

NATIONAL CLIMATE CHANGE ACTION PLAN



REPUBLIC OF KENYA

Adaptation

Technical Report 10

Report on Transboundary Projects addressing Climate Change Issues

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Transboundary Programmes addressing Climate Change issues

This report gives summaries of key transboundary projects addressing climate change that the Kenyan government needs to take stock of when designing their climate change programmes and projects across various sectors.

A. East African Community Climate Change Master Plan

Implemented by: East African Community (EAC)

Areas of implementation: Kenya, Uganda, Tanzania, Rwanda, Burundi

Climate Change impacts identified in the Plan:

- Water stress and scarcity
- Food insecurity
- Diminished hydropower generation potential
- Loss of biodiversity and ecosystem degradation
- Increased incidence of disease burden
- Destruction of infrastructure
- High costs of disaster management as a result of increased frequency and intensity of droughts, floods and landslides associated with the El Niño phenomenon.

Objectives of the Plan

- a. To provide an effective and integrated response to regional climate change adaptation.
- b. To enhance the mitigation potential of Partner States in the energy, infrastructure, agriculture and forestry sectors.
- c. To streamline and harmonise existing and on-going trans-boundary mitigation and adaptation projects or activities.
- d. To foster strong international cooperation to address issues related to climate change including enhancing the negotiating ability of the Partner States in the African Union and other forums including the UNFCCC.
- e. To mobilise financial and other resources to implement the above.

Adaptation Actions in Various Sectors

Agriculture Sector

- Creation/provision of special livestock and crops insurance schemes using weather insurance index.
- Promotion of water-efficient irrigation agriculture.
- Creation of strategic grains reserves as a form of post-harvest management.
- Investment in water capture and storage infrastructure to harvest and store rainwater for agricultural use.
- Investing in research and development (R&D), e.g. in breeding and dissemination of crop and livestock varieties suited to different agro-ecological zones and changing climatic conditions.
- Promotion of crops and livestock types and varieties able to withstand the changing climatic conditions such as early-maturing crops and livestock.
- Promotion of suitable forms of conservation agriculture (CA) to conserve soil and water (moisture).

- Provision of mobile grain driers to respond to unusual wet conditions during harvesting.
- Promotion of agroforestry.
- Creation of livestock feed conservation programmes.
- Creation of seed conservation programmes.
- Investment in pest and disease monitoring and control measures.
- Creation of pest and disease free-zones for livestock.
- Creation of a robust early-warning system (EWS) to provide extension, advisory & outreach services to farmers and other users.
- Provision of agricultural inputs, e.g. fertilisers, –improved seeds and other plant materials through subsidies and other financial tools.
- Incorporation of indigenous/traditional/local knowledge on adaptation into modern/scientific knowledge, e.g., traditional knowledge of food preservation and rainfall forecasting/prediction integrated with modern knowledge.

Water Sector

- Promotion of integrated water resources management as a primary tool of water resources management.
- Catchment and watersheds protection and management, e.g. through afforestation to create protected forest areas.
- Roof, rock and other forms of rain water harvesting for domestic use.
- Investment in more water capture and storage facilities including state schemes as well small dams/pans;
- Ground water is currently underutilised in spite of the fact that aquifers provide high quality water. The main obstacles to greater utilisation of these water sources include a lack of data that would inform more effective exploitation and management of these regional resources. Greater investment and in ground water exploration and abstraction as well as pollution control is required;
- Early warning systems for floods and droughts;
- Promotion of water resource economics focussing on water-use efficiency including water conservation and recycling;
- Artificial recharge of dried-up aquifers;
- Inter-basin transfers;
- Investment in more water supply and sanitation infrastructure;
- Sustainable use of wetlands;
- Protecting coastal freshwater resources and supplies from saltwater intrusion; and
- Desalination of sea-water in coastal regions (as an adaptation strategy for salt-water intrusion)

Energy Sector

- The EAC Secretariat should promote energy diversification -- the exploitation of alternative renewable energy sources such as geothermal, wind, solar, biomass (including biomass waste) and biogas, which are abundant in the region.
- As a way of reducing primary energy consumption and protecting natural resource base from depletion, EAC shall encourage Partner States to take the following measures:
- Promotion of energy conservation and efficiency in the household.
- Promotion of woodlots and agroforestry programmes for firewood and charcoal production.
- Improving access to liquefied petroleum gas (LPG) and other modern cooking energy forms by means of low or zero taxation and standardisation of supply equipment. It is reported that household LPG use in Kenya for instance, has been constrained by high costs and low supply rather than market.
- Review of electricity tariffs review to meet the demand of the poor, coupled with intensified rural electrification programmes.

