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BANGLADESH CENTRE FOR ADVANCED STUDIES (BCAS)

EDITORIAL

This newsletter focuses on a number of concerns, which cover a wide range of issues from global environmental change to local level natural resources management and livelihood promotion of the marginal groups, poor and women. The main article of this BEN warns about the devastating impacts of climate change on the poor and their livelihoods. It has also highlighted about the current coping strategies of the poor in relation to disaster risk reduction that could be improved through awareness raising and capacity building of the poor. Dr. Atiq Rahman, in his article on confronting climate change, urges for deeper cut of carbon emission urgently and greater adaptation for the vulnerable communities to tackle the threat of runway climate change.

Mozaharul Alam shares his experience of a workshop on Clean Development Mechanism (CDM) to address climate change and informs us about the emerging and expanding market of carbon financing. Though Bangladesh has a thriving private sector, but the actors are not much aware of the emerging opportunity while it is dominated mainly China and India. Md. Belayet Hussain and Ms. Olena Reza gave a short account of their interesting work of community based wetland resources management in south central Bangladesh under the SEMP (Sustainable Environment Management Programme) of the UNDP and the Government of Bangladesh.

Dr. Mahbubul Haque of Ahsanullah University of Science and Technology wrote about his experimentation of textile pollutants minimization. We hope that the readers will enjoy the articles of this BEN with diverse issues and current information. We wish a happy and prosperous new year to our valued readers. ☸

Global Climate Change will hit the Poor the hardest

The global sustainability is threatened by the increasing global warming and the associated climate change impacts. The poor are the first to suffer from the various adverse impacts of climate change. The industrialized countries and rich people have created the problem while the developing countries and the poor communities are the main victims and they are least able to cope with the adverse impacts of climate change on their lives and livelihood. The world leaders and scientists have agreed that the problem is accelerating. Mitigation measures (such as reduction of carbon emission and clean development mechanisms) for halting dangerous climate change are the most critical interventions necessary for supporting the sustainability of the world and at the same time, interventions for increasing adaptive capacity of the poor and vulnerable communities are urgently needed.

Poverty in the Planet

Poverty is a complex and it is defined in different ways. However, poverty reduction is the greatest challenge for the global community. The currently the world has accumulated the highest amount of resources of all kinds (human, financial, physical etc.) with the highest number of people living in abject poverty. Over 3 billion people live in poverty. Of them, about 1.2 billion people are in extreme poverty, who suffer from hunger, food insecurity, malnutrition, ill-health, lack of resources, lack of education and basic services, powerlessness and social exclusion across the world. Most of them live in the Asia, Africa and Latin America (see the table-1). A projection by the World Bank says that poverty situation may improve in Asia, but it may degrade in Africa and Latin America in the coming years.

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Carbon Finance Market Development: Preparation of Bangladesh

A two-day workshop on 'Carbon Finance Market Development' was held on 9-10 August 2006 in Dhaka, Bangladesh. The workshop was hosted by the Department of Environment (DOE), Government of Bangladesh and facilitated by Bangladesh Centre for Advanced Studies (BCAS) with support from the World Bank, USA. About 100 Representatives from government, industry and business sector, academic institutes and research organizations attended the workshop and contributed to the workshop discourse with their valuable remarks on the topic by their active and dedicated participation in the workshop. Khandaker Rashedul Haque, Director General of the Department of Environment chaired the workshop while Md. Reazuddin,

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The RING Strategic Meeting held in Santiago

The strategic and planning meeting of the Regional and International Networking Group (RING) was held on 3-4 April 2006 at the Conference room of the Economic Commission for Latin America and the Caribbean (ECLAC), which is popularly known as CEPAL in Santiago, Chile. Coordinated by IIED (the Secretariat of RING), the meeting was hosted by RIDES, a partner organization of RING based in Santiago. The representatives of the RING member organizations from Europe, America, Africa and Asia participated in the two-day meeting. The objectives of the RING meeting were:

- to know about the RING partners and their areas and approach of work;
- to exchange experiences on common interests and issues i.e., progress in MDGs, climate change and trade and sustainable development; and
- to explore possible avenues for future collaborative research, collective actions and advocacy.

The RING is a network of research centres and academic institutes from both developed and developing countries. The network was created in 1992 to facilitate dialogue and research among the southern and northern countries during the Earth Summit. The RING partners are: ACTS, BCAS, CENESTA, Development Alternative, ENDA, IIED UK, IIED Latin America, IISD, NEST, RIDES. SEI, SDPI, VITAE CIVILS and ZERO. The first day of the meeting was jointly organized by CEPAL and RING to exchange ideas and experiences and exploration of opportunities among the partners and key organizations who share common concerns and approaches towards sustainable development. Presentations were made by experts and discussions were held in three technical sessions on MDGs, Climate change and trade and sustainable development issues besides the inaugural session on the first day. Ernesto Ottone of CEPAL, Franciosco Sabatini of RIDES and Tom Bigg of IIED spoke in the inaugural session.

The MDG

In the session-1 on Millennium Development Goals, Taghi Farvar from CEESP CENESTA, focused on the need to reintroduce historical considerations into understanding the failure of the Millennium Development Goals. He argued that there is a structural failure of intergovernmental efforts to tackle global problems. They set impossible goals so the outcome is always lowering the goals instead of addressing the real causes of the problems. Ricardo Ffrench-Davis from ECLAC and Universidad de Chile, exposed the failure of neoliberal reforms in Latin America. Neoliberal reforms have not generated high and sustained growth, neither have they eliminated equity problems.

Tariq Banuri from SEI Bangkok, also addressed the failure of the MDGs by criticizing the excessive reliance of the international community in economic growth. He characterized current approaches to overcome poverty by referring to the "river" (market): flows down and all you can do is remove obstacles for its flow; the "house" (planning): disciplined movement toward a goal; and the "tree" (community): grows on its own logic, needs nurturing and involves partnership and innovation. He argued that growth does reduce poverty and we should focus on poverty reduction. Finally, Gilberto Gallopin, from ECLAC presented the link between the Millennium Ecosystem Assessment Initiative and the MDGs.

