



MINISTRY OF ENVIRONMENT
AND FORESTRY



CASE STUDIES ON CLIMATE CHANGE RESPONSE ACTIONS IN SELECTED DEVOLVED UNITS



Towards Food Sufficiency Exploring Irrigation Potential: The Case of Maji-Moto, Narok County



Indigenous Livelihoods Enhancement Partners (ILEPA)

Citation

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Background

The inaugural climate change training program, *Climate Change Policy, Planning and Budgeting at National and County Level*¹ was held in June 2017. As a follow-up to the Inaugural Training Program, the USAID – UNDP funded Low Emission and Climate Resilient Development (LECRD) Project in collaboration with the Kenya School of Government developed training case studies for use during future climate change training sessions. The training case studies are designed to complement training programs on climate change to enable trainees tease out and practically relate with concepts, theories and ideas presented in class. The cases document climate change initiatives and response actions in the Counties. Based on county presentations made during the climate change training, two counties namely; Kilifi and Narok were selected to showcase progress made and initiatives implemented in response to climate change in their respective counties. The county representatives (*Climate Change Champions*) who attended and successfully completed the training program were involved in the entire case study development process. The *Champions* planned the data collection visits to and identified exemplary climate change initiatives in their respective counties.

The case study development process entailed; a two week data collection exercise in Kilifi and Narok counties in October 2017 and a one week case study writing workshop in November 2017. The data collection exercise involved; Visits to the respective county offices, Focused Group Discussions with county officers and communities and Key Informant Interviews.

During the data collection visits; the case study team explained the purpose of the visit, interviewed the respective officers to identify and select exemplary climate change adaptation and mitigation initiatives in the county to focus on, made field visits, collected relevant information, conducted interviews and

1 The Ministry of Environment and Forestry and relevant stakeholders including Kenya School of Government developed a training program on “***Climate Change Policy, Planning and Budgeting at National and County Level***” to enhance the capacity of the public service to comprehensively address climate change challenges. The program targets middle level managers and technical government officers involved in policy formulation, planning, budgeting and implementation of programs in sectors vulnerable to the effects of climate change

collected secondary data. The main areas of focus included clean energy, climate smart agriculture, forestry and water resources.

During the case study development workshop six (6) training case studies; four (4) in Kilifi County and two (2) in Narok County, and their respective teaching guides were developed namely;

1. Victor’s Farm: An oasis of plenty in a dry land, Malomani Village, Kilifi County
2. Greening Kilifi County: The Magical Woodlots, Kilifi County
3. Tapping on Clean Energy Sources: Solar Water Driven Borehole Pump Mwawesa, Kilifi County
4. Waste Becomes an Energy Mine: A Case of Biogas Project at Kombeni Girls Secondary School, Kilifi County
5. Towards Food Sufficiency: Exploring Irrigation Potential – The Case of Maji-Moto, Narok County
6. Breathing Life into Enoosupukia ridges: Re-claiming the Sweet Flow from the Hills, Narok County.

The case studies and teaching guides were then presented to the respective County Governments for validation and case release in February 2018.

Objectives of the Training Case Studies

- 1) To document practical initiatives undertaken in the counties to adapt and mitigate on climate change;
- 2) To provide a practical training aid on climate change in Kenya and elsewhere around the world;
- 3) To publish and publicize lessons learnt, best practice and experiences on climate change initiatives from Kenya’s devolved units.

Target Audience

The cases targets global, regional, national and county audiences undertaking assignments involving climate change aspects. The targeted audience should possess prior introductory knowledge, skills and competencies on climate change.

The case is suitable for participants undertaking:

- a) Specialized training and sensitization programs on climate change;
- b) Educational programs on climate change;
- c) Conferences, Workshops, Symposia and other forums discussing the climate change agenda at county, national or global level.

Assumptions

It is assumed that at the time of going through the case, the trainee shall have been introduced to basic concepts on climate change and/or have background information on the climate change agenda, discussions and debates.

Acknowledgements

The financial support from United States Agency for International Development (USAID) and United Nations Development Program (UNDP) through the Low Emission and Climate Resilient Development (LECRD) Project and the technical guidance from the Kenya School of Government (KSG) and the Climate Change Directorate is highly acknowledged.

