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15 July 2013

Tracking Adaptation and Measuring Development (TAMD) in Kenya

Quarter 1 Report - Feasibility testing phase

Contents

1. Introduction and overview

The feasibility testing of the TAMD approach is being done in Isiolo County which has a fully established County Adaptation Fund (CAF). This is being used to implement climate change adaptation interventions in various wards.

Isiolo County is located in Upper Eastern Kenya covering an area of 25,336.1 Sq. Km. Most of the county is a flat low lying plain. Isiolo is regarded as one of the arid counties and is hot and dry for most of the year with two rainy seasons; short rains (October and November) and long rains (March – May) with average rainfall of 580mm. The county has two constituencies i.e. Isiolo North and Isiolo South which have ten wards between them with a total population of 143,295 people. The main ethnic groups found in the county are Borana, Turkana, Samburu, Somali and Meru.

The main economic activities practiced in the county include pastoralism, subsistence agriculture, small-scale trade, and limited harvesting of Gum Arabica resin.[1]

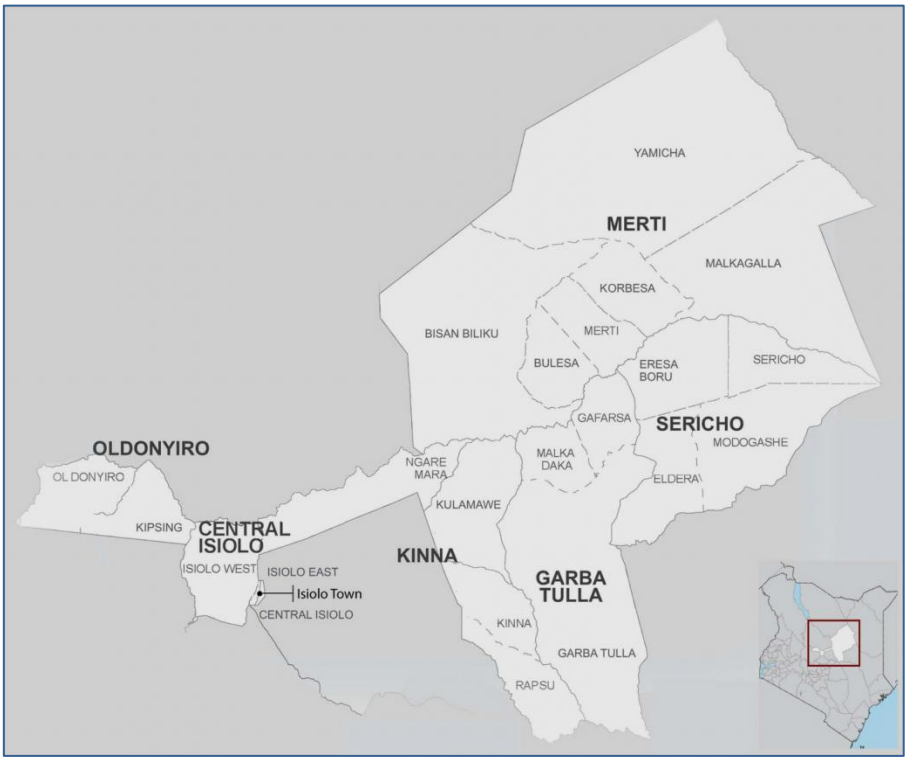


Figure 1: Map of Isiolo County

Impacts of climate change in Isiolo County

Climate change has been impacting the country in various ways due to extreme weather events and Isiolo County has also suffered from these. A participatory consultative exercise conducted with residents of Isiolo during the national climate change action planning process in 2012 outlined the

[1] Isiolo District Vision and Strategy: 2005-2015, Isiolo County Fact Sheets: Commission for Revenue Allocation.

major challenges that residents of Isiolo have been experiencing as a result of climate change. They are summarized in Table 1 below.

SECTOR	EVIDENCE OF CLIMATE CHANGE	IMPACTS OF CLIMATE CHANGE
Water sector	– Drying up of Ewaso Nyiro, Isiolo and Bisanadi rivers – Unpredictable rainfall patterns – Severe prolonged droughts – Drop in water levels in boreholes and rivers leading to increased water shortages – Flash floods	– Women and girls walk longer distances in search of water for domestic and livestock use (gender face of climate change) – Infrastructure destruction e.g. Garfasa, Kipsing, Mmuchuro, Merti central and Isiolo due to flash floods
Agriculture and Livestock sector	– Increased prevalence of livestock diseases – Increased food shortages	– Death of livestock leading to increased poverty as livestock keeping is the main source of livelihood – Shortened life expectancy as a result of increased malnutrition levels and diseases etc. – Crop destruction as a result of sudden influx of wildlife in search of pasture and water at the height of the drought
Social and health sector	– Increased influx of both humans and livestock in search of water and pasture from neighbouring counties – Increased school drop-out rates – Increase in human/wildlife conflict as a result of diminishing resources (pasture, grazing lands, water, etc.) – Increased conflicts/cattle rustling among neighbouring communities as result of scarce/depleted natural resources e.g., water, pasture, etc. – Increased child labour	– Change in livelihood patterns – Environmental destruction increased (e.g., charcoal burning, sand harvesting, increased logging) – Loss of human life and wildlife – Increased illiteracy levels – Increased cases of diseases like Diarrhea, kwashiorkor, marasmus, in children and elderly people – Over-dependence on humanitarian aid

Table 1: Evidence and Impacts of Climate Change in Isiolo County. Adapted from Kenya Climate Change Action Plan (2012)

As a way of addressing the various impacts listed in Table 1, Isiolo County was chosen as the first pilot county for the implementation of the first County Adaptation Fund in Kenya. Through

collaboration with the ASAL Secretariat and National Drought Management Authority (NDMA), 5 wards were selected for adaptation interventions namely: Garbatulla, Kinna, Merti, Sericho and Ol Donyiro. As at April 2013 the wards had developed through a participatory process, adaptation proposals geared towards enhancing resilience in their respective wards for approval by the County Adaptation Committee. These proposals were informed by resilience assessments conducted in 2012.

As part of the LTS Africa work plan the team conducted a scoping mission. The mission was the first task in quarter one and its outcome was to identify various climate change adaptation activities/projects being implemented in Isiolo as well as the M&E systems/indicators being used by civil society, county government and community based organisations. Due to the on-going transition process from a centralised governance system to devolved governments it was difficult to speak to any member of the new Isiolo County Government or County assembly as they were busy in meetings. These meetings were pushed forward to quarter two.

The second task was meeting the County Adaptation Committee (CAC). The outcome of this meeting was to understand the role of the National Drought Management Authority (NDMA), the water, livestock and agriculture ministries and their roles in the CAF process and discuss ways in which to institutionalise TAMD in their respective organisations. The meeting was also to understand the role of the CAC in the development and vetting of interventions to access the CAF.

The third task was to conduct Monitoring & Evaluation (M&E) training for the 5 ward adaptation committees developing proposals for the CAF. This involved assisting the ward adaptation committees develop their theories of change by identifying the outcomes, outputs and impacts of the selected interventions in their respective wards. The outcome of the training included;

- The establishment of predictive theories of change for each ward.
- Development of bottom-up indicators for outputs, outcomes and impacts.
- A simple work plan for collection of baseline data for the wards.

