CLIMATE CHANGE ADAPTATION & DEVELOPMENT PROGRAMME (CC DARE)

UNDP

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LESSONS FOR ADAPTATION in Sub-Saharan Africa


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DP


UNEP

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Women involved in minimum tillage for planting in Mozambique

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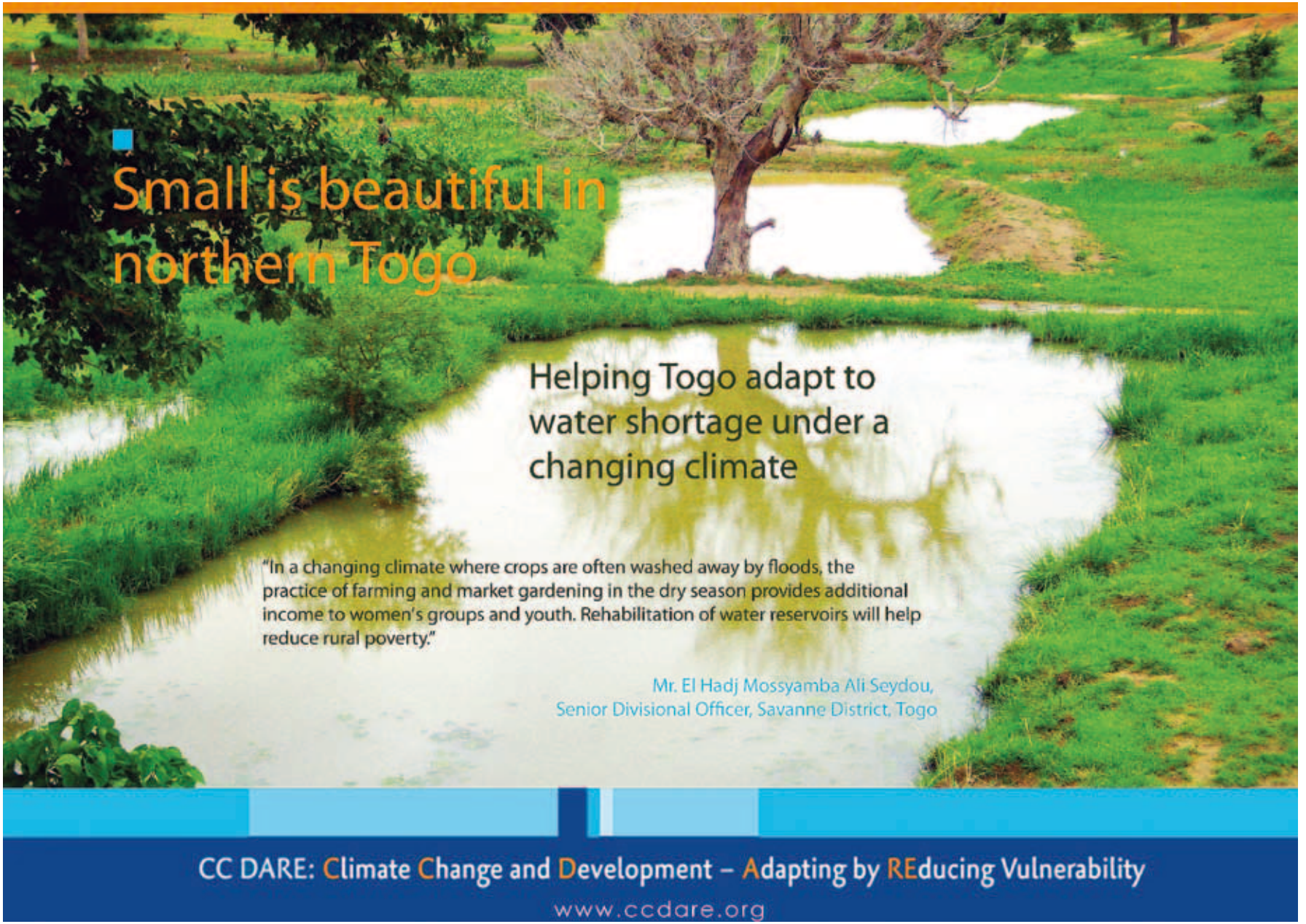

Small is beautiful in northern Togo
Helping Togo adapt to water shortage under a changing climate
"In a changing climate where crops are often washed away by floods, the practice of farming and market gardening in the dry season provides additional income to women's groups and youth. Rehabilitation of water reservoirs will help reduce rural poverty."
Mr. El Hadj Mossyamba Ali Seydou,
Senior Divisional Officer, Savanne District, Togo
CC DARE: Climate Change and Development – Adapting by REducing Vulnerability
www.ccdare.org

Communities in Mozambique embrace minimum tillage farming to fight against Climate Change

Foreword

The complexity and interrelated challenges posed by climate change remain some of the most critical and pervasive issues of our time. The devastating environmental, social and economic impacts of climate change are being felt around the world with the poorest nations and communities bearing the burden disproportionately.

While the global political process has been slow in making meaningful progress over the years, it is undeniable that success in tackling climate change can only be achieved through a broader consensus on the response combined with forward-looking policies and bold concrete actions.

Sub-Saharan Africa has been clearly identified to be at the frontline of the most vulnerable regions requiring urgent assistance in addressing climate change challenges in terms of sufficiently funded adaptation programmes and projects at multiple scales and time frames. There has certainly been convergence on the need for strong adaptation frameworks to address the concerns of vulnerable countries in Africa. The successful implementation of any framework requires that every option towards a solution needs to be explored, especially if it offers multiple opportunities and provides cost effectiveness. Unfortunately, what have been lacking are the options on the types of adaptation actions to be implemented. Using flexible targeted approaches may help to identify the types of actions that need to be implemented. This will be a first step towards ensuring timely and realistic adaptation across the Sub-Saharan African region.

It is against this backdrop that the Climate Change and Development Programme - Adapting by Reducing Vulnerability (CC DARE) - jointly implemented by the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP) with funding from the Danish Ministry of Foreign Affairs was designed to fast track decision-making processes for the implementation of national adaptation priorities. The programme is also to complement and strengthen ongoing adaptation planning and risk management activities on national priorities. Using adequate funds for targeted short-term activities, the programme supports countries in Sub-Saharan Africa and small island states in Africa to integrate climate change adaptation into their national development planning and decision-making processes.

(Foreword Cont'd)

CC DARE Lessons for Adaptation show in a myriad of ways, from community based programmes to government programmes and entrepreneurial endeavours, how concrete demonstration actions can provide solutions that can move countries and communities in Sub-Saharan Africa towards low carbon and climate resilient development. When an action delivers solutions with multiple benefits and beneficiaries ranging from reducing environmental impacts to engineering a transition to greener economic growth, this can be embraced by other countries.

The various lessons learnt highlighted in this document are highly relevant in contributing to decision-making processes using concrete examples of success stories. There are no reasons for further delays in reducing climate vulnerabilities using concrete adaptation actions, on adaptation as the price is too costly to endure by present and future generation. By highlighting the opportunities that comes with adaptation, CC DARE Lessons for Adaptation provides the right ingredient to spur us into bigger actions with greater policy attention.

CC DARE helps locals communities to Adapt to Climate Change by improving crop yield.

CC DARE countries

Benin

Ghana

Malawi

Mozambique

Rwanda

Senegal

Tanzania

Togo

Uganda

Ethiopia

Seychelles

Table of Contents

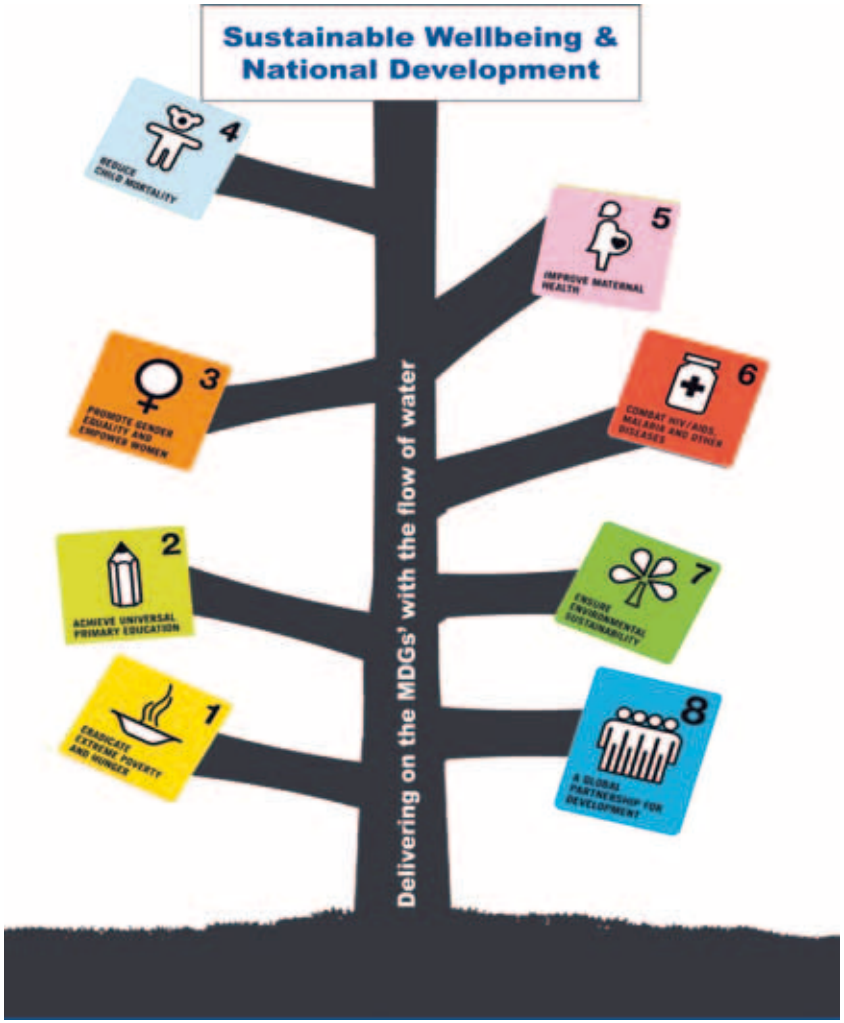
Coastal soil erosion in Senegal

A. CONTEXT

New information on climate change only stresses the need for urgent actions, especially those for adaptation, in order to safeguard human wellbeing and the earth systems. This is raising major public and policy concerns as the severity of climate change involves huge financial cost and risks to people and national development. The multiple risks posed by climate change particularly that of overturning decades of development efforts in developing countries Africa most vulnerable to climate change especially in Sub-Saharan, further underlines the need for making development efforts more resilient to future impacts. Unfortunately other challenges such as prevalent poverty and food, health and energy insecurities amplify the burden of climate change.

Regrettably adaptation to climate change is not time-bound like the Millennium Development Goals (MDGs), thereby undermining the urgency to act now to adapt to the challenges especially in developing countries where there is inadequate ability to respond to the magnitude of the problem using current capacity and resource-bases. The direct role that adaptation to climate change plays in the realization of many of the MDGs e.g. 1 and 8, further draws emphasis on the urgency for action as we approach the 2015 timeline for the MDGs, realizations.

Floods in Malawi



To to achieve the desirable speed of intervention and the, scope of adaptation actions as well as resilience of these actions to future climate impacts will depend on the choice in the mode of intervention and the engagement of more actors and networks for participatory actions.

Adapting to the challenges posed by climate change and at the same time managing the alignment of economic and national development activities along the new paths of low carbon, green economy and renewable resources require that countries think about potential barriers to taking actions nationally, and also beyond their national boundaries in developing strategies that guide the response actions.

Furthermore, capitalizing into the emerging opportunities linked with the transition to green economy and renewable resources would require using new partnership arrangements as adaptive mechanisms to buffer short-term risks and other tradeoffs that might be associated with the transformation process. For example, lessons learnt from the recent global economic crisis points to the opportunities and benefits of using bilateral or multilateral response platforms for common challenges. This approach can potentially provide crucial safety nets and resilience for crisis prevention and mitigation of the impacts especially for partners with unequal response capacities or those facing higher exposures to the crisis.

Other lessons learnt of the benefits of removing boundary barriers for a common problem-solving pathway, include the free trade movement and its catalytic transformation in the utilization of technologies across the globe. Just like some transforming cross-cutting technologies such as cell phones, internets etc. that have transgressed territorial, social and economic boundaries, the dilution of territorial barriers in adaptation strategies could provide far reaching benefits from a single action. Adaptation could easily be integrated or mainstreamed into other frameworks that eventually contribute in achieving resilient development and sustainable economic growth including addressing the MDGs. Therefore, adaptation strategies that can be hinged to benefit from social and economic chains will necessitate transcending physical boundaries in the planning process.

B. THE CC DARE PROGRAMME

The 'Climate Change and Development – Adapting by Reducing Vulnerability' (CC DARE) Programme is jointly implemented by UNEP and UNDP under the one UN Banner, using funds provided by the Ministry of Foreign Affairs of Denmark. The CC DARE programme provides timely technical and financial support on demand-driven basis to countries in Sub-Saharan Africa and small island states for flexible and targeted actions to remove barriers and create opportunities for integrating climate change adaptation into national development planning and decision-making frameworks. The programme is designed to complement and strengthen ongoing and planned climate change adaptation and risk management activities in these countries using quick and tailored support.

Why Flexibility in Adaptation?

- Flexibility stretches the potentials of a system especially under resource constraints
- It allows for risk-taking in exploring new opportunities and engagement of new actors, who normally would not have been opportune to participate
- Flexibility facilitates association and creation of networks and knowledge exchange benefits
- Flexible approach allows 'self-starters' to get into action and others to grow organically
- It provides different entry-points for action
- It expands the action-base for adaptation

Where should flexibility be exercised?

- Funding
  - ◊ Accessibility should be open to all, transparent and democratically administered
  - ◊ Balancing different sizes of funding needs for adaptation actions
  - ◊ Fast-tracking funds to the place of action
- Size of the action for adaptation
- Sector and thematic area
- Types of actors
- Technical support to the actions

Landslide in Rwanda

Illegal Logging is rampant in Sub-Saharan Africa

Targeted Actions

- These are actions directly channeled to address a particular problem
- They are more appropriate in providing precise response for overcoming barriers
- Easily streamlined in strengthening the skill sets of the actors for capacity development
- They allow for more focused programmes and analysis of lessons learnt as well as improvements made in addressing the problem
- Enhance the potential for replication
- They facilitate tracking and fast-tracking actions

LESSONS LEARNT

Following the implementation of 48 country-led CC DARE in eleven Sub-saharan countries with diverse biophysical, socioeconomic and climatic characteristics, there are some key lessons learnt. The goal of this document is thus, to share the lessons learnt in different areas crucial for the replication and up-scaling of the adaptation actions.

Coastal erosion in Senegal

C. PROGRAMMING LESSONS

1. Delivery

CC DARE engages national partners as implementing agencies/entities in delivering on adaptation to countries using demonstration actions as recommended by the Bali Road Map of 2007. The programme uses a national level entry point through the designated ministry or department in charge of national climate change strategy. However, implementation is open to all actors and stakeholders of the public and private sectors. Thus, the national action points for implementation are situated across different sectors and sections of the country and are conducted by different actors. As a result, unlike other programmes that are focused on sectors focused such as Poverty or Environment, the CC DARE programme delivers on multiple sectors as suggested by the government and people following their national priorities.

Mode of Delivery in countries

Delivering as One UN to countries drawing on the combined strengths of both agencies

- Using a flexible and targeted approach in addressing national priorities for adaptation
- Passing through small-scale solutions that are aggregated in addressing grand challenges
- Employing an implementation framework that guides the actions and linkages to national strategy

The implementation strategy of the programme maintains a firm connection between the national entry point and the actions points for project implementation in a country to allow for coherence in the participation of multiple actors and sectors in the national adaptation strategy.

Using small actions mostly conducted at sub-national levels, CC DARE is democratizing solutions crucial in reducing risks by improving accessibility to adaptation actions.

Soil Erosion and Pollution in Senegal

2. Implementation

CC DARE does not implement but guides national implementation processes. Like other programmes, CC DARE is also mainstreaming climate change adaptation into national policy and decision-making processes using primarily demonstration actions conducted downstream to inform upstream policy making processes (fig1). Thus, instead of focusing purely on upstream activities, CC DARE conduct sdemonstration activities with the national proponents as concrete examples of the solution to the climate change risks affecting a specified sector or section of the population. The implementation of the innovative idea proposed by the people is led by the national proponents while CC DARE only provides technical backstopping in overcoming the capacity deficits that prevails in many developing countries. The actions are time-bound and highly targeted in addressing the specific barriers to implementation. In addition to informing upstream policy processes, the activities are also measureable by the direct number of beneficiaries from the action, and thereby serve both local needs of the communities and national policies.

Figure 1. The framework for maintaining national and sub-national level adaptation actions using demonstration actions implemented with different intervention approaches.

Although CC DARE uses a flexible approach, this is framed within national priorities. The size of a project activity defines the amount of funding and the duration for implementation. The most efficient approach and method for implementation (in terms of costs, resource availability, capacity needs etc) is used. Most CC DARE awareness raising and capacity building projects have generally on average, an implementation period of six months excluding the proposal review period. Others involving ground actions and depended on seasonal patterns, have extended beyond six months. In addressing labor needs of the project, although there are no co-payments by country proponents as fiscal contributions, there are in-kind contribution to the implementation of the project activities using community labor, sourcing materials locally etc. This also ensures the development of local skills and capacity using the learning-by-doing approach.

As part of the technical backstopping, CC DARE ensures that new knowledge is being developed and properly documented, and that networks are built to surround the activity with the required knowledge sources in order to share information and the linkages to similar actions. The implementation strategy of the CC DARE therefore involves combining and sequencing adaptation approaches where applicable, in internalizing climate risks.