- In order to protecting energy facilities (infrastructure) against extreme weather events, the transmission and distribution utility must be modernised, e.g. automation of energy systems to enable energy utilities respond faster to emergency situations.

Health and Settlement Sector

- Provision of adequate financial and human public health resources, including training, disease surveillance and emergency response as well as prevention and control programs.
- Relocating humans from disaster prone areas e.g. from flood-prone areas to alternative safer areas.
- Developing climate change awareness programmes involving all stakeholders.
- Proper planning of urban settlements including ensuring that they have proper housing structures and adequate waste disposal facilities and piped water infrastructure.
- Establishing insurance schemes to compensate persons and communities affected by climatic disasters.
- Diversifying economic activities to improve the resilience of rural communities dependent on climate-sensitive sectors such as agriculture and livestock rearing.
- Encouraging the formation of satellite committees that can respond to emergencies, and involving them in key decision making.
- Developing empowerment programmes that enhance climate resilience
- Promotion of sustainable (environmental, social, and nutritional) public health interventions, e.g. urban tree planting to moderate temperature increases, safe biking instead of motorised transport, etc.

Physical Infrastructure

- Factoring in climate change into building codes and practice. This will help in ensuring that infrastructure is able to withstand extreme events associated with climate change;
- Adopting the design and materials of construction of infrastructure that are able to withstand extreme weather events;
- Continuing to use vulnerable areas or sites through innovative measures practicable under the new prevailing conditions; and
- Factoring in potential impact of any future climate change mitigation action (s) on infrastructural service during its design stage.

Ecosystems and Biodiversity Sector

- Protection of sensitive ecosystems through measures such as community driven ecosystem management particularly as a way of addressing the drivers of over-exploitation and degradation of key ecosystems.
- Establishment of more – protectedl areas.
- Increasing national forest covers through tree planting, agroforestry, participatory forest management, rehabilitation of degraded areas, and diversification of tree species (indigenous species) to enhance resilience to drought and other adverse weather conditions, etc.
- Protecting and enhancing migration corridors and habitat connectivity (e.g., through avoiding habitat fragmentation especially with regard to privately owned land) to allow species to migrate as the climate changes.
- Protection and management of rare plant and animal species, particularly those of important value, e.g., medicinal.
- Rehabilitation and restoration of degraded habitats/ecosystems.
- Collection and conservation of genetic resources of neglected indigenous species.
- Research and active management of enclosed/protected/marginal areas specifically in relation to determining the carrying capacity and consequently the provision of water pans and other infrastructure to support wildlife in those areas.
- Development of rapid response teams in order to respond to imminent and current destructive activities to limit damage to ecosystems.

- Breeding new plant species that are more tolerant to changed climatic conditions;
- Promoting fire suppression practices in the event of increased fire risk due to temperature increases
- Controlling insect and disease outbreaks.

Coastal Area Sector

- Developing county-scale maps depicting which areas will require shore protection (e.g. dikes, bulkheads, beach nourishment) and which areas will be allowed to adapt naturally;
- Analysing the environmental consequences of shore protection.
- Promoting shore protection techniques that do not destroy all habitat.
- Identifying land use measures to ensure that wetlands migrate as sea level rises in some areas.
- Engaging state and local governments in defining responses to sea level rise.
- Improving early warning systems and flood hazard mapping for storms.

Trade and Industry

- Developing strategies to deal with the impacts of climate change on other operators in the trade and industry value chain (for example, energy and transport).
- Developing strategies to deal with current and future climate change regulations and industry standards, e.g. measures to respond to possible mitigation legislation/regulation in the industry.
- Evaluating the potential impacts (including economic/financial) of climate change in the sector, and developing appropriate measures to deal with such.
- Ensuring that the management approach taken by a firm is based on robust climate change information and assumptions.
- Developing strategies for taking advantage of the opportunities that may arise e.g. how does the regional industrial sector ensure that it benefits from mitigation measures being imposed on the industry elsewhere.

Mitigation Interventions

- Research, Technology Development and Transfer
- Capacity Building

Budget: US\$ 34,220,137.65

B. Mount Elgon Regional Ecosystem Conservation Programme (MERECP)

Implemented by: Lake Victoria Basin Commission

Area of implementation: Kenya and Uganda

Climate change impacts identified in the programme:

- The natural resource base in the Mt Elgon area is becoming depleted
- Loss of biodiversity

Objectives of the programme

- a. MERECP links environmental management to livelihood security and poverty alleviation. The Programme addresses pressures currently being put on Mount Elgon ecosystem by enhancing natural resources productivity, provision of livelihoods options and adding value to natural resources. Further MERECP strengthens institutional

capacities, policy and legal frameworks for enabling conservation and sustainable development in a transboundary context, because it is a shared ecosystem between Kenya and Uganda.