These three tasks were undertaken with an aim to get a better insight into the CAF activities taking place on the ground and provide a base for testing the TAMD as an approach on the CAF.

2. Stakeholder Analysis

As part of the scoping mission undertaken, various stakeholders were identified. These stakeholders are implementing various climate change activities as detailed in the sections below.

2.1 Government Actors

The main government body dealing with climate change in the county is NDMA which is a statutory body established on November 24, 2011. Its mandate is to establish mechanisms which ensure that drought (the main climate risk) does not result in emergencies and that the impacts of climate change are sufficiently mitigated. It is also mandated to exercise general supervision and coordination over matters relating to drought management in Kenya. The Authority shall support the National and County governments and communities prepare for and react to drought and its impacts.

NDMA in Isiolo County issues monthly drought bulletins that provide information on food security, livestock production, rainfall and weather, pasture availability, local market prices and health. The bulletins also issue early warning advice and recommendations on various issues to the District Steering Group and national authorities.

The ministries of water, livestock and agriculture have offices in Isiolo County and also implement and support local climate change adaptation projects. They are also represented in the County Adaptation Committee and have provided technical input into the interventions proposed by the ward adaptation committees.

2.2 Ward Adaptation Committees

The ward committees are also stakeholders in TAMD feasibility testing. The ward committees as part of the CAF have developed proposals to address climate change. The table below indicates the CAF funded proposed interventions.

Ward Committee	CAF funded Proposed Interventions
Kinna	Natural Resource Management • Survey and mapping of pasture land using mobile phones and motorbikes for efficient pasture management • Strengthening of natural resource management • Rehabilitation of livestock veterinary laboratory • Stocking of laboratory with livestock medicine and vaccination • Offer veterinary services
Oldonyiro	Water • Construction of sand dams • Rehabilitation of dilapidated sand dams • Building of rock catchments
Sericho	Strengthening of traditional natural resource management Water • Support fencing and desilting of 3 water pans • Building of shallow wells
Merti	Strengthening of rangeland users association through elections and training for better natural resource management Dry land agriculture: build canals to provide water for farming
Garbatulla	Strengthen traditional '*dedha*'[2] council to implement proper natural resource management Water: fencing of Belgesh water pan and building of water troughs for domestic and livestock use.

Table 1 : Ward committee proposed interventions

[2] Borana traditional institution for natural resource management

2.3 Non-Governmental Organisations (NGO)

There are various NGOs working on climate change adaptation activities in Isiolo County. They work at county and ward levels. They include:

- Action Aid
- VSF Suisse
- Food for the Hungry FH
- Kenya Red Cross
- Pastoralist Women for Health and Education
- Resource Advocacy Programme RAP
- Peacenet
- World Vision

Table 2 below summarises some of their activities.

NGO	Climate Change Adaptation Activities
FH Kenya	• Livestock health • Seed distribution and agriculture • Fodder production • Promotion of alternative livelihoods e.g. gum and resin production • Disaster risk reduction
VSF Suisse	• Best practice disaster risk reduction • Restocking of households with camels and goats (drought tolerant animals)
Kenya Red Cross	• Early warning systems training and implementation • Cash transfer programmes • Promotion of greenhouse agriculture • Pasture management
Action Aid	• Promotion of rain water harvesting • Promotion of drought tolerant crops • Irrigation agriculture • Alternative livelihoods such as fish farming and dairy goats • Infoasaid programme which communicates information on humanitarian aid activities during period of drought

Table 2: NGOs working in Isiolo and their activities.

2.4 Key actors assisting with the Institutionalisation of TAMD in Isiolo County

The table below shows the key actors being used to institutionalise TAMD in Isiolo County and their expected and assured involvement.

Actor/Institution	Expected Involvement Quarter One	Assured Involvement Quarter One
NDMA (Ministry of Devolution and Planning)	N/A	– Support to ward adaptation committee in preparatory implementation stages – Provide linkages to introducing TAMD to county government – Integrate Track 1 indicators in national NDMA M&E system – Chair of the County Adaptation committee
Department of Water (Ministry of Environment, Water and Natural Resources)	N/A	– Technical support to CAF funded water based interventions – Member of the County Adaptation Committee – Integration of Track 1 indicators in their departmental plans
Department of Livestock (Ministry of Agriculture)	N/A	– Technical support to CAF funded livestock interventions – Chair of the County Adaptation committee – Integration of Track 1 indicators in their departmental plans
Department of Crop Production (Ministry of Agriculture)	N/A	– Technical support to CAF funded agriculture interventions – Chair of the County Adaptation committee – Integration of Track 1 indicators in their departmental plans
Ward Adaptation Committees	N/A	– Design, implement and monitor CAF funded interventions – Design Track 2 indicators and ToC. – Provide baseline information on Track 2 indicators
NGOs	– Provide information on adaptation activities being implemented – Provide information on M&E plans used to monitor projects	N/A
County Government	– Engagement in discussions on incorporating the TAMD process into county planning – Share county plans and provide opportunity to make inputs in county plan – Design and incorporate Track one indicators into County Integrated Development plan.	N/A

