



# **Supporting Sub Saharan Africa including Small Island Countries with Climate Change Adaptation**

**Every Action Counts irrespective of Size**

**CC DARE: Climate Change and Development - Adapting by Reducing Vulnerability**

A Joint UNEP/UNDP Programme for Sub-saharan Africa funded by the Danish Ministry of Foreign affairs

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# 1. Introduction



Climate change poses major challenges to human survival in Sub Saharan Africa

- The impacts are indiscriminate and not necessarily place-based;
- Everyone and every place is at risk, and all sectors are affected although disproportionately
- Everyone thus, have an obligation and a role to the solution
- All sectors have a contribution to make to the solution
- Sharing information and knowledge on addressing the impacts thus provides a solid base in mobilizing people into collective actions in finding solutions
- Universal participation should therefore be the underlying driver where there is an expression of interest
- Capitalization of the universality of the problem requires implementation mechanism that engages new actors in taking up responsibilities
- Accelerating the delivery of these self-driven actions using implementation mechanisms that facilitate the provision of the available (financial) resources to catalyze the actions, while also technically backstopping the actions in overcoming immediate capacity deficits, and building future capacity needs and knowledge bases in the process is what is novel in CC DARE interventions.

## 2. CC DARE

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.



### 3. CC DARE Overarching Framework

The goals of the programme are specific, realistic and measurable. Using small funds, for small-scale and short-term (6 months) activities, the programme provides timely, flexible and targeted actions for the implementation of national priorities for climate change adaptation. The linearity between the implemented actions and the targeted barrier allows for quick turnover of the project intervention.

The flexibility (Box 1) of the CC DARE Programme approach injects the diversification of the adaptation actions across sectors and thematic areas, and across actors as a result of engaging different types of actors in both the public and private sectors. Besides expanding the range of intervening actions, the co-benefit of the diversification of the implemented actions includes the enhancement of resilience of the national adaptation strategy to future climate change impacts.

#### BOX 1

##### 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
- Provides different entry-points for action
- Expanding the action-base for adaptation

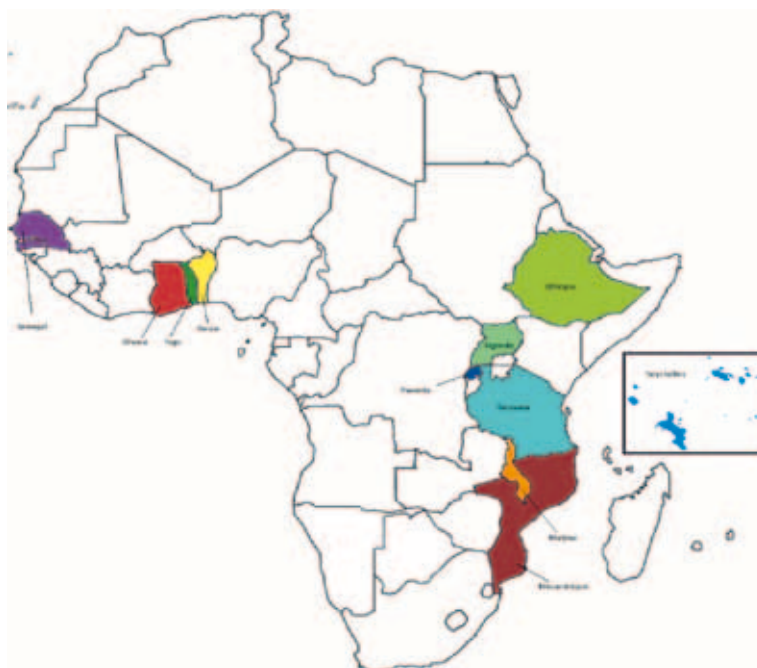
##### Where should flexibility be exercised?

- 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

## 4. CC DARE Partners

Countries are the primary partners of the CC DARE Programme. There are presently eleven participating countries in Sub-Saharan Africa. These include Benin, Ethiopia, Ghana, Malawi, Mozambique, Rwanda, Senegal, Seychelles, Tanzania, Togo, and Uganda with flexibility in their distributions across Sub Saharan Africa (Figure 1). The national system or government provides the primary entry point and constitutes the platform for CC DARE nationally coordinated activities in supporting national strategies and programmes for adaptation. Although entry is through the national system, project activities are not restricted to the government and thus, opened for public participation. National institutions, NGOs, universities & research institutions, independent experts, community groups etc and the private sector are eligible for requesting support through CC DARE thereby bringing in a second layer of CC DARE partners emphasizing the flexibility of the programme and diversifying the actors and actions.

**Figure 1. The distribution of CC DARE participating countries in Sub Saharan Africa**



## 5. Strengthening National Programmes and Strategies with Targeted Actions

The integration of climate change adaptation activities into national development planning and decision-making processes can be facilitated using the catalytic effects of targeted intervening actions (Box 2) provided by the CC DARE programme in support of national programmes or larger ongoing project activities.