Climate Change

In the second session on climate change, Rubens Born from Vitae-Civilis, Brazil, addressed the existence of two policy paths in terms of climate change: i) international conventions and the regulatory approach, including market mechanisms, and ii) working with communities and territories in identifying ways to involve them in the solution. Any alternative chosen will require research efforts in terms of mitigation measures, adaptation mechanism, impacts and responsibilities, costs and benefits, he emphasized.

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BCAS-IFS Training on Integrated Water Resources Management

Bangladesh Centre for Advanced Studies (BCAS) in association with International Foundation for Science (IFS) organized a national workshop on Integrated Water Resources Management (IWRM) on Scientific Methodology and Development of Grant Applications for IFS. It was held on 27-28 September 2006 in a hotel in Dhaka. The workshop facilitated preparation of proposals on water related issues for IFS research grant for the researchers from different government, non-government institutions, research and academic institutions of Bangladesh. A total of 30 researchers attended is the training workshop.

The objectives of the workshop were; to introduce potential new applicants and team coordinators to the IFS research grant program; to provide

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Dr. Atiq Rahman, Executive Director of BCAS is seen among others. He addressed the workshop participants and emphasized on the importance of IWRM approach. Source: BCAS

Confronting Climate Change needs Urgent Cuts in Carbon Emission and Greater Adaptation

Deeper cuts in emissions and greater effort on adaptation to be made urgently to free the world from the imminent threat of dangerous climate change. Runway climate change is looking ever more threatening. There appears to be just a small window of opportunity in this decade for rapid action to avert catastrophic and irreversible changes.

The good news is that - despite all the misinformation campaigns - the process of climate change negotiation is continuing. Scientific effort, through the Intergovernmental Panel on Climate Change (IPCC), is narrowing uncertainty and demonstrating the anthropogenic foot-print. The Kyoto Protocol has come into force and European countries are trying to implement it. But the bad news is that there are increasing extreme climatic events while, global action to reduce greenhouse gases remains very weak, and emissions are increasing more rapidly than ever.

The KP Target

There should be an absolute 5.2 percent reduction in the greenhouses gas emissions during the Protocol's first commitment period, in fact we have seen a greater increase. And the Kyoto target itself was only designed to be the first, small and inadequate step. It is an absolute priority that the parties to the UN Framework Convention on Climate Change achieve deeper cuts, so as to meet its prime objective - saving the planet from the threat of runaway climate change.

Over the last five years there has been an unprecedented increase in extreme weather events in rich, developing and least developed countries - including cyclones, floods, heat stress, drought, and the rapid melting of polar ice and glaciers. All countries will need to adapt. Devastating hurricanes like Katrina and Rita have exposed the United States' vulnerability, demonstrating lack of preparedness and the need for adaptation even there – and the adaptation needs of the poorer countries are much greater.

The Convention and Protocol enshrine simultaneous actions on mitigation and adaptation. In the final analysis mitigation is the best form of adaptation, which is certainly no substitute for it. Any delay in reducing emissions will only increase the need and cost of adaptation, and increase the risk of runaway global climate change. The primary responsibility of the Convention and Protocol - and all their member states, signatories and non-signatories - is to reduce emissions now. Industrialized countries must take the lead. Developing countries must also do their utmost, and seek a path of development with a lower GHG emission.

The delay in the Protocol coming to force has deprived the world of a major opportunity for reversing the course of rapid increase in greenhouse gases. Even its attempt to be a first, small beginning was thwarted by a small group of countries. By contrast, European countries are trying to implement it; but attempts are weak and inadequate. A limited number of Clean Development Mechanism (CDM) projects are emerging. But they are virtaully exclusively in the domain of such large developing countries and major emitters as China, India and Brazil. Most of the smaller and poorer nations - and particularly the Least Developed Countries - will largely remain outside its benefits, though they will be the most affected by the adverse impacts of climate change. A special mechanism to include them is essential to make the CDM a universal instrument.

Inclusion of the USA

All efforts must be made to include the USA into all future processes. In this rapidly globalizing world it is neither desirable nor helpful to keep the greatest economy out. The USA is not only the greatest greenhouse gas emitter; it also can play a key role in solving the problem of climate change with its scientific and financial capabilities. If the US Administration is serious about freedom across the world, then freedom from the increasing threat of climate change - particularly for the poor and vulnerable countries and communities - must be part of the greater freedom.

While mitigation efforts have stumbled, there has been some progress over adaptation, maybe as a result of their very failure. This also serves as a rebuff to climate skeptics, emphasizing not only that climate change is real and already here, but that communities and ecosystems need to be protected from its potential threats. Much of this is due to interest from developing countries who have identified that adaptation has direct and reinforcing relationship to sustainable development. Many have led and initiated important advances. The 48 nations of the Least Developed Countries (LDCs), for example, have started National Adaptation Plans of Action: several industrialized countries, such as Finland and UK, have initiated similar plans and activities. Adaptation has to be focused to development. It will be supported, and become cost-effective, if done with sensitivity and respect for local and national circumstances.

It is an absolute priority that the parties to the UN Framework Convention on Climate Change achieve deeper cuts, so as to meet its prime objective - saving the planet from the threat of runaway climate change.

The Convention's objective is "stabilization of the greenhouse gas concentration in the atmosphere at a level that will prevent dangerous anthropogenic intervention with the climate system". But what is "dangerous" remains both

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Carbon Finance Market Development

Director (Technical) of DOE and Chair of Least Developed Countries (LDCs) group under United Nations Framework Convention on Climate Change (UNFCCC), Atiq Rahman, Executive Director, BCAS and Michel Pommier from the World Bank had been the panel discussants in the workshop. Ms. Mahua Acharya and Venkata Ramana Putti of World Bank, Mirza Shawkat Ali of DOE, Iftekhar Enayetullah of Waste Concern, Dhaka and Mozaharul Alam from BCAS attended the workshop as resource persons. The workshop was largely attended by the participants from industry and business sector.

The objectives of the workshop were to understand: 1) how business sector can participate and bring investment in carbon emission and carbon trading, 2) improve energy efficiency and harness potential resource, 3) disseminate information on carbon market, 4) what is being done and market potential in Bangladesh and 5) barriers or constraints and regulations.

