517; fax: +1-905-529-4261; e-mail: conference@inweh.unu.edu; internet: <http://www.inweh.unu.edu/inweh/drylands/IYDD.htm>

INTERNATIONAL SYMPOSIUM: TIME TO ADAPT – CLIMATE CHANGE AND THE EUROPEAN WATER DIMENSION: This symposium will be held from 12-14 February 2007 in Berlin, Germany. The German Federal Ministry for the Environment will host this international symposium, which will seek to provide a platform for different stakeholders to discuss the impacts of climate change on water resources. For more information contact: Carolin Wolf, Conference Management, Ecologic; tel: +49-30-868-800; fax: +49-30-868-80200; e-mail: info@climate-water-adaptation-berlin2007.org; Internet: <http://www.climate-water-adaptation-berlin2007.org/contact.htm>

SECOND INTERNATIONAL WORKSHOP ON COMMUNITY-BASED ADAPTATION TO CLIMATE CHANGE: This workshop will be held in Dhaka, Bangladesh, in late February (date to be determined). The workshop is organized by the Bangladesh Centre for Advanced Studies (BCAS), International Institute for Environment and Development (IIED), and the RING Alliance of Policy Research Organisations. For more information, contact: BCAS; tel: +880-2-8851237; fax: +880-2-8851417; e-mail: ccadaptation.workshop@bcas.net; internet: <http://www.bcas.net>

26TH SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: This meeting will take place on 4 May 2007 in Bangkok, Thailand, immediately following the 9th session of Working Group III, to be held from 30 April - 3 May 2007. For more information contact: Rudie Bourgeois, IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-7 30-8025/13; e-mail: IPCC-Sec@wmo.int; Internet: <http://www.ipcc.ch/>

26TH SESSIONS OF THE UNFCCC SUBSIDIARY BODIES AND KYOTO PROTOCOL AD HOC WORKING GROUP: The 26th sessions of the subsidiary bodies to the UN Framework Convention on Climate Change (UNFCCC) are scheduled for 7-18 May 2007 in Bonn, Germany. They are likely to be held alongside the third session of the Kyoto Protocol's *Ad Hoc* Working Group and various workshops and other events, including a third UNFCCC dialogue on long-term cooperative action. For more information contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; Internet: <http://www.unfccc.int>

For more information on upcoming meetings, please visit: <http://www.iisd.ca/upcoming/linkagesmeetings.asp?id=5>

GLOSSARY

CDM	Clean Development Mechanism of the Kyoto Protocol
COP	Conference of the Parties to the UNFCCC
GEF	Global Environment Facility
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
NAPAs	National Adaptation Programmes of Action
ODA	Overseas development assistance
SBSTA	Subsidiary Body for Scientific and Technological Advice of the UNFCCC
UNFCCC	UN Framework Convention on Climate Change