Landslide in Rwanda

CC DARE Frim project planning in Malawi

D. MODE OF IMPLEMENTATION

The programme is designed along the core strategies of the implementing agencies of UNDP and UNEP, and modeled under the 'One UN Flagship' in delivering support to national programmes of the United Nations member countries that addresses climate change adaptation and resilient development especially in Sub-Saharan Africa. The key elements of the strategy of the programme include:

1. Country-driven actions
2. Engagement/participation
3. Fast delivery
4. Flexibility
5. Sustainability
6. Replicability
7. Monitoring and Evaluation

1. **Country-driven actions** - The programme is designed to support country-driven actions and staying in sync with national priorities.

2. **Engagement/participation** - By identifying critical national entry points and using UN country platforms and networks, the engagement of stakeholders, actors etc. is will be done through constituting a national dialogue platform for participatory discussions, planning and identification of implementation actions and projects along national priorities.

3. **Fast delivery** - The programme uses a fast delivery mechanisms in providing the resources required for project implementation. The most direct means will be used in channeling funds to the actors on the ground on a timely basis. The programme strategy in addressing the capacity needs of each activity is through project anchoring and the identification of experts, information, knowledge materials etc. essential for implementation of that particular action. This approach is meant to directly backstop the projects with interactive development of the capacity and skill sets of the project team onsite.

4. **Flexibility** – Flexibility stretches the potentials of a system and allows 'self-starters' to get into action, and others to grow organically. This allows for the diversification of the intervention, which builds resilience in the national adaptation strategy and the realizations of multiple activities on national priorities for adaptation.

5. **Sustainability** - The strength of this approach is to achieve the immediate objective of the project and generating new knowledge while developing long-term capacity relevant for sustainability.

6. **Replicability** – By establishing the right networks around each project, and characterizing of good practices as case studies with guidelines for their implementation, the replication of the actions will be ensured with minimal technical support in a scaling down phase. This constitutes an exit strategy for the programme in completely turning the activities to national ownership.

7. **Monitoring & Evaluation** - An effective M&E framework is set up to accompany implementation, enables ongoing adaptive management, ensuring that lessons are learned, management decisions are taken based on relevant and up-to-date information, and regular progress reports are available for concerned parties.

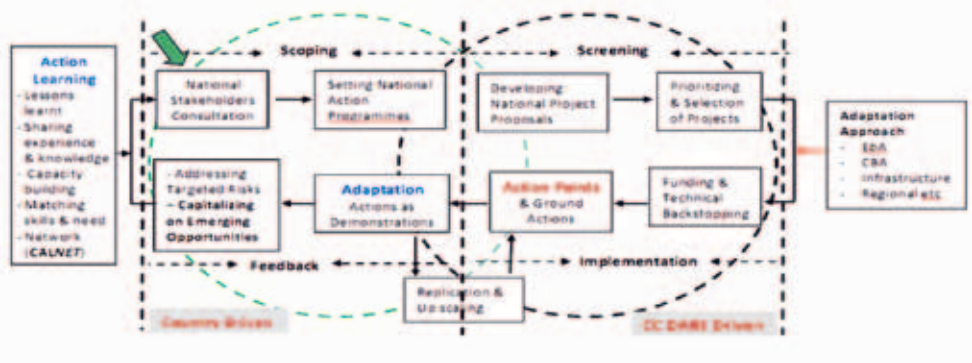


Figure 2. CC DARE Logical Framework Approach for implementation of adaptation using national demonstration actions

Building system resilience is the ultimate goal of adaptation measures. Thus, the pathway to climate resilience is inseparable from the process of climate change adaptation which provides the incremental steps towards achieving climate resilience. In terms of national development goals, building resilience in development involves the integration of adaptation into national development planning, strategy and implementation. Climate resilience requires multiple level actions across multiple sectors and actors addressing possible sources of risks and vulnerability, even those external to the system. In transiting to a low carbon growth pathway, or shifting from dirty to clean and renewable energy sources for example, an adaptive mechanism must be build into the development

The people of Xai Xai, Mozambique construct and maintain soil erosion and sand stabilization walls landscaped with vetteverd grass and shrubs in the city to serve as adaptation measures to climate change and sea level rise induced erosion and destruction of properties.

CC DARE FRIM project planning in Malawi

programmes and economic systems. This requires mainstreaming adaptation into the process as safety nets for crisis prevention.

The conceptual framework (Fig 2) of this programme is therefore designed to achieve swift response actions that promote self-determination and inclusivity of any interested actor in the adaptation actions. Using consultative and participatory dialogue platforms, the programme is erected on national priorities in guiding the identification and determination of projects implemented by the people. Following the selection and approval of country projects, a national plan for their implementation is developed mapping their linkages to various national strategies e.g. PRSP, NAPA, MDGs etc. This is followed by the formation of a national platform involving the relevant ministerial departments and national stakeholders in a planning and discussion forum.

The CC DARE programme, then provides timely financial and technical supports to the national projects in a manner that catalyzes the implementation of the national projects irrespective of whether upstream or downstream, while building the essential capacity in the process.

To avoid silos or stand-alone projects, supporting networks are created around these projects using a national platform, and surrounded with the relevant information sources and knowledge-bases to ensure efficiency and effectiveness in their implementation, and also to build resilience to future climate impacts. For example, following the identification of barriers targeted in the project proposal, a network of technical support for implementation is set up. Similar networks for up-scaling, diffusion and knowledge sharing are also developed.

Following the flexibility of the programme and the interconnectedness of real life, participation and access is open to all actors, sectors, stakeholders, thematic areas, regions, institutions, local and national governments etc irrespective of the scope and scale of the action, provided it is feasible over the proposed time frame and linked to the national priorities and strategic framework.

In facilitating knowledge and experience sharing processes, the programme organizes regular workshops bringing together project teams working on the same thematic area or similar topical issue from the different countries, to discuss their approaches and solutions.

In fast-tracking project implementation, the programme use two key methods:

a) providing the implementation funds quickly using the most direct route to the project teams, and

b) backstopping national projects with technical support in fulfilling their short-term capacity needs for project implementation.

By focusing on the catalytic effects of the intervening actions, the programme distinguishes itself from other programmes in quick delivery of both the resources for action and of the measures addressing the needs of those at the frontline of the impacts. The programme is therefore occupying a niche area, providing a stimulus to other ongoing programmes or triggering new actions.

The desirability of the programme's modus operandi by countries makes it a crucial mechanism for the implementation of actions following the allocation of global funds for adaptation for addressing urgent priorities identified by countries. The programme is preferred by countries because:

- The implementation framework allows for country leadership and ownership of the entire process with backstopping provided by CC DARE, thereby facilitating continuity and sustainability
- The project design provides equal opportunity in accessing funding and technical support for adaptation actions
- The project design allows for precise response in overcoming barriers in addressing the targeted climate risks
- Countries easily relate to the flexible approach of the programme in the identification and selection of national project activities that brings in new actors and sectors in addressing national priorities on climate change
- The targeted nature of the actions in overcoming barriers and strengthening national capacity development
- The timely disbursement of funds for fast track implementation of the project actions
- Using quick turnover concrete actions conducted by national stakeholders provides local evidence to inform and speed up policy formulation processes and national responses
- Building national capacity in the process of implementation through learning-by-doing is providing the desirable confidence for self-actions and preparing countries as national implementing entities as exemplified in leveraging bigger funds from GEF-LDCF and the Adaptation Fund by pilot countries of the programme.

The Malawi FRIM project involved local communities.

Teaching communities how to construct Bee hives in Ethiopia.

E. PLACE OF DELIVERY - TARGETING MIDSTREAM/SUB-NATIONAL LEVEL

The desired transformation in the implementation of adaptation actions in Sub-Saharan Africa requires a middle band of players at the sub-national level in bridging community level actions and national level policies and programmes. This is vital for coupling the two levels. The current divide streamlines most multilateral and bilateral agency activities towards the national level, while community level activities are the prerogatives of NGOs and development agencies. CC DARE is thus filling the in-between void by mainstreaming climate change adaptation to the sub-national level using targeted activities that support capacity and decision-making processes for community-based actions on adaptation, and national policies and programmes. Under this framework the emerging trend is mutually supporting policies and actions for community benefits and mobilization. The CC DARE programme therefore addresses the question of how the an adaptation approach can transform and facilitate the rapid shifts in delivery of concrete actions and their practical effects to promote innovative solutions and narrow the widening gap between rhetoric and reality. The ultimate goal is to get local governments and administrators as well as the private sector involvement in appropriating the available resources and engaging everyone in actions and policy in internalizing climate risks. Thus, CC DARE's role in this space is in enabling ground actions on national policies or strategies (e.g. NAPAs), with the enrollment of new and diverse actors for implementation, and conversely turning nationally innovative solutions tested in demonstration actions by the communities into national policies and spurring bigger actions. In occupying this space, CC DARE is neither an implementing entity nor a policy advocate, but rather an enabling programme providing guidance to national actors using demonstration actions that prepare and empower them for ownership of self-led actions.

The key methodical distinctions between CC DARE and other players in the climate change adaptation and environmental sustainability arena are therefore the following:

- Unlike projects mainstreaming directly to national policies, CC DARE focuses on mainstreaming to sub-national policies and actions, which intends to feed national policies and spur ground implementation.
- Demonstration actions addressing national priorities constitute the main tenet for CC DARE mainstreaming activities and for building national capacity for implementation.
- In alignment with the philosophy of the implementing UN Agencies, CC DARE upholds

the inseparable link between human development and environmental sustainability in its activities and in assessing success and benefits.

- Using evidence-based approach in supporting decision-making processes and in providing actionable learning platform

Delivering at the sub-national level is an effective way for coupling national policies with ground actions of communities. It is often a challenge for many agencies to translate national policies into actions at the local level, and on the other hand, to use community-based actions in formulating national policies following the differences in operational scales and place-specificity in community based actions. However, sub national policies (developed by provincial governments, regions, municipal and local governments, etc.) are often not captured by the current upstream and downstream actions.

While Comminity Based Adaptation (CBA) operate downstream, CC DARE operates in the midstream with both upstream and downstream activities. Whereas CBA projects primarily target their deliveries to the local communities, CC DARE focuses on local governments and institutions responsible for decision-making processes. Consequently, while CBA is using these small actions to empower community actions, CC DARE uses them as demonstrations to serve as evidence-based solutions in feeding policy-making both at the national and sub-national levels, thereby keeping both the actions and the policy on the same national framework.

Using this approach, CC DARE is delivering on the following:

- Supporting national policy-making processes using demonstration actions
- Supporting local-scale decision-making and implementation actions
- Empowering national innovative solutions for adaptation in different sectors
- Building national capacity by demonstrations that provide the space for learning-by-doing
- Generating new knowledge build on the inherent knowledge and skills of the community

Using the sub-national space, CC DARE is enabling the democratization and decentralization of adaptation solutions across space and time, themes and knowledge areas, ethnicity and nations etc. and helping to provide sustainable adaptation. With the wave of devolution of administrative units and powers across many countries in Sub-Saharan Africa, this provides immediate support in integrating climate change into sub-regional planning and programmes.

Rehabilitation of degraded land after relocation of communities in Rwanda

Training, sensitization and awareness

F. PARTNERSHIP BUILDING

Some of the key lessons of building effective partnerships for adaptation include the following:

- Better understanding of partners' priorities and needs
- Promoting pragmatic links between partners and strengthening their networks which helps in providing solutions to their problems
- Encouraging capacity strengthening of partners and institutions
- Ensuring the existence of appropriate structures, organizations and rules and procedures
- Encouraging interpersonal communication
- Merging large and small scale actions for adaptation in a common national framework

There are a wide range of successful partnerships built by the CC DARE programme to foster programming, implementation and achieving the desirable impacts. For example:

- WMO forged a partnership with UNDP/UNEP CCDARE for the digitalization of climate data in hard copies in Africa;
- UNICEF is working with CC DARE integrating climate change into Secondary School Curriculum in Benin;
- MoU signed between Eduardo Mondlane University, Mozambique and Copenhagen School of Global Health(CSGH) under CC DARE activities;
- Ministry of Finance of Senegal and CC DARE -collaborate on the integration of climate change adaptation into budgetary allocations;
- Ministry of Education, Seychelles, and CC DARE collaborate on Rainwater Harvesting in schools;
- This project is being replicated by the Government of Seychelles (Ministries of Education and Environment). This has attracted a lot of donor interest;
- The CC DARE curriculum project on strengthening the capacity of tertiary education in Mozambique through mainstreaming adaptation into university curricula will be funded by DANIDA through 2011-2015.

The CCDARE programme itself is an excellent example of a partnership in action with important lessons for other UN Agencies. The programme is designed along the core strategies of the implementing agencies of UNDP and UNEP, and modeled under the 'One UN Flagship' in delivering support to national programmes of United Nations' member countries that addresses climate change adaptation and resilient development especially in Sub-Saharan Africa. Drawing on the comparative strengths of the two agencies and the ground presence of UNDP, CC DARE is overcoming the constraints faced by the separate agencies.

- The programme activities have triggered other joint programming by UN agencies such as the establishment of MoUs between UNEP and WFP and UNEP and UNICEF.

EDITORIAL

The Togo Initiative as Sustainability Science

"It has always been a dream of mine to see the UN Environment Programme (UNEP) and UN Development Programme join forces. I therefore read with much pleasure the success of the small dams and water harvesting project in Togo, as reported by Johnson Nkem and his UNEP colleagues in this issue in *'Decentralizing Solutions for Rural Water Supply Under Climate Impacts in Sub-Saharan Africa.'*

Tim O'Riordan,

Editor-in-chief

Environment vol 53 (2) March/April 2011

Training, sensitization and awareness

G. PARTICIPATION OF STAKEHOLDERS/ACTORS

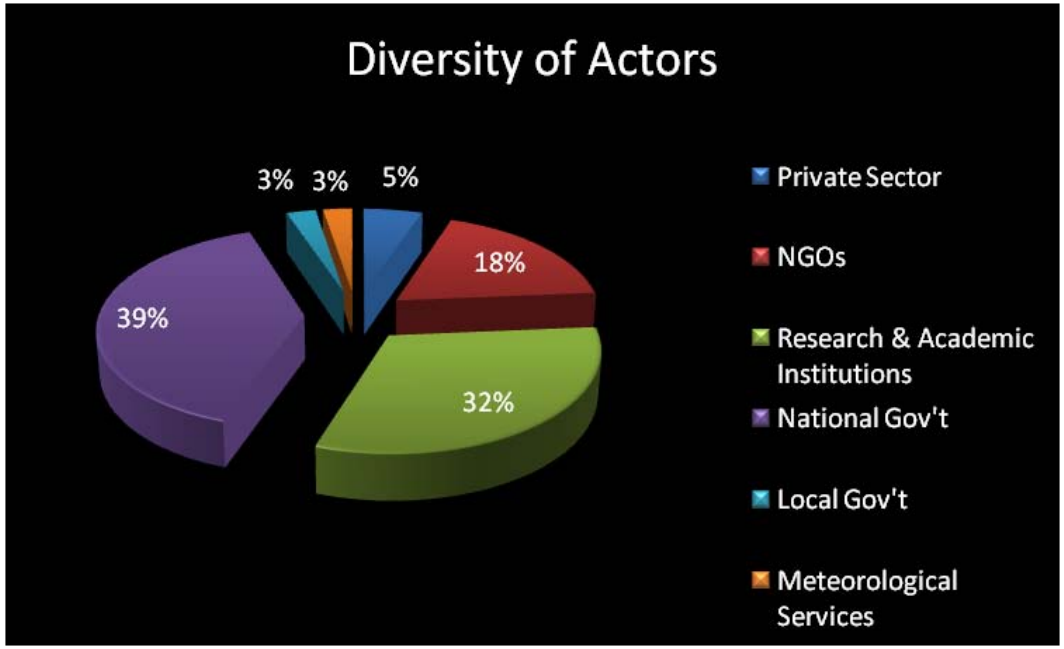
Mobilizing new actors into action for the common purpose of addressing common risks posed by climate change is crucial in increasing the speed of intervention as well as expanding the level of actions.

It is easy to list people, institutions etc as partners or stakeholders but it is another thing to turn them into actors.

Using CC DARE implementation framework with a unique mode of national entry, mobilisation of stakeholders and garnering their participation has been quite successful. This has resulted in achieving diversity in the actors and actions on adaptation.

Country	Raising Awareness	Education & Training	Building capacity	National Planning & Strategy	Restoring Ecosystem	Portable Water	Household Energy	Health	Sea Level & Coastal Erosion	Agriculture	Climate data Management
Benin											
Ethiopia											
Ghana											
Malawi											
Mozambique											
Rwanda											
Senegal											
Seychelles											
Tanzania											
Togo											
Uganda											

Diversification of Actions



Diversification of Actors

There are lessons learnt working with different stakeholders and actors. The transaction and in-kind cost for the implementation of adaptation actions varies with the different actors. For example, working with national governments was more difficult in achieving the desirable speed of implementation. The administrative procedures and bureaucratic processes characterizing government transactions caused lots of delay in project implementation and reporting when compared to NGOs, research and academic institutions and private sectors.

Working with local government was considered the most crucial in achieving optimal policy influence and concrete ground implementation.

Local Communities embrace Togo Water Project.

Rehabilitation of degraded land after relocation of communities in Rwanda

H. INTER-MINISTERIAL AND INTER-DEPARTMENTAL ACTIONS

Fostering collaboration between government ministries and departments can often be a serious challenge to successful project implementation. CC DARE was able to overcome this specific problem in several countries including Senegal, Seychelles and Togo. Encouraging and facilitating joint project implementation by different ministerial departments in a country is crucial for adaptation to climate change and serves as a practical way of mainstreaming climate change into other ministerial departments beyond the Ministry responsible for climate change.