Md. Reazuddin of DOE welcomed the participants and mentioned that the world has agreed to some principles and accept some obligations under the United Nations Framework Convention on Climate Change (UNFCCC) and binding commitments under Kyto Protocol (KP) to reduce greenhouse gas emission. The KP provides three mechanisms to reduce greenhouse gas emission, one of which is Clean Development Mechanism (CDM). The government has established required legal and institutional framework to facilitate CDM project in Bangladesh along with sustainable development indicator. Michel Pommier of World Bank expressed their satisfaction on the Department of Environment for holding such an event and cited that they have not seen much happening in CDM sector during last two years of their working experience here in Bangladesh. He also mentioned that the World Bank would engage consultants to develop strategy for important sector as far as carbon finance is concern and reiterated the role of private sector in developing and implementing CDM project. Atiq Rahman emphasized on the important role of private sector as the moving force and their significant contribution to national GDP growth. The economic growth should be achieved through low carbon development path. Bangladesh should take the opportunity of the emerging carbon market through research, innovation, collective action and public –private partnership. He also suggested to find options, which may combine both mitigation and adaptation measures. Again the option must consider employment generation, poverty alleviation, local knowledge and resources and increase of resilience in human, social and natural systems. For example promotion of solar energy and afforastation would be appropriate measures in context of Bangladesh.

Partial view of the workshop participants held at the Pan Pacific Sonargaon Hotel, Dhaka. Source: BCAS

After introductory discussions, the four presentations were made by the respective experts: Venkata Ramana of the World Bank presented on "Carbon Finance Market Status and Outlook", Mahua Acharya of World Bank Presented on "Identifying an Developing CDM Project", while Iftekhar Enayetullah of Waste Concern presented on "Carbon Market Potential in Bangladesh and Case Study on Landfill Gas Extraction and Utilization at the Matuail Landfill Site" Mozaharul Alam of BCAS presented on "A Summary of two Clean Development Mechanism (CDM) projects; Solar Home System (SHS) and Compact Fluorescent Lamp (CFL). After technical presentations there was fruitful discussion on the key issues: a) size of CDM project and interested buyers, b) baseline calculation and additionality issue, c) approval procedure of the government, d) tax related to transaction or trading of carbon from Bangladesh and e) capacity development for different sectors.

The workshop dealt with carbon finance market development with private sector and carbon finance market development with public sector. On the second day of the workshop Mahua Acharya, World Bank gave a presentation on Basic Carbon Financing along with the history and details. She explained about Kyto Protocol and highlighted benefits of Carbon Financing to the project and mentioned that the total demand created by KP parties to meet their target is 5.5 billion tones of CO_2 equivalent. Different mechanisms through which carbon reduction can be achieved were highlighted in her presentation. She also gave an overview of the working of the World Bank Carbon Financing starting from identification, development of the full project proposal and project implementation. During open discussion Atiq Rahman raised the main criticism of Kyto Protocol implementation, where the USA is not the party to the protocol. However, the European Union, Japan and other countries are responding to KP and a carbon market is evolving.

Venkata Ramana Putti of the World Bank presented on Eligibility Criteria of CDM project highlighting the Technical Assistance Programme of the World Bank providing support in 30 developing countries all over the world to help countries to built their capacity to develop carbon finance projects. He also mentioned that the government has both project and policy level roles for approving CDM projects as well as to take policy initiatives to facilitate CDM projects. Further, he explained the concept of CDM, the way it works and reasons for developed countries to buy the emission reduction, baseline and additionality aspects of CDM with examples from different types of projects with calculation procedure and time for crediting period.

Mirza Shawkat Ali, Deputy Director (Research) of DOE explained the structure of the Designated National Authority (DNA) along with the project cycle. The DNA has a two tier structure: a) CDM Committee and CDM Board that comprises of members from relevant departments, ministries, academic institutions and research organizations. Khandaker Rashedul Haque, Director General of DOE mentioned that the government will carryout facilitating role, supply leaflets and impart training. In response to the questions of buyers Venkata Ramana gave a description of three types of buyers: such as ; a) institutional buyers, b) large companies and c) private buyers. Michel Pommier gave example of India how different ministries are identifying areas of CDM. Reazuddin requested the relevant agencies to prepare PIN (Project Idea Note) for discussion with the World Bank consultants for their feedbacks. In his concluding note Michel Pommier thanked the Ministry of Environment and Forests, the Department of Environment and BCAS for arranging the workshop. ❁

- M. Alam and G. Jilani

Community Based Floodplain Resource Management integrates Ecological Protection and Human Needs

Bangladesh Centre for Advanced Studies (BCAS) in association with IUCN Bangladesh implemented a Community Based Floodplain Resource Management (CBFRM) components of the Sustainable Environment Management Programme (SEMP) in Madhumati floodplain in South Central Bangladesh. The project started in October 1998 ended in December 2005. The project supported by the government of Bangladesh and UNDP.

The overall objective of the CBFRM project was to contribute to the improvement of the quality of life in general, coupled with attaining sustainable development, poverty alleviation and capacity building of the local communities for effective environmental management by involving the communities to a maximum extent. By doing so, the environmental restoration and community based sustainable resource management would be demonstrated in a participatory way in the degraded floodplain eco-system.

Approach of the Project

The CBFRM component adopted a community based, participatory approach that integrates ecological protection and human needs to strengthen the fundamental connection between economic prosperity and environmental well-being in the floodplain environments. It also provides a framework to bringing together the grassroots, the local government, private sectors, youths and other stakeholders. It is goal-driven and is based upon a collaboratively developed vision of idyllic future conditions that integrates ecological, economic, social as well as legal factors. Moreover, it emphasizes on community involvement, coordination between development and conservation, gender role promotion, ecosystem regeneration considering livelihoods options.

Achievements of CBFRM

Establishing the baselines

The baseline information collected under CBFRM project was through PRA techniques and also using other subject specific standard methods. Baseline information was mainly collected on physical, biological (flora and fauna) and socio-economic conditions, resource exploitation, and

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Methods for Textile Pollutants Minimization

Wastewater discharged from a textile wet processing plant contains various types of pollutants depending on the type of dyes, chemicals, auxiliaries and process used. Some of these pollutants are considered toxic while some are not. The toxicity of pollutants also depends on the amount present in a certain amount of wastewater. Various countries have different standards for acceptable level of toxicity for various purposes. Different types of water application also require different level of acceptable toxicity. The typical characteristics of wastewater generated in a textile wet possessing plant is given in Table-1.