The teaching case studies and accompanying teaching guides were designed, developed and documented through the dedicated efforts of several people who are highly appreciated for their invaluable input throughout the process. A full list the people involved is given in Annex 1.

Towards Food Sufficiency, Hunger Reduction: Exploring Irrigation Potential – The Case of Maji-Moto, Narok County

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1. Case Synopsis

The case focuses on “Majimoto” hot springs in Narok County. The spring currently supports over 10,000 households, and tens of thousands of livestock & wildlife and is the source of irrigation water to over 220 parcels of land, each 2 acres. The case examines the complex & delicate co-existence between pastoralists, agro-pastoralists and wildlife and focuses on agricultural development, community cooperation, human/livestock/wildlife conflicts, conflict resolution, climate adaptation, mitigation and enabling factors. These are aimed at improving the management of Maji-moto. The case is a show case of good practice in the development of agro-pastoralism in Kenya.

2. Case Methodology

The case has been developed based on primary data collected from Narok County in November 2017 - February 2018. The data was collected through a focused group discussion with the Member of County Executive Committee and Directors in charge of Agriculture, Water, Environment and Climate Change. A structured interview guide was used for the focus group discussion. Face to face interviews with members of the community also aided in collection of the primary data. Secondary data was also reviewed in development of the case. The case was presented to representatives from the County Government of Narok in February 2018 for review and validation. Feedback from the review and validation exercise has been adapted in the finalization of the case.

3. Case Introduction and Context

According to the World Bank, poverty and vulnerability to climate change remain the most critical development challenges facing Kenya today. Climate change poses one of the greatest challenges to livelihoods security within the county in particular. The Narok County economy is highly dependent on climate sensitive sectors that include; agriculture, livestock, environment and tourism. The KCIDP 2013-2017 report on climate change mainstreaming notes that there is water scarcity especially on the lowlands of Suswa and Osupuko which are semi-arid rivers. Thus, Narok is regarded as one of the water insecure counties in Kenya with only Narok and Ewaso Ngiro rivers being the only permanent sources of water. This is further compounded by the widespread changes in extreme temperatures that have had negative effects in the county. While mitigation and adaptation measures on the impact of climate change is going on, sustainable measures like tapping on solar and wind energy, reduction on charcoal burning, curbing logging and harvesting of indigenous trees and introduction of programmes on tree planting will help tap opportunities for carbon trading.

4. The Maji Moto Ecosystem

The Maji-moto springs in Narok County, ooze life to not only thousands of people, but also to tens of thousands of livestock and wildlife. It is an oasis of plenty in a vast dry land characterized by extreme heat and frequent droughts that ravage through the land, robbing the residents of their precious livestock which is traditionally their only source of livelihood. Over the recent past, there has been growing pressure on this 'wonder resource' due to prolonged droughts that have reduced the water levels and a growing human, livestock and wildlife population dependent on these springs. As a result, the local community has had to adapt to these emerging realities, re-look at their sources of livelihood and find unique co-operation mechanisms to co-exist in the midst of the growing water scarcity.

In an effort to preserve this precious flow from the spring, the Maji Moto irrigation scheme was started in 1992 as a small pilot dam to harness water to serve the local community. This was necessitated by increased demand

for water to support livestock and subsistence food crops for the surrounding community. The project did not initially start as an irrigation scheme, but it has since been expanded into 2 dams, one (the smaller) being used for irrigation purposes and the other (the larger) for livestock and domestic use for the neighbouring community. This spring is the only source of water for a region estimated to be 20 Kms in radius.

The initial members, often referred to as Group Ranch based on the historical land tenancy in the region were 4700 (as at 1996). The Group Ranch has since been demarcated with each member being allocated approximately 50 acres of land and in some cases an additional 2 acre plots for farming under irrigation supported by the dams around the springs. A total of 220 plots have been allocated and members issued with the title deeds. The irrigation land allocation was on a voluntary basis as pressure on land in the early 90's was insignificant. The water demand has escalated over the last few years due to population increase, demand for subsistence agriculture, and livestock restocking.

Climate change variability, land use complexities and competition for natural resources use is increasingly overstressing the multi-functionality of landscapes around the Maji-moto springs. The adaptation interventions designed to respond to challenges of access to development services has often generated conflict of interests and confrontations. In addition, social relations such as ethnic and other differences between groups can be invoked to form and strengthen collective identities on climate change adaptation.

