

Bulletin of the drylands

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Cover photo: Young Fulani herder in literacy training at the nomadic school in Weltourma, eastern Niger

Credit: Marie Monimart for IIED, December 2008

Carrying seeds of change and hope across two decades

THIS ISSUE of Haramata is special. You may notice that we have more articles contributed by our colleagues in East and West Africa. For this edition, we collaborated with IED Afrique in Senegal and ALIN in Kenya to bring you some direct case studies of work they are doing with communities to meet the challenge of climate change. Climate change continues to play an important role in the political, research and development arenas despite the disappointing outcome of the Copenhagen Conference. Haramata 55 focuses on adaptation and looks at what next for climate change negotiations.

This issue is also special because it is the last one. IIED will still publish information on drylands but do this in partnership with others and in different formats. Haramata started in the wake of the 1984 drought which hit much of West and East Africa, especially the Horn, with devastating consequences for human life, harvests and herds. In the aftermath, there was much debate. Some argued that the drylands should be abandoned and people re-settled in higher rainfall areas, since the desert was advancing, and herders and farmers were to blame for over-grazing and over-cultivating the land. Others pointed to the lack of science behind the desertification thesis, and the supreme importance of rainfall in explaining ecosystem change. By contrast, much promise was being shown by small scale initiatives to conserve soils and water, protect trees and generate more sustainable livelihood systems. Scaling these up could provide a much better way forward that built on local people's knowledge and priorities.

In the editorial to Issue no.1 in 1988, we said that for the people of the drylands the purpose of Haramata was to carry seeds of change and hope. We wanted to make connections between the multiple NGOs and community-based groups, and the dispersed range of dryland scientists, planners and donor agencies. We also wanted to bridge the gap between development workers in English and French language areas.

So, what did happen over the last 20 plus years? The titles of more than 150 Issue Papers published alongside Haramata tell much of the story. They range from women's land rights, and the future of family farms, to crop-livestock linkages, participatory planning with pastoralists, and the role of NGOs in support for local action. The agenda for African drylands today is framed by growing competition for land and water, and the impacts of climate change and consequent need to build more resilient ways of life. Making better use of rainfall, strengthening local rights, regenerating tree cover, building better infrastructure and finding renewable energy solutions for rural communities could all make a difference to livelihoods for millions in the drylands.

We hope these 55 editions of Haramata and associated Issue Papers have given you something of value for your work and reflections and that we made those connections between different constituencies and language areas, and offered ideas, insights and evidence of good practice and policy options.

Camilla Toulmin

Haramata and the Drylands Issue Papers can be downloaded at:
www.iied.org/pubs/search.php?s=HAR and www.iied.org/pubs/search.php?s=DIP

News from the UNFCCC



National climate pledges

Following the climate change negotiations in Copenhagen, the United Nations Framework Convention on Climate Change (UNFCCC) has received national pledges to cut and limit greenhouse gases by 2020 from 55 countries. Together, these countries account for 78 % of global emissions from energy use.

“This represents an important invigoration of the UN climate change talks under the two tracks of Long-term Cooperative Action under the Convention and the Kyoto Protocol”, said Yvo de Boer, Executive Secretary of the UNFCCC. “The commitment to confront

Community Development Carbon Finance Toolkit

IIED and SouthSouthNorth prepared a carbon finance toolkit for the Community Development Carbon Fund of the World Bank. This is aimed at multiple audiences including Task Team Leaders, local government and local communities to help them better understand carbon finance and the potential for incorporating carbon finance into community development projects. The toolkit was formally disseminated at the Africa Carbon Forum.

See: www.iied.org/pubs/display.php?o=Go2718

climate change at the highest level is beyond doubt... greater ambition is required to meet the scale of the challenge. But I see these pledges as clear signals of willingness to move negotiations towards a successful conclusion” he said.

The next round of formal negotiations is in Bonn, Germany in April 2010. Several countries have indicated their wish to see a quick return to the negotiations with more meetings than the scheduled sessions.

Africa Carbon Forum

The second all-Africa Carbon Forum took place at the United Nations Gigiri complex in Nairobi, Kenya on 3-5 March 2010. The forum built on the growing interest in the Kyoto Protocol’s Clean Development Mechanism (CDM) in Africa.

Under the CDM, projects that reduce greenhouse gas emissions and contribute to sustainable development can earn saleable certified emission reduction credits. Thus, the CDM stimulates investment in clean, sustainable development, while helping to address climate change.

The conference focused on topics of special interest to CDM in Africa e.g. emerging opportunities in the area of agriculture, forestry and land use; carbon finance in waste management; reducing emissions from deforestation and forest degradation (REDD) in Africa; opportunities for renewable energy; and raising capacity of CDM stakeholders.

The CDM projects registered to date are expected to generate more than 1.7 billion certified emission reductions (CERs) by the time the first commitment period of the Kyoto Protocol ends in 2012, each equivalent to one tonne of carbon dioxide.

i For more information visit http://unfccc.int/press/press_releases_advisories/items/4712.php and visit the Africa Carbon Forum website at <http://africacarbonforum.com>

The 'hidden hunger' caused by climate change

UNDERSTANDING HOW carbon dioxide impacts food quality is vital to tackling malnutrition. Researchers are focusing much attention on how to adapt agriculture to ensure steady food supplies in the face of climate change. It is equally important to preserve the quality of these supplies.

Climate uncertainty threatens to decrease people's ability to grow food sustainably. Rising levels of carbon dioxide (CO₂) are also expected to affect the nutritional value of food crops.

This may seem counter-intuitive, since CO₂ stimulates plant growth in basic crop species such as wheat and rice – cereals that supply the bulk of calories for most of the world's poor. But the nutritional value of these potentially bumper yields is unlikely to improve because extra CO₂ is often converted into carbohydrates such as starch, meaning that the relative levels of other components may fall. For example, the 20% or so rise in atmospheric CO₂ since 1960 may have already caused a significant decline in protein concentration in wheat flour.

A recent study by researchers in Southwestern University, Texas of major food crops including barley, wheat, soya bean and potato, reveals a significant decline (10–15%) in protein content if atmospheric CO₂ reaches 540–960 parts per million – a range anticipated by the middle to end of this century.

In addition rising CO₂ levels may reduce water flow through a crop plant, affecting the uptake of micronutrients from the soil, lowering concentrations of key nutrients such as sulphur, magnesium, iron, zinc and manganese.

For many populations in the developing world, meat is scarce, and plants provide the primary source of both protein and micronutrients. If rising CO₂ levels decrease plant levels of these critical components, impoverished areas of the world already threatened by shortages in food supply may face an additional burden of 'hidden hunger'.

Understanding how CO₂ impacts food quality remains a critical aspect of the global debate on climate change and food security.

i *Lewis Ziska is a plant physiologist at the Agricultural Research Service, United States Department of Agriculture. Source: www.scidev.net/en/opinions/the-hidden-hunger-caused-by-climate-change.html*

Finding the food crops of the future

FOR THE FIRST TIME, crop breeders and agricultural specialists in East Africa will have regionally specific climate data to research and manage crops in an effort to improve food production. Researchers from Michigan State University (MSU) are studying the impact of climate change in Kenya, Tanzania and Uganda.

The research team will link a customised

regional climate model with crop and water models., to enable agriculture specialists to determine the impact of climate change on different crop varieties. Lead researcher Jennifer Olson explains that “the models we create can test the effectiveness of new crop varieties in responding to warmer temperatures and other climate changes and the results will speed up the agricultural research cycle.” She added that communicating the findings to agricultural researchers and policymakers will require innovative approaches such as interactive visuals that illustrate model results.

① <http://news.msu.edu/story/7277/>

International Year of Biodiversity



THE UNITED NATIONS has declared 2010 the International Year of Biodiversity. It's a key reminder of how fundamental biodiversity is to the health of planetary systems as well as to human prosperity and wellbeing.

Biodiversity is vital because it ensures healthy, stable ecosystems, which provide essential 'services' such as breathable air, clean water and fertile soils. Fisheries, agriculture, medicine and many traditions and ways of life all depend on biodiverse ecosystems. For the poor, who often depend directly on land and sea for subsistence, biodiversity is literally a lifeline.

In 2002 at the World Summit for Sustainable Development in Johannesburg world leaders endorsed a target “to achieve, by 2010, a significant reduction of the current rate of biodiversity loss at the global, regional and national level, as a contribution to poverty alleviation and to the benefit of all life on Earth.” It is clear that we have not achieved this goal.

The theme of biodiversity day on 22 May 2010 is “Biodiversity and Development” and in September 2010, the UN General Assembly will convene a high-level event exclusively devoted to biodiversity.

The challenge, now and in the future, is that species are becoming extinct at an unprecedented rate. Conserving and sustainably using biodiversity is one of the most urgent tasks we face.

① www.cbd.int/2010

The marriage of science and rainmakers

FOR GENERATIONS, the Nganyi people of western Kenya have served as rainmakers, helping local communities decide when best to prepare their land and sow their seeds. By observing subtle changes in nature that would be unnoticeable to most people – in air currents, the flowering and shedding of leaves of certain trees, the behaviour of

ants, bird songs, even the croaking of frogs and toads – they have been able to interpret weather patterns and provide valuable advice.