Table-1: Characteristics of wastewater of a typical textile wet processing industry

PH	8 – 14
BOD	400 – 600 PPM
COD	800 – 1,200 PPM
TSS	200 – 5-00 PPM
TDS	3,000 – 6,000 PPM
OIL & GREASE	30 – 60 PPM
COLOUR	Dark Mixed
TEMPERATURE	Up to 60°C

As was mentioned textile wastewater may contain various types of contaminants but in most cases the toxicity of the above eight parameters are considered important before discharging them into the environment. The parameters are:

- Biochemical Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS).

Impacts on Ecology

In the aquatic environment, dyes can undergo bioconcentration, ionization, abiotic oxidation, abiotic and microbial reduction and precipitation. The ionic dyes such as acid, direct, basic and metal complex dyes will not volatilise whereas, in principle, solvent, disperse, vat and sulphur dyes have the potential to be volatile. Sorption should also play a major role as dyeing is a sorption process. Hydrolytic reactions are not important because if the dyes survive the biological treatment processes, it is unlikely to degrade rapidly in the environment. Photochemical reactions may be important, as dyes are good adsorbers of solar energy. Aquatic plants will not be able to produce food by the process of photosynthesis. As a result their life will be endangered. Aniomic dyes reacts with ions such as calcium and magnesium to form insoluble salts and thereby reduce the concentration available for other biological reactions. Redox reactions should also be considered, as in early vat dyeing processes, the dyes were reduced microbially before chemical replacements were introduced. Reduction in the environment would most likely occur under anaerobic conditions, however, the difficulties of working with anaerobic systems has limited research in this area. In general, there is very little literature available on the environmental behavior of dyes. This is probably due to the lack of suitable analytical techniques.

There could be various measure and technologies to minimise toxicity and volume of textile effluent. The sections briefly describe some of the important measures pollutant.

Reducing Toxicity: Compounds that contribute to the aquatic toxicity of textile effluent include salt, metals, surfactants, toxic organic chemicals, biocides and toxic anions. Some methods of reducing the use of these compounds are to: (i) reduce metal content through careful pre-screening of chemicals and dyes for metal content and using alternatives where possible. Eliminate galvanized plumbing as reactions with brass fittings can take place in the presence of acids, alkalis or salt and lead to the release of zinc. Reduce the amount of salt in the effluent by optimizing recipes, using low-salt dyes, reusing dye baths and optimizing dyeing temperatures. Use of biodegradable surfactants such as linear alcohol ethoxylates would reduce toxicity. Replace chlorinated solvents with unchlorinated alternatives. Replace

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Table-1: Proportion of People live in Poverty by Regions

Regions	1990	2000	2010 (Projection)
Sub-Saharan Africa	48	46	52
South Asia	44	40	31
East Asia	28	15	9
Latin America	17	16	23
Eastern Europe and Central Asia	2	5	10
Global:	30%	24%	22%

Source: *World Bank: 2001 (World Development Report: Attacking Poverty)*

Poverty is often looked simplistically with economic focus, but it is multi-dimensional, complex and multi-faceted. It goes beyond income and employment. It is multidimensional encompassing social, human, cultural, political and governance perspectives. The human, social, cultural and power dimensions of poverty need to be understood better. The economists tried to measure poverty with level of income and food consumption, while the sociologist defined poverty as deprivation, which is rooted in the social and cultural processes as well as in institutional and structural inequality. Poverty is generated through structural inequality and unequal economic growth in a country and a region. Professor Sen (1998) has defined poverty as deprivation of human capabilities and lack of freedom or lack of choice, besides lack of income, employment and resources endowment. Similar views have been also reflected in the Human Development approach of UNDP, which focuses on the process of enlarging people's choices by ensuring a corresponding expansion of their capabilities for poverty reduction and human development.

Bangladesh is one of the poor developing countries of the world, characterized by high density of population, low resources base, poor governance and high incidence of natural disasters. All those factors have adverse implications on economic growth and poverty situation. The country has experienced slow progress in poverty reduction in 1980s. However, the1990s saw a better performance in reduction of poverty. But the absolute number of the poor has increased in the last decades. Currently, Bangladesh has about 150 million people. Of them, about 70 million live under poverty line, who have inadequate income and consume inadequate food having food value less than 2122 kcal per capita daily. Over 30 million of them are extreme poor who do not have regular employment, income and suffer from continuous food insecurity, malnutrition and social insecurity. They are also denied of most of the civic amenities such as basic health service, sanitation, safe drinking water and education for the children.

Impacts of Climate Change on the Poor and their Livelihoods

Climate change will compound existing global poverty and the impacts of possible climate change would affect adversely the poor in the developing and least developed countries. Its adverse impacts will be most striking in the developing nations in Asia, Africa, Latin America, because of their geophysical conditions and their high level dependency on natural resources and their limited capacity to adapt to the changing climate. Again within the countries, the poorest, who have least resources and the least capacity to adapt would be the most vulnerable to the impacts of climate change (IPCC, 2001 and African Development Bank, 2003). It is also reported that projected changes in the incidence, frequency, intensity and duration of climatic extreme events (such as heat weave, heavy precipitation, flood, cyclone, salinity and drought) as well as more gradual change in climate will remarkably threaten the livelihoods of the poor. Climate change impacts may increase further inequities between developing and developed nations. Thus, climate change also poses a serious threat to poverty reduction and achieving MDGs and sustainable development for the globe.