Table 3: Key actors in Isiolo County and their expected and assured involvement

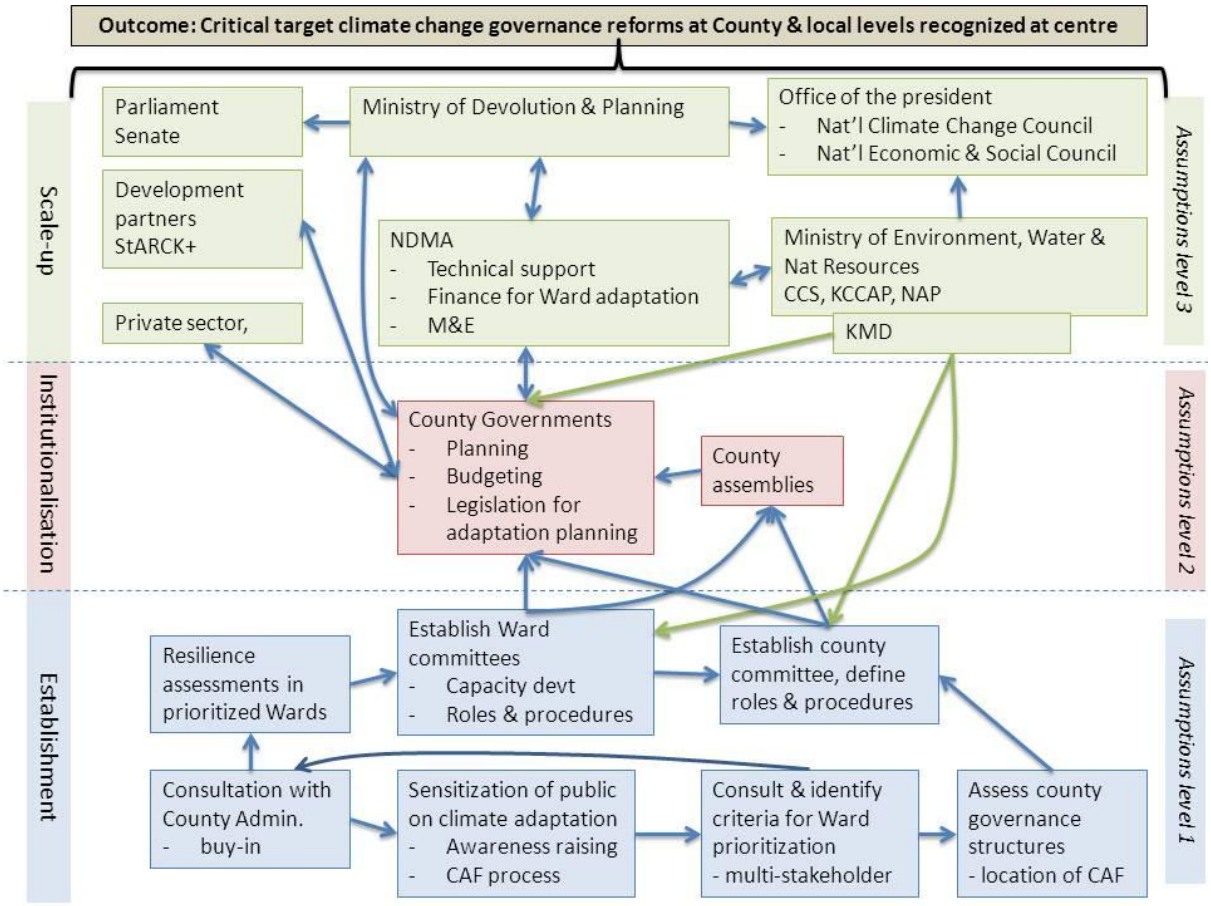
NDMA, Ministry of Agriculture and its various departments, and the County government have a direct role in integrating Track 1 indicators into their plans which will support the implementation of

Track 2 indicators. Implementation will be achieved through the provision of technical input into the proposed interventions.

As the County government is still developing its County Integrated Development Plan, the LTSA team has scheduled meetings in quarter 2 with the County government in order to introduce the TAMD approach and develop Track 1 indicators. It is anticipated that the Track 1 indicators will be integrated into the County Plan and also feed into the National NDMA M&E Framework.

3. Theory of Change

The County Adaptation Fund theory of change was developed in quarter one by the Adaptation Consortium partners. It was based on the lessons learnt in the piloting of county adaptation projects in Isiolo (See Figure 1 below). At the same time, each ward also developed their own ToCs based on the activities funded by the adaptation fund (See Annex 1). These activities were derived from resilience assessments and resource mapping exercises conducted in each ward. The ward ToCs will



generate data that will feed into level 1 of the CAF ToC.

Figure 1: CAF Theory of Change

Table 4 below indicates the phases, activities, outcomes, outputs and indicators as well as assumptions of the CAF theory of change. As mentioned previously the establishment and appraisal phase was undertaken in quarter one by the Adaptation Consortium.

Phase	Activities	Outcome, Outputs and Indicators	Assumptions
Establishment and appraisal	Establish Ward and County committees. Prioritisation of adaptation actions First round of project implementation.	Baselines for all indicators First round projects supported by CAFs	– Space in County administration to locate the CAF – Peace and security allows CAF to function – Local people receptive to sensitisation – Local customary governance systems meets requirement for functioning Ward committees – Representative committees can be established – County Government buy-in to CAF – County governance set up in shape and function favourable to CAF function – Progress at County level adequate to accommodate CAF establishment within duration of initiative phases
Institutionalisation and implementation	Ward committees develop mandate for planning and M&E of implementation. Ward committees gain recognition both within Ward and with other organisations. Locate CAF within County administration. Annual cycle of CAF adopted. Finance flow for CAF identified.	Output 1: County development planning and implementation addresses climate resilience of economies and livelihoods Indicators: • Number of county-level climate change adaptation funds fully operational • Number of counties that reflect climate change mainstreaming in budgets, plans and profiles Output 2: Effective approach combining CIS with funding of local adaptation supports climate resilience of local	– Addressing marginalisation of ASAL maintained on political agenda and affirmative action taken – County governments prepared and able to lobby higher elements of government for CAF using evidence from initiative – County planning listens to Wards priorities – Budgets able to absorb the costs of adaptation actions – There is clarity in the mandates of national agencies and sufficient coordination among them – Partnerships possible with GO and NGO agencies to achieve influence – Conflict among Counties and centre does not derail influence processes – NDMA gains credibility

		economies and livelihoods Indicators: Numbers of direct beneficiaries of CAF supported initiatives (breakdown information of costs and benefits to be collated from targeted Wards)	
Scale-up and scale-out	Promotion of CAF findings within and among County governments, within the NDMA and across Government and legislative bodies and agencies. (to be developed further)	Outcome: Critical targeted climate change governance reforms county & local levels and recognised at centre Indicators: • Increase in the number of poor people able to cope with the effects of climate change • Central components of government and the legislature endorse the achievements towards climate resilience in Consortium counties (# public endorsements)	– Political will at highest levels to address climate adaptation – Political space found to push for CAF agenda and champions can be found – The success of the CAFs in 4 counties lead ohers counties to adopt the proven model

Table 4: CAF phases, activities, outcomes,outputs and indicators and assumptions

4. Indicator Development and Methodological Approach

In quarter one, the LTSA team was able to design Track 2 indicators. Track 2 indicators are used to assess populations' vulnerabilities and development status with and without, and before, during and after interventions. As the ward committees had already developed their proposals and were in the initial stages of implementation, it was important to start developing indicators to ensure that they were able to evaluate the adaptation interventions before the projects begun.

The methodology used to develop the indicators was to build the capacity of the committees by training them on the need and use of M&E. Earlier during the scoping mission the ward representatives had been asked to hold discussions with their full committees on what they would perceive to be resilience indicators. Thereafter The LTSA team trained all the 5 ward committees through the development of theories of change and identifying their outputs, outcomes, and impacts of the proposed projects. Guidance was also provided on how to develop output, outcome and impact indicators. (Refer to Annex 1).

The development of the ward committee's theories of change and subsequent indicators begun with asking the committee members the following 3 questions

1. **What are the signs in the community to show that drought is having an impact on; Women, Men, Elderly, Children, Sheep, Goats, Cattle, Camel and Donkeys**
2. **What are the positive or negative changes that will be observed after the project is implemented to the community, livestock and the environment?**
3. **What are the signs or indicators to show that things will have changed?**

The three questions asked were able to sequentially guide the development of the theories of change and also visually represent the outputs, outcomes/short term changes and the impacts of the proposed interventions. The last question also helped the committees list the indicators to be used to measure the progress and success of the adaptation projects.

As the primary livelihood of communities in the 5 wards is pastoralism, the answers received were quite similar. The major signs of drought impacts in the 5 wards included;

- Poor health in men, women, elderly, children and livestock and an increase in diseases (waterborne).
- Increased cases of malnutrition in children.
- Travelling long distances in search of water and increased workload on women.
- Poor hygiene and sanitation.
- Reduced yields in livestock milk and meat.
- Abandonment and loneliness in the elderly.
- Increased rates of school dropouts.
- Increased cases of conflict.