But even the Nganyi have been flummoxed by climate change and the alternating cycles of droughts and floods it is inflicting. “Climate change has come on so fast. People don’t know how to adapt or what to plant,” says Obedi Osore, a traditional Nganyi weatherman. “Our traditional crops are disappearing because they cannot handle the new conditions. We need new strategies to handle climate change.”

A British-Canadian project is doing just that. It aims to combine indigenous knowledge with modern science to build up climate change intelligence and disseminate it more widely in a community whose existence depends almost exclusively on farming.

Government meteorologists, meanwhile, were struggling to be heard or believed. Now, each season they meet the traditional weathermen and together produce a consensus forecast. Once agreed, the Nganyi relay it back to the villagers – through ceremonies, public meetings and person to person, established methods of communication in communities where many cannot read or write.

“It brings me great joy because I know I am doing something useful,” says Mr Onunga, a Nganyi community elder involved in the project. “I think the two sciences are equally valid. We are marrying our energies to help people better.”

The meteorologists are also pleased with the collaboration. “The results have been surprisingly good – the community concurred that the forecast was accurate,” says Gilbert Ouma, a University of Nairobi lecturer. “Another major breakthrough is the dissemination aspect. We have been able to deliver the message in practical, usable terms – not so much meteorological terms.”

www.scidev.net/en/features/the-marriage-of-science-and-rainmakers.html

Reflecting on drought...

The central challenges to effective drought management in the drylands are the complexity and diversity of actors operating in silos, pursuing sectoral approaches to both development and humanitarian assistance. Activities are disconnected, programmes are often developed without adequate community participation, are short-term in nature, donor driven and have few linkages to long-term community development agendas. These problems perpetuate and, in some cases, increase vulnerability by compromising community mechanisms for building resilience.

A regional drought reflection workshop organised by FAO and the Regional Livelihoods Advocacy Project (REGLAP) was held in February 2010 at the International Livestock Research Institute (ILRI) in Nairobi, Kenya, bringing together those involved in supporting communities living in arid and semi-arid lands. Through a participatory and reflective process, the actors discussed preparedness and response to drought, and shared experiences.

The meeting focused on four priority issues: clarifying the concepts of drought risk reduction and management, policy and practice issues, donor funding mechanisms and identifying appropriate interventions.

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The war over the Family Code in Mali

“The Code is good for women but they don’t support it.”
“The government goes too far, by saying that our wives are our equals, they are pushing them to disobedience.”

by Adam Thiam

THESE ARE popular opinions in Mali in June 2009 when the National Assembly voted in the new Family and Person Code project with 117 votes for, five against, and four abstentions, which was a massive vote of support. This code has more than 1,400 articles. According to the government, it came out of a necessity to harmonise the country’s different laws with the international agreements that Mali had signed, specifically the resolutions from the International Conference on Population and Development (Cairo 1994), and of the International Women’s Conference (Beijing 1995). As everyone knows, these two conferences set out ‘new rights’ that address the social status of women and children.

What are the problems with this Code?

This Code was only just adopted but it created serious upheaval in the whole country. People marched, protested, threatened *jihad* and there was violent criticism of the government and of its officials in mosques, in homes and in the streets. Tensions were high. As a result, the President of the Republic decided not to promulgate the Code but to submit it to Parliament for a ‘second reading’. Tensions have since eased, but no one will forget the frenzy that seized the country. At least five points in the Code trouble its opponents.

Firstly, the former Code says that wives must obey their husbands while the new Code replaces this clause with ‘the couple owe each other mutual respect’. Secondly, Muslim associations asked for official recognition of religious marriage. In upholding the secularity of the State, government officials continue to only recognise civil marriage. Thirdly, Muslim law says that a child born outside of marriage does not have the right to inherit, which was not reflected in the new Code. Fourthly, the Code says that men and women have the same inheritance rights, except if the deceased decides otherwise and has documented this in writing. This is in contrast to Muslim inheritance law, according to which men receive twice the share of women. Fifthly, the new Code delays the legal age of marriage for women to 18 years old. For conservatives, this was going too far, because the accepted practice is that girls marry between 13 and 15 years old.

Conservatives think that the new Code undermines local culture and upsets the social hierarchy. For them, the social order must be respected and each woman must remain behind her husband instead of putting herself ahead of him. They are fundamental Muslims: they don’t compromise. According to them, with this Code the government and its officials have declared war on Islam, the

religion of more than 90% of the population. They say that it is impossible to question what the Koran has made clear. Similarly women cannot in any way be equal to men. 'Even God does not accept this' say the different Muslim orders in Mali. These are the representatives of cultural fundamentalism: for them, this whole affair is a result of the dictatorship of the donors who want to replace the culture of their ancestors with western culture and who say to the government: 'if you do not forbid female circumcision or if you do not proclaim equality between men and women there will be no money for your projects'.

Where are the women?

While one would have thought that women would protest to defend the Code, they have remained silent. On the contrary many of them are against it. Why? They have been taught that the Code will 'push them to have two husbands.' This is seen as encouraging debauchery.

In truth the new Code was not explained to people.

It remained, yet again, an object of lengthy debates amongst civil society organisations, notably groups of women who either do not represent a larger constituency or who forgot to report back to their base. A recent survey found that 80% of the residents of Bamako, mostly women, reject the Code and that more than 70% do not know what it contains. The lesson is learned. Maybe the next time we will do better.



McPHOTO/Blickwinkel/Still Pictures

Peul woman and baby in Djenné, Mali – what does the Code mean to them?

Adam Thiam is currently a journalist in Mali. He previously worked in the NGO sector on population issues, pastoralism and access to information for development actors in the dryland regions.



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Averting an environmental catastrophe in Kenya

A new dawn is breaking for Kenya's Mau forest. This forest keeps Kenya alive by acting like a water tower feeding a dozen rivers and several lakes. Its destruction would be an environmental catastrophe.

by Moses Radoli

A new dawn

The dawn is breaking as settlers in the vast forests of Kenya's Rift Valley province move out in their thousands after decades of destructive occupation. This departure is permanent and comes after a long war of attrition. Throughout this war, illegal squatters have been continually sneaking back into the forest after evictions. A situation which culminated in the 1990s with a programme of government backed forest land annexations for allocations and settlement. Today, however, Dr. Noah Wekesa, the Minister of Forestry and Wildlife Services, declared that the removal of human settlement will be permanent and that the government will not compromise.

According to Dr. Wekesa, ongoing evictions are expected to pave the way for an ambitious five year government programme to restore more than 109,000 hectares of destroyed forest cover to its original status. Nearly 3,000 people including children, women, men, young and old left the forest in phase one of the programme. Squatters were served with a 14-day notice to quit which expired on 8 November 2009. According to those affected, the government deployed a large contingent of armed security personnel who were on the

ground from Thursday, 5 November 2009 until just before the deadline.

The Mau forest complex

According to Mr Lawrence Leneyapa, Permanent Secretary of the Ministry of Environment and Natural Resources, the government recognises that the Mau complex is the most important of the country's five water catchment areas. The others are Mount Elgon, Cherang'anyi, Mount Kenya and the Aberdare forests.

The Permanent Secretary confirms that the government's decision to evacuate settlers from the forest in preparation for its restoration was based on fact and evidence which pointed to an impending environmental catastrophe. According to Kenyan government statistics, only 400,000 gazetted hectares remain out of an original forest which covered more than 1 million hectares.

Destruction genesis

The forest's plight dates back to colonial days when white settlers discovered the huge and highly profitable potential of the area for tea production. Huge swathes of natural forest were cleared and converted into expansive

rolling tea estates to supply the British and European markets. White settlers encroached more progressively onto the forest range complex. And the arrival of multi-national corporations only made matters worse. The situation did not improve after independence as government officials, private individuals and groups continued to stake out claims within the forest.

According to “The Genesis of Mau Problems 2008” report compiled by the Kenya Land Alliance, a non-governmental organisation, matters became worse in the 1990s when the government allowed the excision of huge blocks of forest land. These blocks were mapped out, demarcated and given to individuals with powerful connections in the government. The real devastation of the forest began in 1997 when the government allocated large plots of land to individuals in what was seen as a political bid to win votes during the general elections. And along with these allocations came the logging industry with powerful saws to clear cut timber for commercial purposes.

In addition, according to the Kenya Land Alliance, land speculators left the neighbouring districts of Kericho, Bomet, Buret, Transmara and Nakuru in droves. Those who missed out in these first allocations settled on gazetted forestland in the hope that they might later be given some land.

In these new settlements, the *Ogiek* community, a minority group who have been living in the forest for centuries, were to be given first priority in the allocation process. The purpose was to ensure that they too were proud land owners. Although they had shown no desire to own land, a former government administration thought



Tree clearing in Mau forest

that to adequately compensate the *Ogiek*, they should be given parcels within their ancestral forestlands. “When the excisions were done in 1990s, little concern was given to environmental conservation considerations. Because the government did not have alternative land to dish out to an estimated 20,000 *Ogiek* families, the Mau forest complex became the ultimate target (...). The destruction exploded within the indigenous forest moments after the excision began as loggers with saws fitted to tractors clear cut the targeted areas for resettlement...”

When land was allocated, the *Ogiek* started

to feel heat from the competition posed by new settlers. Through their lobby group, the *Ogiek* Welfare Council, they moved to file a court injunction to stop government excisions from the forest for human settlement.