Unfortunately, the current development strategies in many countries tend to overlook climate change risk and its impacts on development and poverty. But according to the scientific community, climate change is already happening and this has been demonstrated through various recent extreme climatic events around the world such as prolonged and severe floods in South Asia, heat weaves in Europe, cyclones and droughts. The 1990s was the warmest decade and the year 1998 was the warmest on record. The current century is expected to see warming quicker than at any time in the past 10,000 years due to many anthropogenic activities. It seems that we cannot prevent climate change, which will have many adverse impacts on human, social and natural systems in different degrees across the world. Hence, we must adapt with the changing climate and at the same time reduce various risks and vulnerability associated with

Crop failure due to drought in Gomastapur Rajshahi. *Source: BCAS*

Table-2: Possible Impacts of Climate Change and Vulnerability of People by major Regions

Regions	Types of Impacts and Vulnerability
Asia	• Extreme events have already increased in the form of frequent and prolonged flood, droughts, tropical cyclones and forest fires • Water stress, flood, drought, sea level rise and tropical cyclone would diminish food security of the marginal and poor in countries of arid, tropical and temperate Asia • Reduced soil moisture in the summer may increase land degradation and desertification • Sea level rise, salinity intrusion and frequent cyclone would affect the lives and livelihood of the people in coastal areas, who are mostly poor and marginal sections in the countries
Africa	• Increase of drought, floods and other extreme events, which would add to stress on water resources, food security, human health and infrastructure and contrasting development • Change in rainfall and intensified land use would exacerbate the desertification process • Yield of crop would decrease affecting food security and poverty situation • Sea level rise will affect coastal settlement; flooding and coastal erosion would dislocate the poor and marginal groups from their lives and livelihoods
Latin America	• Loss and retreat of glaciers would adversely impact runoff and water supply in areas where snowmelt is an important water resources • Flood and drought would affect the agriculture and livelihood of the people and may degrade their livelihood portfolio • Increase in intensity of tropical cyclones would enhance risks to life (aggravating poverty situation), property and ecosystems • Coastal human settlement, productive agriculture and mangrove ecosystems would be adversely affected and these will affect the human systems and livelihoods of people

Source: *AfDB et al, 2003*

climate change, particularly of the poor in the tropical and sub-tropical regions, who would be most vulnerable to global climate change.

The table-2 shows the possible impacts of climate change on the livelihoods of people, particularly of the poor and marginal groups in Asia, Africa and Latin America.

The poor are the most vulnerable to climate change impacts. The term vulnerability means the degree to which a system is susceptible to or unable to cope with adverse effects of climate change including climate variability and extreme. The effect may be direct e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature, or indirect e.g., damages caused by an increase in the frequency of coastal flooding due to sea-level rise. The poor people are critically vulnerable to natural disaster and any severe climatic event that disrupt their lives and livelihoods, because the poor have least capacity to cope with changing situation and reduce risks. Again, poverty sometimes increase the level of vulnerability, because the poor often live in places and have livelihoods that are susceptible natural disasters and it limits their ability to cope with or recover the shocks.

Climate change is likely to directly impacts on the poor's livelihoods in many ways, their assets and resources base including their employment, income, access to water and natural resources and health. The poor will face more food insecurity, water stress and health problems in the changed climate. It would be difficult to achieve the goal–1 of MDG i.e., eradicating poverty and hunger in the context of climate change threats. Climatic events such as flood, drought, salinity and cyclones would affect agriculture, food supply and water badly and thus enhance poverty.

The Copping Strategies of the Poor to Climate Change Disaster

People, in different ecosystems and regions, are trying to cope with the natural disaster and climate change related events with their own understanding, knowledge and resources. They pull their own resources and knowledge to adapt with the situation. Natural disasters like flood and cyclone very often inspire automatic response and people develop their own coping mechanism and survival strategies over time through trial and error. These are based on their conventional and family wisdom and localized knowledge and there has been growing consensus among the development practitioners, policy-makers, researchers and academics that due respect should be given to indigenous knowledge and local practices while planning and

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Coastal Embankments are being eroded due to high tide in Shyamnagar in Satkhira. Source: BCAS

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implementing programmes for different sectors such as agriculture, fisheries, forestry and disaster management.

The key characteristic of local and indigenous knowledge is that they are locally appropriate and restraint in resources exploitation, flexible and socially responsible. It gives the local perspectives and priority for risk reduction and resources management and development as well. Incorporating indigenous and local knowledge into disaster preparedness and development process can contribute to local empowerment and enhance sustainability of the process. But the coping strategies of the poor are again constrained by their lack of resources and information and institutional capacity. Their local knowledge and current coping strategies must be improved and turned into long term anticipatory adaptation by giving them necessary awareness and information about climate change, its possible impacts on their lives and livelihoods as well as building their various capacities for better responses. Diversified livelihood options and integration of disaster preparedness in the development process will improve the adaptive capacity of the poor.

Community Based Adaptation

BCAS, with few local development organizations, community people and vulnerable groups, is trying to advance poor's adaptive capacity in three climate affected regions of Bangladesh. These are coastal area, flood affected and drought prone north-west region of Bangladesh. The adaptive capacity of the poor and vulnerable groups in the selected areas would be enhanced through action research, awareness building, institutional linkages and collective action. The initiative has been taken under the South-South-North (SSN) Adaptation programme of BCAS and the partners. We hope to report on the approach and progress of the SSN Community Based Adaptation initiative in the future issue of BEN. ❁

-D. Mallick and G. Jilani

BCAS Study Team Members are exchanging views with partners on project idea notes under SSN-2. Source: BCAS

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The RING Strategic Meeting held in Santiago

Jose Luis Samaniego from ECLAC, provided a comprehensive panorama of current implementation of the climate change convention in Latin America, particularly the implementation of carbon-markets. He argued that there is a transition toward a programmatic project approach in carbon-markets (i.e. methane from landfills, methane from waste waters, public transportation systems, public lighting systems). Victor Orindi from Acts, Kenya presented the RING project called Capacity Strengthening of Least Developed Countries (LDCs) for Adaptation to Climate Change (CLACC)". He argued that training of civil society to get their active involvement is a priority.

In the third session on trade and sustainable development, Mark Halle from IISD, presented an overview of current scenarios in trade and sustainable development. The last WTO ministerial meeting held in Hong Kong showed the inability of trade negotiations to move forward, in large part because of the mismatch between the Doha undertaking to carry out a Development Round and the subsequent reality, where national self-interest from more powerful countries has been dominant. There is a need to recognize that trade is not good for everybody and that some losers will emerge and they need to be compensated. Marianne Shaper, from ECLAC, argued that environment as an issue became an inevitable point in the trade agenda, and a controversial topic between north and south. This is clear when looking at trade negotiation processes.

Shaheen Rafi Khan from SDPI, talked about the current challenges existing in multilateral arenas, namely the WTO. One is the continuing divide between north and south agendas, where WTO still plays a useful role for northern countries. In this context, the challenge for southern countries is to put back into the agenda the link between trade and sustainable development. It was suggested that organizations and research network such as the RING can play a valuable role arguing that trade policy is a means and not an end.