- b. Benefit sharing and co-management models of ecosystem and biodiversity conservation and management around PAs demonstrated successfully by end of 2010
- c. Equity and benefit sharing models/revolving funds that create opportunities for payment of ecosystem goods and services for improved livelihoods are in place by 2010
- d. Linking of livelihoods improvement to climate change mitigation/adaptation demonstrated successfully by end of 2010:
- e. Appropriate institutions strengthened in support of the transboundary ecosystem approach by end of 2010.

On-going Activities

- Zoning of areas within national parks (NPs), forest reserves (FRs), and adjacent district lands.
- Identification of degraded areas within NPs, FRs, and districts for planting and user right regimes on a pilot basis.
- Provision of technical assistance to community based organisation (CBOs) to prepare, plant and maintain plantations.
- Operationalization of ecological monitoring tools and database for the Mt. Elgon ecosystem with participation of communities and monitoring of ecosystem restoration and protection.
- Identifying a catalogue of cross-border activities that can be regularized under an administrative agreement or MoU between relevant authorities.
- Identification and registration/communication of CBOs that are “eligible and ready” and registered with accounts to receive seed capital for community forest reserves (CRFs).
- Provision of technical assistance to CBOs to build capacity on micro-credit operations and undertaking income generating activities
- Transfer of seed capital for establishing CRFs in 10 Parishes-Uganda and ten Locations-Kenya.
- Monitoring of CBO performance of CRF operations and livelihood improvements -cash and non-cash based.
- Monitoring of plantations and ecosystem health.
- Auditing of CBO accounts externally and submission of such reports to National Focal Persons on an annual basis.
- Planning and study of the entire Mt Elgon Ecosystem (Protected Area boundaries) to design a Climate Change/REDD based strategy covering all settlements adjacent to the Protected Areas.
- Undertaking of a Climate Change adaptation study covering vulnerable and high risk areas, raising awareness, building capacity in selected CBOs for disaster preparedness, and flagging climate change adaptation needs.
- Entering into agreements with selected CBOs for plantations for livelihood improvement, reforestation for carbon sequestration, and deforestation avoidance.
- Carrying out baseline surveys and establishing benchmarking and monitoring indicators for REDD (i) deforestation avoidance; (ii) reforestation for climate change mitigation-carbon sequestration.

Budget: Norwegian Kroner 34.2 million/ USD 4.8 Million

C. Climate Prediction and Applications Centre Programme

Implemented by: Intergovernmental Authority for Development

Area of implementation: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda as well as Burundi, Rwanda and Tanzania

Climate change impacts identified in the programme

- Extreme weather events such as famine and floods
- Prolonged and frequent droughts

Objectives of the programme:

- a. To provide timely climate early warning information and support specific sector applications for the mitigation of the impacts of climate variability and change for poverty alleviation, management of environment and sustainable development.
- b. To improve the technical capacity of producers and users of climatic information, in order to enhance the use of climate monitoring and forecasting products in climate risk management and environment management.
- c. To develop an improved, proactive, timely, broad-based system of information/product dissemination and feedback, at both sub-regional and national scales through national partners.
- d. To expand climate knowledge base and applications within the sub-region in order to facilitate informed decision making on climate risk related issues.
- e. To maintain quality controlled databases and information systems required for risk/vulnerability assessment, mapping and general support to the national/ regional climate risk reduction strategies.

Activities

- Acquisition of climate and remotely sensed data.
- Develop and archive national and regional climate databanks including calibration of remote sensing records.
- Process data and develop basic climatological statistics required for baseline risk scenarios and other applications.
- Monitor, predict and provide early warning information of the space-time evolutions of weather and climate extremes over the sub-region.
- Hazards and climate risk mapping of the extreme climate events thresholds.
- Networking with World Meteorological Organisation, the National Meteorological and Hydrological institutions as well as regional and international centres for data and information exchange.
- Capacity building in the generation and applications of climate information and products.
- Applications of climate tools for specific climate sensitive sector risk reduction, environment management, and sustainable development, including integration of indigenous knowledge.
- Monitor, assess, detect and attribute climate change and associated impacts, vulnerability, adaptation and mitigation options.
- Develop relevant tools required to address the regional climate challenges through research and applications in all climate sensitive socio-economic sectors including addressing linkages with other natural and man-made disasters.
- Networking and exchange of information regarding disasters in the sub-region.