CC DARE brought together the following government ministries to work on the same projects:

A. Senegal

- The Ministry of Environment and the Ministry of Territorial Planning
- The Ministry of Environment and the Ministry of Finance and Economic Planning
- The Ministry of Environment and the Ministry of Agriculture

B. Seychelles

- The Ministry of Education and the Ministry of Environment

C. Togo

- The Ministry of Environment, the Ministry of Agriculture and the Ministry of Rural Water Supply

Integrating climate change adaptation in Seychelle schools

Technicians and local community involved in the hydrological rehabilitation of wetlands in Mozambique

Testing Rainwater Harvesting in Seychelles

I. INNOVATIVE ACTIONS

Alongside adaptation actions designed to address future climate change scenarios, it is important to target actions that offer emerging opportunities as transitional pathways out of poverty. While adaptation actions are formulated to target the climate risks communities are exposed to, CC DARE further identifies and capitalizes on the emerging opportunities following the implementation of an action to address the climate risks.

Some of the innovative solutions implemented by CC DARE include the followings:

- **Mozambique:** recovery and conservation of climate data through digitalization
- **Mozambique:** locally developed bricks and reforestation techniques for floods and erosion control benefited 15,000 people and triggered investment in a local brick manufacturing industry
- **Togo:** Developed and the tested the cost for implementing the rehabilitation of small dams currently serving 13 villages with 20,000 people benefited, and the involvement of women in market gardening
- **Tanzania:** equitable and sustainable woodlot management, used by women to access credit banking on trees as collateral
- **Benin, Malawi and Mozambique:** Curricula integrating climate change into educational programmes at primary, secondary & tertiary levels
- **Seychelles and Togo:** Water harvesting techniques with the costing of the infrastructure
- **Tanzania and Uganda:** Guidelines for woodlot management, mainstreaming climate change, awareness raising etc.
- **Mozambique:** Guidelines for Integrated Coastal Zone Management (intergrating ICZM, climate changes and natural resource management)
- **Ethiopia:** Adapting bee farming to climate change by modifying beehives to enhance the acclimatization of bees to warming conditions in protection of the colony

Emerging Leaders

The implementation of national projects in the agricultural sector, has resulted in the emergence of a new group of leaders, in various local communities following the successful implementation of their activities. By such a meritorious recognition of excellence, practice leaders are serving as role models in their communities and helping others in improving their practices. With the weak and limited extension services in many countries, these practice leaders have critical roles to play for adaptation by catalyzing uptake of good practices and powering capacity development in their communities.

- Malawi is using farmer leaders to fast-track training of other farmers
- Ethiopia is using model farmers in promoting successful practices
- Uganda is also using model farmers emerging from the implementation of the activities

Ethiopia: Bee farming

Mozambique: New adaptation techniques to avert erosion in Xai Xai province

J. CATALYTIC ACTIONS

The timely, flexible and targeted interventions of the CC DARE programme are catalyzing larger framework for national adaptation programmes and policies in different ways. In some countries, it serves as a pilots in preparing bigger projects while in others, it identifies solutions that are upscaled by bigger programmes..

Linkages to Larger Initiatives

- **Senegal** - The Africa Adaptation Programme (AAP) is using CC DARE country project outputs on the historical trend of sea level rise, and the simulations of the effects of sea level rise on the coast line
- **Senegal** - The Centre Suivie d'Ecologie built their proposal funded by the Adaptation Fund , the first of its kind as a National Implementing Entity (NIE) on CC DARE activities.
- **Mozambique** - AAP is funding the continuation of the digitalization of the climate data into an electronic database started by CC DARE.
- **Rwanda** - The Land Use and Land Use Suitability Map prepared by CC DARE is used by AAP. Fostering collaboration between government ministries and departments can often be a serious challenge to successful project implementation. Land Use and Land Suitability Map prepared under CC DARE, is in the country
- **Central African Republic (CAR)** – The Secondary School curriculum developed with the support of CC DARE in Benin will be used for LDCF implementation in CAR.
- **Ethiopia** – Agricultural projects will support LDCF implementation

Rehabilitation of degraded land after relocation of communities in Rwanda

Digitalization of the climatic data for an electronic database in Mozambique

K. ACCESSING FINANCING FOR ADAPTATION

The continued financing of adaptation through national, bilateral and multilateral sources of funding is crucial for the sustainability of successful adaptation actions on adaptation. The implementation of CC DARE national project activities provided the catalysis in spurring funding for adaptation both national and international.

1. Prompting National Financing for Adaptation

The successful implementation of CC DARE projects in countries has spurred national budgetary allocations for adaptation for up scaling the activities that were conducted. For example:

- The Land Suitability Planning model applied in the Gishwati district of Rwanda with CC DARE support is being replicated by two national projects supported by GEF and AAP, UNDP/Japan. The Government of Rwanda has allocated 25 million USD to implement the plan in the relocation of displaced communities during the genocide period, currently settled on slopes prone to climate risks such as landslides and soil erosion.
- Following successful CC DARE national project implementation, the Government of Ethiopia plans to provide credit bonds/guarantees to enable projects to access loans from cooperatives and banks to replicate and upscale their activities to ensure sustainability

2. Accessing additional Financing for Adaptation

The CC DARE national projects have paved the way in many instances for accessing bigger funding. The projects have improved national capacity of the proponents and their institutions in the elaboration of project proposals as well as implementation capacities. These are crucial aspects in building national capacity and in preparing countries as National Implementing Entities (NIE) for the GEF, Adaptation Fund the Green Climate Fund. etc. For examples:

- The CC DARE project under the National Agricultural Research Organization in Uganda was able to access USD 481,000 from the Rockefeller Foundation to continue with their activities on capacity building on CCA.
- The climate data and trend analysis produced by the CC DARE Data Recovery project in Mozambique is being used by other institutions for modeling and designing of

Greening schools in Seychelles

Climate Change Adaptation (CCA) programmes and projects. The project has been extended by AAP in by adding USD 117,000 to replicate and up scale the activities across other regions in the country.

- Senegal: the Centre Suivie d'Ecologie built on CC DARE activities in their proposal to secured USD 8.6M from the Adaptation Fund
- Benin: Successful implementation of a CC DARE project in agriculture has been used to secure USD 11.3 M from GEF Least Developed Country Fund (LDCF)
- Mozambique: Completion of CC DARE projects served as case study that helped to secure USD 13.3M from LDCF

Technicians involved in the nursery in Mozambique

Rehabilitation of degraded land after relocation of communities in Rwanda

L. SPURRING NATIONAL PROGRAMMING FOR ADAPTATION

The mainstreaming outcomes of CC DARE actions in countries can be viewed through another lens in spurring national programming for climate change adaptation and triggering the up-scaling and replication of the actions in national development programmes. For example:

- CC DARE inspired the setting up of the Climate Change Adaptation Unit within the Environment Protection Agency in Ghana.
- In Uganda, the National Strategic Investment Plan for Agriculture has already been revised to take on board climate change issues, ready for implementation.
- Through experience-sharing seminars organized in Mozambique & Seychelles, the participating countries developed and signed up to the Maputo Climate Action declaration which ushered the birth of an actionable knowledge sharing platform, Climate Action Learning Network (CALNet), for practitioners drawing from lessons learnt with signatories of 8 countries (Togo, Seychelles, Ethiopia, Mozambique, Benin, Senegal, Tanzania & Malawi).

A. Implementation of sub-regional activities

- Senegal - the local councils of Refusque and Barni are implementing city programmes developed through the CC DARE projects on adaptation to sea level rise and coastal erosion.
- Mozambique - the Xai Xai Muncipal council led by the mayor, is addressing inland flooding and erosion by river Limpopo due to heavy rainfall using locally manufactured bricks and reafforestation techniques for adaptation developed under the CC DARE project activities.

B. Up-scaling and Replication

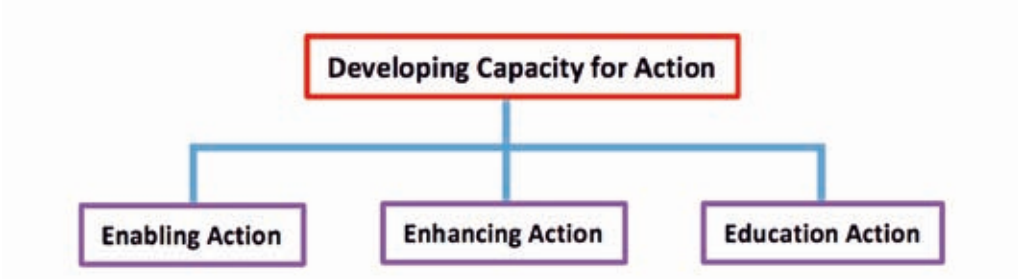
- Finnish government has picked up funding the replication of the woodlot project in Tanzania.
- The rainwater harvesting project in schools is being replicated by the government of Seychelles

CC DARE Rainwater harvesting project in Seychelles

Automatic weather stations installed in Seychelles

M. LEARNING PROCESS LESSONS

The CC DARE Programme has developed a learning process using concrete actions conducted by countries to build the capacity of actors and institutions, and integrating the climate change actions into national programming.



- Enabling capacity prepares people or the environment for action
- Enhancing capacity improves people's ability for implementing action
- Education capacity provides long-term, formal or informal training that targets structured learning

a. Knowledge generation

- CC DARE uses concrete actions as the medium for generating new knowledge that couples local knowledge into the process of finding solutions to the problem
- Local sources of materials and additional capacity needs are identified in the process

b. Action learning networks

- Regional platforms are used for experience sharing, paving the way for providing regional solutions for adaptation and transition into the green economy and resilient development

c. Knowledge materials developed

a. Curricula integrating climate change into educational programmes at primary, secondary & tertiary levels

b. Water harvesting techniques with the costing of the infrastructure

c. Guidelines for woodlot management, mainstreaming of climate change, awareness raising etc.

Schools in Seychelles Harvest Water for Adaptation to Climate Change

443 Million school days are lost every year because of water- and sanitation-related diseases (UNDP Human Development Report, 2006)

'Safe and clean drinking water and sanitation is a human right'

Declaration of UN General Assembly Resolution A/RE/64/292 of 26 July 2010

'The task at hand is to translate the commitment to provide access to clean water and adequate sanitation into action'

Ban Ki-moon

UN Secretary General

CC DARE Provides Actionable Solutions

Rainwater Harvesting in Seychelles schools

Integrating rainwater harvesting into Seychelles schools curriculum

Sustainability of Implemented Actions

The successful implementations of CC DARE Programme activities has triggered national takeover of the actions, ensuring their sustainability. For example in Rwanda.

Rwanda

Relocating Communities from Extreme Climate High-Risk Zones

Nairobi, 17 September 2010 – Once home to populations of Chimpanzees and Golden Monkeys, the sloping terrain of Rwanda's Gishwati Forest has in recent decades suffered severe environmental degradation - made worse by devastating climatic disasters. Landslides, floods and torrential rain claimed lives, demolished human settlements, and destroyed thousands of hectares of forest and farm land. A UN-led project and a generous allocation from the Government are brining hope to the region.

In an effort to reduce the vulnerability of local communities and the ecosystem to climate change impacts, the Government of Rwanda - guided by a UN pilot project that mapped and developed a comprehensive plan for land suitability and use - allocated USD $25 Million to relocate human settlements from Gishwati to safer zones.

The Climate Change and Development project – Adapting by Reducing Vulnerability (CC DARE) – is jointly implemented by the UN Environment Programme (UNEP) and the UN Development Programme (UNDP) with funding from the Danish Ministry of Foreign Affairs.

Using small funds for targeted short-term activities, that do not exceed a six-month period, the programme helps countries in Sub-Saharan Africa and small island states integrate climate change adaptation into national development planning and decision-making. Demand-driven, CC DARE is designed to complement and strengthen ongoing and planned adaptation and risk management activities, based on national priorities.

Rehabilitation of degradated land after relocation of communities in Rwanda

Woodlots in Tanzania

Climate change has been integrated in Benin education curriculum.

N. LESSONS LEARNT – THE VIEWS OF ACTORS

This section provides lessons learnt by the actors through the implementation of the individual projects in countries as narrated by the actors. This represents another layer of project lessons in the views of the beneficiaries.

Benin

Project Title: Projet de renforcement des capacités d'Adaptation des communes de l'Alibori face aux changements climatiques

Leçons apprises:

« *Le projet CCDARE mis en œuvre par l'ONG IDID est venu en appui au projet PARBCC financé par le programme ACCA du CRDI et du DFID. Dans cette vision, les activités prévues émanent des besoins spécifiques des communautés et viennent pour renforcer les actions entreprises. Plusieurs leçons sont à retenir de la mise en œuvre du projet mais celle qui méritent d'être diffusées à d'autres départements voire pays ou sous région, etc. se résument comme suit :*

1. ***Intégration des options d'adaptation dans les PDC :*** *l'élaboration des PDC n'avait pas du tout prévu la prise en compte de la dimension changement climatique; toutes les actions prévues relevant du domaine de l'environnement concernent essentiellement les actions de reboisement. Pourtant, le département de l'Alibori est le plus vulnérable aux effets néfastes des changements climatiques d'après le PANA et les études réalisées par le PARBCC. Les acteurs chargés de la conduite des PDC et de leur mise en œuvre ont reconnu l'importance de prendre en compte ces aspects dans les PDC compte tenu du caractère de fil directeur du développement que revêt de document dans un contexte de décentralisation. En effet, toutes les initiatives et actions découlent de ce document. Il apparaît donc très important d'étendre cette bonne pratique aux autres communes et départements du Bénin voire aux autres pays. L'intégration de l'adaptation à la planification du développement doit être une priorité pour les décideurs à tous les niveaux. Il faut enfin noter que les autres départements manifestent vivement le besoin de bénéficier du*

même appui dans le processus d'élaboration de leurs PDC deuxième génération.

2. ***Les comités de gestion des risques et sinistres liés au climat*** *: ce sont des organes de réflexion, de concertation et d'action pour anticiper la survenue des catastrophes naturelles et gérer les sinistres en cas de catastrophes. Les phénomènes extrêmes climatiques deviennent récurrents dans la plus part de nos communes surtout dans ce département très vulnérable. Lorsqu'un de ces phénomènes survient, la municipalité se trouve désarmée face à l'étendue des dégâts et ne sait pas vraiment comment aider les populations sinistrées. Ces comités constituent un cadre de concertation entre tous les acteurs intervenant dans la commune pour des actions concertées en cas de sinistres climatiques.*

3. ***Participation active de toutes les parties prenantes à la réduction de la vulnérabilité des communautés locales aux changements climatiques :*** *la concertation entre tous les acteurs (élus locaux, cadres techniques, décideurs politiques, services de vulgarisation, ONG, populations concernées, etc.) permet de trouver des solutions adaptées aux réalités du milieu et d'assurer la contribution de tous dans leur mise en œuvre. En effet, les diagnostics conduits aux niveaux village, arrondissement et commune avec la participation de toutes les parties prenantes à permis d'établir une carte de vulnérabilité de la commune (définissant les zones à risques) ainsi qu'une carte d'adaptation (définissant les mesures adéquates). Ceci permis d'avoir une vue globale sur les manifestations climatiques dans la commune ainsi que les actions envisagées pour réduire la vulnérabilité des populations avec la contribution de chaque acteur impliqué."*

The entire coastline of Benin is threatened by sea level rise.

Coastal erosion in Benin

Coastal erosion in Senegal

Senegal

Project Title: Projet de Sensibilisation des populations et des élus pour une intégration du risque climat dans les documents de planification du développement local

Leçons apprises:

"Le projet de sensibilisation des populations et des élus sur l'intégration du risque climatique dans les outils de planification locale a permis d'obtenir un certain nombre d'acquis que nous pouvons formuler en ces termes.

La prise en compte des facteurs climatiques dans le contexte du développement local, répond surtout à un principe de précaution dont l'objectif est d'identifier et d'analyser les paramètres climatiques qui pourraient constituer des contraintes majeures à la réalisation d'un développement local durable.

Le projet a contribué dans ce sens à apporter aux différentes cibles les moyens et capacités à comprendre, à analyser et à intégrer leurs préoccupations environnementales dans les différents cadres (formels ou informels) et instances de prise de décision existant au niveau local.

Le second acquis réside dans l'engouement suscité par le projet auprès des populations et élus qui entrevoient à travers celui-ci, un règlement, dans le court et moyen terme, des problèmes d'adaptation auxquels ils font face. Cela s'est traduit par une prise de conscience collective du péril environnemental (érosion côtière) qui menace la survie des populations du littoral.

Le troisième acquis revêt un caractère institutionnel car les différentes structures impliquées dans le cadre de ce projet ont expérimenté une nouvelle manière d'approcher les changements climatiques dans un contexte local fragilisé.

L'approche qui consiste à responsabiliser les populations dans la recherche de solutions endogènes, adaptées et durables d'adaptation pour le règlement d'un phénomène précis, doit faire l'objet d'une réplicabilité dans des zones vivant les mêmes réalités."