Consequences

According to the United Nations Environmental Programme (UNEP) Mau report released early in 2009, destruction of the vast forest cover through large scale commercialised logging, clearing and burning to pave way for farms and large tea estates, charcoal burning, among other reckless activities nearly brought the forest to its knees.

This systematic destruction led to the drying up of about 12 rivers and hundreds of streams draining the Mau complex and feeding into the lakes in the Rift Valley and in the East African region. The devastation caused by the destruction of the forest is illustrated by the drying up of Lake Komanarok in the Rift Valley. When the water was gone the lake bed was left littered with decomposed crocodile carcasses and skeletons. Komanarok was reputed to have had the second largest crocodile population in Africa.

The need for action

UNEP Director Dr. Achim Steiner stated that for the past few years, UNEP, on behalf of the Kenyan government, has been documenting the continued destruction and erosion of the Mau Forest Complex. "It had reached a point where if no measures were taken, Kenya would have completely lost one of its fundamental assets." Dr. Steiner added: "The Mau situation can be contained now and not tomorrow. Action must be taken now. Not be seen or heard as being taken. It must be tangible (...). Everybody must be involved to curtail the impending environmental catastrophe."

The Mau Interim Team Chairman, Hassan Noor Hassan says it was from this background that the government is taking humane action,

unlike the previous years when evictions were forced. "This has undergone a lengthy process that saw a task force report on Mau tabled and approved by parliament before the government was given the go ahead to take action," says Mr. Hassan.

The evacuees

An evictee from Ndoinet, Mr. Richard Kiptagut, says that initially most of the families had planned on staying put despite the expiry of the evacuation deadline because they had nowhere to go. "We had a lot of fears and tension was high amongst ourselves as we watched many armed security officers arriving in lorries. Though many of us have nowhere to go, we decided that it was safer to start leaving voluntarily and leave it to the government to find new places to settle us," says Mr. Kiptagut.

"I was allocated 10 acres by the government in Maasai Mau near Narok. I have a title deed and want to surrender it and have my compensation processed but I simply do not know where to start," says Mrs. Penina Jepkemboi. Mrs. Jepkemboi says many settlers, like her, were caught up in the same dilemma and worse still do not know whether and where to move since they have not been relocated nor compensated by the government as promised.

The continued rehabilitation of the Mau forest is a complex task in terms of conservation as well as development. Ensuring the sustainable use of the forest will be a challenge for years to come.



Mr. Moses Radoli is a Kenyan journalist with over 20 years of writing experience. He is the Editor-in-Chief of *The Insight* magazine that is analytical on religious, social and political issues in Kenya. E-mail: moses.radoli@gmail.com

Role of traditional institutions in water resource governance in the Borana lowlands, southern Ethiopia

For centuries and amid worsening climatic conditions, the Borana have devised an effective water management system based on traditional practices and institutions – how should development agencies best support this?

by Nega Emiru

MANAGING SCARCE water resources has long been a crucial challenge for people living in dryland areas. Good water management can mean the difference between life and death. Over time robust governance systems have been developed to enable people to regulate access to water. What can development programmes learn from this rich experience and how can these institutions be strengthened?

Background

The Borana lowlands are in the southern most part of the Ethiopian lowlands occupying a total area of about 95 thousand square kilometres. Water is the critical limiting factor to the socio-economic development of the area. The climate is semi-arid and subject to recurrent droughts and severe water shortages the consequences of which can be life threatening. Traditional wells, ponds, cisterns (both from roof and rock catchments), boreholes (with hand and motorized pumps), earth dams and water collected in depressions are the chief sources of water. There are nine clusters of Borana traditional deep wells, *Tula*

Saglan. Reportedly these wells have never run dry even during severe droughts. These reliable water sources have been serving the Borana for centuries amid worsening climatic conditions and increasing human and livestock populations. As a result, the Borana have devised strong traditional institutions to manage this vital resource.

Roles and responsibilities

The Borana water management system is a traditional institution which ensures the equitable distribution of access to water. The management body is made up of three major components: *Confi* (the founder and overseer), *Chora ella* (the management council) and *Aba herrega* (the daily supervisor). These components have defined roles and responsibilities to ensure the peaceful and long term use of water resources.

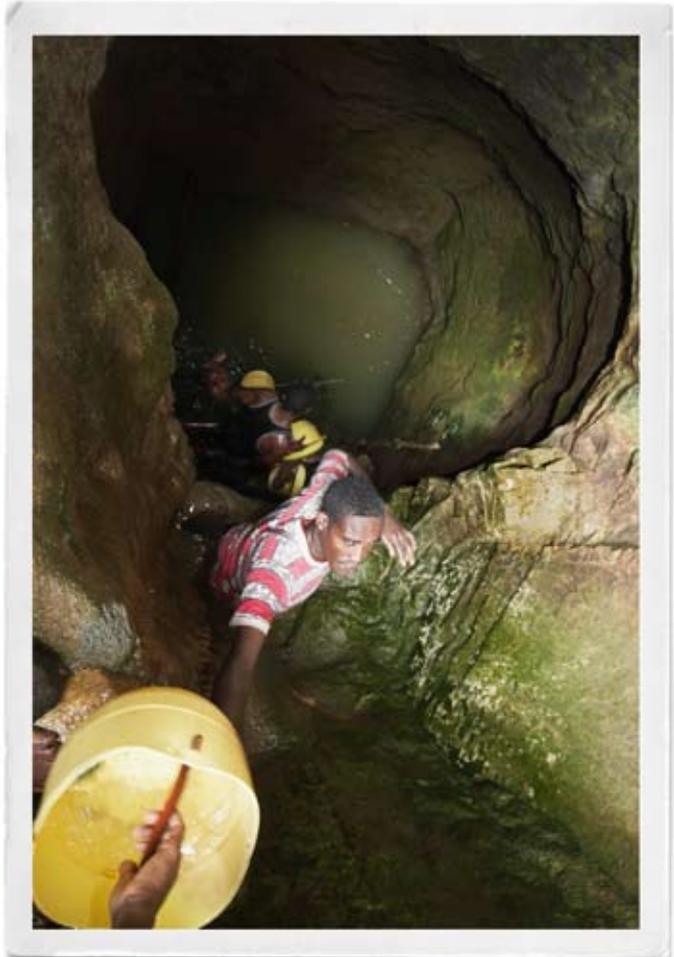
Confi is the title given to the person who oversees the general management of the well. The title is given to a descendent of the *Aba ella* (the well founder) and this title is transferable. *Aba ella* is the person who

identified the site of a well or organized the community to excavate a well. Traditional wells are named after the person who located the site and the name of the clan who dug the well. A well's clan affiliation may be the same as that of the founder of the well. The relationship between the founder of the well and the well itself is defined by responsibilities and duties. These are called *Conf*, a kind of trusteeship. The well founder is the most influential person in the governance of this resource, and people who have personal relationships with him can gain access regardless of linkages they may or many not have with the clan demonstrating his degree of influence.

Chora ella is the management council who has overall authority on use of the well. The council is composed of 7 to 8 members, usually clan elders and well users descended from the well

founder. Establishing the watering rotation is the council's most important task, especially when water volumes are low during the dry season and droughts. Clan members obtain user rights through lineage and their record of active involvement in well management and maintenance. The level of contributions to well maintenance and rehabilitation is also decided by this council. The amount of contribution is a function of the number of cattle the clan member owns. Settling rare disputes between users is equally the responsibility of this body.

In addition the council manages access to the wells for neighbouring pastoralist



Boran well

communities. Clan affiliation, active participation in well management and seniority within a clan are some of the major factors which determine access. Other factors which are taken into account include herd size, the ability to present and to defend a claim before the council, labour contributions for well maintenance and the availability of surrounding pasture. Watering rights at traditional wells is obtained and maintained through participation in these well councils. Access to water indirectly confers access to nearby pasture.

The *Aba herrega* closely supervises the

daily management and activities around the well such as cleaning ramps, repairing gates and lifting water from the source. He is appointed by the well council and is in charge of monitoring and supervising the implementation of council decisions. He controls the watering rotation, and the type and number of herds to be watered at a time. The watering rotation usually lasts for three or four days. He has this role for life or until the community feels he has shown misconduct or violated *ada sera Borana*, the Borana tradition. Members of these bodies do not receive a salary or extra incentives. Their only recompense is the strong sense of ownership and moral authority they assume when carrying out their tasks.

Current scenarios and evidence from the field

This traditional and community owned institution ensures equitable use of water resources, reducing resource-based conflicts within and between pastoralist communities, and improving livestock development in the area. Regulation of the seasonal use of water and the ability to deal with recurrent water shortages are further benefits. More recently, the government and NGOs have established community-based water management committees to oversee the management of newly constructed water points usually cisterns and hand or motorized pumps. The Zonal Water Resource office reports, however, that a large proportion of these water points fail due to administrative and managerial problems. Consequently, several water projects do not or only partially meet their objectives. In contrast, the older, traditional water points managed by the local community are functioning well thanks to their robust water governance mechanisms.

While a number of government and NGO agencies are actively working in the area,

research and development interventions have overlooked the importance of customary institutions and indigenous knowledge. Support to tried and tested practices and traditional drought management strategies which secure livelihoods is negligible. The integration of indigenous and external knowledge in development planning and decision making is minimal. And efforts to understand current practice and the challenges of applying and scaling up these approaches are weak or nonexistent.