The committees understood that the aim of their proposed projects was to reduce the impacts listed above and make the community more resilient to drought.

Question two was asked with an aim to assist the committees understand and explain the output, outcomes and impacts of their projects. Some of positive changes expected are listed below;

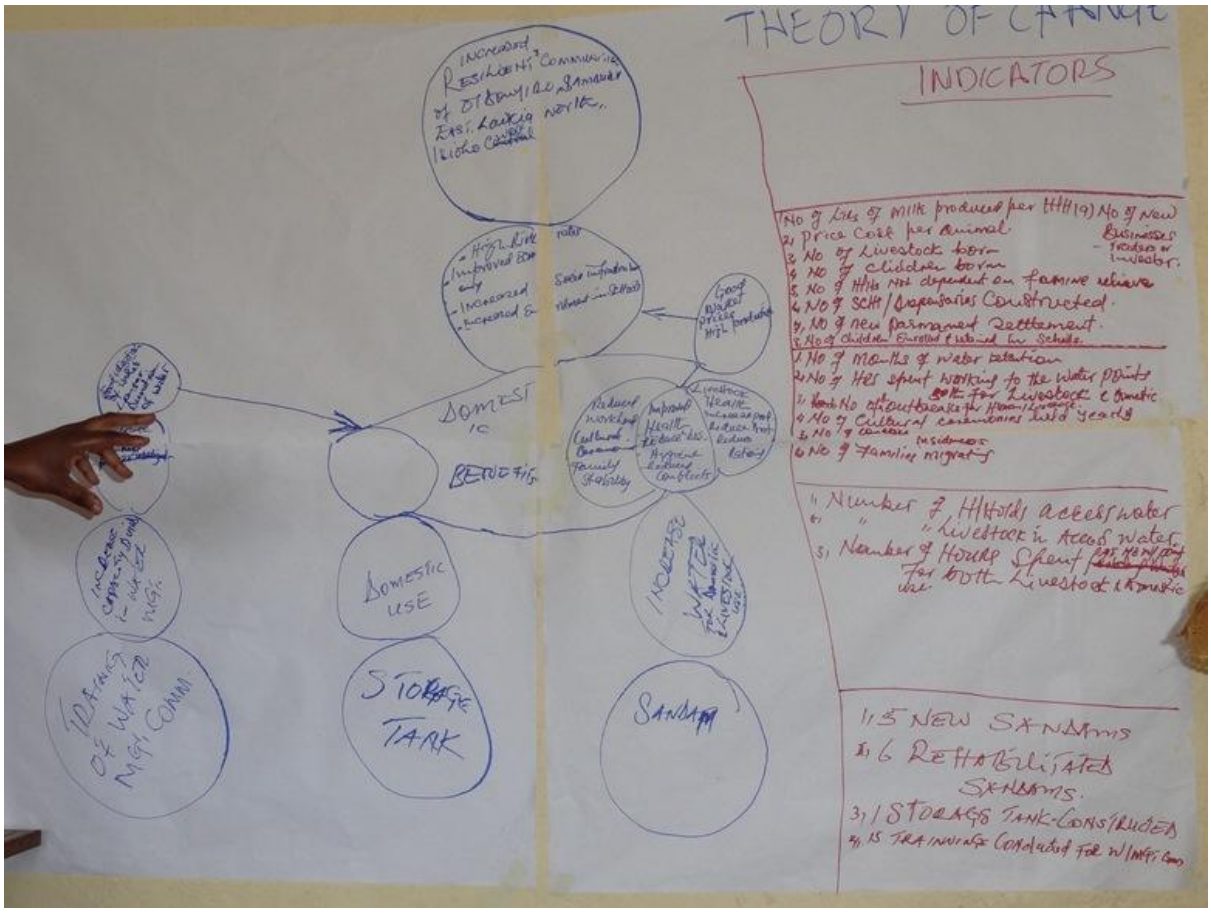
- Reduction in household workload for women.
- Reduced distance to water points for livestock and women.
- Improved household nutrition due to access to livestock products.
- Improved rangeland management due the re-introduction of the traditional grazing system.
- Improved conservation of natural resources.
- Improved life expectancy and health.
- Improved local economy and establishment of livestock markets.
- Reduced incidences of livestock diseases.
- Increased access to water by humans and livestock.
- Reduced conflict incidences.

The committees also listed some negative changes that could arise after the projects were implemented. This was to ensure that the committees consider possible maladaptive consequences

during and after project implementation. Some of the negative changes the committees expected were;

- Congestion and overcrowding in settlement areas which could lead to sanitation problems.
- Increase in crime.
- Increased sexual activity and prostitution.
- Increased water borne diseases due to lack of water resource planning and poor waste disposal systems.
- Land degradation and overgrazing due to the presence of permanent water sources leading to soil erosion
- Low market prices due to an over-supply of livestock products.
- Cutting down of trees for fencing and building settlements.

The ward committees then drew up their theories of change, linking their interventions and outcomes sequentially which eventually would lead to their outcome statements. (See Picture 1 below)



Picture 1: Sample Theory of Change from Oldonyiro Ward

As the committees were drawing their ToCs and linking their outcomes, they also listed the indicators to be measured and included them in their completed ToCs (See Annex 1).

Indicators developed were screened to ensure that they were easily measurable and would provide data to measure against each ward committee's outcome statement. The indicators developed are meant to measure socio-economic outcomes which according to the communities will enhance their resilience to climate risks. A point to note here is that all the interventions are actually development projects and for the communities their adaptive capacity will increase when impacts of the project begin being felt.

In quarter 2 the LTS team aims to identify the counterfactuals for the study when developing the Track 1 indicators. Counterfactuals may include: households that do not have access to the benefits arising from the interventions, a ward that does not have a system (indicators) in place to measure resilience or adaptive capacity amongst others. These options will be explored further.

5. Empirical Data Collection Track 2

As part of the M&E training conducted for the ward adaptation committees by the LTSA team, the ward committees agreed to collect baseline information. Some information will come from secondary sources such as specific information MDAs e.g. livestock, agriculture and water. This information will include: nos. of livestock, average yield of farms, volume of water availed/stored etc. Primary information will also be collected by the ward committees themselves such as nos. of households and livestock accessing water, average no. of litres of milk produced per household, number of conflict incidences, number of traders etc. To collect baseline information LTS designed a data collection form for the ward committees (See Annex 2).The committees agreed to collect the baseline data before the end of quarter two.

6. Potential Challenges and Limitations

One of the challenges encountered in quarter one was the slow establishment of the County government. With Kenya transiting to a devolved system in March 2013, the county government have been slow in starting up which slows down the process of developing buy in within the county government

Lack of access to the Isiolo County Integrated Development plan has been a challenge in understanding how climate change has been mainstreamed and the type of Track 1 indicators proposed in the plan. A lack of understanding of climate change and the need for adaptation within the county government may present a challenge when trying to institutionalise TAMD in the county. The assumption that the county government will prioritise climate change adaptation may also be a limitation.