Budget: Annual budget - US\$500,000

D. Climate Change Adaptation in Africa

Implemented by: International Development Research Centre (IDRC)

Area of implementation: 33 African Countries

Climate change impacts identified in the programme

- Food and water security is being compromised due to frequent droughts
- Livelihoods are under threat
- Widespread poverty
- Fragile ecosystems

Objectives of the programmes

- a. Strengthen the capacity of African scientists, organizations, decision-makers, and others to contribute to climate-change adaptation
- b. Support adaptation by rural and urban people, particularly the most vulnerable, through action research
- c. Generate a better, shared understanding of the scientific findings on climate variability and change
- d. Inform policy processes with good-quality, science-based knowledge.

Activities

- Participatory action research (PAR)
- Education and training
- Communications and networking

Outcome Area 1. Research teams are better able to assess climate-related vulnerabilities and to evaluate and develop adaptation options.

Outcome Area 2. At risk groups, policy makers and researchers share learning and expertise on climate vulnerability and poverty.

Outcome Area 3. The poor in rural and urban environments apply their experience of adaptation with the knowledge and technologies generated by research to implement improved and effective adaptation strategies.

Outcome Area 4. Policy processes are informed by good quality science-based work on vulnerability and adaptation, and by the experiences of the rural and urban poor

Budget: CA\$16.25 million from IDRC and £25.25 million from DFID.

E. Regional Learning and Advocacy Programme

Implemented by: Oxfam GB Save the Children UK, Veterinaries Sans Frontiers-Belgium, Cordaid, CARE, RECONCILE (Resource Conflict Institute) and the Overseas Development Institute (ODI).

Area of implementation: Horn of Africa and East Africa

Climate change impacts identified in the programme

- Increased flooding
- Prolonged and frequent drought
- Increased livestock diseases

Objectives of the programme

The Regional Learning and Advocacy Programme (REGLAP) is an ECHO-funded project aiming to avert this crisis and reduce the vulnerability of pastoral communities through policy and practice change in the Horn and East Africa. The aim of the project is to raise awareness among planners and policy makers about the full potential of pastoral systems to make a significant contribution to the economies of the region.

The overall objective of REGLAP is directly in-line with the Priority for Action 1 of the Hyogo Framework that seeks to ensure that DRR is a national and local priority with a strong institutional basis for implementation. The project works in four key areas:

- Civil society advocacy capacity: Increase civil society capacity for documenting and sharing lessons learnt and conducting advocacy work around Disaster Risk Reduction.
- Knowledge gathering and lessons learnt: Harness and package existing knowledge, good practice and lessons learnt from community based actions and disseminate to key practitioners.
- Good DRR practice: Build a shared understanding of what constitutes good DRR practice and promote improved implementation.
- Policy dialogue: Utilise learning to influence the development and implementation of national and regional disaster risk reduction and related policies.

F. Livestock for Livelihoods: Strengthening Climate Change Adaptation Strategies through Improved Management at the Livestock-Wildlife-Environment Interface.

Implemented by: African Union Inter-African Bureau for Animal Resources (AU-IBAR).

Area of implementation: Kenya, Uganda and Sudan

Climate change impacts identified in the programme

- Conflict over natural resources
- Frequent and Prolonged drought

Objectives of the programmes

To strengthen Livestock-based livelihoods and improve food and environmental security in Arid and Semi Arid lands

Activities

- Capacity building of CBOs in environmental issues (including cross-border resources).
- Strengthening cross-border resource management.
- Learning lessons and dissemination of good practice on sustainable resource use.
- Peer review of management regimes and their effectiveness in improving natural resources.

Budget: € 4.8 million

G. Lake Victoria Environmental Management Project

Implemented by: Lake Victoria Basin Commission

Area of implementation: Kenya, Burundi, Rwanda, Uganda and Tanzania.

Objectives of the project

- a. Improve the collaborative management of trans-boundary natural resources of LVB
- b. Reduce environmental stress in Lake Victoria.

Activities

- Collecting information on the environmental status of the lake, its Catchment and the practices being used by the communities living around the lake.
- Institution establishment.
- Capacity building, actions to deal with environmental problems of the lake and its Catchment, Water hyacinth control.
- Improving water quality and land use management.
- Sustainable utilization of the wetlands for both their buffering capacity and the products therein.