What must come next

Better technical initiatives which support traditional institutions must build local capacity so that these mechanisms can function more effectively and provide better quality services to their communities. This should include upgrading problem-solving skills. Women's participation in decision-making processes must also be enhanced. In addition, central and regional government ministries and departments must have better links with traditional authorities in order to ensure the better coordination of actions and use of resources to achieve improved food security, rural development and sustainable economic development. Last but not least, organisations must make the best use of these traditional practices, processes and institutions to increase the impact of future projects and programmes.

Nega Emiru is an Ethiopian rural development professional working at the crossroads of agriculture, food security and natural resource management. His research and development interests include agricultural innovation, natural resource/watershed management and resource-based conflict resolution. Currently he works with the United Nations and prior to that he worked with an international NGO, CARE, on pastoral development projects. He can be contacted by email at n.emiru@yahoo.com



Copenhagen – what happened?

Many hopes and expectations for taking forward the climate change agenda at the international level were pinned on the outcomes of the Copenhagen conference of parties which took place in December 2009. But the final results were disappointing.

by Achala Chandani and Saleemul Huq

TOWARDS THE END of COP 15, while negotiations among all 192 parties to the UNFCCC continued, behind closed doors, a select group of about 25 world leaders came up with the Copenhagen Accord. Most developing countries had very little input into this Accord. Finally, as there was no consensus among the Parties to adopt the Accord as a UNFCCC decision, they decided to ‘take note’ of it.

The Climate Accord

The Accord is weak. It is not legally binding and has no targets for reducing greenhouse gas emissions. It states that parties recognise the scientific view that the increase in global temperature should be below 2 degrees Celsius and that parties should cooperate reaching the peak for global and national emissions as soon as possible. “Recognition” and an agreement to act “as soon as possible” are not commitments and they do not tie governments down to any sort of time frame.

In addition, several points from the Accord deal with financing for adaptation. Developed countries shall provide adequate, predictable financial resources, technology and capacity building for adaptation in developing countries. In the immediate term this new and additional financing shall approach USD 30 billion. But

the Accord does not say where this money will come from, if it will be new and additional to existing aid, or if it will be in the form of loans or grants. Regardless, the target figure of USD 30 billion over three years from 2010 to 2013 is not adequate for 100 vulnerable countries with about one billion citizens.

In the longer term developed countries commit to mobilise USD 100 billion a year by 2020 to address the needs of developing countries. However, the Accord does not say how much of this money would be allocated for adaptation in vulnerable countries (as opposed to mitigation actions in less vulnerable countries such as India and China). And there is no guarantee that the proposed USD 100 billion will not come from existing aid commitments.

Finally, the Accord also talks about the role of reducing emissions from deforestation and forest degradation to enhance removals from greenhouse gases from the atmosphere. Parties to the Accord agree that this shall be achieved through incentives such as REDD to mobilise funds from developed countries. But the financial and administrative aspects of this agreement on REDD remain unresolved.

Redrawing international politics

In many ways what happened in Copenhagen

was a shaking up of the traditional pieces of the global geo-political puzzle and their landing in a new and unfamiliar configuration. China, India, Brazil and South Africa formed a new block called BASIC which may be the death knell of the G77/China block of 130 developing nations as we have known it so far. As the BASIC group took on the industrialised nations, the most vulnerable countries were squeezed out of the process. The biggest failure in Copenhagen was one of leadership. It was a failure of powerful leaders to realise that COP15 was not about money or politics but about the future security of their own grandchildren.

Where to now?

Unfortunately, Copenhagen failed to give us a legally binding agreement committing signatory countries to reduce emissions and support adaptation. But there is still hope. The two main negotiating tracks under the Bali Action plan are still in place, the Ad Hoc Working Group on Long Term Cooperative Action and the Ad Hoc Working Group following on from the Kyoto Protocol. These two negotiating tracks remain and for most developing countries they are the preferred path for negotiations. The next meeting, the 16th Conference of Parties, will take place in Mexico toward the end of 2010, and a lot of work needs to happen between now and then to negotiate the terms of an agreement.

Although the Accord signed in Copenhagen is not legally binding, it does contain some elements which could form the basis for a new agreement. The Accord agrees on a 2 degree Celsius limit for global temperature rise. In addition this 2 degree limit will be reassessed in 2016 with a view to revising it down to 1.5 degrees. This is new. Even though the sources and allocation are not clear, the Accord provides financing mechanisms to support developing countries to adapt to climate change and to finance low-carbon economic

growth. Although arguably the amounts of financing involved may not be sufficient, it is a good first step. And it is possible that by using a combination of elements from the Accord and points negotiated through the existing Ad Hoc Working Groups that countries can come to an agreement in Mexico.

But there are two crucial factors which will affect the likelihood of a legally binding agreement being signed in Mexico. The Obama administration in the United States has to make sure that Congress will agree. Without their support it is unlikely that the US will sign. In addition, the unity of the G77 countries plus China has been undermined. The new group of BASIC countries must be prepared to sign up to emissions mitigation targets. What this means for the G77 is uncertain and may effect the outcome of negotiations this year leading up to the Mexico conference.

So while the Accord is weak and Copenhagen was a disappointment all is not lost. There are some positive elements within the Accord which could be used in the development of a legally binding document to which all governments will agree. And the two existing negotiating tracks under the Bali Action plan remain in place. In the meantime, the effects of climate change are all too real for people living in developing countries. The rest of the articles in the Focus section of this special edition of *Haramata* look more closely at adaptation to climate change at the community level. What works and what doesn't and how we can best support local people to secure their livelihoods within this changing climate context.

Achala Chandani is a researcher and **Saleemul Huq** is a senior fellow in IIED's Climate Change Group. Achala specialises in international environmental law and climate change, and equity and fairness issues. Saleemul's expertise is in the links between climate change and sustainable development in developing countries, especially the least developed countries in Africa and South Asia. They can be contacted at achala.chandani@iied.org and saleemul.huq@iied.org

Voices from the conference



Kinuthia Ngugi, Kenya
Department of Land Resource Management and Agricultural Technology, University of Nairobi, College of Agriculture and Veterinary Sciences

As a result of Copenhagen, my immediate and next steps include awareness creation within and outside the university, and promotion of mainstreaming of climate change in as many university curricula as possible. My hope for the next negotiation is that more proactive agreement will be arrived at and more resources for adaptation and mitigation will be allocated.



Mahamadou Farka Maiga, Mali
AMADE-PELCODE (The Malian Association for the Development and Protection of the Environment and the Fight against Desertification)

The failure of the Copenhagen negotiations have underlined, that more than ever, civil society groups in the south and north have to mobilise and put pressure on decision makers to ensure that the next COP in Mexico will result in “ambitious and legally binding commitments”. Any new Agreement must take into account:

- that the average global temperature must not increase more than 1.5 degrees Celsius
- quantifiable targets for emissions reductions in line with IPCC recommendations
- additional financial support for adaptation

and technology transfer to enable vulnerable groups in developing countries to adapt to climate change.



Dr Oliver Wasonga, Kenya

Talking about mitigation of and adaptation to climate change is like “putting the cart before the horse” for those of us in Africa where

awareness and capacity on climate change issues is still limited. Capacity building for all stakeholders is therefore paramount to addressing climate change in Africa.

Following Copenhagen, I hope that the puzzle about the source of funding for both the short-term and long term adaptation for vulnerable countries will be demystified soon and the short term funds implemented as a priority for the LDCs and vulnerable nations. I also hope that COP 16 will seek to cement and make the Copenhagen accord binding, and redress the principle of common but differentiated responsibilities reflecting the distinction between developed and developing countries’ obligations on actions on mitigation.



Tsegaye Bekele, Ethiopia

Associate Professor, Hawassa University

From Copenhagen, I have learned a lot. Several things were happening

in one go. The most interesting thing is that there were many interests and opinions on climate change issues where no one knew

what the concrete outcome of the conference would be. I suspect there may not be binding outcome in the near future as it stands now.

My next step after Copenhagen is to develop a module on climate change for short courses and a graduate programme. Most of the work is done and is submitted for further improvements. We are also studying how policies can affect climate change adaptation of small holders.



**Krystel Dossou,
Benin**

CLACC Fellow

The Copenhagen accord is egotistical in terms of content. Its lack of ambition and its objectives to reduce

emissions will certainly not avoid dangerous climate change. It is once again poor and vulnerable countries like those in sub-Saharan African and Asia that will pay a high price given their weak capacity to adapt on individual community and institutional levels.

In Mexico, I would like to see the large gap close between the financial requirements of vulnerable countries and the resources available them to address their adaptation and mitigation needs, not just to hear promises which are easily made. I would like to see the nations of the South obtain additional financial resources in the long term to facilitate the implementation of efficient initiatives. Equally, these resources must be well managed and easy to access. Another point which would be interesting to address at COP 16 is the constraints and risks posed by climate change to food security. Energetic and integrated initiatives for agriculture must be put in place in developing countries which are not self-sufficient but false solutions and inappropriate solutions must be avoided.



Tony La Viña

**Dean, Ateneo School of Government, Philippines;
Lead negotiator,
Philippines and Facilitator,
REDD+ negotiations**

Viewed solely from the lens of its last hours, Copenhagen was a failure.