Togo

Project Title: Rehabilitation de Retenues D'eau dans la Region des Savanes au Profit des Groupements de Femmes et de Jeune

Leçons apprises:

"La mise en oeuvre du présent projet a permis de tirer beaucoup de leçons, dont les principales sont:

1. *Il existe des connaissances et des savoirs-faires endogènes en matière d'adaptation. A titre d'illustration, les populations locales, afin de stabiliser les digues, font recours à l'enherbement*
2. *Les changements climatiques sont un réel défi pour le développement au Togo, particulièrement lorsque leurs impacts se combinent avec la dégradation des terres/désertification. En effet, la région des Savanes est une région située à la frontière avec la zone sahélienne où le phenomena de dégradation des terres est d'actualité et les signes précurseurs de la désertification sont visibles. De plus la région est victime de variabilités climatiques sévères qui exacerbent la dégradation des terres, intensifiant ainsi la pauvreté des populations. Par conséquent, les impacts des changements climatiques au Togo seront probablement plus importants encore en se combinant avec le phénomène de la désertification et c'est ainsi que les changements climatiques constitueront un important défi pour le développement du pays.*
3. *La maîtrise de l'eau est la priorité en matière d'adaptation aux CC au Togo. Il découle de la mise en oeuvre du présent projet pilote que la maîtrise de l'eau constitue au Togo, le déclic du développement. Elle est déterminante pour la survie de l'homme et la diversité biologique.*
4. *La pauvreté exacerbe la vulnérabilité aux changements climatiques (résilience). En effet, l'état de pauvreté des bénéficiaires et le manque de ressources financières au niveau de l'Etat ont longtemps bloqué l'élan de développement et de lutte contre la pauvreté dans la région des Savanes. Cette situation a réduit la capacité de réponse du pays et des bénéficiaires face aux adversités du climat (résilience). Dans cette situation, l'avènement de changements climatiques comme prédit dans le quatrième rapport du GIEC constituera un vrai désastre. En cela, le programme CC - DARE constitue une approche à encourager.*
5. *Le projet constitue un ensemble d'activités à réaliser dans un contexte incertain et imprévisible, où l'innovation et la prise de risques sont indispensables. Le terrain impose l'action et avoir un esprit d'innovation et savoir prendre des risque sont indispensable pour le succès. En effet,*

Small dams rehabilitation for rainwater harvesting in Togo

Small dams rehabilitation for rainwater harvesting in Togo

conformément à la morphologie des sites, les ouvrages ont été réhabilités de manière bien spécifique. De même, lorsque de nouveau besoins sont manifestés par les bénéficiaires, le promoteur est obligé d'innover au risque de vouer son projet à l'échec. Aussi, face aux nouveaux besoins et réalités de terrain, la CNC a pris beaucoup de risques au point où le budget devint largement insuffisant.

6. *L'efficacité d'une mesure d'adaptation aux changements climatiques dépend de la prise en compte de la lutte contre la pauvreté. Elle est en même temps une approche de lutte contre la pauvreté. En effet, la réhabilitation/construction d'une retenue d'eau n'est pas une fin en soi. La sensibilisation sur les risques liés à la pollution de la ressource, l'appui technique et institutionnel aux bénéficiaires et l'octroi d'équipements et de matériel de production y font également partie intégrante.*

7. *L'adaptation n'est pas gagnée pour l'agriculture de subsistance. Lors de la mise en oeuvre du présent projet, il est apparu que, pour amener les ruraux à adapter leurs pratiques agricoles aux changements climatiques, il est nécessaire de les aider à passer de l'agriculture pluviale à une agriculture irriguée ; ce qui suppose l'abandon de leurs pratiques traditionnelles qui les condamnent à la subsistance. Il s'agira alors de passer au stade d'entreprise agricole qui produit de réels bénéfices."*

Women in Togo jubilate following the successful CCDARE water project in rehabilitating small dams for rainwater harvesting and providing year-round water

Tanzania

Project Title: Identification, documentation and dissemination of indigenous knowledge forecasting to adapt to climate change within selected communities in Tanzania

LESSONS LEARNED

Indigenous Knowledge (IK) on weather forecasting is still widely used in many rural areas of Tanzania. This is particularly true given the limited coverage of the conventional weather forecasting done by Tanzania Meteorological Agency (TMA). In addition, there have been some challenges regarding the trickle down of information generated by TMA, which sometimes either fails to reach remote rural poor at all or reaches them too late for planning purposes. The generated information on modern weather forecasting is not digested enough to be meaningful for people with low level of education. Even though TMA has been disseminating the information through various media such as radio, TV and newspaper to ensure wide coverage and timely deliverythey have faced significant challenges related to the size of the country and the limited infrastructure currently available.

Indicators of IK for weather forecasting are fast disappearing due to ecosystem destruction and modification, e.g. deforestation, fire, introduction of alien species, etc. A great number of indicators discussed under the CC DARE project in Tanzania (e.g. animals, birds, insects) are observed well in the natural environment/habitat. The destruction of the habitats as it is happening currently poses major threats to the presence of these indicators in the future.

IK for weather forecasting is mostly held by old people through a long term accumulated experience and no serious efforts are taken to transfer this potential knowledge to the youth. As a result the availability of the current IK forecasting in the future is in great danger zone."

Focus group discussion is critical to developing climate change adaptation strategies with communities..

2. **Project Title:** Improving smallholder livelihoods through woodlots management: an adaptation to climate variability & change in Makete District, Tanzania.

Lessons learned

"In Makete district people practise woodlot farming as an adaptation strategy following agricultural crop failure. It is important to stress here that when people face problems associated with climate change they develop coping strategies by themselves or with little assistance from the government or local governments. While adopting the coping strategies, they use their indigenous knowledge which is scattered among them. It is the duty of researchers and extension officers to pack the scattered local knowledge and integrate with the scientific knowledge in order to impart good practices to the local communities."

Focus group discussion for planning adaptation actions

Mozambique

1. **Project Title:** Recovery of the historical climate database

Lessons Learned

" The project which lasted about 6 months proved to be very effective in the rescue of valuable climate data for the period 1909-1950 for Mozambique. Important lessons were learnt in this process of rescuing data:

1. *It was assumed in the inventory process that the archives were all similar and the counting of the maps was based in the number of years indicated in each batch of maps of each station. This proved to be wrong, as the methods of observations, instruments and recording of the data changed with time. This was overcome by the involvement of experienced people in the project supervising all the process. However, as a result of these incorrect assumptions, the cost and time needed for the project was underestimated;*
2. *There is a need for more care in future inventories of climate data processes, due to the problems indicated in 1;*
3. *The interaction with other international institutions in the field of meteorology and climate showed to be very helpful in the analyses of data, in short time, with small funding, providing the country more information in terms of climate change at country level."*

2. **Project Title:** Sustainable development of Govuro Coastal Zone through adaptation to climate change using a community based integrated coastal zone management approach**.**

Lessons Learned

- *"Existing will of the local Government, technicians and village population: The willingness of the technicians and village population to practice self-help in connection with resource-conservation measures grew with the progress of the implementation of the project.*
- *The existence of village level organizations: The existence of organizations at the village level*

in the project area (both traditional ones and those established by Government) has been highly advantageous for the project because they have facilitated the communication and data gathering.

- *The method of land use planning makes a difference: The village (participatory) land use planning approach used is successful, because it is performed within the context of a dialogue between the villagers and the project. The villagers contribute knowledge of and experience with the environment, and this body of information then constitutes the basies for joint analysis of the main problems and identification of the ways to address them. This approach has stimulated positive changes in attitudes and behaviours in the villages. The village's population is gaining a new perspective, encouraging it to endeavour more strongly to conserve its natural resources.*

3. **Project Title:** Introduction of new techniques for adaptation to climate change related top soil erosion in Xai-Xai City

Lessons Learned

- *"Adaptation options must be consistent with national development plans and priorities. This enables them to be easily incorporated into the national and local development activities;*
- *Public education and awareness raising is a central component of adaptation strategies;*
- *Involvement of the vulnerable communities is crucial for adaptation strategies;*
- *The building of technical and institutional capacity to respond to climate change must be an ongoing process because of complexity of the problem and emerging issues which need to be addressed."*

The Mayor of Xai Xai involved in field actions for adaptation in her muncipality

The citizens of Xai Xai, Mozambique construct and maintain soil erosion and sand stabilization walls landscaped with vetiver grass and shrubs in the city to serve as adaptation measures to climate change and sea level rise induced erosion and destruction of properties.

Seychelles

1. **Project Title:** Adaptation by increasing climate monitoring and climate change assessment in the Seychelles

Lessons Learned

"The lessons learned during the project include:

- *Sound preparation and good knowledge of the correct equipment is essential for a project to meet its goals within the planned time-frame, especially in a short project.*
- *It is vital that the monitoring network of stations is maintained for the continuity of the project.*
- *Local strong partnership of government department (SNMS) and Public Trust (SIF) was essential to achieve the project's aims, and flexibility and teamwork on both sides ensured success.*
- *Support, in terms of equipment upgrading in the future, is vital for keeping up with the technological advances as well as scientific needs.*
- *Due to the distance and remoteness of the Seychelles Islands and the small size of the population, ensuring that provisions were made for capacity building (training) improved the efficiency of the project."*

Automatic weather stations installed in remote locations in Seychelles to support weather services

2. **Project Title:** Building capacity in sediment dynamics, coastal erosion, adaptation, flood management and shoreline management.

Lessons Learned

"The aim of the project "Building capacity of relevant Institutions and that of important stakeholders both at the technical and management level in shoreline management and climate change adaptation" was accomplished through a one week workshop. This method of achieving the aim of the project is one which was most appropriate to fit the purpose of the issue to be addressed. This is because it is one which is; implemented in a good timely manner (one week being sufficient), is able to bring together in one location a large group of stakeholders and relevant personnel within the sector for training, is interactive and uses local perspectives through field work to bring a hand-on perspective of the issues being dealt with. Therefore, this methodological approach has been relevant in terms of overcoming the barriers within the sector. It has been appropriate for the purpose of building knowledge and increasing competency in decision making of relevant personnel within institutions through the use of techniques such as lectures (presentations) by expert consultants, discussions inside and outside the room, and field activities including analytical activities and observations on sites. The use of textbooks for reference and tools like GPS for field work and data collection were some of the other means applied to achieve the outcomes. The mentioned techniques were very explicit and of quality to enable relevant personnel to have concrete sources of information to make appropriate decisions reflecting the nature of the problems identified."

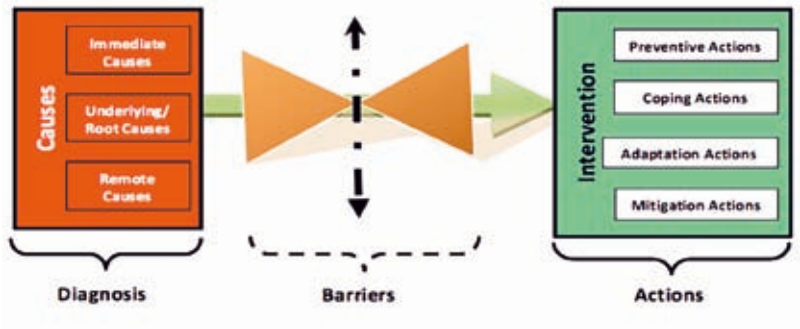
Sea shoreline capacity building in Seychelles

Rainwater harvesting in Seychelles schools

O. REMOVING BARRIERS - LESSONS LEARNT

1. Causes and Barriers to Actions

There are fundamental differences between causes and barriers. While causes are responsible for the problems, barriers are the limitations to solutions to the problems. Most often, causes and barriers might not necessarily have a common genesis and diagnostic approaches which easily puts barriers outside the focus of planning processes. Thus, while more attention is given to the causes of a problem during planning, very little or no considerations are put on the barriers to intervening actions in solving the problem, which can severely, jeopardize the intended outcomes. The transition between the diagnosis of the problem and taking appropriate response action is an important gap to fill in a strategic planning.



Schematic relationship between causes and barriers

Interestingly, despite the fact that causes and barriers could be fundamentally different, barriers are not necessarily independent from the causes since they are both linked to a common problem and requires a common pathway in finding a solution. Addressing barriers could therefore constitute the first layer of intervention or considered to be within system intervention in addressing the causes of the problem which in some instances can actually provide the solution to the problem. If properly identified therefore, overcoming barriers implicitly addresses the causes of the problem and guide the nature of the intervention in providing resilience to future impacts.

Coastal erosion in Senegal

2. Addressing Barriers to Adaptation Actions

Following the nature of barriers, it is important in addressing barriers aimed at solving the problem in question. It is therefore important to approach barriers in the following ways:

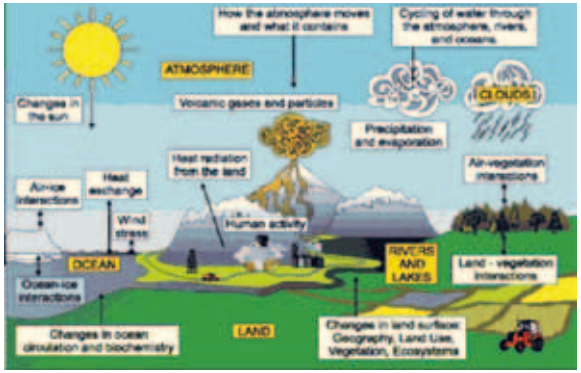
- Barriers within a bigger framework
- Barriers to new actions
- Barriers in consolidating actions in place and making them resilient to future impacts

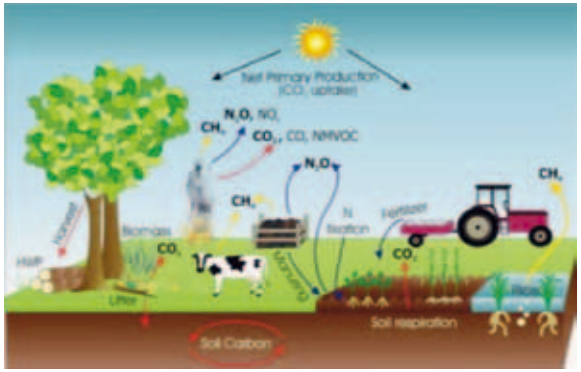
In this way, the causes and the barriers are tackled as complementing units in a result-based planning.

Building on established systems for the implementation of adaptation, as an add-on value, the the programme is based on functioning within these current systems and programmes for adaptation such as Community Based Adaptation (CBA), National Adaptation Programme of Action (NAPA), Ecosystem Based Adaptation (EBA), Least Developed Country Funds (LDCF) etc in identifying and removing system barriers for the optimization of their outcomes, speed and efficiency in delivery. Following the identification of the barriers, well targeted and timely actions will be put in place to overcome them. Besides barriers for implementation, potential barriers that can compromise the sustainability of the actions will also be identified and addressed. Furthermore, following the dynamic nature of adaptation with no definitive endpoint, there is a feedback mechanism built into the concept to address emerging barriers in the system over time.

As a programme build on empowering self-determination actions on adaptation at any level and scale, participatory action approach following the engagement of the relevant stakeholders and actors into a dialogue platform for the planning process and implementation of each activity will be used. Whatever level is the seat of the action, a network will be constituted around the action by the identification and engagement of potential users, interested partners and stakeholders from other levels. How countries identified and addressed barriers in their nationally implemented projects are provided as important lessons learnt. Where available, baselines are provided to judge the progress made in overcoming implementation barriers.

The Bunda College of Agriculture and Natural Resources Curriculum in Malawi involves school children, technicians and local communities in issues related to Climate Change Adaptation





Illustrations in the Pupils' and Teachers Guide Book of the Secondary School Curriculum of Benin

3. Country Lessons in addressing Barriers to Adaptation Actions

Benin

Barriers on mainstreaming adaptation

In collaborating with the CC DARE Programme, Benin presented as barriers:

1. inadequate knowledge on the climate change risks affecting the country, level of vulnerability of the various categories of the population and the national economy, and adaptation options available to face the challenge in-order to effectively adapt to the consequences of the changing climate; and
2. Inadequate institutional capacity to address the challenges of climate change at the local level.

Actions to remove barriers

1. The GARDIEN (Groupe d'Action et de Recherche pour le Développement des Initiatives Endogènes et Novatrices) NGO and the Ministry of Education of Benin collaborated to update the Secondary School Curriculum of Benin by integrating climate change concerns into the Curriculum.

2. The IDID (Initiatives pour un Développement Intégré Durable (IDID - ONG) NGO of Benin collaborated with Local Governments of Alibori Region to build the capacities of Mayors, elected Councilors, staff of Extension Services, and Community and Opinion Leaders of the Region on addressing climate change issues through on-the-location training and public sensitization through mass media.

Opportunities Created

1. Enhanced capacity through training and sensitization workshops for pupils, teachers and other stakeholders in the Education Sector;
2. A strategy for integration of climate change concerns into programs of the secondary school education is developed; School teaching aids on climate change impacts and adaptation strategies are developed, tested and published.
3. One Hundred and thirty-five (135) local government staff, 13 central government extension agents, 11 representatives of Women Groups, 11 representatives of Civil Society Organizations and 7 representatives of the Private Sector in the Alibori Region trained and sensitized on climate change;
4. Constitution of Local Climate Risk and Disaster Management Committees in the Alibori Region of Benin
5. Technical Guidelines on the integration of climate change adaptation options in the Local Government Investment and Development Plans is produced and disseminated.

Flooding in Benin

Major Impacts of Climate Change in Ghana

Floods

Displaced Communities

Crop failures

Ghana

Barriers on mainstreaming climate change adaptation in Ghana

Lack of a proactive, targeted and cost effective strategy that increases the long-term resilience of the population and economy of the country under the changing climate is a serious barrier in Ghana.

Actions taken to remove barriers

1. Ghana and international partners agreed to update an existing National Climate Change Adaptation Strategy (NCCAS) that was initially drafted but found to be incomplete;
2. Conducted national level, sector-specific and cross-sectoral scoping meetings to identify gaps in the draft NCCAS, develop strategies to address these gaps and to develop sector-specific and cross-sectoral work plans for the updating of the sectoral and cross-sectoral parts of the NCCAS. Twenty (20) representatives of Community Based Organizations, Civil Society Organizations (CSOs), local and international NGOs and private sector entities and 30 Senior Government and Academia representatives participated in the identification and updating of gaps as well as cross-sectoral issues in the draft NCCAS related to the specific sector

Major Impacts of Climate Change in Ghana

3. Collated and review available information from studies on Climate change risks reduction.
4. Organized workshops for Parliamentarians, Chief Directors, Heads of relevant agencies, Community Based Organizations (CBOs), Civil Society Organizations (CSOs), local and international NGOs and private sector organizations
5. Updated the draft NCCAS document
6. The Updated Draft National Climate Change Adaptation Strategy (NCCAS) will now go through validation, endorsement and launching processes involving stakeholders from Central and Local Governments, Private Sector, CBO/CSO/NGO communities, Development Partners and On-going and Potential Climate Change Adaptation Initiatives in Ghana.