These actions are capable of triggering new activities or speed up the delivery of ongoing activities. Using this approach avoids stand-alone/island actions and contributes to national policies and development processes. Following the nature of the CC DARE programme, a wide range of activities are implemented following the demands of the countries and their contributions to their national priorities. Some broad areas in which targeted actions are undertaken include:

- Awareness raising, mass communication and training
- Building capacity, educational programmes and institutional processes
- Data and technical analyses

### Box 2

#### 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 focus programmes and analysis of lessons learned as well as improvement made in addressing the problem
- Enhance the potential for replication
- Facilitate tracking and fast-tracking actions





## A. AWARENESS RAISING, MASS COMMUNICATION AND TRAINING

Creating societal awareness of climate change and the relationship to environmental change is important for informed decision-making process and planning (Box 3). Raising awareness of climate change requires accurate information as well as multi and mass media in channeling the information. In Sub Saharan Africa, environmental communication needs to be improved between science, society and governments. Programme activities in this regards are in several folds and forms in reaching out to the information needs of the countries. Some examples are listed below.



### 5.1 CC DARE is Mediating Change in Societal Awareness of Climate Change

Accelerating climate change response to halt the sweeping social repercussions requires the need for actions at all levels. Using the gatekeepers to mass audiences therefore is important in speeding up the process since they exert great influence, shape public opinion and can point out government inactions. However, if those in the media are ill-prepared it poses a barrier to achieve the desirable outcomes. The CC DARE Programme is undertaking sensitization and training activities for journalists and civil society organizations in addressing this barrier.

### 5.2 CC DARE is Facilitating Mass Communication of Climate Change to Society

The role of the media in helping drive society towards addressing climate change especially in adaptation needs to be harnessed. Unfortunately, mass media coverage of climate change adaptation locally in Sub



Saharan Africa is highly limited. Given the scale of the problem, the level of awareness by society and governments of climate change risks and measures to be put in place, needs to be drastically improved. This requires more vocal coverage and call for more actions using various channels and media outlets.

The lessons learnt from media coverage so far, requires measurable reporting and accurate representation of the risks. This is important in avoiding misinterpretation and setting unrealistic expectations. Therefore, improving the knowledge of those in the media (journalists etc.) for accurate reporting is crucial. The scientific community and practitioners therefore, need to help the media provide information that is effective in raising public awareness of climate/global environmental change.

The CC DARE Programme has taken important steps towards overcoming this bottleneck by organizing training programmes for journalists, civil society organizations (CSO's), and supporting regional training workshops for journalists and those responsible for mass media.

### **Box 3**

#### **Basis for an Informed Decision**

- Know what your risks are
- Know who else share similar risks
- Know what actions to take – individually & collectively
- Know when to take the actions
- Identify the resources for the actions
- Understand the steps to participate in joint action program
- Know the advantages and disadvantages of each program – synergies & tradeoffs
- Know what records to collect and keep

## **B. BUILDING CAPACITY, EDUCATIONAL PROGRAMMES AND INSTITUTIONAL PROCESSES**

Adaptation is a dynamic process with no definitive endpoint that thus, requires short-term, medium-term and long-term measures put in place in addressing the frequent and surprising effects of climate change. Unfortunately, following the vulnerability of human and environmental systems, the immediate needs for adaptation response actions under limited and diminishing resources often overwhelm the ability for long-term planning.

This constitutes a major barrier to building adaptive capacity and system resilience to future climate change impacts that could be considered as sustainable adaptation. CC DARE is supporting activities capable of changing the level of awareness and perception of climate change and providing the capacity in addressing future impacts. For example:

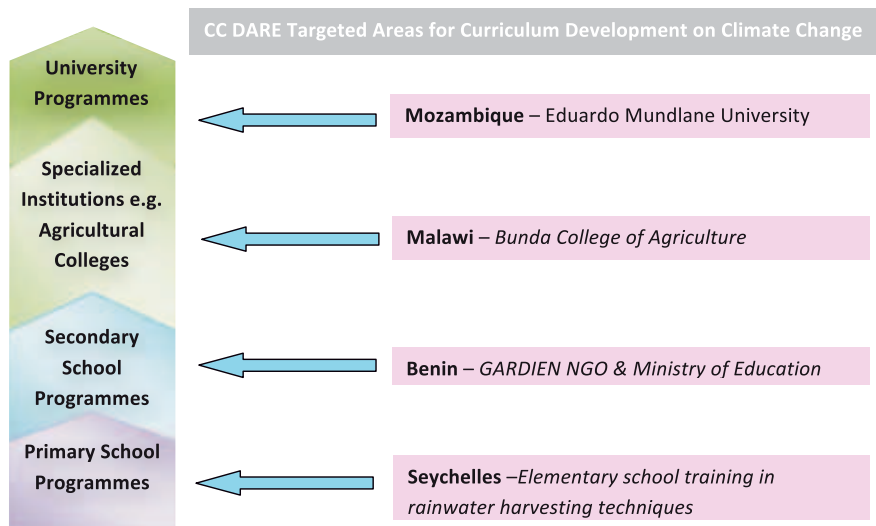


### **5.3 CC DARE is ‘Piggybacking’ Climate Change Adaptation into the Vision of National Development using Educational Programmes**

Long-term solutions to climate change require measures that go beyond mainstreaming into policy. Actions that keep climate change agenda in the national vision of the country are crucial. Targeted youth development and training programmes that integrate climate change into educational curriculum offers the stepping stone for achieving long-term solutions to climate change.