But it did not have to be that way. Before that fateful night, for 12 days, those of us who were sent by our governments to work and agree on a common solution had worked hard trying to address our many disagreements. In fact, in the last five days of the conference leading up to the fateful last night, I had not slept for five straight days. Although I do have a strong work ethic, this was the first time in my life I had to do this. As a Facilitator of REDD-plus, I had worked round the clock to get an agreement within my group and that was within reach for us. As a lead negotiator for the Philippines, I was also coordinating our 20+ negotiators who had come to Copenhagen aware that climate change was a critical issue for our country. Because of this hard work, real progress was being made in some areas (forests, adaptation, technology transfer) while major difficulties continued to be insurmountable in other issues (especially mitigation targets by developed countries, mitigation actions by developing countries, and finance related concerns).

As we entered the last three days of the Copenhagen conference, we continued to be in a stalemate in this last set of issues. This in spite of the fact that we have been negotiating for two years and quite intensively in the last nine months where we met in Bonn, Bangkok and Barcelona for a total of six weeks. But time ran out as Presidents, Prime Ministers and other heads of states started arriving in Copenhagen. Copenhagen was disappointing. But, if we learn the lessons from this experience, it could turn out to be positive.

Climate change: the reality in Kenyan villages

The world is waking up to the realities of climate change. Scientists agree that it is happening and that we are causing it. In Africa, local communities are in a dilemma. Weather changes have resulted in erratic rainfall patterns and prolonged drought leading to crop failure, livestock deaths and ultimately starvation. In an attempt to create awareness about climate change, the Arid Lands Information Network initiated community dialogue through workshops and meetings to discuss and understand the effects of climate change and to develop adaptation strategies.

by Morton Saulo and Noah Lusaka

The struggle, problems and effects

Taking turns and working so hard that they sweat, the men of Mavokoni village in the Kyuso district of Kenya's Eastern Province dig the river bed using locally made tools and equipment. These men endeavour in vain to dig for life-giving water. Finding it has proved very elusive. Rivers have dried up, forest cover has been drastically reduced, and hunger pangs increasingly continue to bite.

Environmental problems have affected the livelihoods of the residents of Mavokoni village, reducing opportunities for economic activity and exacerbating levels of poverty and poor standards of living. "When I was growing up it was never this dry, but for the last few years things have changed as rivers have run dry and animals continue to die. We excavate these river beds because we believe the water aquifers are not very deep," says Mr. Joseph Muasya, a resident. According to him, all the water sources are dry and disease is now on

the rise because of climate change. At home brothers and sisters trek kilometres in search of water and children risk dropping out of school as hunger continues to bite.

Muasya explains that "all our cows are dead. People have to use their hands to cultivate. They carry water on their heads because the donkeys have starved to death or are too weak to carry the water." He adds that they have now resolved to ration water for cows.

Miles away in Malili village, Mutomo district, the situation is the same. Josephine Muthengi says: "We had a good supply of honey and now it is no more. We used to have many flowers from which the bees collected the nectar required to make honey. And we must not forget the bushes and forest areas where the beehives were hung. Now those bushes are long gone."

"Lack of rainfall has led to a decrease in honey supply and reduced incomes." She also

ALIN



A woman displaying a poster with climate change messages at Malili village

adds that water has turned saline. The reason behind this change is unknown but many think that this is due to high levels of pollution and to sand harvesting which exposes saline rock increasing water salinity. “Sand harvesting has led to a reduction in the water levels in rivers and to dry river banks. Because people are poor they are turning to any available

alternative to earn a daily living.” Mrs Benter Musembi said as a result of increased drought and famine some residents have resorted to anti-social behaviour such as thievery, prostitution and even satanic practices and magic to raise incomes.

Too many people here do not understand that changes in rainfall and temperature patterns together with the increasing occurrence of drought are some of the effects of climate change.

Understanding climate change at the community level

But hope is still alive for the residents of Kyuso and Mutomo districts in the Eastern Province of Kenya. The Arid Land Information Network (ALIN) with support from the Danish Embassy has initiated community awareness forums. The objective of these sessions is to develop an understanding of what climate change is and how communities are adapting. Using participatory approaches communities openly discuss climate change.

According to Mr. Muasya, for the past few years communities in this region have witnessed a change in weather patterns with prolonged droughts but it never occurred to

What causes climate change?

During a workshop held at Kitui, Mr. Eric Kisiangani, Practical Action’s Climate Change Coordinator, explained to participants that climate change is caused by the emission of greenhouse gases (carbon dioxide, methane, nitrogen oxide) into the atmosphere. The vast majority of these emissions are produced by developed countries like Japan, Europe and the United States. Developing countries contribute very little to these emissions.

Mr. Kisiangani went on to explain: “These greenhouse gases form a solid blanket in the air. When the rays of the sun hit the earth, heat is emitted and in the past some of this heat was reflected back out of the earth’s atmosphere into space. Today when this heat is reflected it cannot escape because it is trapped in by this blanket. This increases the temperature on the earth. It is estimated that by 2050 average temperatures will have risen by 2 degrees Celsius melting the ice in the North and South Poles leading to a rise in sea levels. These factors combine to change weather patterns leading to erratic rainfall and prolonged drought. To reduce the effect of climate change, we need to reduce emissions and increase the capacity of carbon sinks, like forests and rangelands, to take these greenhouse gases out of the atmosphere.

them that these were part of climate change. “Some of us are not well educated on what climate change is. We do not even know if the activities that we engage in affect the weather patterns in the long run.”

At community level deliberations include women and men farmers, business people, teachers, extension staff and community leaders. One workshop and four meetings have been held where communities have talked about the difficulties they experience in dealing with climate change and have expressed a desire for knowledge on best practices to save the environment and improve their livelihoods.

To address the high level of environmental degradation in these regions, some communities are engaged in water harvesting and soil conservation activities through the construction of terraces, gabions and earth pans. Mrs. Musembi explained that farmers in Malili village are adapting their activities and starting new ventures like improved fruit growing (grafted mangoes and paw paws) and vegetables. According to Mrs Musembi, other adaptation measures include selling off livestock and moving any remaining animals to hilltops and game reserves where there is some fodder.

Educational materials on climate change

To document how communities adapt to climate change, ALIN is using participatory approaches with local people to develop educational materials to create awareness of climate change. These materials include posters, T-shirts and articles published in Baobab magazine and Joto Afrika briefs (see the resources section). The project has also recorded videos on climate change that can be viewed online at <http://televisheni.blip.tv>.

Farmers' messages to policy makers

During these community climate change forums, farmers asked world leaders to take action to reduce climate change effects. The

recommendations from the forums include:

- Governments must make funds available to enable vulnerable communities to adapt to climate change especially in arid regions. Farmers are confident that if they were supported they could establish tree nurseries to increase tree cover and improve carbon sinks.
- Developed countries must reduce greenhouse gas emissions by over 40%. They should also support developing countries to improve alternative low carbon emission technologies for economic growth. This includes solar technologies, bio-fuels, wind energy and much more.
- And finally, transparency and accountability in the delivery of financing for adaptation are crucial.

Climate change affects the everyday lives of people living in developing countries but their awareness of the issues and how their environment may change remains low. The challenge remains to provide information and support to local people so that they are prepared for changes to come.

i For more information contact www.alin.net



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Priorities for adaptation...?

Cartoon by Sidy Lamine Dramé with captions by Adam Thiam

A funding innovation: small grants to support local strategies for adaptation to climate change

There is a lot of talk about the need to support adaptation to climate change, but what does this mean in practice? A new programme to support local level adaptation aims to answer this question.

by Cheikh Tidiane Sall

ORGANISATIONS IN Mali, Senegal and Burkina Faso can now apply to a new grants programme to strengthen their adaptation initiatives. Supporting Local Strategies for Adaptation¹ to climate change is a joint initiative of the International Development Research Centre (IDRC) in Canada and the Department for International Development (DFID) in Britain. IED Afrique in Senegal coordinates the regional programme in West Africa.

Community-based organisations in Mali, Burkina Faso and Senegal can access small grants to support existing activities in order to strengthen their capacity to adapt to climate change. The approach underlying the programme is that local people are best placed to identify and implement adaptation strategies and to manage resources allocated to support these initiatives.

In each country, an NGO representing small scale farmers coordinates programme activities: the Farmers Confederation in Burkina Faso, the National Body of Producer Organisations in Mali and the Federation of NGOs in Senegal. There are also national steering committees

in each country made up of representatives from a wide variety of stakeholders such as research institutes, NGOs, Ministries etc. The steering committees support these farmer organisations in the definition of their strategic direction, identifying projects for support and in monitoring and evaluating activities. IED Afrique provides regional coordination and is responsible for developing methodological tools and approaches in partnership with the farmer NGOs.

One project supported by this programme is the Jeka Baara Cooperative² in Mali.

Women and food sovereignty: Experiences of the Jeka Baara Cooperative

Women have an important role in ensuring food sovereignty. They make a considerable contribution to agricultural production and transformation at local and national levels. Women's continued access to land, water, seeds and credit is crucial if they are to play their part in rural economies. But almost everywhere, women's rights to land are



Weighing dried mangoes

vulnerable and uncertain, especially when compared to those of men. In Mali, customary inheritance laws and, specifically the laws which govern the allocation of land favour men, despite women's important role in ensuring food sovereignty.