The second day of the meeting concentrated mainly on RING internal matters, which included: sharing of Bangkok meeting, learning exercise involving partners, future opportunities and priorities, organizational matters (for strengthening the network) and RING finance. The strategy and planning meeting focuses on: how best RING as a knowledge and research network can influence global policy and programme and initiate collaborative research and collective actions on sustainable development, poverty reduction, environment and natural resources management for a just and equitable world; development of core programme for RING partners; sharing experiences and lessons among the RING members and key stakeholders; strategy for effective communication and increase interaction among the sub-groups and regional RING members.

The issues of capacity building of the RING members and the network (for research, publication, policy advocacy, lobbying at local, regional and global scales), were also discussed in the meeting. The Santiago meeting identified the following key areas for further research, information dissemination, awareness building, advocacy and collective actions for the RING members:

a) Climate Change: adaptation and mitigation focusing on water, food, health and energy;
b) MDGs and poverty reduction: poverty-environment partnership;
c) Trade, corporate social responsibilities and sustainable development;
d) MEAs: UN-Convention on Biodiversity and UN-FCCC; and
e) Land, water, natural resources and rights of marginal people. ❁

-D. Mallick

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Confronting Climate Change Needs Urgent Cuts

controversial, and a scientific challenge, and must be resolved politically. Present concentrations of greenhouse gases are already leading to heat stress, extreme weather events, the melting of polar ice, and the shifting of glaciers.

So have we reached dangerous levels? A global and urgent political consensus on this is essential, but so far there is none. The European Union is moving towards a 2ºC increase as the limit of acceptability, yet that may still have intolerable impacts. In the absence of consensus, this must be seen as the absolute upper limit, with a view to reducing it.

In the final analysis, this is an issue of consumption, production and environmental justice. Agreeing the Convention was principally a process of governmental North-South negotiations. But civil society - environmental, research, scientific and business groups - have influenced governments to decide in favour of the planet above narrow national or group interests. The principle of "common but differentiated responsibility" was accepted by all parties and actors.

The Conference of the Parties should be a fertile ground for discussing the second commitment period - bringing deeper cuts in the North and more decarbonized economic development in the South. Initiatives and discourses on a post-Kyoto architecture, with various positions on equity, fairness and allocation of responsibility and burden sharing have already been initiated by different groups in both the North and the South. The more progressive ones - such as the "South-North Dialogue on Equity in the Greenhouse, a proposal for an adequate global climate agreement" - have combined researchers and institutes from both.

Freedom from the threat of climate change is one of the key freedoms for which every country will have to take responsibility. If it is not ensured, such other freedoms – as freedom from hunger, injustice, terrorism and dictatorship - could be equally threatened.

The present structure of North-South negotiation may need to be revisited. But any future architecture must include all nations - and particularly the USA, the greatest emitter. It must take into consideration the need, and the right, of poor countries and communities to survive with their development needs met and minimum dignity in society ensured.

Freedom from the threat of climate change is one of the key freedoms for which every country will have to take responsibility. If it is not ensured, such other freedoms – as freedom from hunger, injustice, terrorism and dictatorship - could be equally threatened. There is no part of the planet so isolated and fortified that it is free from the danger. Climate security has to be for the entire planet, and all its citizens. ❁

-A. Rahman

This article first appeared in UNEP's Climate Change and Economic Development issue of "Our Plannet" Magazine, Vol. 17, No. 2 (2006).

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BCAS-IFS Training on Integrated Water Resources Management

trainin on scientific methodology on developing proposals for IFS research grant; and to share research experience in fields relevant to the country.

The inaugural session was chaired by Atiq Rahman, Executive Director, BCAS. The inaugural session started with the welcome address delivered by Mozaharul Alam, Research Fellow, BCAS. Md. Golam Rabbani, Senior Research Officer, BCAS and Coordinator of the workshop gave on overview about the workshop and also briefly spoke about IFS small grant programme in inaugural session.

Professor Jahiruddin Chowdhury of Institute of Water and Flood Management (IWFM), Bangladesh University of Engineering and Technology (BUET) presented a paper on "IWRM Concepts and Principles" during the inaugural session.

Atiq Rahman asked the young researchers to take the opportunities to develop their capability for sound and quality research projects on different issues particularly on water for the benefit of the people and the country.

The technical session started with the presentation on "IWRM practices in Bangladesh" by Shahidul Haque, Director, Local Government and Engineering Development (LGED), Government of Bangladesh. Presentations were also made by Professor Habibur Rahman, Professor Altaf Hussain, Khandaker Mainuddin, M.H. Salim Ullah Sayeed, Mozaharul Alam and Md. Golam Rabbani on relevant issues. The presentation on scientific methodology and development of grant applications for IFS research grant was made by Khandaker Mainuddin, Fellow of BCAS.

A scientific panel was formed to facilitate the group activities at different sessions during the workshop. The panel was led by Atiq Rahman. The other members of the panel were:

- Khandaker Mainuddin, BCAS
- Shajahan Modol, BUET
- ABM Faruquzzaman, BUET; and
- Nazmul Karim, NIPSOM

The outcomes of the workshop include: familiarization of the participants with IFS research areas, methods of IWRM research, grant opportunities etc; ccapacity building on writing scientific research proposal; sharing the experience of the participants on academic and field research, project implementation and interventions on water resources management; Submission of proposals for IFS research grant. ❁

- G. Rabbani

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Community Based Floodplain Resource Management

The view of a community nursery of medicinal plants at Kaligram in Gopalganj district under SEMP-CBFRM intervention. Source: BCAS

utilization and regeneration practices in agriculture, forest and fisheries. The secondary information was also reviewed, analyzed and compared with the primary information gathered under the projects. Further, several studies were carried out on specific species that are nationally or globally threatened namely, Ganges River Dolphin (*Plantanista gangetica)* or just because of their importance in the ecosystem, e.g. the little Cormorant (*Phalacrocorax niger).* Studies were also conducted on three different animal groups with economic and ecological significance, namely, snails, butterflies and bats.