CC DARE is supporting the development of educational curriculum for climate change adaptation with pedagogic training of teachers to prepare them use the materials. The flexibility of the CC DARE Programme is such that the curriculum development activities cuts across different levels of training targeting primary, secondary and tertiary educations, and addressing both general and specialized educational training programmes. The geographical distribution of the curriculum development programmes supported by CC DARE, offers huge opportunity for replication across other countries. With funding availability, there is need to put these curricula in sync and coherence with each proceeding level in integrating climate change into educational programme from primary through secondary to tertiary levels (Figure 2).

**Figure 2. CC DARE in Climate change curriculum development**



### C. DATA AND TECHNICAL ANALYSIS

The availability of high quality data and scientific and socio-economic analysis are required to establish a sound foundation for mainstreaming efforts and decisions.

CC DARE is currently implementing nine national projects that improve the availability of key data and increase the scientific and socio-economic knowledge on development and climate change. Not only is the generation of new data required but also the conservation of historical data.

CC DARE is supporting the digitilizing of historical data currently existing only in hard copies prone to deterioration under climate variability, especially under poor storage conditions exposed to fluxes in ambient temperature and humidity. Digitilization will greatly facilitate data sharing and analysis.

CC DARE is exploring the potentials of indigenous forecasting for integration with modern data collection and analysis that opens the window for strengthening the skills and capacity of indigenous users.

## 6. Diversity in Adaptation to Climate Change

The flexible approach of CC DARE allows for the diversification of programme activities (Figure 2), while also supporting national priorities for climate change adaptation. This allows for addressing the multiple and diverse needs of communities for adaptation and also addresses other national targets in line with the Millennium Development Goals (MDGs).

The diversification is also evident among the actors. The flexible approach expanded the range of actors and institutions by engaging those who were not previously involved in climate change activities. Members of the private sectors and other government departments traditionally not directly responsible for climate change participated in the programme (Figure 3a).



**Figure 3a. The diversity of actors for adaptation and their distribution across different sectors**

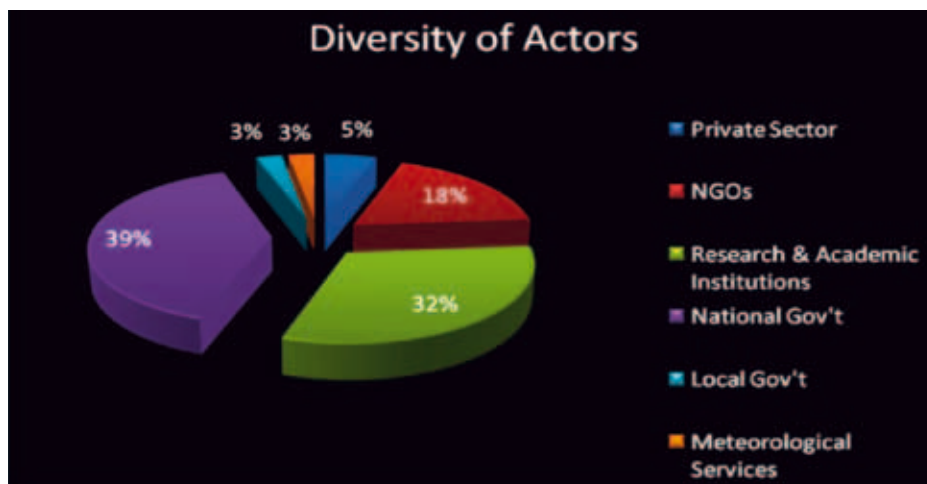
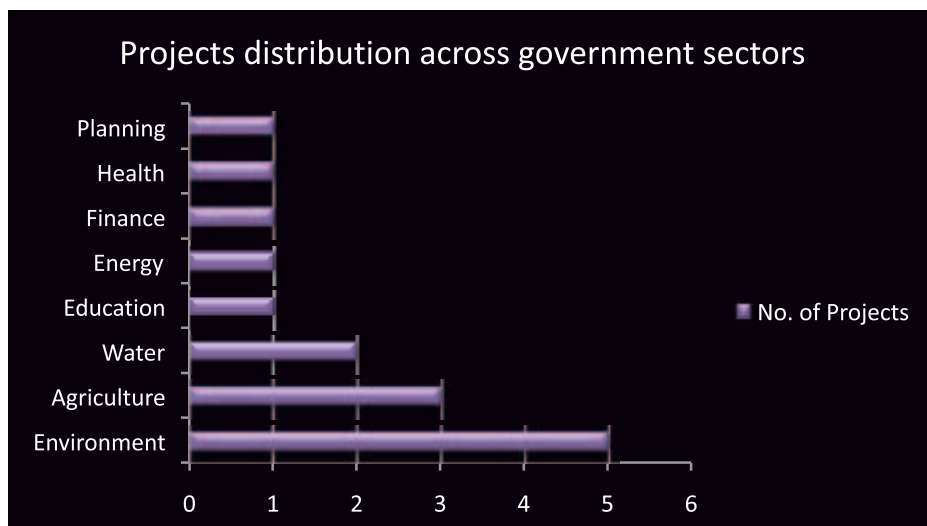