Opportunities created

1. Partnerships have been built to take climate change implementation forward
2. Ghana has a solid Draft National Climate Change Adaptation Strategy that (a) ensures a consistent, comprehensive and a targeted approach to increasing climate resilience and decrease vulnerability of the populace; (b) deepens awareness and sensitisation for the general populace particularly policy makers about the critical role of adaptation in national development efforts; (c) positions Ghana to draw funding for meeting her national adaptation needs; (d) strengthens international recognition to facilitate action; and (e) facilitates the mainstreaming of climate change and disaster risk reduction into national development.

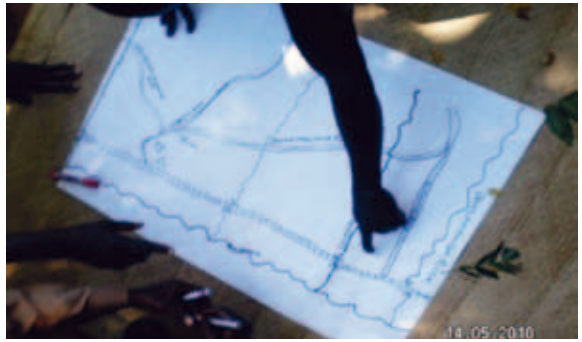
Malawi

Barriers on mainstreaming adaptation

In partnering with the CC DARE Programme to mainstream climate change adaptation into her national development programmes, Malawi presented the lack of climate change integrated (1) curriculum, (2) local government plans and in (3) sectoral policies.

Actions to remove barriers

1. The Departments of Agriculture and Natural Resources Management of the Bunda College at the University of Malawi Project worked together and developed four climate change modules in both English and Chichewa and a climate change integrated curriculum at the Master of Science degree (MSc.). Students, Teaching staff and communities were fully involved and capacitated.
2. The Forestry Research Institute of Malawi (FRIM) developed information package on the needs of the communities of the impoverished Blantyre North Area to strengthen the management of the regions natural resources and enhance their resilience under a changing climate.
3. The Coordination Union for the Rehabilitation of the Environment (CURE) NGO worked with Village and Area Development Committees, and the Karonga District Assembly to develop the climate change integrated Contingency Plan of the Kagonga District. The capacity of 150 representatives from the Area Civil Protection Committee (ACPC) and 142 representatives of Village Civil Protection Committee (VCPC) were built through training on climate change and its integration into Local, District and National Plans



The Bunda College Agriculture and Natural Resources Curriculum involved school children, technicians and local communities

The Bunda College Agriculture and Natural Resources Curriculum involved school children, technicians and local communities

4. The National Commission for Science and Technology (NCST) revised its Policy by integrating climate change concerns and also proposes to review and revise the NCTS Act as soon as the NCST Policy is operationalized.

The actions can be replicated and up-scaled in other institutions of learning and national sectors necessary for national development under a changing climate.

Opportunities Created include:

1. A climate change integrated curriculum for the Master of Science degree (MSc.) programme and four climate change modules in both English and Chichewa are available at the Bunda College of the University of Malawi Project and guarantee continues and sustainable development of a critical mass of trained technicians and local communities;
2. The climate change information package developed and available at FRIM provides the needs of the communities of Blantyre North Area with a tool to strengthen the management of the regions natural resources and enhance the resilience of the communities to a changing climate.
3. The development and availability of the climate change integrated Contingency Plan of the Kagonga District provides the District Assembly and the communities with a tool to address risks and adaptation to the adverse effects of climate change.
4. With the climate change integrated Policy, the National Commission for Science and Technology (NCST) of Malawi has set the pace in the country for other sectors to emulate for holistic national development under a changing climate.

Mozambique

Barriers on mainstreaming adaptation

Mozambique put forward (a) the unavailability of long-term climate data in the most appropriate and easily usable format, (b) the inadequate capacity and tools to address the serious loss of soil and property in coastal cities such as Xai Xai, (c) the lack of community based coastal zone management plan, and (e) the lack of climate change integrated curriculum especially at the University level as barriers to mainstreaming climate change adaptation into development frameworks.

Actions to remove barriers

1. The National Meteorological Services (INAM) in collaboration with 114 representatives of relevant partners, inventorized, digitized, processed and achieved the available climate data of Mozambique for the period 1909 to date.;
2. The Centre for Sustainable Development of the Ministry of Environment produced an Ecological Zoning Map and Management Plan to be used for the management of the coastal zone of Guvuro;
3. The Municipal Council of Xai Xai led the citizens of the city to construct and maintain soil erosion and sand stabilization walls landscaped with vetteverd grass and shrubs in the city to serve as adaptation measures to climate change and sea level rise induced erosion and destruction of properties
4. The Physics Department of the University of Eduardo Mondlane (UEM) of Mozambique collaborated with other national, regional and international educational institutions and used extensive consultation and capacity building efforts to develop a Curriculum for a Masters Degree on Disaster Risk Management and Adaptation to Climate Change (MDRMACC).

Opportunities Created include

1. Availability of digitized and processed climate data for the period 1909 to date at (INAM) will increase the Agencies performance in meetings its mandate at the national, regional and global levels;
2. Availability of Ecological Zoning Map and Management Plan at Guvuro has enhanced the

Inventorization, Digitization, Processing and Quality Control were tedious but rewarding to INAM and Mozambique

The Municipal Council and citizenry of Xai Xai have the tool and capacity to address soil erosion and its consequential damage to infrastructure and personal property as a climate change adaptation measure

capacity of the Municipal Council and the community to adopt and use the tool for community-based coastal zone management as climate change adaptation measure;

3. The Municipal Council and citizenry of Xai Xai have the tool and capacity to address soil erosion and its consequential damage to infrastructure and personal property as a climate change adaptation measure;and
4. The University of Eduardo Mondlane (UEM) of Mozambique has a Curriculum for a Masters Degree Programme on Disaster Risk Management and Adaptation to Climate Change (MDRMACC) for the continuous development and production of the required critical mass on disaster risk reduction and climate change adaptation.

Before the rehabilitation at Xai Xai , Mozambique

Rwanda

Barriers on mainstreaming adaptation:

Barriers to integrating climate change adaptation into the national development frameworks of Rwanda include (a) low awareness and lack of media materials and guidelines on developing and reporting climate change information, and (b) old and obsolete Area and District level Land Suitability Maps and Plans, especially for the Gishwati Area of the Nyabihu District.

Actions to remove barriers:

1. The Nile Basin Discourse Forum (NBDF), partner NGOs and Media Houses of Rwanda collaborated to produce various media materials on climate change, trained 45 representatives of Civil Society Organizations and 36 journalists from various media houses, and used these trained median agents to sensitized over 200 local government and community representations in the 5 Provinces of Rwanda;
2. The Rwanda Environment NGO Forum (RENGOF), partnered with Nyabihu District Municipality and the Local communities of the Gishwati Area to determine appropriate climate change adaptation strategies of the area, demonstrated some of these strategies and updated the Land Use Map of the Gishwati Area.

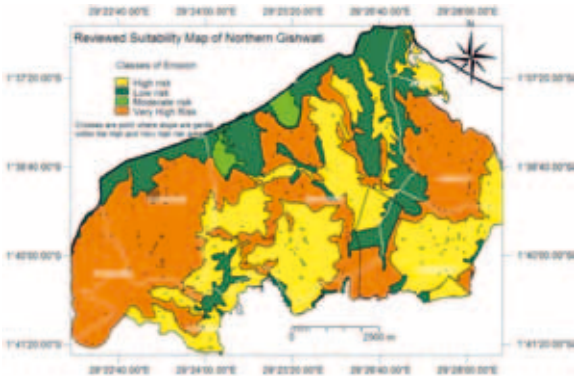
Opportunities Created

These barriers have been replaced by the following opportunities.

1. A critical mass of trained Civil Society Organizations and Journalists on climate change risks and adaptation, methods of developing and reporting climate change stories, and various media materials such as posters, pamphlets, etc. are available for dissemination and broadcasting of climate change issue on the media and for the sensitization of the general public;
2. A updated Land Use and Land Suitability Map and Plan of the Gishwati Area is available to guide the implementation of climate change adaptation at the District level and also serve as input to bigger climate adaptation initiatives in Rwanda.

Water Shortage

Demonstration of Landscaping



Land suitability map

Training of Technicians from various Sectors in the Senegal River Delta on climate change adaptation measures and technologies

Senegal

Barriers on mainstreaming adaptation

Senegal's identified barriers to mainstreaming climate change adaptation into her national development frameworks included (a) inadequate knowledge and capacities on agricultural practices that serve as adaption measures to the changing climate at the local level, (b) the lack of effective tools to inform the Local Governments and communities of coastal cities such as Rufuisque and Bargny on climate change induced sea level rise and erosion, and (c) the non-consideration of climate change risks into the planning and budgeting systems at the central government, local government and community levels.

Actions to remove barriers

The Senegal/CCDARE partnership adopted the following actions to remove these barriers.

1. Through a consultative process involving major stakeholders in the Senegal River Delta area, five appropriate and priority climate change adaptation technologies that can be applied in the agricultural sector of the Senegal River Delta were identified. A training Guide (4 modules), plan and a strategy for the spin-off technologies were developed and tools to support technologies and strategies for adapting to climate change were designed. Twenty-two (22) trainers, 15 agricultural and natural resources producers, 3 Sector Heads, and 4 Agricultural Extension advisers in the Senegal River Delta were trained.

2. The Department of Territorial Management (DAT) of Senegal partnered with Local Governments and communities of the coastal cities of Bargny and Rufisque to study and evaluate the climate change risks facing the communities. The UNEP DHI Centre and the HID/TROPIS in Denmark developed a Simulation Tool that provided historic, current and future behaviour of the coastal zone of the two cities, the impacts on the settlements and their citizens and recommended adaptation actions to be undertaken by the Local Governments and the communities of the coastal settlements. The Urban Plans of the two cities were updated by the integration of climate change considerations based on the findings of the study. The whole process was consultative, participatory and included awareness raising and capacity enhancement of stakeholders.

3. The Ministry of Finance and Planning of Senegal

    - Conducted a study and inventoried the planning structures in Senegal that can eventually have climate change risks integrated in their policies.

- Identified those flexible, preventive and anticipatory approaches required in the integration of climate change, and thus also of the legal, institutional and political changes that may be required for a successful and efficient process;
- Developed scientific and technical leaflets on best practices for consideration of climate change risks in socio-economic development policies and strategies, particularly the VISION 2025 of Senegal.
- Developed a draft methodological guideline for the integration of climate risks in finance and planning strategies and policy documents which is to be validated and disseminated;
- Trained representatives of the Ministry of Finance and Economic Planning and the Planning and Monitoring Units responsible for sectoral budgeting on the role of planning, the methodologies for taking climate risk in the formulation of development projects and programmes, the assessment and impacts of climate change, adaptation and tools for the evaluation adaptation investments.

Shoreline Erosion

Opportunities Created

The Senegal/CCDARE partnership replaced the identified barriers with the following opportunities.

1. In the Senegal River Delta:
   - A percentage of the population and actors critical to improvement of agricultural productivity in the River Senegal Delta are informed, sensitized and have their knowledge base and capacities enhanced in relation to the consideration of climate change adaptation in their agricultural activities in the Delta;
   - Existing and new adaptation technologies being applied in the Senegal River Delta or elsewhere in Senegal have been identified and document. Five of these have been identified and prioritized as applicable in the Senegal River Delta;
   - Training Modules on the five (5) identified and prioritized adaptation technologies have been developed
   - A critical mass of 44 trained technicians on these models is now available in the Senegal River Delta..
   -

Simulated Shoreline movement

Sensitization of stakeholders

Focus Group discussions

2. In the coastal settlements of Bargny and Rufisque of Senegal:
   - At least 585 people have been sensitized on the risks presented by climate change induced sea level rise to the settlements;
   - A video on the impacts of coastal erosion in Rufisque and Bargny has been produced to enable continuous sensitization of the population beyond Bargny and Rufisque
   - A Shoreline Movement Simulation Tool is available to the Ministry of Environment and the Local Governments of the two settlements with appropriate enhancement of the technical capacity of the national project team in Senegal in the analysis of the effects of sea level rise and coastal erosion on the two coastal settlements;
   - Maps on Historical and Future effects of sea level rise on the settlements have been produced and the documents contain recommended actions for acceptance and implementation by the Local Government Authorities;
3. The Ministry of Finance and Planning of Senegal has
   - A critical mass of trained representatives of the Ministry of Finance and Economic Planning and the Planning and Monitoring Units responsible for sectoral budgeting on the role of planning, the methodologies for taking climate risk in the formulation of development projects and programmes, the assessment and impacts of climate change, adaptation and tools for the evaluation adaptation investments.
   - Scientific and technical leaflets on best practices for consideration of climate change risks in socio-economic development policies and strategies, particularly the VISION 2025 of Senegal are available; and

A methodological guideline for the integration of climate risks in finance and planning strategies and policy documents has been developed, validated and disseminated.

Seychelles

Barriers on mainstreaming adaptation

In her consideration of the mainstreaming of climate change adaptation into national development frameworks, Seychelles is faced with the barriers of the unavailability of representative climate data due to large distances between meteorological stations on the islands, inadequate knowledge, awareness and capacity on the adoption of rainwater harvesting as an adaptation measure to climate change induced water stress, and inadequate knowledge and capacity of the institutions and individuals responsible for management of coastal zone in Seychelles.

Actions to remove barriers:

Through effective partnership with CC DARE Programme, these barriers were lifted and replaced with the following opportunities.

1. The Seychelles National Meteorological Services, the Seychelles Island Foundation and the CC DARE partnered to procured and installed three (3) Automatic Weather Stations (AWS) on the inner islands of Mahe, Aldabra and Praslin and trained technicians on the management of the systems;

2. The Ministry of Education procured and installed rainwater harvesting equipment and infrastructure at eight (8) schools, conducted rainwater harvesting in schools to meet their needs and to reduce the cost of their water bills, educated the school children on the impact of climate change on water sources and the use of rainwater harvesting as climate change adaptation measure, and continue to share the schools' experience on water harvesting with other organisations;

3. CC DARE engaged the expertise of the UNEP-DHI (Danish Hydraulic Institute) Collaborating Centre (UDC) to enhance the capacity of stakeholders in Seychelles through training on Integrated Management (ICZM, IWRM, and ICARM) concepts; shoreline management; coastal processes and classification; climate change impacts in the coastal zone; causes of, vulnerability and risk classification of coastal erosion and flooding; shore and coast protection measures; the Shoreline Impact Assessment and Mitigation (SIA) tool; the Water Resources Impact Assessment Matrix (WRIAM); the Integrated Spatial Planning tool; the four basic tools of (a) data collection, (b) field investigation and surveys, (c) numerical modeling and (d) physical modeling used in shoreline management; and concepts of artificial beaches and lagoons that are designed to be stable and provide attractive and safe environment based on the hydraulic design guidelines;

School Children with Model

Training of Teachers

Installed Rainwater Tank

Opportunities Created

Through effective partnership with CC DARE Programme, the identified barriers were lifted and replaced with the following opportunities.

1. The Systematic Weather Observation Network of Seychelles National Meteorological Services has expanded with the installation of Automatic Weather Stations to collect more data and on a timely basis. The capacity of technicians on the management of the systems has been developed.
2. Rainwater Harvesting from roofs as climate change adaptation technology is now entrenched in the Secondary School Curriculum of the Ministry of Education of Seychelles. The success of the project has inspired a consideration of the institutionalization of rainwater harvesting in government institutions and communities.
3. A critical mass of trained technicians has been created on Integrated Management (ICZM, IWRM, and ICARM) concepts; shoreline management; coastal processes and classification; climate change impacts in the coastal zone; causes of, vulnerability and risk classification of coastal erosion and flooding; and shore and coast protection measures. The Technicians have been trained on and provided with the Shoreline Impact Assessment and Mitigation (SIA) tool, the Water Resources Impact Assessment Matrix (WRIAM) and the Integrated Spatial Planning tool.

Rainwater Harvesting in Seychelles schools

Tanzania

Barriers on mainstreaming adaptation

Potential loss of indigenous knowledge weather forecasting indicators and skills in the future was indicated as a barrier in Tanzania. Another barrier identified in Tanzania was the lack of knowledge and awareness of the potentials in using woodlot management as climate change adaptation measure.

Actions to remove barriers

These barriers were removed through the following actions.

1. The Environment Management and Protection Services (EPMS) NGO (a) partnered with Local Government Authorities of Arusha, Tabora, Mwanza and Dodoma Regions of Tanzania, (b) identified experts in indigenous weather forecasting knowledge, (c) trained 27 technicians on the forecasting indicators and tools (d) consulted with and gathered relevant data and information from selected elderly people that possess indigenous weather forecasting knowledge, (e) processed collected data and information, (f) documented findings and prepared technical and non-technical reports in English and Swahili, (g) developed a Policy Paper on how to mainstream indigenous weather forecasting knowledge and techniques in planning processes for consideration by the relevant authorities, and (h) proposed efforts to integrate conventional and indigenous weather forecasting systems.
2. The Department of Forest Mensuration and Management of the Sokoine University of Agriculture partnered with relevant stakeholders and (a) assessed silvicultural management practices and growing stocks in woodlots, (b) used the results of the assessments and identified alternative adaptation strategies to climate variability and change and (c) developed guidelines in English and Swahili containing best practices on woodlot management and marketing to enhance the resilience of the communities to the adverse effects of climate change.