Another limitation is that the TAMD work is scheduled to last till December 2013, yet the interventions that will elicit data to prove the TAMD approach, will not have been completed by the ward committees. Thus in order for the full set of data to be collected from the interventions and counterfactuals, there will need to be a mechanism in place that collects and analyses the data long after the feasibility testing period. This could be achieved through the Adaptation Consortium which will be in place till 2015.

7. Lessons and learning

- One of the lessons learnt is the importance of building the capacity of the local institutions in integrating M&E into their projects. This creates a sense of ownership for the projects implemented. The capacity building of the ward adaptation committees enhances their understanding of climate change adaptation and they also gain recognition at the county level.
- Communities see the enhancement of their resilience in the bridging of the development deficit through initiatives designed to increase their adaptive capacity.

8. Conclusions

The feasibility testing is on course and the approach has been appreciated by stakeholders. The NGOs in particular and the NDMA at the national level are optimistic that it is possible to link top-down and bottom-up indicators through the TAMD approach.

At the County level the NGOs are of the opinion that if the Track 1 indicators are integrated into the County Integrated Development Plan, they will have a source of reference when they are developing their indicators for various interventions that are climate change related.

Annex 1: Ward Theories of Change Report

Tracking Adaptation and Measuring Development

Situational Analysis Report: Track 2 Interventions

15th July 2013

LTS Africa

Braeside Gardens (ISS Building)
Off Muthangari Road, Lavington
P.O Box 217-00606
Nairobi, Kenya

Tel. +254 020 20 266 78 | **Fax.** +254 020 386 1639 | **Email.** africa@ltsi.co.uk

Web. www.ltsi.co.uk | **Twitter.** @LTS_Int

Acronyms

CAF	**County Adaptation Fund**
KWS	**Kenya Wildlife Service**
M&E	**Monitoring and Evaluation**
NRM	**Natural Resource Management**
RUA	**Rangeland Users Association**
TAMD	**Tracking Adaptation and Measuring Development**
IIED	**International Institute for Environment and Development**
RAP	**Resource Advocacy Programme**

Contents

Introduction

This report outlines the process of developing Monitoring and Evaluation (M&E) plans for the 5 ward climate change adaptation committees in Isiolo who have developed proposals to access the Isiolo County Adaptation Fund (CAF). The LTSA team met the 5 ward adaptation committees from the 8th-18th of June to assist them appreciate the need for M&E and train them on the use of the Theory of Change model in developing indicators that measure outputs, outcomes and impacts of their proposed interventions.

The theory of change defines the building blocks required to bring about a long term goal and is well suited to evaluating adaptation and development interventions. In the development of the theories of change, the ward committee members were able to identify indicators that could explain the linkages between changes observed and activities undertaken during the projects.

1. Development of Ward Proposal Activities Theory of Change

As part of the Isiolo county adaptation fund, 5 wards in Isiolo County have drafted proposals for adaptation based projects. The proposals are based on the development priorities of the local people on issues of water, livestock and food security with an aim to build the resilience of the communities in the area to drought risk. The capacity of the ward committees has been built to write proposals, develop tender documents and implement the interventions. They will also be required to monitor the progress and impacts of the interventions. LTS Africa met the 5 ward committees and assisted them in developing their TOC and indicators as part of building their capacity in M&E. The trainings were held from the 8th to the 18th of June. To guide the ward committees in the development of the theories of change the following questions were asked.

1. **What are the signs in the community to show that drought is having an impact On; Women, Men, Elderly, Children, Sheep, Goats, Cattle, Camel and Donkeys**
2. **What are the positive or negative changes that will be observed after the project is implemented to the community, livestock and the environment?**
3. **What are the signs or indicators to show that things will have changed?**

Box 1: Guiding questions in Theory of Change Development

The three questions asked were able to sequentially guide the development of the theories of change and also visually represent the outputs, outcomes/short term changes and the impacts of the proposed interventions. The last question also helped the committees list the indicators to be used to measure the progress and success of the adaptation projects. Indicators were chosen based on whether there was available data in the ward on the same. Below are some of the answers received from the ward committees.

What are the signs in the community to show that drought is having an impact?			
Oldonyiro			
Women	**Men**	**Elderly**	**Children**
– Walking long distances to fetch water – Higher incidences of back problems due to carrying heavy loads – Lack of time to engage in other activities – Poor health and nutrition – Poor hygiene – Low fertility rates	– **Walking long distances to look for water and pasture** – **Poor health and nutrition** – **Engaging in conflict due to competition for resources** – **Poor hygiene** – **Increase in cattle rustling** – **Family separation** – **Poor health and nutrition**	– **Poor health and nutrition** – **Increased deaths** – **Loneliness and abandonment**	– **Low enrolment in schools** – **High school dropout rate** – **Early marriage in young girls** – **Poor health and nutrition** – **Increased child mortality rates** – **Separation from parents** – **Increased child labour**
Cattle, Sheep and Goats	**Donkeys**	**Camels**	
– Travelling long distances for water and pasture – Water rationing – Emaciated and poor health – Low prices at market – Low production of milk and meat – High death rates – Killing of new-borns to increase survival rate of mother – Increase in tick-borne livestock diseases – Low fertility and birth rates	– **Increased work loads** – **Mistreatment** – **Poor health** – **Increased cases of deaths**	– **Increased distances travelled for water and pasture** – **Increase in camel abortions** – **Poor health**	
Garbatulla			

What are the signs in the community to show that drought is having an impact?			
Women	**Men**	**Elderly**	**Children**
– Poor health leading to death – Increased work load – Poor health and emaciation in pregnant women – Dependence on relief food	– **Increased workload** – **Disruption of family units** – **Increased cases of conflict** – **Lack of cultural ceremonies** – **Poor health and nutrition**	– **Malnutrition** – **Increase in death rates** – **Abandonment and loneliness** – **Increase in disease and illness**	– **Increased incidences of malnutrition and anaemia** – **Increase in school dropouts** – **Increase in child labour** – **Lack of parental care** – **Increased child mortality**
Cattle, Sheep and Goats	**Donkeys**	**Camels**	
– Poor health – Low price at market – Low milk yields – High mortality rate – Increase in use of relief food for livestock – Increase livestock disease outbreaks – Livestock off take	– **Increased workload** – **Increased vulnerability to disease**	– **Low milk yields** – **Reduced weight** – **Low birth rates** – **Camels move away to places with more pasture**	
Kinna			
Women	**Men**	**Elderly**	**Children**
– Increased workload – Poor health and nutrition – High stress levels – Increase in distances to fetch water – Weak and malnourished	– **Stress due to increased duties as bread winners** – **Increased workload** – **Increase in mortality rates** – **Separation from family for up to 24 months in search of water and pasture** – **Low fertility** – **Poor health and nutrition**	– **Malnutrition** – **Loneliness** – **Increased mortality**	– **Malnutrition and poor health** – **School dropouts due to child labour** – **Reduced maternal care in infants**
Cattle, Sheep and Goats	**Donkeys**	**Camels**	
– Emaciated herds	– **Increased workload**	– **Travel to town to feed on**	