Figure 3. The wide range of sectors and thematic areas of CC DARE country project interventions

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

Even though there were about 40% of the total projects under government departments, there was a significant shift in the distribution away from the Ministry of Environment, which is often the designated ministry for climate change activities in most countries (Figure 3b). That demonstrates the potential of mainstreaming climate change adaptation into other government departments especially Ministries in charge of Finance and National Planning, using this flexible mechanism of CC DARE in engaging actors.



**Figure 3b. Project distribution across government departments**





## **7. Overcoming Barriers for the Implementation of Climate Change Adaptation Actions**

Besides the underlying challenges of climate change following its complexity, uncertainty and nature of the causes that limit rapid buildup of knowledge on how to respond adequately in adaptation, there are still other barriers to actionable response even where there are resources and the know-how to do so. Some of the perennial barriers to national programmes for adaptation addressed by CC DARE include the following:

### **A. ENABLING PARTICIPATION**

- Engaging other non-traditional government departments with out focal responsibilities for climate change, the private sector and members of the civil society etc.
- Expanding the action-base for adaptation by bringing in new actors

### **B. ENABLING POLICY FRAMEWORKS**

- Inter-ministerial/inter-departmental partnership/corporation/collaboration etc. in undertaking joint activities for climate change adaptation
- Involving the ministry of Finance responsible for national budgetary allocation
- Involving the ministry of territorial planning responsible for national planning

### **C. ARTICULATION OF EFFORTS AND LESSONS LEARNED**

### **D. AWARENESS RAISING AND CAPACITY BUILDING**

### **E. ENHANCING THE COMMUNICATION OF THE RISKS AND OPPORTUNITIES**

- Development of educational curricula on climate change capable of enabling long-term solutions and sustainability of adaptation measures.

## 8. Summary of Country Projects

**In the following, the current national CC DARE project portfolio is presented by country in alphabetical order.**

### A. BENIN



Since becoming partner country of CC DARE in November 2008, two national project activities have been successfully implemented in Benin. The Climate change adaptation capacity building and mainstreaming project was carried out in the Region of Alibori in Northern Benin by the IDID NGO targeting six local communities: Banikoara, Gogounou, Kandi,

Malanville, Karimama, and Ségbana. Following the implementation of this project, the elected local council members and local government staff at the offices of the Mayors; technical experts in the extension services; and managers of producer organizations and communal Centers for Agricultural Promotion have received capacity building on climate change through 7 training workshops (with a total of 61 participants) based on 4 training modules developed for the project. The principal target groups are Mayors, Local Councilors, District Heads, Village chiefs, Opinion Leaders, Associations of Producers, Livestock breeders, craftsmen etc.

Technical support has also been provided to the Offices of the Mayors and Local Government for the integration of climate change adaptation options into their Annual Investment and Development Plans (APIDA). A system of risk and disaster management related to climate change has been established. The activities of a preceding project on the strengthening of climate change adaptation capacity of the rural actors of Benin funded by the Africa Climate Change Adaptation (ACCA) Programme have been successfully replicated by this CC DARE project.

The other national CC DARE project in Benin is the CC DARE – GARDIEN NGO

project on the integration of climate change impacts and adaptation strategies into the curriculum for Primary and Secondary Education. A strategy for integration of climate change concerns into primary and secondary school curricula has been developed and school teaching materials on climate change impacts and adaptation strategies have been designed. These have been tested on selected schools, teachers and students in collaboration with and led by the Ministry of Education of Benin. The draft curriculum and teaching materials have been disseminated to stakeholders of the school education system through two sensitization seminars organized in October 2009. The next step in the process is to present the materials to the Ministry of Education for adoption and implementation. The strengths and weaknesses experienced in the consideration of climate change issues in the secondary and primary school curricula have been identified and will be published with the objective and hope that other institutions and countries will learn and replicate them in their education systems.

## B. ETHIOPIA

CCDARE national activities in Ethiopia have just commenced building on a successful inception workshop that brought together multiple stakeholders from the national and international communities. Nine proposals have been selected as CC DARE country project activities. Most of the projects are linked to the



agricultural sector and thereby addressing food security, which constitutes the first national priority for NAPA project developments and an important Millennium Development Goal. There is a great diversity in the nature of the projects with a unique geographical distributions and the engagement of new sectors and actors.