Budget: USD 4,239,157.29

H. Climate Change Impacts on Ecosystem Services and Food Security in Eastern Africa – Increasing Knowledge, Building Capacity and Developing Adaptation Strategies

Implemented by: International Centre for Insect Physiology and Ecology, University of Helsinki, Finland, University of York, U.K., University of Dar-es- Salaam, Tanzania, Sokoine University of Agriculture, Tanzania

Areas of implementation: Eastern Africa (Kenya – Taita Taveta (Taita Hills), Tanzania – Kilimanjaro (Pangani River Basin), Ethiopia – Jimma Highland (Didessa River Basin)

Climate change impacts identified in the project:

- Impacts on ecosystem services and food security

Objectives of the project:

1. Evaluation of ecosystem services, identification of stakeholders and development of future scenarios for the target areas.
2. Assessment of climate change impacts on biodiversity and habitats.
3. Establishment of key data on the effect of climate change on pollinators, insect pests and their natural enemies.
4. Assessment of climate impacts on water provision using predictive hydrological models.
5. Establishment of adaptation tools and Adaptation Management Framework for the target areas.
6. Organization of area specific hands-on training for communities and creation of gender sensitive community based action plans.

7. Support in-service training of the staff members of the stakeholder organization through sponsoring of MSc and PhD degrees.
8. Production of materials on climate change impacts on ecosystem services and food security and disseminate these materials on various regional levels.
9. Building the capacity of the Kenyan, Tanzanian and Ethiopian research and administrative organizations in agriculture, entomology, hydrology, ecology and geoinformatics.
10. Strengthen climate and land use change monitoring and prediction systems.
11. Development and dissemination of adaptation tools and building adaptation capacity in collaboration with local communities.
12. Development of adaptation strategies to climate change in order to improve food security and livelihoods on the target areas.

I. Adaptation and Dissemination of the ‘Push–Pull’ Technology (ADOPT): A Conservation Agriculture Approach for Smallholder Cereal–Livestock Production in Drier Areas to Withstand Climate Change

Implemented by: Rothamsted Research, United Kingdom, Heifer Project International Kenya (HPI/K), Heifer Project International Tanzania (HPI/T), Institute for Sustainable Development, Ethiopia, Kenya Agricultural Research Institute (KARI), Kenya, Ethiopian Institute of Agricultural Research (EIAR), Ethiopia, Lake Zone Agricultural Research and Development Institute (LZARDI), Tanzania, Ministries of Agriculture and Livestock in Kenya, Ethiopia and Tanzania, Non-governmental organisations (NGOs) and farmer groups.

Areas of implementation: Kenya (Western, Nyanza and Central provinces), Ethiopia (Amhara, Tigray, western Hararge regions), Tanzania (Lake Zone—Mara, Mwanza and Shinyanga regions)

Project Activities

- Mobilisation and creation of awareness of push–pull technology among key stakeholders;
- Identification and selection of drought-tolerant companion plants for incorporation into the push-pull technology for drier areas of Kenya, Ethiopia and Tanzania;
- Establishment of input production and distribution systems in the target regions;
- Technology validation and dissemination among resource-poor cereal–livestock farmers in the target regions;
- Establishment of linkages with regional and continental platforms for wide-scale technology implementation;
- Socio-economic impact and gender evaluation of the adapted technology.

J. COMESA EAC Tripartite Climate Change Programme

Area of implementation:

Burundi	Madagascar
Comoros	Malawi
D.R. Congo	Mauritius
Djibouti	Rwanda
Egypt	Sudan
Eritrea	Swaziland
Ethiopia	Uganda
Kenya	Zambia
Libya	Zimbabwe
Seychelles	

Climate Change impacts identified in the programme

- Conflict due to fight for dwindling natural resources

Objectives of the programmes

- To contribute to the Adoption of key elements of the African Climate Solution and mainstreaming of Climate Change in national planning.
- To support member states to access adaptation funds and other climate change financing sources and mechanisms through national investment frameworks for climate adaptation in agriculture, forestry and other land uses
- To enhance adoption of Climate-Smart Conservation Agriculture in COMESA-EAC-SADC region.
- To strengthen capacity in national research and training institutions and implementation of research programmes.
- To implement climate vulnerability assessments and Analysis.
- To apply Mitigation solutions in the COMESA-EAC-SADC region with carbon trading benefits.
- To establish a regional catalytic facility to support investments in national climate smart
- Agriculture programmes

Budget: EU- € 4 million, Norway US\$20million, DFID (UK) - £38 million