Opportunities Created

The identified barriers were removed and replaced with the following opportunities that will eventually led to the initiation of the mainstreaming of climate change adaptation in national development frameworks.

1. Technical and non-technical reports in English and Swahili and a Policy Paper on how to mainstream indigenous weather forecasting knowledge and techniques in planning processes for consideration by the relevant authorities have been developed and disseminated.

Guidelines in English and Swahili containing best practices on woodlot management and marketing to enhance the resilience of the communities to the adverse effects of climate change has been developed and disseminate

Degraded Reservoir

Rehabilitation Works

Rehabilitated Reservoir

Togo

Barriers on mainstreaming adaptation

The Republic of Togo identified (a) inadequate knowledge and awareness of the general public on climate change, weak partnership between Central Government, Local Government, Private Sector, Civil Society Organizations and Local Communities and (b) acute water stress especially in the northern districts of the country as barriers to mainstreaming climate change into national development frameworks.

Actions to remove barriers

Actions taken under the partnership between CC DARE and Togo to remove these barriers include:

1. The NGO - Friends of the Earth – Togo; (a) developed training modules, (b) trained civil society organizations and journalists on climate change risks and adaptation, (c) developed media materials, and (d) partnered with the trained CSOs and Journalists to sensitize other stakeholders and the general public in the 5 Districts of Togo using the media materials that have been developed. Seventeen (17) stakeholders participated in the Project Inception, fifty (50) stakeholders participated in the forum to start the district level sensitization and public awareness campaign and 35, 28, 44, 30, and 42 stakeholders participated in the district level sensitization in the five districts of Maritime, Plateaux, Central, Kara and Savannes, respectively.

2. The Department of Village Water Supply of Togo (a) enhanced the knowledge and capacities of the staff of the Department and communities of the District of Savanes in Northern Togo on climate change risks and measures to adapt to the risks, (b) forged partnership between the Department of Water Resources, Private Construction Company and the Local Government and Communities of Savannes District and (c) rehabilitated two Water Reservoirs in the Savannes District producing an increase in the capacity of the storage from 9,000 to 24,000 cubic meters of water at Damone Reservoir and from 50,000 to 70,000 cubic meters of water at Timbou Reservoir.

Opportunities Created

The barriers in Togo have been transformed into the following opportunities to mainstream climate change adaptation into Togo's development framework

1. A critical mass of trained CSOs and Journalists is available
2. Media materials for use in the continuous sensitization of the public are available;
3. Water is available to the communities of Damone and Timbou all year round reducing migration of the communities and livestock in search of water during the dry season and the consequential conflicts

Uganda

Barriers on mainstreaming adaptation identified in Uganda include

(a) inadequate awareness at all levels of the Ugandan population but particularly at the grassroots level; (b) inadequate partnership with and networking amongst stakeholders that matter in the climate change arena; (c) vague and non-conclusive studies on the impacts of climate change and variability with respect to agriculture practices, including indigenous coping practices by farmers; and (d) national and sectoral policies, plans and strategies do not full take climate change into consideration

Actions take to remove these barriers include:

1. For the implementation of the CC DARE Programme in Uganda, partnerships were forged between PEM Consult A/S (Denmark), the IGAD Climate Prediction and Application Centre (ICPAC, Kenya), the Great Lakes Film Company (Uganda), the Farmers Media Link Centre (Uganda), The National Agricultural Research Laboratories (NARL) of the National Agricultural Research Organization (NARO), the Department of Meteorology, the Agriculture Planning Department (APD), the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), and the Ministry of Water.

2. The Department of Meteorology (DoM) under the Ministry of Water contracted the Great Lakes Film Production Company to produce a Film Documentary on climate change as it relates to freshwater, diseases, reduced resources and insecurity, and gender. The DoM also contracted the Farmers Media Link Centre to produce Media Materials (Audio and Print) that are crispy, easy to understand and targeted. The DoM then took the Film Documentary and Media materials to conduct public awareness and sensitization campaigns in Central, Eastern, Northern and Western Regions of Uganda, targeting communities, civil society organizations, local government authorities, education and training institutions, and policy- and decision-makers;

3. The National Agricultural Research Laboratories (NARL) of the National Agricultural Research Organization (NARO) produced erudite scientific knowledge and information characterizing agro-meteorological climate risks and uncertainties regarding crop production in the country. Through partnerships, data and information on current socio-economic factors, constraints and opportunities for promoting adapted land use and management technologies in tandem with traditional knowledge and practices for agricultural drought mitigation in the southern

Bududa landslides and droughts are eye opener to Climate Change

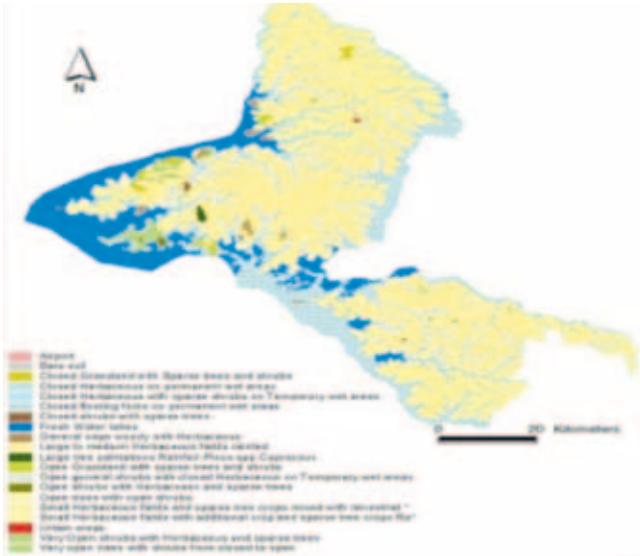
Training, sensitization and awareness are prerequisite.

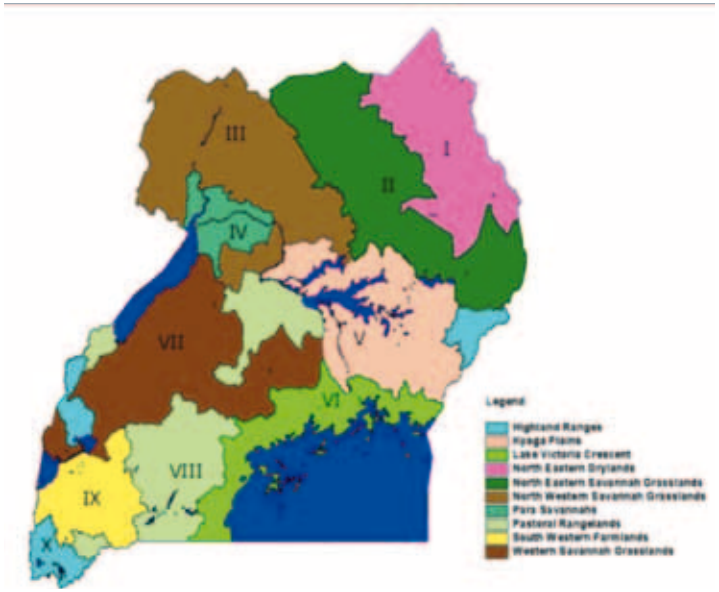
and eastern Lake Kyoga agro-ecological zone (AEZ) identified. Pilot demonstration activities were conducted on farmers' plots of land to demonstrate farmer managed implementation of adapted technologies [integrated nutrient management (INM), conservation agriculture (CA), contour bunds, etc.] and best practices and integration of traditional knowledge for mitigating agricultural drought in the selected AEZ and the water and nutrient efficient adaptation strategies for increased agricultural productivity are accepted by extension services and communities at the district level as viable climate change adaptation measures.

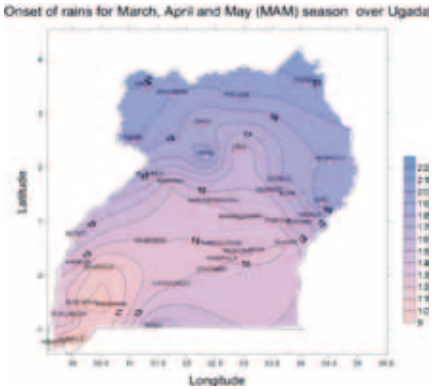
4. Thematic Working Groups were setup and tasked to review, revise and write the Agriculture Chapter of the Development Strategy and Investment Plan (DSIP) taking into consideration climate change issues. Guidelines on mainstreaming climate change concerns into development frameworks were developed by ICPAC. Forty (4) staff of the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), eighty (80) members of the Thematic Working Group and 90 Local Government Officials that are responsible for planning and implementation of agricultural activities at the local level were trained. The Agriculture Development Strategy and Investment Plan (DSIP) were revised with climate change integrated in it as part of an updated National Development Plan (NDP).

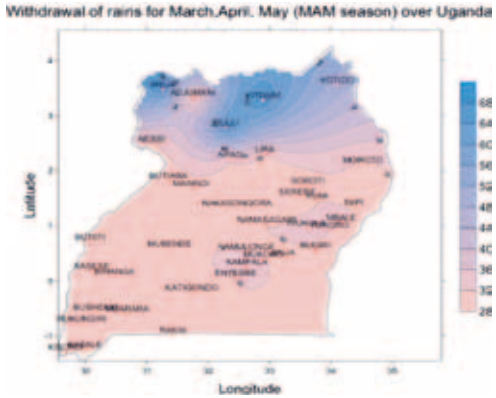
Opportunities created include

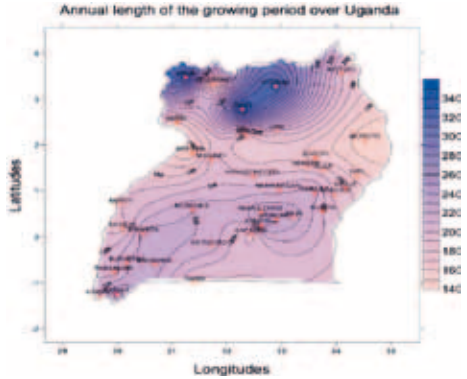
1. Conclusive studies on the impacts of climate change and variability with respect to agriculture practices, including indigenous coping practices by farmers, and analyses of the available climate data showing the changes in the rainfall and temperature regimes over the past 50 years in Uganda are now available;
2. Farm level water and nutrient efficient adaptation strategies for increased agricultural productivity tested, demonstrated and accepted by extension services and communities at the district level;
3. The Ministry of Agriculture, now has a Development Strategy and Investment Plan (DSIP) with climate change integrated in it and contributed to the updating of the National Development Plan (NDP) which will go to Cabinet for adoption after all other sectoral chapters are submitted;











Maps of Uganda showing Land Use, Ecological Zones, Onset of Rainy Season, End of Rainy Season and Annual Length of Growing Season in Uganda

Beneficiary Communities undergoing skills training

Gullies signifying degradation of zone

Ethiopia

Barriers on mainstreaming adaptation:

Barriers that will limit Ethiopia's ability to mainstream climate change adaptation into its national development frameworks include inadequate socio-economic capacities of communities to face the challenges of climate change; inadequate capacities and skills on conservation and sustainable use of risky lands; lack of financing of climate change at the national level; water stress espe cially in schools; limited knowledge and capacity to assess and determine adaptation measures required to tackle the high vulnerability of the country to climate change impacts; inadequate knowledge and resources on promotion and multiplication of climate-resilient crop varieties and animal

breeds; serious challenges arising from secondary impacts of climate change particularly in the health sector; food insecurit y, depleted soils and high dependence on climate sensitive productions systems and sectors; and lack of climate change integrated strategies.

Activities to remove the identified barriers:

As Ethiopia is a large country and CC DARE supported is limited most of the activities undertaken to remove the identified ba rriers were

small and of pilot demonstrations in nature. These include:

1. **Community Led Buffer Zone Establishment Around Gilgel Gibe I Hydropower Development through the following:**
    a. Creation of livelihood diversification and income generating activities while developing, managing and wisely using t he buffer zone around the reservoir area of Gilgel Gibe I hydropower development.
    b. Establishment of partnerships between the Ethiopian Electric Power Corporation of the Gilgel Gibe I Hydropower Station, Zonal and WOREDA Administration and local communities located in the buffer zone of Chala and Enkori kebeles of Sokoru Wered
    c. Consecutive stakeholder consultations and site visits around the reservoir and surrounding farming areas to assess the level of environmental and land degradation in the buffer zone and the potential vulnerability of the Hydropower Dam and Reservoir.
    d. Demarcation and rehabilitation of the buffer zone by the full involvement of 182

community members of which 13 female household are beneficiaries of the project.

e. Provision of skills trainings on buffer zone rehabilitation and management including construction of check dams, terraces and soil improvement activities such as compost making around the buffer zone;

f. Provision of skills training on income generation activities such as bee keeping, fruit tree production, fish farming and production, and the construction and use of energy saving fuel stoves.

2. Introduction and promotion of local climate change adaptation measures for the challenge of unemployment and food insecurity through:

a. Partnerships are established between stakeholders at regional, district and community levels which include unemployed and lan dless youth, monasteries and innovator farmers;

b. Determination and documentation of baseline knowledge and local climate change adaptation is carried out;

c. Training and technical information on conservation and sustainable use of degraded lands and income gen eration skills on modern bee-keeping and agro-forestry are provided to the partners;

d. Provision of bee-keeping facilities and equipments (hives, colonies, management handling equipment and clothing as well as stores and office space) to the trained youth groups;

e. Development and dissemination of a beekeeping manual in the Tigrigna local language Learning by doing practising bee-keeping as Climate Change adaptation option

3. Field level demonstration of Community Based Adaptation to Climate Change in the North Western Lowlands of Ethiopia involving:

a. Extensive consultation with stakeholders, particularly farmer groups and academia at all administrative levels. Consecutive a wareness activities are carried out for about 600 target groups.

b. Literature review supported by community local knowledge is conducted and documented on vulnerability of the local communities and their environment and local level adaptation

Learning by doing practising bee-keeping as Climate Change adaptation option

Climate change coping mechanism in Adarkay District in the North Western Lowlands of Ethiopia

Installation of Rainwater Harvesting infrastructure in the Schools in the Rift Valley of Ethiopia)

Climate change coping mechanism in Adarkay District in the North Western Lowlands of Ethiopia

options (coping mechanisms).

c. Materials are procured and used in field level demonstration of coping mechanisms the success of which has led to scaled up by adjacent farmers.

4. Improvement of Water Harvesting Capacity in Schools in Central Rift valley

a. Five schools were identified as pilot schools for the demonstration of water harvesting and improvement of the school's landscape;

b. Consultative meetings were held and partnerships were established with relevant local government departments, Agriculture, Education and Health;

c. Three (3) environmental awareness raising publications on climate change and natural resource conservation relevant to the pr oject area are produced and printed;

d. Training workshops on environment and health, natural resources management in dry lands and climate change and rainwater harvesting were conducted to sensitize the schools and the local communities.

e. Capacities of the school environment clubs were strengthened;

f. Water tanks with total capacity of 30,000 litres were procured and installed in each of the five project schools;

g. Materials for conservation activities such as spade, pike axe, watering cans, rakes, etc. purchased and distributed to the fi ve schools h) Five (5) tree and horticulture nurseries were established in the five schools;

5. Identification of adaptive traits in indigenous cattle adapted to drought prone arid and semi arid areas of Ethiopia through the following.

a. Conducted consultations with Zonal and district agricultural offices and local farmers and pastoralists;

b. Conducted analysis of morphological and biochemical traits on 40 Irob cattle pertaining to resilience to hardship environment using visual observations of various physical structures, measurements of morphometric characters and taking blood sample for biochemical traits;

c. Conducted comparative study and additional sampling from the 40 Afar and highland cattle;

d. Conducted joint analysis with School of Veterinary medicine at the Addis Ababa University (AAU);

e. Identified and documented adaptive traits that can be used by national and international researchers and geneticists in deter mining climate change adaptation options, and they can be used in extension, development research, animal breeding, and targeted and strategic crossbreeding with adapted breeds.

6. **6. Assessment of vulnerability and development of mechanisms to adapt climate change impacts from hydrological extremes through:**

a. Collections of climate data from metrological stations;

b. b) Identification and selection of appropriate Digital Elevation Model (DEM);

c. Conduct statistical downscaling for two hydrometeorological stations within the watershed using collected climate data, to compare the Regional Climate Model (RCM) output with the Down Scaling Model (DSM) output and also to check the model realities on hydrological extremes;

d. Setup the hydrological model (RCM, RegCM4) based on the downscaled outputs, and conduct simulation runs using historical data for the base period;

e. Conduct flood mapping for the Baso River using the output of the simulation conducted under (d) and baseline and climate change scenarios;

f. Conduct assessment of the vulnerability of the communities living within the watershed to hydrological extremes under climate change using the flood mapping results obtained under (e) above.

7. **Development of National Acute Watery Diarrhoea Prevention and Control (NAWDPC) Strategy through the following:**

a. Prepared and endorsed the Terms of Reference (TOR) and recruited Consultants for the development of the NAWDPC Strategy;

b. Production of the Template of the Strategy by stakeholders and agreement on the Work Plan to be used by the team of consultants assigned to prepare the NAWDPC Strategy;

c. Conducted sectoral and cross-sectoral scoping meetings to identify gaps in the preparation of NAWDPC.

Popularization workshop on IPS at Project sites and Field Level Identification of IPS

Team of Consultants during a Working Session to draft the National Acute Watery Diarrhoea Prevention and Control (NAWDPC) Strategy

d. The consultants collated and reviewed available information on AWD reduction in the country.

e. Prepared and circulated the Draft NAWDPC Strategy document for potential reviewers.

f. Conducted validation workshop and endorsement of the NAWDPC Strategy.