One of the agricultural projects is on the 'identification of adaptive traits in indigenous cattle adapted to drought prone arid and semi arid areas'. The second is addressing 'Local solutions for the challenge of unemployment and food-insecurity based on the adaptation of the climate change'. The third is looking at the '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’ while the fourth is on ‘Community Based Adaptation to Climate Change for Ethiopian Agriculture: Identification of Impacts, Coping Mechanisms, and Adaptation Options: A Case of the North Western Lowlands of Ethiopia’. The last project under the agricultural sector titled ‘Adapting Mechanism for Climate Change Impact on Hydrological Extremes and Crop Production’ is identifying adaptation options under hydrological extremes and crop production in creating possibilities of integrating this into the development plan and decision- making processes.

There are three projects outside of the agricultural sector. The first of the three projects is presented from a non-traditional ministry (Ministry of Mines & Power) that is not normally involved with climate change activities. The project is on ‘Community Led Buffer Zone Establishment around Gilgel Gibe I Hydropower Development Project’. This is quite a strategic opportunity for CC DARE in bringing the energy ministry onboard and mainstreaming climate change into their activities. Furthermore, through this project, the communities around the Buffer Zone will be engaged in conservation and income generating activities that will encourage them to maintain the buffer zone for the sustainability of their livelihoods. The appropriate and effective management of the buffer zone will provide more water for the hydropower plant.

The second project in this category of non-agricultural projects is addressing health issues titled ‘Development of National Acute Watery Diarrhea Prevention and Control (NAWDPC) Strategy’ which is quite strategic following the outbreak and prevalence of diarrhea as a water borne disease highly linked to fluxes in quality and quantity of clean water supply under climate impacts.

Finally, there is a project on ‘Improving Water Harvesting Capacity in Schools in Central Rift valley’. This project highly complements a similar project ongoing in Seychelles primary schools, which demonstrates the demand-driven needs of countries in Sub Saharan Africa and Small Island countries in addressing water challenges posed by climate change. Under the Ministry of Education, this has strong potentials in curriculum development with the potentials of sustainability in the adaptation measures put in place.

C. GHANA

In Ghana, the Environment Protection Agency (EPA) and CC DARE are collaborating to finalize the National Climate Change Adaptation Strategy for presentation to Parliament and Cabinet. Development partners are required to complement the activities under the Natural Resources and Environment



Governance (NREG) Programme, a joint programme supported by GoGH, NL, WB, DFID, EC, and France. The NREG programme promotes sector budget support for priority areas including Environment, Forestry and Wildlife, and Mining.

D. MALAWI

One of the four national CC DARE activities in Malawi focuses on tertiary education. The Department of Forestry and Horticulture under the Bunda College, an affiliate of University of Malawi, is implementing an activity on integration of climate change adaptation in the curriculum of their Agriculture and Natural Resource programme. Five modules



on agriculture, climate change and risk management are developed based on stakeholder (rural agricultural instructors, extension service agents and farmers) consultations, and a compendium of useful resource materials and guidelines on climate change adaptation are also being developed. At the end of the project, a graduate (Masters Degree level) curriculum in agriculture, climate change and risk management will be running at the College with the potential for replication in similar national, regional, and international institutions.

The Forest Research Institute of Malawi (FRIM) is implementing another national project that uses participatory action research in collaboration with vulnerable communities to climate change in the Blantyre North and

its catchment areas. The objective is to identify and document adaptation and management strategies that improve livelihoods and enhance resilience to climate change. It is envisaged that the strategies will strengthen the sustainable management of natural resources, build cross-sectoral natural resource management and planning, and improving household adaptive capacity in the Blantyre North.

The two remaining national CC DARE projects in Malawi are targeting capacity building and mainstreaming. The National Council on Science and Technology (NCST) is adjusting the National Science and Technology Policy of Malawi to incorporate climate change and environmental issues.

Mainstreaming Climate Change Adaptation into the District Development Planning System of the Karonga District of Malawi is being implemented by the Coordination Union for the Rehabilitation of the Environment (CURE) NGO. The project is designed within the decentralization framework, whereby the central government has devolved powers of disaster risk management, and environmental planning and management to district authorities.

However, district authorities currently lack technical capacities to plan and implement the decentralization programme. Against this background, the project focuses on two key aspects

- (a) Building the technical capacities of the district and area level personnel in mainstreaming climate change in the development plans and programmes at their respective levels, and
- (b) Documenting and disseminating lessons learned with a view to replicate similar initiative in other districts.

## **E. MOZAMBIQUE**

Four national CC DARE projects are under implementation in Mozambique. In one of these, the Municipal Council of the city of Xai Xai collaborates with CC DARE to develop strategies for effective urban planning to deal with coastal erosion and land loss in the city. The city has been and continues to face increasingly complex challenges relating to erosion concerns. Public and





private infrastructure, housing and agricultural land are destroyed. The outskirts of the city are the most affected and this is where the municipal government encounters its major challenges. The geological characteristics of the soil seem to be sensitive to erosion, mainly along the access roads, creating therefore, functionality conflicts within the entire urban structure. Thus, this project seeks to introduce sustainable and economical techniques for erosion control and mitigation. The issue of relocation of communities within the municipality as a land, environment and natural resources management effort in revegetation, is looked into and included in future planning. These are all in line with the NAPA and the Vision 2025.