The Jeka Baara women's cooperative, works to address these challenges. The organisation has organised itself into three sectors: gathered products (néré pods, shea nuts and wild fruits), cereals and fruits/vegetables. In addition to subsistence farming, members of the cooperative gain an income by producing and adding value to agricultural products. This income is then divided into three. One part is used for the maintenance and purchase of equipment for the cooperative, a second part is used to top up the cooperative's savings and a third part is divided up amongst the members. The cooperative's savings are lent to members at low interest rates to support income generating activities, such as adding value to agricultural production or establishing small urban kitchen gardens.

Variability and changes in the climate can undermine food security, contributing to falling levels of agricultural production and to the degradation of natural resources; the foundation of food sovereignty. That is why the cooperative has decided to focus on

adaptation strategies in its work. One of these strategies is the manufacture and marketing of improved Nyeta stoves (which were introduced by EDF during a visit to Jeka Baara) and of cooking baskets. The stoves and baskets are designed to save energy thereby reducing the need for fuelwood. The Cooperative has received funds from the small grants programme to support the manufacture and marketing of these simple technologies. During the first phase, 25 cooking baskets and 62 improved stoves were made. These will be sold to members of the cooperative at a subsidised rate and to other buyers at the regular price.

It is through the multiplication and scaling up of small activities such as this that communities will adapt to the changing environmental context. To achieve this, local organisations' capacity to learn from each other, to develop appropriate strategies and to implement projects must be improved. This small grants programme, coordinated by IED Afrique, is experimenting with institutional and participatory methodological approaches to support communities to develop appropriate local responses to climate change.

1. FSSA in French (*Fonds de Soutien aux Stratégies locales d'Adaptation*)

2. Jeka Baara is located in the Sibiribougou, Municipality IV in Bamako, Mali cooperabaara@yahoo.fr

i For more information contact IED Afrique.
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Trailblazers: how the pastoralists of Diffa are coping with change

The Diffa region of eastern Niger is home to many different nomadic pastoral groups – the Arab, Fulani, Toubou and Yedina – and they all have different ways of adapting to change – not only climatic change, but also economic and political change.



Over the last 30 years, the Diffa region – running from the edge of the Sahara in the north to the banks of Lake Chad and the Komadougou River in the south – has been hit by recurrent droughts. The pastoralists here now face the impacts of climate change, which could see temperatures in the Sahel rise by more than 3.3°C, and more variable and intense episodes of drought or heavy rainfall.

Pastoral groups have always been dynamic and highly adaptive to change, and there is growing recognition of the remarkable resilience of pastoralist systems that have evolved in arid areas over the centuries. While mobility itself is obviously a key factor in resilience, the most successful pastoralists adapt their mobility strategies. They move more frequently, opportunistically and efficiently – assessing the quality and availability of grazing, evaluating the risks of conflict over resources and monitoring fluctuations in supply and demand on local markets.





The cohesion of the clan and extended family is a key factor in pastoralists' resilience. Women are keen to maintain the quality of the nomadic way of life. Young men have two options: to become herders in the bush or traders in the city. Their fathers will support them either way, recognising that not everyone can become a pastoralist, and that family members in urban areas are an important source of information and link with modern life.

The younger generation help pastoralists adapt and reconcile modern innovations with traditional knowledge, using modern technologies such as mobile phones, motorbikes and even 4x4s as strategic tools to quickly access and act upon vital information on market rates, available pastures, conflicts, etc.

Political change may be a greater cause of hardship than climate change. Although the pastoral law in Niger endorses herders' fundamental right to mobility and recognises the efficiency of mobile pastoralism systems, genuinely supportive policies are still lacking at national and local level.

Research undertaken for IIED by Steve Anderson and Marie Monimart. The study report and seven case studies are available in French on the IIED website www.iied.org/pubs/display.php?o=Go2725

A film showing how Diffa pastoralists are adapting to change was shown at the Development and Climate Days Film Festival at COP 15. This video is forthcoming on www.iied.org

Photos by Marie Monimart

Local agreements, climate change and local development

In partnership with Senegal's National Network on Local Agreements, IED Afrique organised a workshop on Climate Change, Local Agreements and Local Development which took place in November 2009 in Dakar, Senegal.

by Mouhamadou Lamine Seck and Mamadou Fall

THIS MEETING brought together more than 80 participants from about 30 organisations (locally elected officials, parliamentarians, representatives from community-based organisations, NGOs). Participants discussed the strengths and weaknesses of local agreements as an instrument for adaptation to climate change. Presentations and debates highlighted interest in and the advantages of using these agreements to deal with climate variability because they enable the efficient and sustainable management of natural resources. The meeting concluded that local agreements are a real tool for adaptation to climate change and variability.

Local agreements are fairly widespread in the Sahel and within a context of decentralisation they facilitate the implementation of many state initiatives. The product of wide consultation among actors, they promote the participation of different stakeholders in exercising the transfer of authority to local government for environmental and natural resource management. At this level, local agreements efficiently prevent and reduce the incidence of traditional conflicts. These agreements have even begun to generate important incomes

for some local governments and rural families in West Africa.

Today, local agreements are recognised as tools which enable people to restore vast degraded areas, improving biological diversity and facilitating the reclamation of land which, not long ago, had been thought of as unsuitable for agriculture. Lastly, these agreements help to promote alternative and more appropriate agricultural activities. For example, in some areas as a result of better environmental management market

Local Agreements are rules which are based on local realities and are developed by communities through consensus to manage their communal or shared natural resources sustainably and equitably. These agreements are primarily conservation tools but they also create spaces for reflection and planning to facilitate the regeneration of degraded areas like forests, water points, agricultural land or traditional fisheries. Over the last few years local agreements have played an important role in the social and economic development of several areas in Senegal and in West Africa.



Mbédap forest plays a crucial role as it is an important habitat attracting a variety of species and improving biodiversity. Many examples of this type were given during the meeting, highlighting the multiple experiences of local level adaptation which are seldom taken into account or totally ignored at policy level.

The workshop, which took place one month before the Copenhagen conference on climate change, was an opportunity to remind

gardening has become possible as surface rain water is present for longer periods of time. It is in this way that local agreements are strategies which facilitate adaptation to climate change.

Climate change is making energy sources such as fuelwood more and more scarce. It is causing a loss of biodiversity, the disappearance of ecosystems and increasing problems of access to natural resources. Deforestation and overgrazing can also exacerbate the consequences of climate change. Adaptation strategies can strengthen the resilience of ecosystems by improving biodiversity. Therefore, the maintenance and/or restoration of natural resources, the establishment of protected areas, the protection of surface water, can all help to reduce vulnerability to climate change. Thus as strategies for safeguarding ecosystems, local agreements are an efficient tool enabling local communities to adapt to climate change.

The local agreement in Mbédap is an example. Mbédap is in the rural community of Fissel which has been affected by cycles of drought causing severe degradation of animal and plant resources. According to local people, since the establishment of a local agreement, they have noticed the spontaneous regeneration of woody species and the progressive return of wildlife. The

decision makers that local communities are the most vulnerable and the most affected by climate variability. As a result, states and parties to the negotiations were invited to give more attention to local actors and local adaptation strategies in the debates. The establishment of a fund for Climate Change Adaptation in Africa, a joint initiative of the International Development Research Centre in Canada and Britain's Department for International Development, was highlighted as one innovative response which strengthens local capacity and supports local adaptation initiatives.



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Soil carbon sequestration

The majority of carbon is stored in soils – so changes in farming practices have a very high mitigation and adaptation potential.

THE INCLUSION into the UNFCCC of REDD¹ forges the way for a more comprehensive approach to land-based mitigation, particularly agriculture, in further Conference of Party meetings (COPs). Although there has been widespread discussion of the mitigative potential of forests, more carbon is stored in the world's soils (1500PgC²) than in living vegetation (560PgC), or the atmosphere (730PgC³). As a result, changes in the way the soil is farmed can have very high mitigation potential, by offsetting emissions by 0.4 to 1.2 gigatons of carbon per year, or 5 to 15% of global fossil fuel emissions in a very cost-effective fashion.

Farming practices such as excessive tilling and the removal of crop residues have caused a drastic imbalance in the soil to atmosphere carbon cycle and have reduced the replenishment of organic material (carbon) to the soil. By changing agricultural practices and soil management patterns, substantial improvements in the soil's ability to store carbon can be achieved. An 18-year experiment in Kenyan maize bean plantations concluded that yields jumped from 1.4 tons/ha to 6.0 tons/ha per year with stover retention and manure application, a measure that increased soil carbon stocks from 23.6 tons/ha to 28.7 tons/ha. In India, conversion of irrigated rice from continuous flooding to a single midseason drying has led to a drop of almost 75 million mt of CO₂ emissions, at an

opportunity cost of US\$ 1.20 mt CO₂, far below estimates for REDD, which currently stand at US\$ 5.00 mt CO₂.

These practices also have substantial adaptation co-benefits, as defined in the Bali Action Plan, particularly as regards increasing agricultural yields and improving water management. Projects that provide synergies between adaptation and mitigation in the developing world are deemed the key to integrating the urgency of global mitigation with the adaptation needs of the developing world. Agriculture, upon which 70% of the world's poor rely for their livelihoods, is at the top of the list in most African countries' National Adaptations Programmes of Action (NAPAs), as the sector is likely to be the most hit by disruptions in rain fall and temperature rises. However, transaction costs are likely to be considerable for small-scale agriculture. As past experiments have shown, successful implementation in developing countries is dependent on a strong institutional presence, local legitimacy, building and strengthening of local capacity and governance, the transfer of the necessary technology, and rigorous monitoring. As with any agricultural project, land tenure regimes are also key.