What are the signs in the community to show that drought is having an impact?			
– Increase in livestock diseases – High mortality rates esp. calves – Reduction in livestock prices – Diversification in diet e.g. goats start chewing bark – Decrease in milk productivity	– **Poor health**	**fencing bushes** – **Reduction in milk yields**	
Merti			
Women	**Men**	**Elderly**	**Children**
– Family separation and divorce – Lack of hygiene – Low fertility rates – Increased workload – Poor health and nutrition – Increased cases of anaemia – Malnutrition especially in lactating mothers	– **Family separation** – **Increased workload** – **Lack of hygiene** – **Poor health and cases of malnutrition** – **Death as a result of conflict** – **Increased anger and temper**	– **Malnutrition** – **Abandonment** – **Disease and sickness**	– **Malnutrition** – **Disease leading to death e.g. marasmus, kwashiorkor** – **School dropout** – **Lack of parental care** – **Child labour**
Cattle, Sheep and Goats	**Donkeys**	**Camels**	
– Reduction in body weight – Low productivity in milk and meat – High death rates especially sheep – Increase in livestock diseases – Water rationing of animals	– **Slight reduction in body weight** – **Death due to severe drought** – **Increased workload**	– **Slight production in body weight** – **Death in severe drought** – **Increase in livestock diseases**	
Sericho			
Women	**Men**	**Elderly**	**Children**
– Poor health	– **Increased workload**	– **Malnutrition**	– **Malnutrition**

What are the signs in the community to show that drought is having an impact?			
– Increased workload – Lack of food – Low fertility rates	– **Stress** – **Increased cases of conflict** – **Migration** – **Conflict within families/ family separation**	– **Death** – **Poor health**	– **School dropout** – **Death due to disease**
Cattle, Sheep and Goats	**Donkeys**	**Camels**	
– Increase in fleas – Increase in diseases – Low production of milk and meat – Loss of body weight –	– **Increased workload**		

Table 1: Signs to show that drought is having an impact

Question 1 was asked to assist the committee members to identify the root causes of the problem the projects will aim to address. The biggest issue the communities are facing at the moment are the ever increasing and long-term droughts as an impact of climate change. The question hence was to initiate debate on the impacts being felt in the community from a social and livelihood aspect.

What are the positive or negative changes that will be observed after the project is implemented to the community, livestock and the environment?

Oldonyiro

Positive

Community	Livestock	Environment
– Reduced migration – Increased number of settlements – Improvement in health – Increased hygiene levels – Reduced incidences in cases of conflict over resources/water – Reduced distance to water points – Reduced workload for women hence they become economically active – Reduced workload for men – Increased birth rates – Increase in number of cultural ceremonies – Improved economy – Increase in nutrition within the community – Family stability – Increased social infrastructure e.g. schools, health centres – Increased access to good quality water for a long time – Improved management of water facilities	– **Good health of animals** – **High production of milk and meat** – **High livestock prices** – **Increase in livestock numbers** – **Reduced distances to water and pasture** – **Increased access to water**	– **Increased vegetation** – **Increased water for community use**

Negative

Community	Livestock	Environment
– Congestion and overcrowding in settlement area	– **Land degradation and overgrazing** – **Livestock disease outbreaks**	– **Cutting down of trees for fencing and building settlements**

What are the positive or negative changes that will be observed after the project is implemented to the community, livestock and the environment?		
– Increase in crime – Increased sexual activity and prostitution – Increased in water bourne diseases due to lack of water resource planning and poor waste disposal	– **Low market prices**	– **Soil erosion**
Garbatulla **Positive**		
– Increase in trade – Increase in school enrolment – Increase in marriages and births – Reduction in conflict incidences	– **Increased productivity in milk and meat** – **High prices of livestock products at market** – **Increase in livestock population**	– **Improved management of pasture and water** – **Proper rangeland management** – **Proper management of drought reserves** – **Increase in soil fertility** – **Availability of clean safe water** – **Increased duration of water in pans**
Negative		
– Negligence of following NRM regulations – Conflict when implementing NRM bylaws		
Kinna **Positive**		
Community	**Livestock**	**Environment**
– Proper diagnosis and treatment of livestock diseases – High birth rates – Good governance of resources	– **Improved livestock health and reduction in livestock mortality** – **Good market price of livestock products**	– **Increase in area under pasture** – **Reduced land degradation**
Negative		
– Improper disposal of laboratory waste – Conflict with neighbouring counties that are		

What are the positive or negative changes that will be observed after the project is implemented to the community, livestock and the environment?		
not used to NRM by-laws		
Merti **Positive**		
– Reduction in household workload – Reduced distance to water points – Better utilisation of time – Improved household nutrition – Improved rangeland management – Improved conservation of natural resources – Improved life expectancy – Improved local economy and establishment of livestock market – Reduced incidences of diseases	– **High rates of productivity (milk and meat)**	– **Improved management of natural resources** – **Environmental conservation as a result of improved grazing patterns**
Sericho **Positive**		
– Improved grazing patterns – Improved human health – Control of influx from neighbouring counties – Management of conflict with neighbouring communities – Increased population – Reduced dependence on food relief	– **Improved livestock health** – **Improved livestock economy and establishment of livestock markets**	– **Improved natural resource management**

Table 2: Positive and negative changes expected after project implementation

Question 2 was asked to assist the ward committee members articulate changes/outcomes expected after the interventions are implemented. The changes identified would be then listed sequentially in the theories of change developed. The ward committee members also had to take note of the possible negative changes after project implementation to ensure that they took measures to prevent these negative outcomes.

As the interventions are all addressing climate change risk, the changes would be observed from the community, their livelihoods and the environment.

Question 3 was aimed to develop indicators which would be used to measure the implementation and effectiveness of the intervention

Picture 1: Kinna participants during a group discussion

2. Ward Adaptation Committee's Theories of Change

The TAMD approach to measuring climate change adaptation encourages the use of theories of change for Track 1 and Track 2 interventions. At the local scale there is a need to evaluate the outputs, outcomes and impacts of adaptation and development projects. The theory of change approach is a simple approach that can be used at community level and assists the community members to visually represent their projects and predict the outcomes and impacts expected.

The committee members also had to develop local indicators to measure the adaptation outcomes, most of the indicators developed during the development of the ward committees theories of change would also aid in the collection of baseline data.

Picture 2: Merti Ward Committee member drawing the Merti's theory of change

2.1 Oldonyiro Theory of Change

The Oldonyiro ward proposed interventions are all aimed at increasing the availability of good quality water to the local community. The three interventions proposed are;

- **The capacity building of water management committees**
- **Construction of a water storage tank**
- **Construction of 5 sand dams and rehabilitation of 6 sand dams**

The ward committee's outcome statement is to increase the resilience of communities in Oldonyiro and neighbouring locations.