Preparing the action plans

In the CBFRM project developed site-specific action plans by involving the local communities on the basis of feedback gathered from the problem census and planning workshops. In the planning workshops, the community people have prioritised the identified problems. The action plan had been fine-tuned and detailed out in the quarterly work plans on the basis of the field conditions and considering the local needs. The project worked in 31 villages in Sader Muksudpur upaziles in Gopalganj district and Rajoir upazila in Madaripur district.

Organising the communities

Community based organizations (CBOs) are of paramount importance for the sustainability of a participatory resource management initiative. The establishment of local institutions for sustainable development and making them fuctional were of great priority under the CBFRM component. Hence, the local people were organized into various groups, namely vulnerable groups, nature clubs, folk groups, resource user groups, baira groups, etc., as parts of different project interventions. In addition, in every village of the project area, a village Environment Committee (VEC) or Village Committee (VC) or Village Resource Management Committee (VRMC) was formed for continuing with the implementation of the project activities following "phase out" of the project.

Environmental awareness

Various activities were carried out to raise awareness among the community and other stakeholders about conservation and sustainability resource management. Issue based folk drama performance, observance of environment related days, environmental awareness material (billboards, signboards and leaflets) were developed and disseminated. Nature club played a key role in demonstration and participation in exhibitions at the community level.

Demonstration

The purpose of demonstration plots were to inform people about the restoration/ rehabilitation of lost species/eco-systems, and safeguarding indigenous knowledge or alternative livelihood options. These are Floating gardens (Baira), Seed bank, Integratd farming, Integrated Pest Management (IPM), Biological fertilizer, seed distribution, Ecotourism, Medicinal plants etc.

Nursery and Plantation

A total of 29 nurseries were established in the project sites and 16,37,479 sapling were raised through community. Saplings of medicinal plants were also distributed among interested government institutions, NGOs, social and educational institutes. Over 50 medicinal plant plots were established at the community level. The average number of species per plot was 62 and a total of 23,640 saplings were raised. A total of 47,882 saplings were planted in chanda beel and kdambari beel areas as block, road side, and re-excavated canal banks.

Physical interventions

The natural resources in the wetlands have depleted seriously due to erosion at upper catchments, conversion of wetlands into agricultural land, dewatering of water bodies for fishing and over-harvesting in the last few decades. Therefore, re-establishment of these wrecked pathways by excavating the dysfunctional canal, beels, kuas, etc. was necessary in the wetland areas. Seven degraded canals (Ranapasa canal) and kuas (Dodhara, Bhennabari, Kadambari Asram, beel chanda, an patkelbari kua) were included in the re-excavation programme.

Biodiversity Conservation

A significant part of CBFRM was dedicated to generate consciousness among the local community towards biodiversity around them, its importance, how peoples livelihoods and existence are dependent upon plant and animals of wetlands. Reed conservation spots, conservation of old trees, fish conservation areas, Bhita (homestead) conservation site development, turtle ponds and hatcheries, snail conservation and Dolphin conservation spots were established in the floodplain and river.

Environmental Funds

Environmental fund project a grant, has been disbursed among the poorest of the poor with special focus on women for generating alternative employment opportunities through environment friendly activities. The environmental fund promotes both nature conservation and livelihood promotion of the poorest.

Sustainability of the project

To ensure the sustainability of the CBFRM project outcomes, a series of workshops was organized form the field to the national level. Workshops were held at Madhumati floodplain sites to develop linkages between CBOs and other stakeholders including government officials. It is envisaged that lessons learnt from these projects will inspire the government with an opportunity to replicate such initiatives in other areas of the country. Such replication will certainly ensure the access of the poor to the natural resources, thereby affording the local communities the much-needed uplift in their quality of life and livelihoods and at the same time wetlands shall be conserved in a sustainable manner. ❁

- Belayet Hussain and Olena Reza

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Methods for Textile Pollutants Minimization

the use of biocides with ultraviolet light as a disinfectant for cooling towers.

Preparation Department: Good preparation is essential for subsequent processing, as any impurities remaining on the fabric will interfere with the dyeing and finishing processes. Some waste minimization options for the preparation department are listed below.

Desizing: The effluent from desizing will contain the sizes that were added onto the yarn before weaving. Using and recycling synthetic sizes in place of starch sizes will reduce the pollution load from desizing.

Scouring: Detergents that are used in scouring should be easily biodegradable. Avoid the following detergents: linear lkylbenzenesulphonate; nonylphenoletoxylate; dialkyldimthyl ammonium chloride; distearyl dimthyl amonium chloride; di dimithyl ammonium chloride; sulphosuccinates; alkylphenolethoxylates; complexing agents with poor biodegradability (e.g. EDTA; phosphonic acid; NTA; phosphonates).

Bleaching: Replace the use of chlorites and hypochlorites with hydrogen peroxide. Ensure that bleaching is carried out efficiently. Recycle bleach washwater for scouring.

Mercerizing: Recycling of sodium hydroxide through evaporation for reuse in mercerizing or scouring will decrease the pollution load and chemical consumption.

Batch Processing: There are a number of waste minimization options for batch processing. These include: Cascading multiple rinsing operations. Reusing softening baths with reconstitution. Reusing preparation baths (scouring and bleaching) with reconstitution after filtration to remove impurities. Segregating coloured effluent streams from clean streams (preparation and rinsing) to ensure that only concentrated effluent is treated. This clean effluent may be used elsewhere in the factory. Replacing outdated machines with high liquor ratios with more modern equipment having low liquor ratio and batch-wise rinsing with continuous rinsing with counter current flow.

Batch dyeing: Dyes should have high fixation/exhaustion, low toxicity, absence of metals, and be appropriate for the end use. Correct and efficient application procedures must be used and right-first-time production should be achieved. The main areas for waste minimization in batch dyeing include: Using low liquor ratios. Using automated dye and chemical dosing systems. Reusing dye baths, rinse water and softening baths. Optimizing pH and salt for each recipe. Using bireactive dyes, the newer low-salt reactive dyes. Avoiding the addition of more chemicals to offset the effects of other chemicals. Replacing the use of acetic acid in neutralizing after dyeing with formic acid or dilute hydrochloric acid (acetic acid adds to the COD of effluent).