A second project is on education and training. The Physics Department of the Eduardo Mondlane University (UEM) is building the capacity of lecturers from various institutions on climate change related issues and exploring interdisciplinary synergies to better address adaptation to climate change in the university curricula, through research and training. One of the aims is to create a network of high education institution (HEIs) partners across the country and identification of the technology needs and key issues to be integrated in a Masters Degree programme on disaster risk management and adaptation to climate change. An inventory of the status of existing curricula at Public and Private Universities (PPUs) and training workshops for lecturers on disaster risk management and adaptation to climate change issues is conducted. This will enable exchange of experiences and programmes, and to share skills, strategies, and ideas in curriculum development and on climate change adaptation. At the end of the project, the objective is to deliver a full master programme on disaster risk management and adaptation to climate change to be submitted to faculty of Sciences at UEM. This master programme will emphasize multidisciplinary approach towards disaster risk reduction as a core element on the implementation of CCA measures.

The third project focuses on data and technical analysis. Its title is Historical Climate INAM Database Recovery (HCIDR) and it is implemented by the Instituto Nacional de Meteorologia (INAM). The project aims to reinforce the observing network in Mozambique, create a database with online access and rescue the historical data currently archived in hardcopies. However, the CC DARE project only covers the latter (historical data rescue). Data recovery will allow INAM to create capacity building in terms of studies in climate change scenarios and adaption (such as the INGC study on climate change - phase II,

which will focus on adaptation and resilience to climate change risks), improve short and long term climate data, to develop seasonal forecasts, creating a reliable platform for climate variability and develop technologies for climatic scenarios that could in turn be used by the different sectors and development planners to design adaptation and climate proofed development strategies.

The fourth and final project in Mozambique targets sustainable development of the Guvuro coastal zone of Mozambique through the facilitation of adaptation to the derived socioeconomic impacts of climatic changes aims to introduce and promote the acceptance and implementation of Integrated Coastal Zone Management (ICZM) system as management tool under changing climate.

The Centre for Sustainable Development of Coastal Zones under the Ministry for the Coordination of Environmental Affairs is implementing the project. Villagers' awareness on climate change adaptation and natural resource management will be raised; the current status of natural resources in the area will be described; sustainable practices for natural resources management and climate change adaptation in the area introduced; land use sustainability assessed; and detailed recommendations for sustainable land use and natural resources management in the area will be provided.

## F. RWANDA



Two national CC DARE projects have been implemented in Rwanda. One of these is related to data and technical analysis and is being implemented by the Rwanda Environment NGO Forum (RENGOF). The objective of the project is to update the Land Suitability and Land Use Map and

Plan of the Gishwati Area in the Nyabihu District. The update is a key catalyst for the implementation of the UNDP LDCF and AAP Projects in the District.

The second project in Rwanda builds capacity and raises awareness of a vulnerable community on climate change adaptation. The project was proposed and is being implemented by the Nile Basin Discourse Forum (NBDF) NGO. Enhanced awareness and capacity of the population will enable a larger percentage to participate in the discussions and debates, making it possible

to influence the perceptions, attitudes, and behavior of the populations. This will facilitate implementation of climate change adaptation activities in the country.

## G. SENEGAL

Three national CC DARE activities are under implementation in Senegal. All relate to mainstreaming of climate change into development planning and decision-making as an adaptive response, albeit at various levels. The Department of Regional



Planning (Direction de l'Aménagement du Territoire, DAT) and CC DARE are updating the Urban Development Plans (UDP) of Rufisque and Bargny by supporting local government on planning for the future under a changing climate through sensitization and consultations on the implications of projected climate change, the efficacy of existing plans and policies for coping with a changing climate with rise in sea levels, and the development and adoption of adaptive responses to reduce climate change induced vulnerability.

Constructive dialogue with the local population in the affected areas has been fully maintained by the project partners and the issue of relocation of the population to alternative settlements has been discussed with local population. Final outputs of the project are expected in November 2010 and these would be presented to the local authorities ("des élus") and advice them on the need for alternative settlements.

The Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve Sénégal et de la Falémé (SAED) and CC DARE are strengthening the capacities of the local populations in the Delta of the Senegal River to adopt better crop and pasture management techniques, restoration of the soil organic matter and carbon stocks, and rational water management as agricultural practices and technologies that would be adaptable to the changing climate. At least 20 trainers have been trained on climate change and adaptation issues who are then required to provide farming extension in the Senegal Delta. Two sites have been identified for demonstrations activities. Production and distribution of training kits on climate change adaptation technologies for agriculture are on going.