During the construction and rehabilitation of the 11 sand dams, water user management committees will be set up to manage the water resources. The capacity building of water management committees is one of the proposed interventions and will involve training on water and sanitation and management of water resources. One of the immediate outcomes of the trainings held will be the increased capacity of committee members. This should lead to efficient water management, good utilisation of the water resources and increased accessibility to good quality water. The second intervention is the construction of a water storage tank whose immediate outcome will be to increase access to water for domestic use. The water tank will reduce distances travelled by women and girls to access water for domestic use which will lead to improved health and hygiene.

Construction and rehabilitation of 11 sand dams which is the third intervention proposed which will increase accessibility to water for domestic and livestock use. This will lead to reduced distance to fetch water, increase in hygiene, reduction in conflict incidences, increased livestock health and reduced water rationing.

Improved health in animals will increase market prices of livestock and increase household incomes leading to increased resilience the community. The increased accessibility of water will cause mushrooming of settlements which will prompt the establishment of social infrastructure such as schools and health centres further increasing the resilience of the local and surrounding communities.

Assumptions

- Water user management committee members are able to enforce water resource management.
- There are suitable areas to construct sand dams that reduce distance between water points.
- The sand dam contractor has previous experience constructing sand dams and understands the intricacies of building sand dams.
- Sand dams constructed have the ability to hold adequate water.
- Sand dams being rehabilitated can actually be structurally rehabilitated.
- The water management committee is able to develop proper water distribution mechanisms.
- Water management committee is recognized by community members. Community members have a proper understanding of water and sanitation.

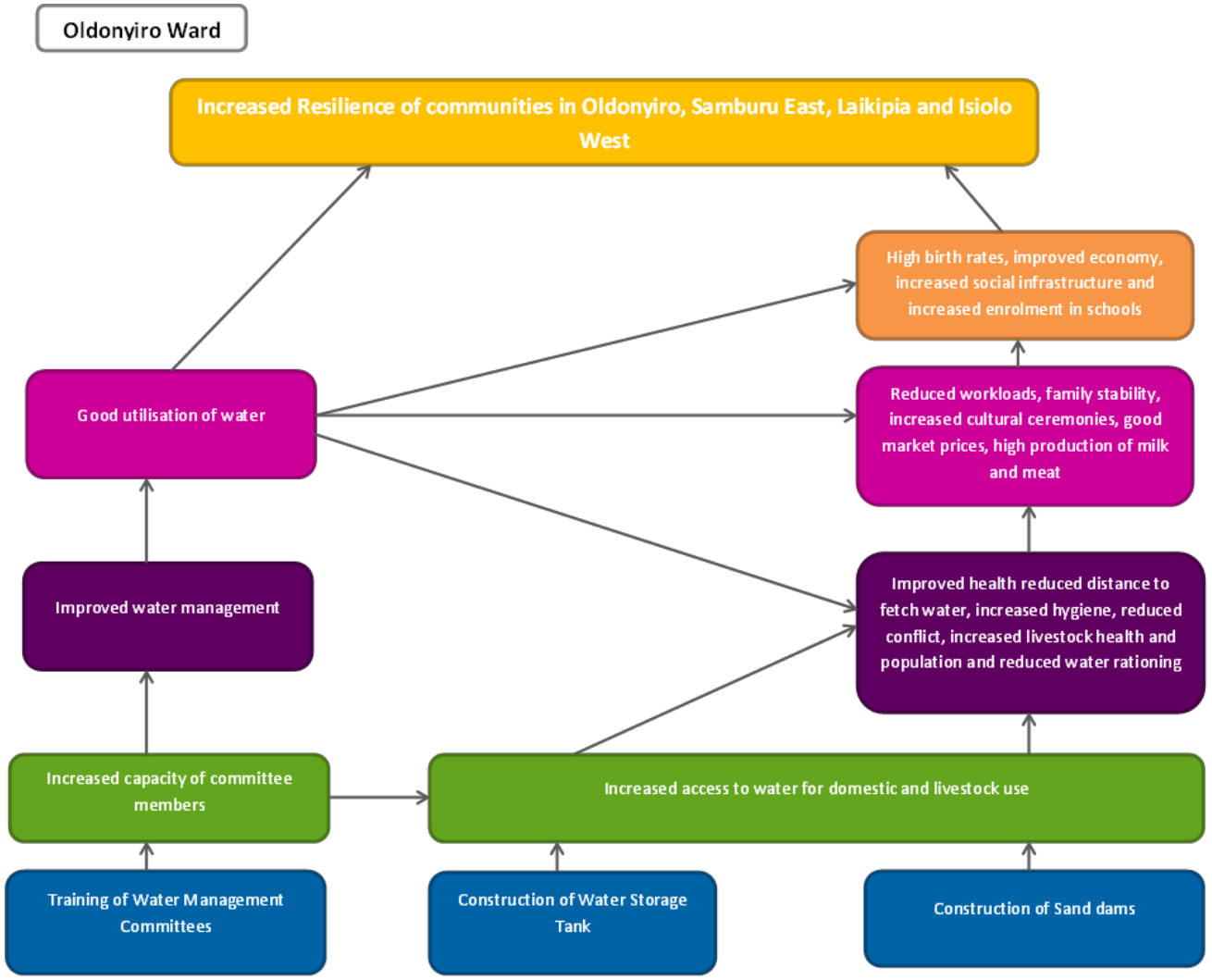


Figure 1: Oldonyiro Theory of Change

Picture 3: Oldonyiro ward committee member assisting in developing of Oldonyiro's theory of change

2.1.1 Proposed Oldonyiro Indicators

Output

- Number of trainings held for water management committees
- Number of constructed water storage tanks
- Number of sand dams constructed
- Number of sand dams rehabilitated

Outcome

- Number of livestock with access to water during dry season
- Number of households with access to water during dry season
- Number of months of 2012 that water is available in the 10 sand dams
- Number of hours spent walking to water point
- Number of hours spent fetching water at water point for domestic use
- Number of hours spent fetching water at water point for livestock use

Impact

- Number of livestock disease outbreaks per year
- Number of litres of milk produced per households per day
- Number of kilos of meat produced over the year
- Number of livestock births
- Number of disease outbreaks in humans

- Number of ceremonies held per year
- Number of conflict incidences
- Number of families migrating
- Number of children born
- Number of households not dependent on relief
- Number of schools constructed
- Number of dispensaries constructed
- Number of new permanent settlements
- Number of children enrolled and retained in schools

Table 3: Proposed Oldonyiro indicators

3. Garbatulla Theory of Change

The Garbatulla ward committee's proposed interventions include;

- **Training of traditional natural resource management committees (dedhas)**
- **Fencing of water pans and construction of troughs**

The ward committee's outcome statement is to increase the resilience of communities in Garbatulla to the effects of climate change.

Training of the dedha committee is one of the interventions being proposed whose immediate outcome will create awareness of the dedha by laws to county government and all stakeholders. This awareness creation will increase the enforcement of the NRM by laws, rules and regulation. Enforcement of rules and by laws will improve rangeland management leading to an increase in livestock productivity and a reduction of conflict incidences

The second proposed intervention is the fencing of water pans and construction of water troughs. This intervention's immediate outcome will be the establishment of a locally run water management committee ([3]aba-erega) who will effectively manage the water resource and charge for use of water. The effective water management should increase the accessibility to improved quality water.