Continuous dyeing: The main waste minimization strategies in continuous dyeing are to: Maximize dye fixation. Minimize wash – off, the number of times a dye bath has to be dropped and cleaned due to a color change by careful scheduling. Use automated color kitchens to minimize the working losses and discards. Use counter current washing procedures. Optimize dosing of chemicals through monitoring of relevant parameters such as pH, absorbance, turbidity etc. Try to minimize the use of auxiliaries. Some auxiliaries interfere with dye fixation and should be replaced with alternatives or removed, as this will reduce the color load of the effluent.

A Pollutant Minimization Plant in a Textile Industry, Gazipur. Source: Author

Right-first-time dyeing. Corrective dyeing are chemically intensive and have much less chance of achieving the required quality. Right-first-time dyeing leads to an increase in productivity and more efficient use of resources (e.g. labor, capital) and reduction volume of wastewater. In dyeing polyester, avoid the use of carriers by upgrading dye machinery or replace with less harmful alternatives.

Analyze the dye bath for residual chemicals - most auxiliaries do not exhaust in the dyeing process. There is approximately a 10% loss due to adsorption onto the fabric others are discharged to the environment. Unexhausted dyestuffs need to be analyzed to determine the concentration remaining in the dye bath to ensure correct shading in further dyeing. Dye bath analysis can be performed using a spectrophotometer and specific guidelines for such a procedure.

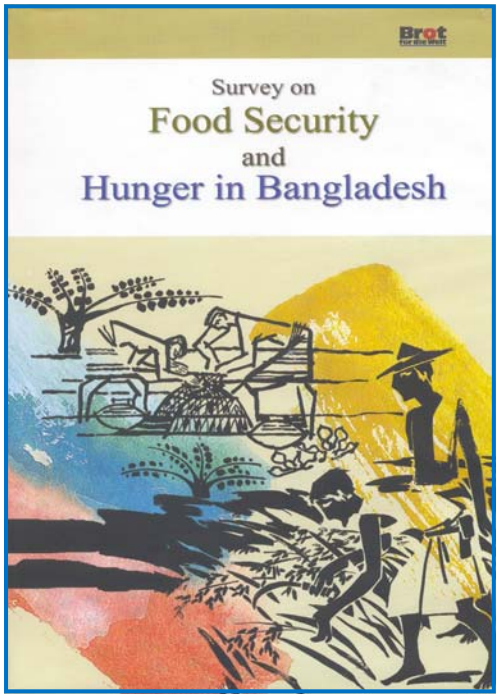
Reconstitute of the dye bath - Adding water, auxiliaries and dyestuff, it is possible to reconstitute a new dye bath for even a different shade. Dyes that undergo minimal changes during dyeing (acid, basic, direct and disperse) are suitable reuse.

Printing: Pollutants associated with printing include suspended solids, solvents, foam, color and metals, and in general, large volumes of water are consumed during the washing-off stages. The main areas of waste minimization in printing include raw material conservation, product substitution, process and equipment modifications, material handling, and scheduling and waste recovery. Other options include: Waste minimization in the design stages can eliminate the need for dyes containing metals. Careful selection of surfactants. Reusing water from washing the print blanket. Reusing left over print paste. Removing excess paste from drums, screens and pipes by dry techniques (wiping with a squeegee etc.) before washing with water. These will reduce the color load discharged to drain. Careful scheduling to prevent expiration of print pastes before use. Investigating alternatives to urea as this increases the nitrogen in the effluent.

Finishing: Design fabrics such that the need less chemical finishes more mechanical finishes. Minimize volatile chemical use. Install automated chemical dispensing systems. Use formaldehyde-free cross-linking agents. Investigate the use of spray application of finishes as these have a low add-on and require no residual dumping at the end of a run. ❁

- Mahbubul Haque

Publications



"SURVEY ON FOOD SECURITY AND HUNGER IN BANGLADESH"

Published by: RDRS in association with BCAS

Year: August 2005.

This report is an outcome of the study on Food Security and Hunger in Bangladesh – jointly conducted by RDRS-Bangladesh, BCAS, BAU, CCDB, CODEC, FIVDB, PROVA and Sacheton. RDRS-Bangladesh coordinated the study. This study focused on food security and hunger rather than poverty alleviation and emphasized on the basic indicator of the poverty. This book also highlights the nature, extends and trend of poverty and level of food security and hunger of the ultra poor and suggests appropriate and sustainable methods of reducing food insecurity and hunger of the ultra poor. This research findings stimulated academic thinking by strengthening the information available in the literature on UN-World Food Programme (WFPs), Food Security Atlas.

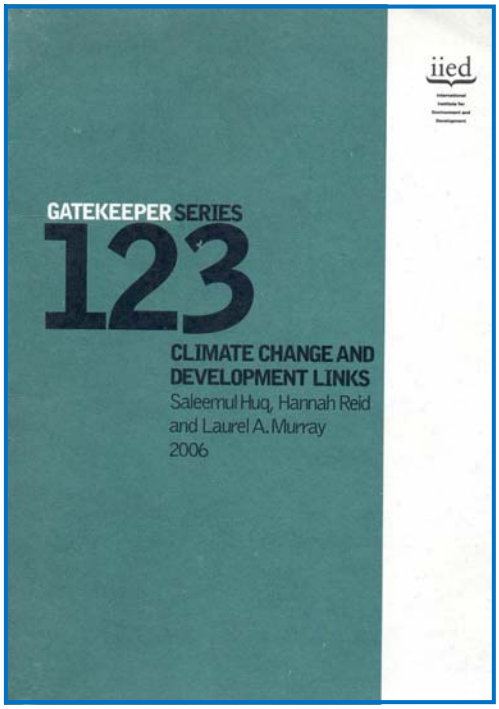
GATEKEEPER SERIES-123, "CLIMATE CHANGE AND DEVELOPMENT LINKS"

Editor: Saleemul Huq, Hannah Reid and Laurel A. Murray

Published by: International Institute for Environment and Development (IIED), London, U.K.

Year: 2006

Climate Change and Development links is one of the publications of the Gatekeeper Series of the Natural Resource Group at IIED. It is produced by the Sustainable Agriculture and Rural Livelihoods program, supported by the Swedish International Development Cooperation Agency (SIDA), Swiss Agency for Development and Cooperation (SDC) and the Rockefeller Foundation. This paper describes the independent evolution of climate change and development discourses and provides some explanation as to why the two fields have operated largely independently from one another. The recent initiatives to strengthen links between the climate change and development communities are also described.



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