Senegal and CC DARE are furthermore collaborating on a third national activity concerning the Integration of climate risks into planning documents of the Directorate of National Planning of the Ministry of Finance and Economic Planning. CC DARE support is used to determine the impacts of climate change on the national development strategy and planning systems and to recommend a strategy for integrating climate change risks in the actual national planning system and the budget allocations process. The capacity of planning and financial officers to deal with climate change adaptation is supported through the provision of specific tools (a guide on climate risk assessment), which will allow them to integrate climate change into future planning and budget allocation processes. In this respect, the Climate Change Focal Point of the Ministry of Environment has requested the CC DARE project to provide technical assistance related to “tools” or “checklists” to be used for integration of climate risks into national planning.

#### H. SEYCHELLES

There are three national CC DARE projects currently approved in Seychelles. The Ministry of Education is working with CC DARE to demonstrate techniques of Rain Water Harvesting at schools as a viable climate change adaptation option. The activity, that started in early 2010, involves the collection of rain water from schools roofs to be used for domestic purposes such as the school gardening, clean ups and toilets at school level. A pilot project has already been running for more than one year, but only covered two schools. With CC DARE support, the pilot activities are being replicated and expanded to 10 more schools and new elements are added. The Ministry of Education, working with the members of the National Climate Change Committee is executing and implementing the project. At the schools, the activities are implemented by the Eco-School Committees. The project has the potential to intensify

and expand water conservation sensitization programmes in schools for teachers and pupils. Water harvesting will be included in the school curriculum as a catalytic effort to initiate integration of climate change adaptation measures and technology. Partnerships will be built with the Water and Sewage Division



of the Public Utility Cooperation in the provision of sensitization materials on water treatment and management. It is also planned that once the project has been implemented in several schools, the Environmental Education Unit, together with the schools involved could finally submit a formal request to the Ministry of Education and other concerned ministries, such as environment and national development, for the system to be included in building codes and relevant sectoral and national development plans.

Also in Seychelles, a consortium of national institutions led by the Environment Department has requested for CC DARE support for training of technicians and managers on climate change, water, and coastal resources. The training course covers key concepts of climate change on coastal resources specific to small island states, including coastal processes, shoreline management, vulnerability assessments, impact modeling and Integrated Coastal Zone Management (ICZM). The training highlights mainstreaming of climate change adaptation into management systems (PRSP, National Development Plans).

The third national activity is the project called Adaptation by increasing climate monitoring and climate change assessment in the Seychelles, implemented by the National Meteorological Service and SIF. Through this project, a representative climate data collection system for effective monitoring of national, regional and global climate variability and change is established. Such a system is a pre-requisite for integrating climate change adaptation into national development frameworks. As part of the project, gaps in the meteorological data collection and climate monitoring network of Seychelles will be addressed through the procurement, installation and operationalization of automatic weather stations and the training of both meteorological and non-meteorological (volunteer observers) staff and user communities to collect data and maintain the automatic stations.

## **I. TANZANIA**

In Tanzania, the Department of Forest Mensuration and Management (DFMM) of Sokoine University of Agriculture in Morogoro and CC DARE are working together to improve smallholder livelihoods through woodlots management as a climate change adaptation activity in the Makete District. Baseline data and information has been gathered from around 120 households and 40 timber traders in the Mangoto, Lupila, Lupalilo and Matamba wards of the District related to silvicultural management practices; growing stocks;

the contributions of smallholder woodlots to household income and poverty alleviation; the role of gender, local knowledge and land tenure; and existing marketing channels and practices for softwood timber from smallholder woodlots. Management and marketing strategies that aid in the planning



and development of improved woodlots productivity and household income for poverty alleviation under a changing climate have been proposed. The preparation and production of guidelines for best woodlots management practices in Makete District are currently being finalized for utilization by the local population and the district extension services and institutions, both locally and nationally.

The second project under implementation in Tanzania is the joint Environment Protection and Management Services, Tanzania Meteorological Agency (TMA) and CC DARE on the identification, documentation and dissemination of indigenous forecasting tools and skills and their integration into conventional weather forecasting operations of the TMA. A workshop for District planners, meteorologists, agricultural extension officers, civil society organizations, and local community elders on how to use indigenous forecasting and integrate climate change in planning processes at district and village levels was conducted in July in Dodoma. A Technical Paper with policy options on mainstreaming indigenous forecasting in plans and strategies to address climate change at national level in the context of NAPA has been prepared in collaboration with experts from the Tanzania Meteorological Agency.

## J. TOGO

The Government of Togo and the UN Country Office used the National Capacity Self Assessment of Togo to cooperate in training journalists and empowering them to sensitize the population on climate change.





This has been found to be inadequate and CC DARE and the Friends of the Earth – TOGO are collaborating in a project entitled 'Renforcement des capacités techniques des organisations de la société civile togolaise et des acteurs du secteur privé sur les changements climatiques' with the objectives of training civil society organizations (NGOs, CBOs) in Togo and the development of media materials on climate change and climate change adaptation. The journalists trained under the UNDP Project are also being used as trainers. The media materials produced have been broadcasted as part of the activities to sensitize the general public. As agents of change close to the grass-roots level communities, the CBOs when capacitated would do the good job of sensitizing and raising the awareness of the local communities on climate change adaptation using the materials developed.