5. Climate Change Response Actions

The Maji-moto irrigation scheme has generated several benefits to the community. First, there are farmer to farmer initiatives that target capacity building by individual farmers using efficient and effective farming methods to enhance the productive capacity of their farms and the quality of farm outputs. These initiatives are supported courtesy of an indigenous organization (ILEPA Kenya), and founded on the principle of inclusivity. Second, there are collaborative academic and interventional adaptation research initiatives looking at the 'land fragmentation and re-collectivization, competing claims

over the use of the Maji-moto waters, social dynamics brought about by the interventional irrigation landscape, agro/pastoral mobility relationships, conflict and cooperation in the context of climate change adaptation strategies.

Third, there is access to global market for climate innovative initiatives such as common pooled beadwork making and selling among the pastoral women to far-end markets in Europe. Fourth, there is a selected number of scholarship opportunities for local students to either study in Europe and/or locally based on the local student needs. Other benefits include summer school graduate courses and writer-shops training, collaborative exchange visits to Northern (Europe) and Southern (East and West Africa) countries to share experiences and lesson learnt, collaborative supervision of visiting graduate students research and publications of research outputs.

The adaptation of irrigation in Majimoto attempts to address the pastoral socio-economic and gender aspects related to climate change such as livelihoods diversification and reduction of vulnerabilities. The successes of this intervention can be attributed to several enabling factors. These include a local traditional governance institution that creates equal rights to water access for all; a legal framework supported by both national laws and policies such as the national water policy, Group Ranches Act and National Lands Policy (2012); and county government policies on the conservation and protection natural resources.

6. Lessons Learnt and Sustainability Measures

However, the Majimoto initiative has a share of its own risk and challenges. The adaptation is purely dependent on the only source of water for an area covering an entire sub-location. This has often led to overgrazing around the resource causing land degradation in the surrounding villages. There is no clear policy and legal framework to protect this public utility. Currently, it is depended on a weak traditional governance system that attempts to administrate equal access to water for both the pastoralist and agro-pastoralist. In addition to the growing population (human, livestock and wild animals) dependent on this resource, there are emerging external users attracted by the naturally clean boiled water for commercial purposes.

Other challenges include limited technical and financial support from either the national or county government to the farmers; unavailability of common pool resources either by the resources user, external parties and/or from the relevant government agencies exclusively for protection of the water system; over reliance of archaic furrow irrigation system with over 90% of the water going to waste; cases of wildlife-human/livestock conflicts, and wildlife/livestock disease especially during the wildebeest calving season.

Though a water committee has been put in place by the community, the mentality that *“it is ours, not mine”* is its undoing. A quick win intervention that can address some of the challenges is to support the community to shift from a furrow water distribution system to a piped one to distribute the water into the irrigation plots. With this in place, farmers as far as 2km downstream will have access to the water, mitigating water waste, time waiting, and crop failure due to prolonged waits. This could further minimize conflicts among the farmers.

7. Conclusions and Recommendations

Despite the challenges, the project provides opportunities to improve and scale-up climate change adaptation in the area. These include; up-scaling of water protection, retention, and distribution system to stop spillage and improvement of the laborious, water wasting and time consuming flood irrigation system. The adaptation of modern farming systems that enhance water use efficiency and conservation; mobilization of the farmers into organized formal society to enhance their bargaining power for farm inputs and prices for farm outputs; and enhancement of the ongoing research activities.

The Maji-moto adaptation demonstrates that it is not only scientific approaches/models that are available to address climate change. There are also equally relevant traditional and indigenous knowledge that can be applied to develop sustainable, efficient and cheap adaptation practices.

Case Synopsis

The case focuses on “Majimoto” hot springs in Narok County. The spring currently supports over 10,000 households, and tens of thousands of livestock & wildlife and is the source of irrigation water to over 220 parcels of land, each 2 acres. The case examines the complex & delicate co-existence between pastoralists, agro-pastoralists and wildlife and focuses on agricultural development, community cooperation, human/livestock/wildlife conflicts, conflict resolution, climate adaptation, mitigation and enabling factors. These are aimed at improving the management of Maji-moto. The case is a show case of good practice in the development of agro-pastoralism in Kenya.