The inclusions of soil carbon in the UNFCCC was debated in the Land Day even in Bonn of June 2009. There is a growing consensus on the need to move towards a "comprehensive landscape approach", which would bring



SHEHZAD NOORANI/Still Pictures

Adding organic fertilizer to the soil, Dar-es-Salaam, Tanzania

together REDD and any and all land-based approaches, including agriculture, in order to allow for a strategic distribution of forest and agriculture and to avoid perverse incentives, leaks between systems and inefficiencies (Agriculture, Forestry and Other Land Uses, or AFOLU).

The inclusion of agriculture within the UNFCCC opens the door to much needed integration between it and other international bodies, such as the UN Convention to Combat Desertification and the FAO, which have both strongly supported the adoption of soil carbon as a mitigation option. It would indeed seem that, by supporting the implementation of

projects of this nature, the UNFCCC would progress towards a mechanism that is cohesive with the sustainable development agenda, as set forth in the Rio 92 meeting that created it, and aligning it with the pursuit of the Millennium Goals which must guide all actions of the UN system as a whole.

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1. REDD – Reducing Emissions from Deforestation and Forest Degradation in Developing Countries – is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. See www.un-redd.org for more information.
 2. PgC = Petagrams of carbon. A Petagram of carbon (Pg), also known as a Gigaton (Gt), is equal to 10^{15} grams or one billion metric tonnes.

REDD – protecting climate, forests and livelihoods?

International debates are resonating with the buzzword REDD – what is it all about and can it prevent deforestation?

DEFORESTATION IS a major cause of climate change and accounts for roughly a fifth of global greenhouse gas emissions. REDD – Reducing Emissions from Deforestation and Forest Degradation in Developing Countries – is a United Nation's programme to provide incentives for reducing emissions from deforestation and investing in low-carbon paths to sustainable development.

As a concept, REDD is simple. Funding rewards good forest management in developing countries and makes poor forest management, such as indiscriminate unenforced logging, less profitable than the sustainable alternative. At the moment, REDD provides payments to prevent deforestation or degradation that would otherwise have taken place. This funding can come from carbon trading, where industrialised countries offset their own emissions by transferring funds as carbon credits to developing countries. Or it can be another mechanism such as a trust fund, which does not depend on offsets. The payments then, in principle, enable developing countries to conserve or sustainably use their forests (for example, through more appropriate harvesting of wood and other forest products), when they might otherwise not have been able to do so.

Those promoting REDD see it as a way to support forest conservation and a low-cost



Logging in West Africa

James Meyers/REDD

mechanism for reducing carbon emissions. Critics argue that industrialised countries must not be absolved of their responsibilities to cut carbon dioxide emissions. There are concerns, too, about the negative impacts payments might have on communities that depend on forests, primarily through further weakening their land and resource rights. There are also potential and complex links with agriculture. Limiting the expansion of agriculture could affect the supply of food and other agricultural products.

What appears to be a relatively straightforward solution to climate change – paying to keep forests standing – is much more complex. Because REDD is inseparable from the highly complex social, economic and biological realities of forests today, it remains controversial.

i For more information: www.un-redd.org

Are we overlooking biomass energy?

Biomass is an important source of energy in developing countries – is it a viable alternative to fossil fuels?

by Keith Openshaw

IS BIOMASS the ‘Cinderella’ of fuels? Few energy planners, development banks and policy makers treat biomass as a legitimate form of energy. But it is the principal source of energy in developing countries. Biomass is derived from living, or recently living, organisms, and includes wood, vegetative waste, dung and their products such as charcoal, alcohol fuels and biogas. It is a source of renewable energy and a versatile carbon based fuel that can be grown on even the poorest soils. It does not increase emissions of greenhouse gases when optimal energy conversion processes are used.

The conventional view of biomass is that it is an unsustainable and polluting ‘traditional’ fuel that must be replaced by ‘modern’ energy, such as fossil fuel-based electricity, if rapid development is to occur. But calculations reveal that there is more than sufficient biomass, not only to maintain present consumption, but also to expand its use considerably. A principal cause of global warming is the increased use of fossil fuels. And the recent dramatic price rises in fossil



Sacks of charcoal and fuelwood for sale at roadside in south Malawi

WILDLIFE/M. Boulton/Still Pictures

fuels make them a volatile and insecure energy source. Therefore, rather than promoting energy policies based on fossil fuels, improving end-use efficiency, encouraging conservation and making renewable biomass more convenient are the most sensible strategies to pursue.

Biomass use and availability should be supported by:

- Including biomass in energy policies as a renewable form of energy
- Basing planning on accurate measures of biomass yields and demands
- Reducing deforestation through integrated rural development
- Increasing support to small-scale biomass energy producers
- Investing in biomass training, research and development.

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Transformative education for nomads

Pastoralists have always lived with change, but the current pace and scale of change is unprecedented. Diversification and adaptation are key to ensuring the future of pastoralism, which must be reflected in the education system

by Sue Cavanna

USING UNCERTAINTY constructively is the basis for scenario planning. This approach asks communities to imagine multiple futures and consider how they might be influenced. Pastoralists are already skilled in managing uncertainty and turning it to their advantage, since the unpredictability of rainfall is characteristic of the drylands in which they live. During these discussions the views of decision makers are analysed at community level triggering a deep process of reflection. Through this process pastoralists see themselves as agents of change rather than passive recipients, subject to external decisions. Community views elicited from this process can go on to influence national policy and resource allocation, allowing pastoralists to advocate for the future they desire.

In Kenya, the government with support from IIED, has been using this approach with pastoral communities to analyse their situation and plan for the future. As a result, pastoral communities have identified education as a key challenge. Education as it is offered now undermines pastoralism; parents must choose between education and herding for their children. According to the community “The educational system that fits us will be the one that follows us, that follows our animals.” Through discussion

and debate with pastoralists determined that distance learning via radio is an ideal option as it will allow them to remain mobile, sustaining their livelihoods, whilst receiving an education.

But education for nomads is not just about appropriate delivery of the service. The curriculum itself must also support the pastoralist system and adjustments to the existing school syllabus must be made. “What children learn should inspire them to be pastoralists, what they learn should be relevant to nomad production.” Pastoralists believe that an education system suited to their needs will be transformative – enhancing their livelihoods. Adults and youth specifically request education that allows them to understand their role as citizens, and become part of a wider national society.

i Email: educationfornomads@iied.org or visit www.iied.org/climate-change/key-issues/drylands/education-for-nomads. See also p38, this issue.



Sue Cavanna works in the Sahelian drylands with nomadic pastoralists. She coordinates the Education for Nomads Programme which uses scenario planning to elicit pastoral views and engagement in a Government of Kenya initiative to educate nomads.

Pastoralists picture land use

Combining traditional knowledge with geo-spatial technology is an effective tool to protect pastoral livelihoods

Massimiliano Rossi and Italo Rizzi

IN GENERAL researchers use participatory mapping techniques to understand changing land patterns and preserve indigenous knowledge. Although community maps are often little more than lines drawn in the sand, or sketches on paper, they play a key role in giving communities the chance to express their needs and understand the delicate balances on which their livelihoods are based. But subjectivity and inconsistency in spatial representation, especially when looking at a large area of land, mean that community maps are only of limited use when they are used outside the original village or read by other users. The question is how to translate symbols on a piece of paper in a way that can be understood by everyone. One solution is to involve the communities in the interpretation of high resolution satellite images.

The Lay Volunteer International Association (LVIA) tested this methodology working with pastoralists in Moyale and Miyo *woredas* (districts) of southern Ethiopia at the beginning of April 2009. The project based their work on community maps, but substituted a piece of paper with geo-referenced maps and remotely-sensed imagery. In combination with satellite images, the community members were asked to identify a variety of features on the maps.

The team discovered that after only a few minutes of explanation, pastoralists could consistently and accurately interpret features on the maps and satellite images. Women in particular showed a great ability

and accuracy for locating features such as cultivated land and private enclosures. Men were more reliable in pointing out administrative boundaries, while the young livestock scouts could quickly recognize migration routes.

By combining the input of the different groups, the team was able to gather complete and accurate information on infrastructure, the locations of wet and dry grazing areas, livestock migration routes, water sources and administrative boundaries, as well as detailed information on the sharing of natural resources across multiple territorial units.

The team manually entered all the data they had collected into a GIS (geographic information system) programme. They then produced a number of posters and maps which they took back to the communities to verify the details. Once collated, the final results will be used by local and central governments to support planning initiatives, to manage vulnerable water sources and, with a better understanding of the communities' needs and land use patterns, to protect the livelihoods of pastoralists.

i See also *Participatory Learning and Action no. 54 – Mapping for change: Practice, technologies and communication*. www.iied.org/pubs/display.php?o=1450711ED

Massimiliano Rossi is the project leader and **Italo Rizzi** is a project office coordinator at LVIA www.lvია.it

Eradicating East Coast Fever

MILLIONS OF AFRICAN families could be saved from destitution thanks to a much-needed vaccine that is being mass-produced in a drive to protect cattle against a deadly parasite. East Coast Fever is a tick-transmitted disease that kills one cow every 30 seconds – with one million a year dying of the disease. In herds kept by the pastoral Maasai people, the disease kills from 20 to over 50% of all unvaccinated calves. This makes it difficult and often impossible for herders to plan for the future, to improve their livestock enterprises and raise their standard of living.