8. **Identification, documentation and dissemination of control and management of rangeland invading alien plant species for enhancing the communities' resilience to climate change adaptation in Jijiga Zone of Somali Region, Eastern Ethiopia.**

a. Conducted a reconnaissance survey in three (3) WORDAS (districts) of Jijiga Zone;

b. Conducted an inventory of IPS through field work;

c. Conducted eight (8) communities and experts focused group discussions and the necessary data collected.

d. Identified nine (9) major IPSs as per FAO's classification;

e. Documented local management and control options;

f. Conducted three (3) training workshops for local pastoralists and DAs on the management and control of IPSs in each of the

g. WOREDAS based on findings of local and scientific knowledge reviewed from literatures.

h. Prepared toolkits on IPSs in Jijiga Zone;

i. Designed adaptation strategies concerning reclaiming invasive weed and bush encroachment for Jijiga and other climate change hotspots areas in the country.

9. **Participatory Promotion and Demonstration of Conservation Agriculture (CA) as climate change adaptation option in East Gojam Zone, Amhara Regional state**

a. Conducted National Workshop on Conservation Agriculture in collaboration with COMESA on which NGOs, high level decision makers, agricultural research institutes participated.

b. Conducted sensitization workshop on project site for 44 participants drawn from zonal, district offices and research institutes. Jab planter (improved technology appropriate for CA) imported in 2010 by FAO was displayed at the workshop.

c. Conducted field visits to Dejen and Awebel Districts for Conservation Agriculture

development partners.

d. Conducted a five-day training workshop at Regional level for 37 Zonal, District and Woreda level experts;

e. Prepared and distributed a technical manual on conservation agriculture to participants of the training workshops and other stakeholders.

f. Development and distribution of Bulletin and brochures;

g. Provided a 4 days training workshop on conservation agriculture to 38 development agents and farmers on the project site;

h. Established and trained 14 Groups of 25 farmers per Group;

i. Procured agricultural inputs that include seed, fertilizer, herbicides and farm tools (hoe, machete, meter, sprayer, etc.);

j. Conducted pilot demonstrations of Conservation Agriculture in 7 districts and 14 Kebeles, using 7 FTC and 7 farmer plots with an area of 1/2 ha each, involving 350 farmers.

Jab planter introduced to trainees (FAO)

Opportunities created:

1. Partnership between the communities living in the margins of the Buffer Zone, serving as a divide between the settlements and the Gilgel Gibe I Hydropower Facility, and Management of the Hydropower Development Project under the Ministry of Mines and Energy, provided a solution of long standing conflict on the effective conservation of the Buffer Zone and the natural resources therein. Communities have access to alternative livelihoods, potentials to increase agricultural production and minimized expansion to virgin lands, and are now ready to conserve the Buffer Zone. The outcomes of the proposed project will be replicated in other hydropower development project areas such as Koka, Tis Abay I, Awash II, Awash III, Finch, Melka Wakena, Tis Abay II, Tekeze and ongoing and abandoned mine development sites.

2. The capacity of the local Farmers' Training Centers (FTCs) to provide services to their farmers in Tigray has been enhanced. Bee-keeping and agroforestry, using multipurpose trees and shrubs for the conservation and sustainable use of rehabilitated hills sides is promoted as a basket of climate change adaptation options and adopted by farmers and landless unemployed youth of the Tahtai Maichew District in Tigray. The farmers and

Field demonstration activity on Conservation Agriculture

youths have formed cooperatives and developed value-added market chain for their honey and bees wax. A manual on bee-keeping in the Tigrigna local language has been prepared and will be disseminated to enable replication to other areas of the country with similar.

3. Communities in North Western Lowlands of Ethiopia have adopted Community Based Adaptation (CBA) that generates adaptive strategies through participatory processes, building on existing cultural norms, and also addressing local development issues that make will enhance the resilience of people vulnerable to the impacts of climate change.

4. Partnerships have been established with relevant Local Government, Agriculture, Education and Health departments in the Central Rift Valley of Ethiopia. Rainwater harvesting as an adaptation option under climate change induced water stress has been piloted and adopted in schools.

5. Cost effective adaptation options and implementation strategies for most vulnerable areas in the Southern Ethiopia due to the threat of extreme hydrological events (e.g., floods and droughts) under climate change in Southern Ethiopia have been determined and integrated into the Regional Governmental development plan and decision making framework.

6. Adaptive traits in Afar and Irob cattle breeds, that have made them successfully cope with current stressful environments such as aridity, high temperatures and rugged terrain in the North Eastern part of Ethiopia have been identified and documented. The identified adaptive traits are to be utilized for conservation and within breed genetic improvement under projected climate change.

7. A climate Change integrated National Acute Watery Diarrhoea Prevention and Control Strategy is available as a guiding strategy for national development sectors as the main resource in building capacities and for the achievement of the health-related MDGs and for health equity under a changing climate. Policy level partnership and an Inter-ministerial Forum from health, water, education, environment, investment, agriculture and rural development and government communication affairs has been established and chaired by Federal Ministry of Health.

8. Nine (9) major rangelands invasive plant species (IPS) are identified as per FOA's classification; toolkits on awareness and management options on these species in the Jijiga Zone are developed and available; adaptation strategies concerning reclamation of

the IPS invaded pastoral lands for Jijiga and other climate change hotspots areas in the country are designed and available; and when implemented these adaptation options will improve livestock productivity and survival, particularly in the Kebribeyah, Fafan and Lefey-Issa weredas of Jijiga Zone.

9. 9. A technical manual, bulletin and brochures on conservation agriculture are prepared and disseminated to trainers and trainees during various training sessions and other stakeholder consultations. Awareness of policy makers, extension agents and local communities in East Gojjam on conservation agriculture, particularly under climate change, is enhanced through demonstration activities, experience sharing and exchange visits and networking suppliers and user farmers. The capacity of Extension Agents and Farmers has been enhanced on ways to build and accumulate organic matter content of soils by maintaining crop residues on the soil surface, conservation of soils through avoidance or limiting ploughing. In the longer- term, the low-yielding subsistence agricultural system in which soil nutrient levels critically limit food and agricultural productivity will be turned around to boost food security of the region.

Regional level training and capacity building

Regional Level Barriers in mainstreaming climate change include:

Inadequate knowledge and awareness on climate change science and mitigation, vulnerability (impacts and adaptation) and mainstreaming climate change, particularly adaption into development frameworks;

Actions taken to remove barriers

1. In May 2009, the UNEP DHI Centre (UDC) in Denmark, CapNet Nile IWRM Net and the Ministry of 1. In May 2009, the UNEP DHI Centre (UDC) in Denmark, CapNet Nile IWRM Net and the Ministry of Water and Environment in Uganda collaborated in the training of Water Resources Technicians and Managers from East Africa on climate change and water resources management.
2. In May 2010, the UNEP Risoe Centre (URC), the Danish Meteorological Institute (DMI), ICPAC and ACMAD collaborated in the training of researchers and decision makers on Climate models, projections and uncertainties in Sub-Saharan Africa.
3. In May/June 2010, CC DARE supported the Network of Climate Journalists in the Greater Horn of Africa (NECJOGHA) in the conduct of the First Africa Climate Change Communication Conference in Kampala. Uganda. Participants came from African countries including Tanzania, Kenya, Rwanda, Burundi, Sudan, Zambia and Uganda.

Opportunities created

1. Forty (40) trained Water Resources Technicians and Managers on climate change and water resources management exist in East Africa;
2. A Tool Kit on Global Water Partnership (GWP) is provided to all 40 participants.
3. Twenty (25) trained researchers and decision makers on Climate models, projections and uncertainties exist in West Africa.
4. A learning and experience sharing platform for 85 scientists, senior reporters, senior editors, science communicators and CSOs on enhancing communication for adaption and mitigation to climate change has been enhanced.

Some of the barriers addressed by CC DARE include the followings:

- Barriers in forging partnerships
- Addressing linguistic barriers in participation and dissemination of knowledge
- Inter-agencies and inter-ministerial barriers in undertaking joint programmes

Removing Identified Barriers for Adaptation

Box 1. Removing Barriers for Adaptation - Historical Climate Database Recovery Project by the Instituto Nacional de Meteorologia (INAM), Mozambique

Databases especially those in hardcopies are directly and indirectly vulnerable to the impacts of climate change and variability which could lead to total loss of the information, irretrievable portion of the content and financial losses in stocking and retrieving the content. These have direct implications for the utilization and integration of climate information into decision-making processes.

The aim of this project therefore, was to recover and put into digital form, historical climate data, as far back as the 1910. The information will be used to produced maps and graphs of historical trends and predicting future patterns of climate in Mozambique.

Identified Barriers for Adaptation

Although the absence of meteorological data is commonly cited as an important barrier for adaptation response in Africa, where there are some data available, the challenge in storing them in safe mode and easily retrieval condition also constitutes a major barrier in their usage for any climate analysis.

Removing Barriers for Adaptation

Thus, besides the recovery and conservation, digitization of the meteorological data also removes an important barrier for adaptation by facilitating the sharing of meteorological data with other regions and users. This exercise, thus have the potential of both national and regional impacts following the support of CC DARE funding.

Workshop style and Industrial Site Visit Type Training of East African Water Resources Managers and Technicians in Uganda in 2009

Output

The project is preparing a guideline for the digitization of meteorological data. This is very crucial and constitutes a fundamental piece of document for the replication of the activity in other parts of the continent.

Potential Outcomes

The recovery and conservation of meteorological data is highly relevant and will greatly enhance their shelf life and utilisation. The replication of this exercise in other regions and countries of Africa will benefit from the step-by-step guidelines on how to undertake the recovery and digitization of meteorological data that is being prepared by the project.

- As this is a common problem in the continent, such a guide could serve as a training manual for other countries interested in replicating the activity.
- The guideline will be brought to the attention of African Regional climate centres such as ICPAC, ACMAD etc, and also other initiatives such as ClimDev for up-scaling purposes.

There other forms of barriers affecting the implementation of climate change adaptation actions that have been addressed by the CC DARE Programme. The organization of workshops raising media awareness of climate change has an important role to play in adaptation programmes in Sub-Saharan Africa.

Box 2. Removing Barrier for Adaptation in the African climate change communication conference on "Improving Media Understanding of Climate Change Information for Applicable Communication in Africa" organized by the Network of Climate Journalists in the Great Horn of Africa.

There is the need to create public awareness of climate risks and opportunities, which makes it vital for correct information supported by the science of climate change, be communicated to the public and this was one of the ultimate goal of the workshop. The initiative could potentially serve as a platform for mainstreaming climate change into the communication practices of journalists in the continent. From a strategic perspective of CC DARE, the workshop provided some opportunities to draw from lessons learnt and citing examples of case studies of CC DARE country project implementation activities provided this could be integrated in the content of the workshop.

Identified Barriers for Adaptation

Although the organizers consider it as an international workshop, it was characterized by a sub-regional organization. Although this is not a major problem, the content of the workshop is relevant to the entire continent especially for Sub-Saharan Africa. Secondly, the workshop did not provide for translation facilities which implicitly points towards a mono-language participation. An identifiable barrier to the workshop was linguistic barrier for wider participation non-English speaking participants in the workshop. Following the magnitude of importance that climate change has on the present and future functioning of the African continent, no segment or section of the continent should be excluded on linguistic grounds. Understandably, this could be purely due to resource constraints of the organizers in catering for the needs of a multi-lingual conference.

Removing Barriers for Adaptation

Following the operational principle of CC DARE in removing any form of barriers for adaptation including those in self-determination efforts or activities aimed at facilitating adaptation, CC DARE took the following actions to remove the barriers:

1. Full coverage of the participation of the international participants (15 participants) as indicated in the budget provided by the organizers (travel and DSA)
2. Cover for translation services to allow for a multi-lingual or bilingual workshop. Otherwise, arrangement should be made for the replication of the workshop in non-English speaking regions.

Output

A workshop report and mapping sustainable projects in communication on climate change in the region. A critical mass of well informed journalists on climate issues was being developed following the number of participants in the workshop.

Potential Outcomes

1. Following CC DARE support to the workshop, the organizers were encouraged to use CC DARE country projects as examples in the workshop content in making references to them where applicable and as result, providing local examples of adaptation actions to the journalists
2. CC DARE played an active role in shaping the geographical coverage of the workshop beneficiaries and potential media coverage of the climate change across the continent.

Construction of Rainwater harvesting in Seychelles

P. TESTIMONIALS

"This UNEP/UNDP CC DARE is a worthwhile project which I fully endorsed. It is the way forward. If we all do our part in harvesting rainwater and are serious about it, we could all contribute to alleviating the serious shortages we face in the dry season"

President James Alix Michel, President of the Republic of Seychelles.

"The success of the CC DARE programme in Rwanda is exemplary and will serve as a model for CC DARE cooperation in other countries."

Danish Environment Ambassador, Ms. Margit Thomsen

"The Danish government decided to support the CC DARE with a view to addressing the need for a strong link between poverty alleviation and climate change. Good climate change adaptation is good development cooperation. CC DARE has cooperated with already existing climate initiatives and provides initiative for integration with other development strategies in play in the country."

Pernille Dahler Kardel, Ambassador of Denmark to Ethiopia.

"The CC DARE projects have been instrumental in enhancing coordination among different government implementing partners in areas of adaptation of climatic change and thus bringing efficiency in resource utilization. This makes the CC DARE program very timely and pertinent as it has enabled to establish an integrated program approach to Ethiopia's management of Climatic Change Risks, Vulnerabilities and Opportunities"

Desalegn Mesfin, Deputy Director General of the Environmental Protection Authority of Ethiopia

"These CC DARE projects daringly help tackle climate change in spite of, but generously because of, our vulnerability in Ethiopia. I heartedly expresses my appreciation to the government of Denmark, The UNEP and UNDP"

Dr. Tewolde Berhan Gebre Egziabher, Director General, Environmental Protection Authority, Addis Ababa, Ethiopia

"This CC DARE project is very important for the community and for us (administration). I realized the importance of the project by: 1. employing the unemployed and landless youth; 2. conserving our nature; 3. indicated us the direction to the green economy of the country. I learned this recently in high official training that what we do with the CC DARE project is one way of adapting the problem of the Climate Change; 4. Improving the service of Farmers' Training Centers (FTCs), etc. Earlier we do not give much attention to FTCs in the rural. But now after furnishing FYCs the services are appreciated by many.

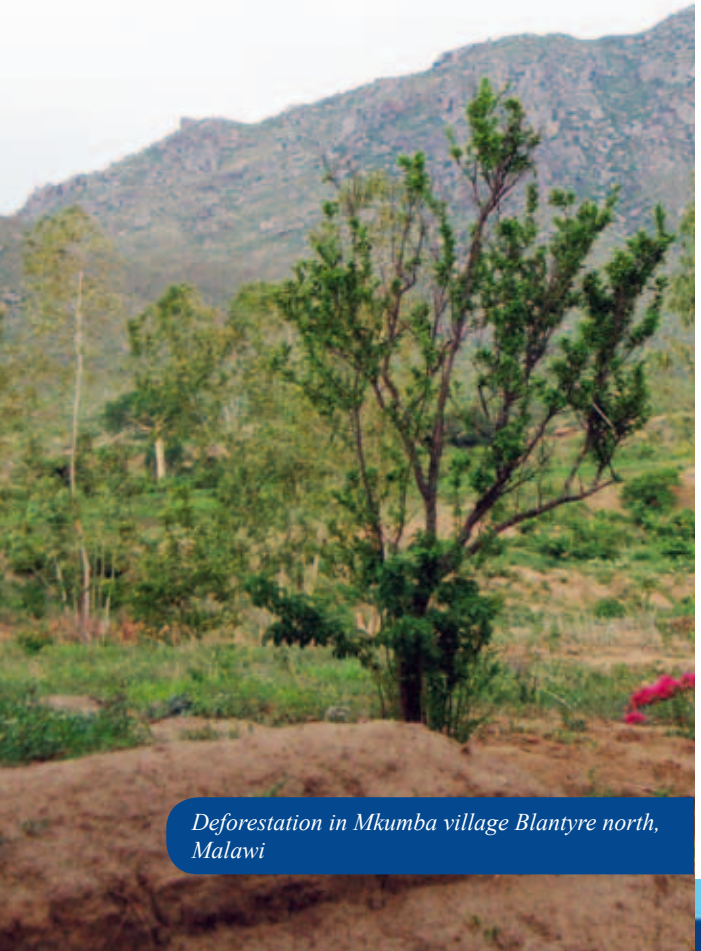
It indicated us some directions to support the Youth (unemployed and land less). The society could not accommodate them into the land holding system because the land holding is less than 1 ha. The communities could not afford land. Therefore, they migrate to Western Tigray and urban areas as daily laborer. But now they realize that they can stay in their origin working on bee keeping than go out and face sickness i.e. HIV/AIDS and Malaria. We see the effect in less than a year with this short project. I can imagine what would happen with a two or three year project. I congratulate the CC DARE project and invite any such projects to our area. We are dedicated to do our best for the success of such projects by convincing local communities to offer land as part of watershed management"

Qeshi Hadush Gebrewahid Administrator of Tahtai Maichew wereda (district), Ethiopia

"I was highly disappointed due to my being unemployed and landless. I used to migrate to western Tigray for seasonal labor during the rainy season if not I entered to the existing forest to cut trees for firewood and for construction material in order to sell to the nearby town.

Now I have benefited from this CC DARE project in getting skills and tools. The skills I have gained are on making bee hives and splitting bee colony. I produce bee hives by myself for myself or to sell. I also multiply bee colony myself. All these skills are always with me and I use the skills. I benefit by generating income and then feel confidence in building my family than encroaching forest, migration

Rehabilitation of degradated land after relocation of communities in Rwanda



Deforestation in Mkumba village Blantyre north, Malawi

and creating social problems in my community."