Case Objectives

At the end of the case analysis, the participants should be able to:

- a) Identify the main initiatives towards climate change response actions undertaken in irrigation schemes;
- b) Explain the main factors affecting the success of climate change response actions in irrigation schemes;
- c) Examine the key challenges faced in Maji-moto irrigation before the adaptation, mitigation and enabling factors were introduced;
- d) Identify the lessons learnt from the climate change response actions in Maji-moto, and
- e) Suggest contemporary climate change response actions that would be appropriate for sustaining activities undertaken in irrigation schemes with climate variability in Kenya.

Target Audience

The case targets global, regional, national and county audiences undertaking assignments involving climate change aspects. The targeted audience should possess prior introductory knowledge, skills and competencies on climate change.

The case is suitable for participants undertaking:

- a) Specialized training and sensitization programs on climate change;
- b) Educational programs on climate change;
- c) Conferences, Workshops, Symposia and other forums discussing the climate change agenda at county, national or global level.

Assumptions

It is assumed that at the time of going through the case, the trainee shall have been introduced to basic concepts on climate change and/or have a background information on the national, regional and global climate change agenda, discussions and debates.

Case Teaching Strategies

Case Format

The case can be distributed in printed or multi-media versions that incorporate innovative didactic tools. A “soft copy” template for responding to discussion questions can also be availed to programme participants

Case Discussion Strategy

The case may be presented to trainees as preparatory work given in advance, within a training session or as takeaway assignment after the session. The trainer can organize the trainees into groups of 3 -5 depending on the size of the class.

The suggested duration for each activity is:

i) Case briefing	-	5 minutes
ii) Case Reading	-	25 minutes;
iii) Case discussion	-	30 minutes;
iv) Group presentations	-	20 minutes
v) Comments at Plenary	-	20 minutes
vi) View the video	-	15 minutes, and
vii) Debrief after video watching	-	5 minutes.
Total	-	2 Hours

Opportunities for Scalability

The trainer is at liberty to scale up the depth and breadth of the exercises depending on the program for which the case is being applied. For instance, in formal academic programs, the trainer can allow the trainees/students to do in depth analysis of the case in relation to the National Determined Contribution (NDC), National Adaptation Plan, National Climate Change Action Plan and the Global Climate Change Agenda.

Suggested Discussion Questions

1. What were the key climate change adaptation and mitigation strategies and enabling factors of climate change in Maji-moto irrigation scheme in Narok County?
2. What are the socio-cultural dynamics emerging from the case study?
3. Which approaches towards climate change response were adopted by the Maji-moto Irrigation Scheme?
4. What were the key success indicators of climate change response actions in the Maji-moto irrigation scheme?
5. What were the key challenges facing Maji-moto irrigation scheme?
6. Which contemporary leadership climate change response actions would be appropriate for sustaining irrigation schemes in devolved units in Kenya?

Annex 1

Ministry of Environment and Forestry			
	Name	Designation	Role in Case Development
1.	Sheila Shefo Mbiru	LECRD Project – Knowledge Management and Capacity Development Officer	Concept development, data collection, case writing, editing and documentation
2.	Mr. Adegu	Directorate of Climate Change – GHG Officer	Case Writing
3	Phanice Mokeira	LECRD Project – Research Assistance	Case Writing
Kenya School of Government			
3.	Dr. Rachel Ngesa	Head of Centre for Research and Advisory Services	Concept development, data collection, case writing, editing and documentation
5.	Mr. Humphrey Mokaya	Director, Learning and Development	Concept development, data collection and case writing
4.	Dr. Patrick Mumo	Senior Lecturer	Data Collection, case writing and editing
6.	Mrs. Jane Mwangi	Deputy Director, Academic Affairs	Case writing
7.	Ephline Okoth	Communication Officer	Editing case studies and teaching guides
Indigenous Livelihoods Enhancement Partners (ILEPA)			
8.	Patrick Ole Twala <i>Climate Change Champion</i>	Project Manager ILEPA	Data collection, case writing and validation
9.	Robert Shunet	Chief Administrator, Department of Environment, Energy and Natural Resources, Narok County Government	Data Collection
10.	Simon Tongoyo	Program Officer, ILEPA	Data Collection
11.	Simat Ole Kasale	Maji Moto irrigation Scheme	Data Collection
12.	Kotoine Ole Twala	Maji Moto irrigation Scheme	Data Collection
13.	Noomali Leintoi	Maji Moto irrigation Scheme	Data Collection



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