East Coast Fever puts the lives of more than 25 million cattle at risk in the 11 countries where the disease is now endemic, and endangers a further 10 million animals in new regions such as southern Sudan, where the disease has been spreading at a rate of more than 30 kilometres a year.

The immunization procedure – called “infection-and-treatment” because the animals are infected with whole parasites while being treated with antibiotics to stop the disease developing – has proved highly effective. However, initial stocks produced in the 1990s recently ran low. Therefore, it is critical that sustainable commercial systems for vaccine production, distribution and delivery are established.

With UK£16.5 million provided by DFID and the Bill & Melinda Gates Foundation, the charity GALVmed is fostering innovative commercial means to ensure that the vaccine is made available, accessible and affordable to livestock keepers who need it most, and to scale up its production for the future.

www.galvmed.org/path-to-progress

Solar drip irrigation in Benin

SOLAR-POWERED drip irrigation systems significantly enhance household incomes and nutritional intake of villagers in arid sub-Saharan Africa, according to a new Stanford University study published in the *Proceedings of the National Academy of Sciences* (PNAS).

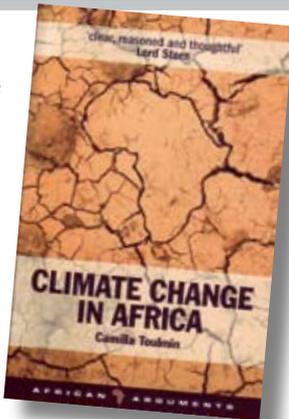
The study found that solar-powered pumps installed in remote villages in Benin were a cost-effective way of delivering irrigation, particularly during the long dry season. The research team monitored three 0.5 hectare sites with solar-powered drip irrigation systems installed in Kalalé district. The systems, which use photovoltaic pumps to deliver groundwater, were financed and installed by the Solar Electric Light Fund (SELF), a non-governmental organisation. Although the cost of installing this kind of solar energy is expensive, these systems have long lifetimes and in the medium term cost

less than liquid fuel-based pumping systems.

In 2007, the research team collaborated with local women’s agricultural groups in two villages, with striking results. Three solar-powered irrigation systems supplied on average 1.9 metric tons of produce per month, including tomatoes, okra, peppers, aubergine, carrots and other greens. Women who used solar-powered irrigation became strong net producers in vegetables with extra income earned from sales increasing their purchases of staples and protein during the dry season, and oil during the rainy season. During the first year of operation, the women farmers kept an average of 18% by weight of the produce grown with the solar-powered systems for home consumption and sold the rest in local markets. Download full article at <http://tiny.cc/4jb6p> and watch video on www.youtube.com/watch?v=RTfBEbf-NRs

Climate change in Africa

Climate change is a major challenge for us all, but for African countries it represents a particular threat. This book outlines current thinking and evidence and the impact that such a change will have on Africa's development prospects. Global warming above the level of 2°C would be enormously damaging for poorer parts of the world, leading to crises with crops, livestock, water supplies and coastal areas. Within Africa, it's likely to be the continent's poorest people who are hit hardest. Camilla Toulmin uses case studies to look at issues ranging from natural disasters to biofuels, and from conflict to the oil industry. Finally, the book addresses what future there might be for Africa in a carbon-constrained world.



www.iied.org/pubs/display.php?o=115o2IIED

Farmer Voice Radio

Farmer Voice Radio is a network of radio broadcasters, agricultural experts, and farmers which provides millions of small farmers a broad variety of agriculture-related radio programming.

Small farmers account for 60% of all farmers in sub-Saharan Africa, making them a critical component for establishing economic growth and food security on the continent. Radio is the most far-reaching, low-cost, and ubiquitous mass-medium in Africa. Farmer Voice Radio will deliver vibrant, relevant agricultural programming to help small farmers find the best soil and seed varieties, conserve natural resources, increase crop yields, and gain access to lucrative markets.

Initially, the project will begin in Kenya and Malawi before expanding to Uganda, Mali, Ghana and Tanzania.

<http://tiny.cc/t5cmk>



Farmer weeding a cassava field in Neno district, Malawi

CAREN VAN DE MERWE/SIII Picture

Modern and Mobile

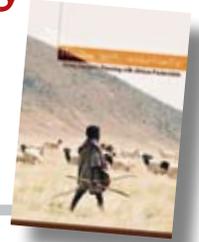


Modern and Mobile is about the critical role mobile livestock keeping plays in the economic prosperity of Africa's drylands. Across East and West Africa, an estimated 50 million livestock producers support their families, their communities, and a massive meat, skins and hides industry based on animals that are fed solely on natural dryland pastures. Where other land use systems are failing in the face of global climate change, pastoralism is generating huge national and regional economic benefits.

Pastoralism relies on unique production strategies, with the ability to move being the most crucial. However, moving is now becoming a serious problem. Grazing lands are being taken over for other uses, and access to water and markets is increasingly difficult and the economic profitability of livestock keeping is being critically undermined. But new thinking, new policies and innovative practices for pastoralist mobility are beginning to take root in many parts of dryland Africa. Livestock mobility is a modern approach to poverty alleviation and accelerated development. Supporting mobility does not require huge financial investment: it requires refreshed thinking and clearer understanding. This book is a starting point.

① Available in English and French. www.iied.org/pubs/display.php?o=12565IIED

Planning with Uncertainty



This booklet and DVD illustrate how the idea of scenario planning is being used to help pastoralists in Africa manage uncertainty and change. It looks at three experiences: two in Kenya – with the Boran pastoralists in Isiolo and the Somali pastoralists in Wajir, and one in Niger – with the WoDaaBe pastoralists in Tahoua and Maradi. It describes the process involved and discusses the benefits, challenges and implications of the approach.

Included on the DVD is a short film entitled *Ngaynaaka: Herding Chaos*. This is a trailer for a documentary by Saverio Krätli and shows the lives of two families of WoDaaBe cattle breeders in the savannah of Niger. The film presents a sophisticated system of production that exploits what mainstream agriculture sees as a problem: environmental instability. It also offers an insight into a different way of producing with animals.

This film is work in progress and we are hoping to raise funds for a full documentary. For more information email: saverio.kratli@googlemail.com

① Download a copy of *Planning with Uncertainty: Using Scenario Planning with African Pastoralists* at www.iied.org/pubs/display.php?o=12562IIED and a “How to” Guide at www.iied.org/pubs/display.php?o=10023IIED View the trailer of *Ngaynaaka: Herding Chaos* at www.iied.org/climate-change/key-issues/drylands/pastoralism-videos

Joto Afrika



Joto Afrika is produced by ALIN in partnership with the Institute of Development Studies (IDS) Knowledge Services and the AfricaAdapt Network. *Joto Afrika* focuses on thematic areas around climate change adaptation and development. It draws lessons, experiences and practical information from across sub-Saharan Africa including summaries of academic research on climate change, written in a clear easy-to-read style, case studies of community based knowledge and action in response to climate change and

feedback from readers. It targets NGOs, government officials, researchers, decision makers, planning departments, CBOs and all individuals in Africa who need to know about climate change adaptation at the regional and local level. First issue was produced in June 2009.

① *Joto Afrika* is available in English and French. www.alin.net/?media_centre/publications/joto_afrika

Haramata

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The Haramata takeaway

This is the last issue of *Haramata*. But don't worry we are not stopping altogether. We are taking this time to reassess the bulletin and how we share information. We are looking for other more effective ways to exchange experiences and facilitate policy debate on subjects which matter to people working in dryland areas.

Climate change continues to dominate policy debate even after the disappointing outcomes of the Copenhagen conference. In this issue of *Haramata* we focus on adaptation to climate change with articles on a range of projects and initiatives from across East and West Africa to support local communities to understand climate change and plan for it.

IED Afrique in Senegal is coordinating a regional programme to support community-based organisations to adapt to climate change and they bring us an interesting case study from Mali. The Jeka Baara Women's Cooperative in Bamako is working with members to increase incomes through market gardening and is promoting improved stoves and cooking baskets to reduce reliance on fuelwood for cooking.

Local Agreements for natural resource management are ideally suited to supporting communities to adapt to climate change. These community led institutions can be flexible and adaptive but people need more information on how climate change will affect the natural resources they rely on so that they can develop appropriate and sustainable management plans.

In Kenya the Arid Lands Information Network brings us the realities of how climate change is affecting the daily lives of villagers. The recurrence and the severity of drought is a big challenge. But through village community forums to discuss the impacts of climate change ALIN is looking for ways to address the impact of climate change.

In the Debate section of this *Haramata* we look at a range of interesting topics. The new Family Code in Mali should have been passed last August but widespread popular protest meant that the President was forced to send it back to Parliament for a second reading. Adam Thiam tells us what was in this new Code that caused so much uproar.

And finally, we hope that *Haramata* and the *Drylands Issue Papers* did achieve some of its objectives, by making connections between different organisations, communities and helping to break down the language barrier between English and French speaking countries. Our aim was to offer ideas, insights and evidence of good practice and policy options. We hope we have succeeded.

We are now carrying out a review of IED's Drylands programme since it was set up in 1987, its evolutions, partnerships and achievements. We would be keen to hear from you, so do get in touch at drylandsreview@iied.org.