The second project in Togo is implemented by the Ministry of Water and is titled 'Projet de réhabilitation de retenues d'eau dans la région des savanes au profit des groupements de femmes et de jeunes'. The project uses ecosystem based approach in adaptation of water supply to serve household needs and reduce the burden of young women in the northern Savanna region of Togo that is prone to recurrent drought. It is meant to develop stronger technical and institutional capacities at the Department of Village Water Supply and the communities of Kara and Savane regions of Togo for identifying, costing, prioritizing and implementing adaptation measures in water that are consistent with national development goals and priorities enshrined in the Togo NAPA.

## K. UGANDA

Three national CC DARE projects have been undertaken in Uganda: One on awareness raising; one on data, technical analysis and research, and; one on mainstreaming climate change at the sectoral level. The Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) has collaborated with CC DARE on mainstreaming climate change adaptation into the Development Strategy and Investment Plan (DSIP) of the agricultural sector as a component of the 2009 revised National Development Plan (NDP) of Uganda. The partnership achieved in this



task was through a series of training courses; development and application of guidelines on mainstreaming climate change into sectoral development plans, and subsequent revision of the strategy and investment plan of the agriculture sector.

In the first training course eighty (80) staff involved in developing DSIP through the Thematic Working Groups, comprising staff from MAAIF, academia, and semi-autonomous agencies agricultural related CSOs, were trained on climate change including skills of mainstreaming. In the second training course, more than 90 staff of the agricultural departments of Local Governments responsible for planning and implementation at local level were trained on climate change adaptation. A half-day meeting for 40 government officials from other ministries was also conducted with the objective of sharing information and experiences across relevant line ministries. The Guidelines on mainstreaming climate change concerns in the DSIP and NDP were produced and disseminated widely. Operations guidelines for local government level actors to integrate climate change in their daily working routines (e.g. extension and advisory services and research) focusing on agricultural production departments were also produced and disseminated.



Another national activity in Uganda that has now been completed is the NARL/NARO – CC DARE project on adaptation options to cope with agricultural drought.

The project targeted the following four integrated areas to achieve the outcome of the projects;

Enhanced sustainable livelihoods and food security through increased nutrient- and water-use efficiency for increased crop productivity:

- Improved scientific knowledge and information on agro-meteorological climate risks and uncertainties related to crop production to guide decision-making on crop diversification and substitution.
- Identification of current socio-economic factors, constraints, and opportunities for promoting adapted land use and management technologies in tandem with traditional knowledge and practices for coping

with agricultural drought in the southern and eastern Lake Kyoga agro-ecological zone (AEZ).

- Enhanced awareness of stakeholders on climate change and variability, agricultural drought, adapted technologies, and best practices.
- Implementation through piloting of adapted technologies (integrated nutrient management, conservation agriculture, contour bunds etc.)

All the information and data collected were analyzed, synthesized, packaged and disseminated using different platforms including feedback workshops and awareness creation meetings among different stakeholders (politicians, district leaders, scientific fraternity and farmers); newsprints and prime time television newscasts; and technical reports. Twelve model farmers were selected to host the pilot demonstration plots. The technologies that were selected for demonstration included conservation agriculture and integrated nutrient management in maize production.

The demonstrations were implemented in the first crop season of 2009, characterized by almost all the vagaries (late onset, variable amounts, a season interspersed with drought, etc.) that have come to typify the first season. In spite of these challenges, the demonstration plots stood out in vigor and greenness, and farmers managed to harvest produce, underpinning the increased resilience of farmers adopting the demonstrated technologies. An increasing number of farmers are currently adopting the demonstrated technologies. During the national workshop and the newscasts, the project findings created considerable attention and put NARO/NARL in a trailblazing position on the issue of climate change related agro-meteorological challenges.

The timely disbursement of funds by CC DARE for implementation of national activities has been found to be a major contributing factor to the success of the project. Based on the success of the CC DARE project, NARL/NARO have been able to secure funding for follow-up activities that will contribute towards further integrating climate change in NARO's research agenda as well as to achieving the ultimate goal of the project, i.e. sustainable livelihoods and food security through increased nutrient- and water-use efficiency for increased crop productivity. Envisaged follow-up activities include replication, up-scaling, and expansion to all agro-ecological zones across the country, and validation and calibration of crop simulation models and agro-climate zonation.

The third and final activity in Uganda is the public awareness project in which the High Commission of Meteorology under the Ministry of Water Resources in collaboration with M/S Great Lakes Film Production Company LTD and Farmers Media Link Centre in Uganda are implementing the national activity on enhancing awareness of Ugandan population to remove barriers to integration of climate change adaptation in development. The project is developing a Film Documentary, led by the Great Lake Film Production Company, and also producing media (audio, electronic and print) materials led by the Farmers Media Link Centre. After the production of the products, the Meteorological Agency in collaboration with media outlets (radio, television, journalists) would conduct awareness campaigns to sensitize and educate the population.

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