Haleka Shishay, one of the beneficiary i.e. unemployed and landless youth in Tahtai Maichew District , Ethiopia

Leadership in the agricultural sector was recognized to be an important role in formulating strategies for addressing the challenges brought about by climate change. Hon. Olive Woneka, Member of Parliament and Chairperson of the Sectoral Committee on Agriculture thanked the organizers for the efforts made to link climate change to policy. Using examples from one of the workshops she attended previously, that was organized by MAAIF. She noted that many things were identified about agriculture, lots of issues were raised, but climate change was missing from the Development and Strategic Investment Plan (DSIP) of the Ministry. "In that regard, the DSIP is being revised in order to mainstream the issues of climate change", she noted.

Hon. Olive Woneka commends NARO for bringing issues of climate change to the forefront through the CC DARE Project in Uganda

CC DARE contributes in finding Long Term Solutions to Drought in the Horn of Africa….

"The CC DARE programme, jointly implemented by UNEP and UNDP, is providing timely-targeted support to nine nationally driven projects, with most of them linked to the agricultural sector and thereby addressing food security, in an effort to speed up the integration of climate risk consideration into policy and national planning to curb vulnerability to climate impacts."

Link to full story: 'Horn of Africa Drought Needs Long Term Solutions' http://unep.org/NEWSCENTRE/Default.aspx?DocumentID=2649&ArticleID=8828

During a National Feedback and Review Workshop for the CC DARE NARO Project, the State Minister of Fisheries in the Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Hon. Fred Mukisa, represented the Minister of AAIF, Hon. Hope Mwesigye. In his closing remarks this is what he had to say "I wish to commend NARO for the efforts done in linking research to policy planning and I am grateful to the researchers for the job well done"

He was glad to note the learning and discussions that had taken place in this workshop. He further noted that the presenters had explained very well in ways that were easy for participants of various levels to understand. He stressed that climate change is for real so he urged the researchers to take lead and implement whatever is planned so that research is utilized in actions at planning and implementation level, that way, he noted the community and whole society will benefit.

The Minister used the action plan that was formulated to provide examples of how stakeholders could link up to deal with challenges of climate change. He concluded by thanking all participants for their participation and inputs in the workshop.

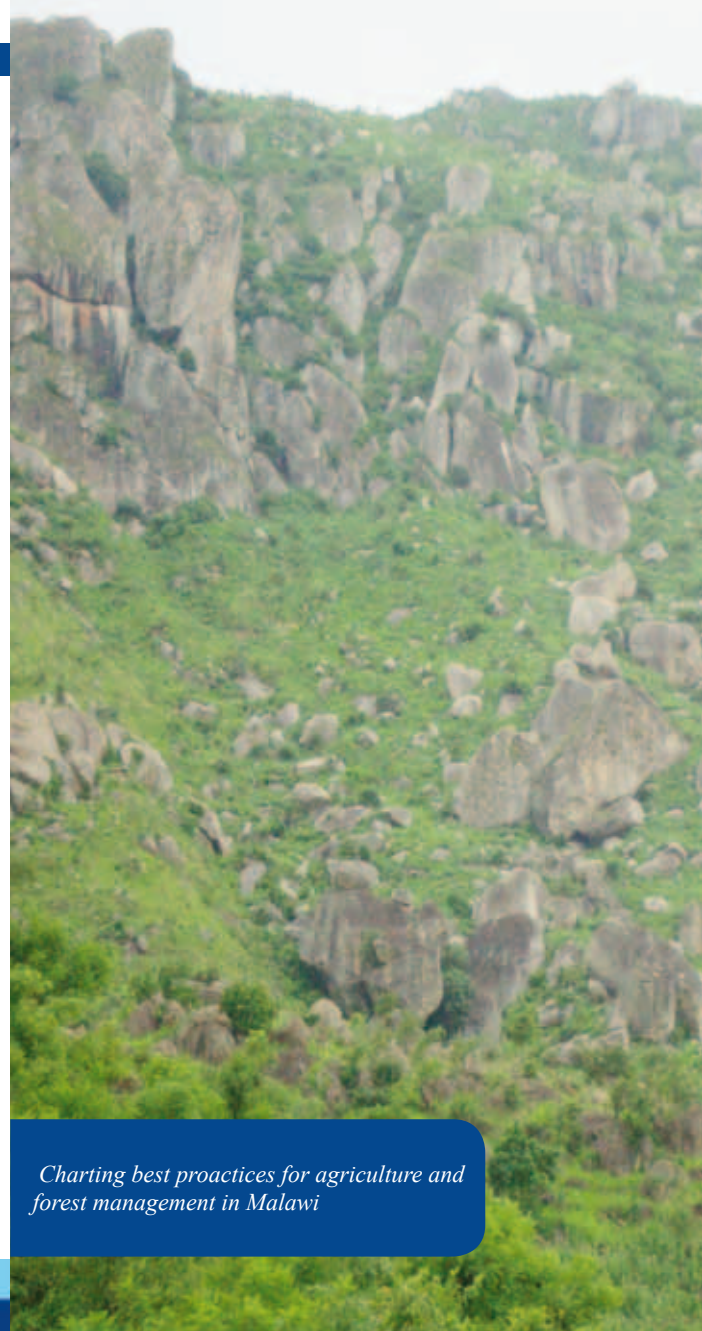
Hon. Fred Mukisa commends NARO for linking research to policy planning through the CC DARE Project in Uganda

During a National Feedback and Review Workshop for the CC DARE NARO Project, the Director Research Coordination in NARO, Dr. Emily Twinamasiko, represented the Director General, NARO

In her opening remarks, she noted that people have lamented about climate change for a long time but limited action has been undertaken. "Action should be undertaken by all stakeholders in public, private sectors, central and local government" she reiterated. "…….there is need for strengthening linkages between researchers and farmers". She stressed the need to know what the mitigation measures which farmers have been able to undertake.

She cited drought resistant crops which are good for periods with reduced rain. Furthermore, she challenged scientist to play their part, including social responsibility – what can we do about the environment?; lets not only concentrate on climate change to mitigate the variability but also find ways through which these challenges can be addressed.

The Director Research Coordination, NARO decries the limited action on issues of climate change in Uganda



Charting best proactices for agriculture and forest management in Malawi

Ethiopia Bee farming- flowers for beers pollination

Ms Kidimu was among the 12 model farmers selected to host the pilots to demonstrate implementation of adapted technologies with an integration of traditional knowledge for mitigating agricultural drought. Specifically, she established a 60 m × 60 m field plot with 4 sub plots of 30 m × 30 m to demonstrate conservation agriculture and integrated nutrient management in maize production versus conventional agriculture and non fertilizer use. The demos were farmer managed with the assistance of a Field Extension Worker (FEW). The three principles of conservation agriculture i.e. minimum soil disturbance through use of herbicides, keeping the soil covered almost throughout the year and crop rotations were at the core of the demonstration. A fast maturing (approx 100 days) maize hybrid was used as the demo crop and fertilizer (Diammonium phosphate) was side-dressed at planting and urea top-dressed one month after planting.

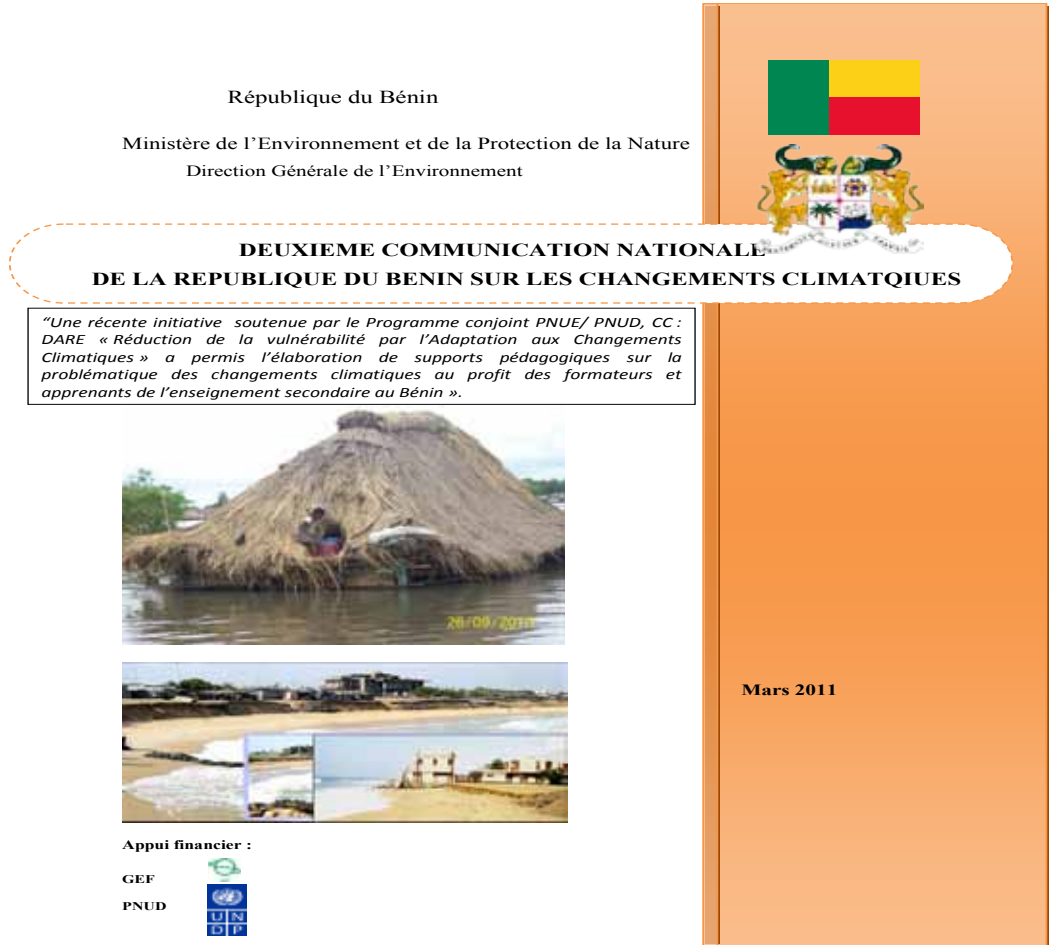
Learning about conservation agriculture through the CC DARE project transformed Rebecca's life and shaped her destiny. Although she inherited a sizeable piece of land from her missionary parents, much of it was not utilized due to several challenges including labour shortages, poor land management and crop husbandry practices, unreliable rainfall, etc. which all contributed to low productivity. She led a "mobile life style" that saw her frequently move from her rural home to the nearby urban centres.

Following the successful pilot and using the same conservation agriculture principles, she planted an open pollinated maize variety (Longe 5) on 4 ha of land in the second season of 2009. The season was also characterized with poor rainfall amounts but she managed to harvest about 2,500 kg of grain/ha. The maize variety, Longe 5, has a yield potential of about 5000 kg/ha. Though the yield was 50% the yield potential of that particular maize variety her efforts were encouraging since yields from the neighbouring farms were no near the yield from her farm.

Since this experience with conservation agriculture, Rebecca has abandoned her "mobile lifestyle" and has settled down. According to the FEW who provided technical support, Rebecca has been transformed into a continuous practitioner or call her a seasoned farmer.

Ms Rebecca Kidimu tells what conservation agriculture and integrated nutrient management means for her livelihood

Lessons of Support to National Strategies.



CC DARE cited in Benin's Second National Communication for initiating the integration of climate change into the national curriculum for Secondary Schools.

National Climate Change Adaptation Strategy

CC DARE Supported Ghana to prepare National Climate Change Adaptation Strategy

Republic of Ghana

Ghana's Second National Communication to the UNFCCC

July 2011

"*Ghana is embarking on programmes to facilitate adaptation to Climate Change in various sectors and across the various national planning levels. The choice of policies and measures are closely linked to the overall priority impacts sectors, which emerged from the cross-sector impact analysis. At the upstream level, Ghana is developing the National Climate Change Adaptation Strategy (NCCAS) with support from UNDP (Ghana Country Office) and the Climate Change Adaptation and Development Initiative (CCDARE) to provide strategic linkages among prioritised impact sectors. This is to ensure packaged delivery of Climate Change adaptation programme at the project level, which emerged from the multi-sectoral impact analysis*."

CC DARE is cited in Ghana's second National Communication for its support.

Republic of Uganda

MINISTRY OF AGRICULTURE ANIMAL INDUSTRY AND FISHERIES

Agriculture for Food and Income Security

Development Strategy and Investment Plan

2010/11 – 2014/15

March 2010

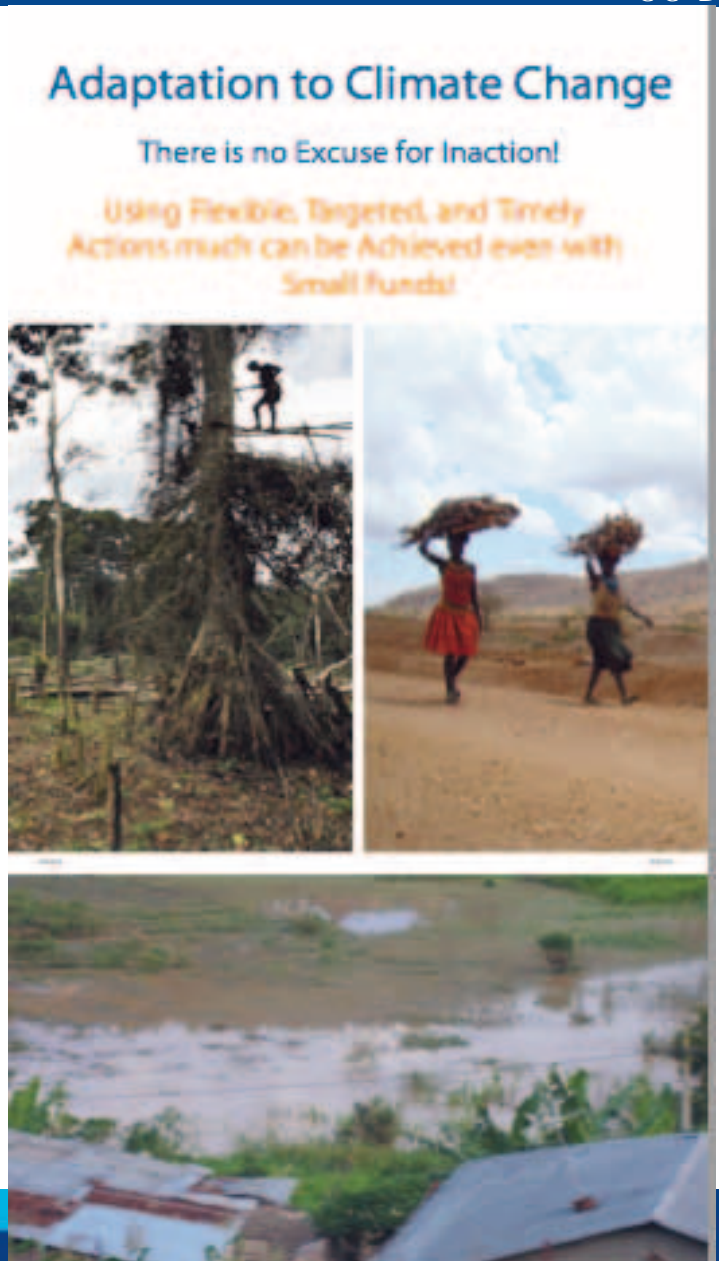
CCDARE: Climate Change Adaptation and Development Initiative

UNDP

UNEP

CC DARE supported the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) in Uganda and to revise their National Development Plan (NDP) by mainstreaming climate change adaptation issues into the Development Strategy and Investment Plan (DSIP) of the agricultural sector.


Mounting a defence against climate change
CC DARE promotes climate change adaptation in Xai-Xai, Mozambique
"Through the CC DARE programme the communities of Xai-Xai have acquired knowledge on how to tackle adaptation to climate change. The concrete demonstration given by this programme has not only helped to strengthen the capacity of the people of this city but will also help provide the socio-economic information needed for future analysis of the impacts of climate change. These are the kind of actions we want in this city, in this country and in Africa."
Mrs Rita Mulanga, Mayor of Xai-Xai
CC DARE: Climate Change and Development – Adapting by REducing Vulnerability



Q. CONCLUDING REMARKS

With targeted short-term activities, the CC DARE project has demonstrated that integrating adaptation into national development policies can strengthen and enhance the resilience of countries and communities against the impacts of climate change while also contributing to the realization of the Millennium Development Goals (MDGs). The CC DARE Programme has provided countries in Sub-Saharan Africa with concrete climate change adaptation actions that will continue to sustainably provide them with resilient livelihoods under a changing climate. The programme has spurred impacts in multiple fronts including catalytic, Strategic, Policy and innovative. The merits of the approach is evident in the engagement of local communities, using local materials, keeping the implementation process simple and thus, making adaptation actions more efficient, more effective, more affordable, more equitable, and more environmentally sustainable.

The adaptation actions conducted by countries have proved that concrete actions have potential to providing evidence-based information for institutional and regional policy processes in supporting countries and also provide incentives for action & builds confidence through learning-by-doing approach. Through this approach national strategies have benefited immensely from the identification of potential barriers that constraint the operationalization of the strategy in order to take targeted actions that swiftly and precisely remove those barriers from the system. This has helped pave the way for bigger actions potentially stimulating, catalyzing and amplifying ongoing actions over a larger scale with quick turnover saving cost and time of delivery. The CC DARE approach has demonstrated that, it is possible to achieve consolidated solutions for national priorities on adaptation to climate change that serve communities.

Daring to make the **difference**

Relocation and rehabilitation: climate change adaptation in Rwanda

"The success of the CC DARE programme in Rwanda is exemplary and will serve as a model for CC DARE cooperation in other countries."

Danish Environment Ambassador, Ms. Margit Thomsen

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