Assumptions

The dedha committee members will be able to establish and enforce the traditional natural resource management system.

- The dedha committee will be fully recognized by the local community and by neighbouring communities.
- The dedha committee has the lobbying capacity to create awareness of by–laws to county government and all stakeholders.
- Community members from Garbatulla and neighbouring counties are receptive and cooperate with the by-laws, rules and regulations.
- The contractor fencing the pans, will use appropriate fencing materials that are properly fitted and able to keep off animals and withstand destruction.
- Water troughs built will be able to distribute water to a large number of animals.

[3] Borana traditional water management committee

- Water manager (aba erega) established will be able to enforce regulations on water management and manage the funds collected from water levies.
- Community members will recognise the role of the water manager.
- Community members have the financial capacity to pay for water levies.

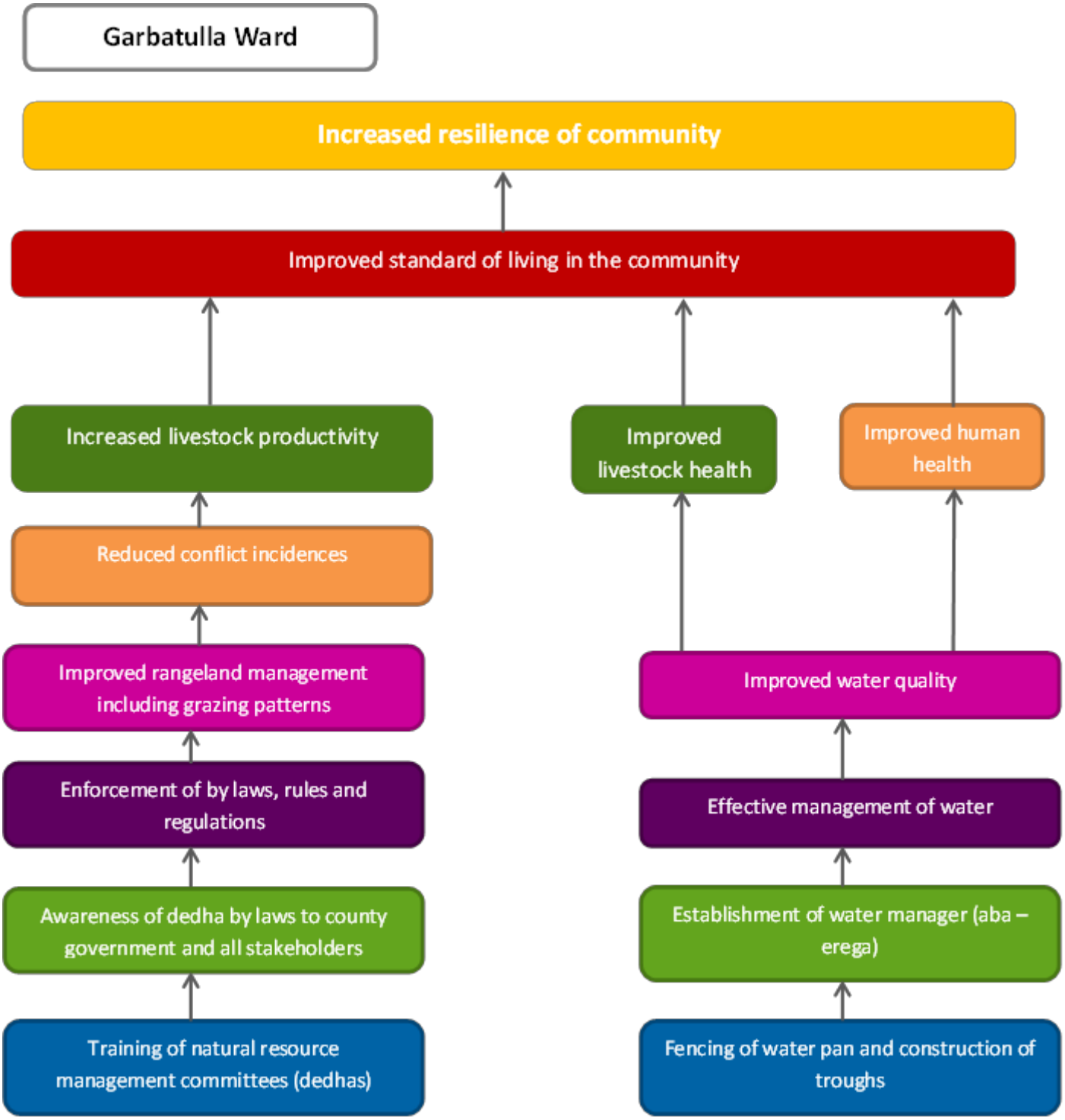


Figure 2: Garbatulla Theory of Change

3.1.1 Proposed Garbatulla Indicators

Output
• Number of water pans fenced
• Number of water troughs constructed
• Number of trainings held for natural resource management committees (dedhas)
Outcome
• Number of minutes of meetings held
• Number of dedhas established
• Number of aba-eregas appointed
Impact
• Number of conflict incidences
• Number of water bourne diseases
• Price of milk at market
• Price of meat at market
• Price of skin at market
• Presence of cheese ([4]ititu)
• Number of animals
• Number of families on food emergency relief
• Number of livestock deaths
• Number of emergency livestock offtake

Table 4: Proposed Garbatulla indicators

4. Kinna Theory of Change

The Kinna ward proposed interventions are;

- **Rehabilitation of an abandoned veterinary laboratory**
- **Training of natural resource management committees (dedha)**

The rehabilitation of the veterinary laboratory will have an immediate outcome of efficient and accurate diagnosis of livestock diseases in the community. The accurate diagnosis will lead to the better treatment of livestock diseases. Increased capacity to diagnose and treat diseases will lead to improvement of health of livestock in the area hence the higher production of milk and meat especially during drought periods when the likelihood of disease outbreaks is high. Higher production of milk and meat will have an impact on livestock population with livestock numbers increasing. Increased livestock population will improve the market value of livestock in the local economy leading to an increase in pastoralist household incomes. This is expected to therefore increase the resilience of the community to climate change.

The second intervention from the Kinna ward committee is the training of traditional natural resource management committee (dedha). For the local community to adapt to climate change, proper natural resource management must be practiced. The training and capacity building of the NRM committee will have an immediate outcome of strengthening natural resource management,

[4] Traditional Borana cheese

surveillance, preservation and protection. This will increase the availability of pasture in the dry and drought seasons.

Assumptions

- The assumptions made will be that the County government will recruit well trained laboratory staff who are fully qualified to diagnose and treat livestock diseases.
- The laboratory/veterinary assistant recruited has the capacity to handle livestock disease outbreaks.
- The ward committee has knowledge on correct laboratory equipment to be purchased.
- The ward committee can purchase appropriate drugs for use in the laboratory.
- Dedha committee will be recognised by community members and neighbouring communities.
- Kenya Wildlife Service (KWS) cooperates with the ward committees by providing a radio signal for surveillance.
- Proper and appropriate surveillance equipment is purchased and committee members have the ability to use the equipment.

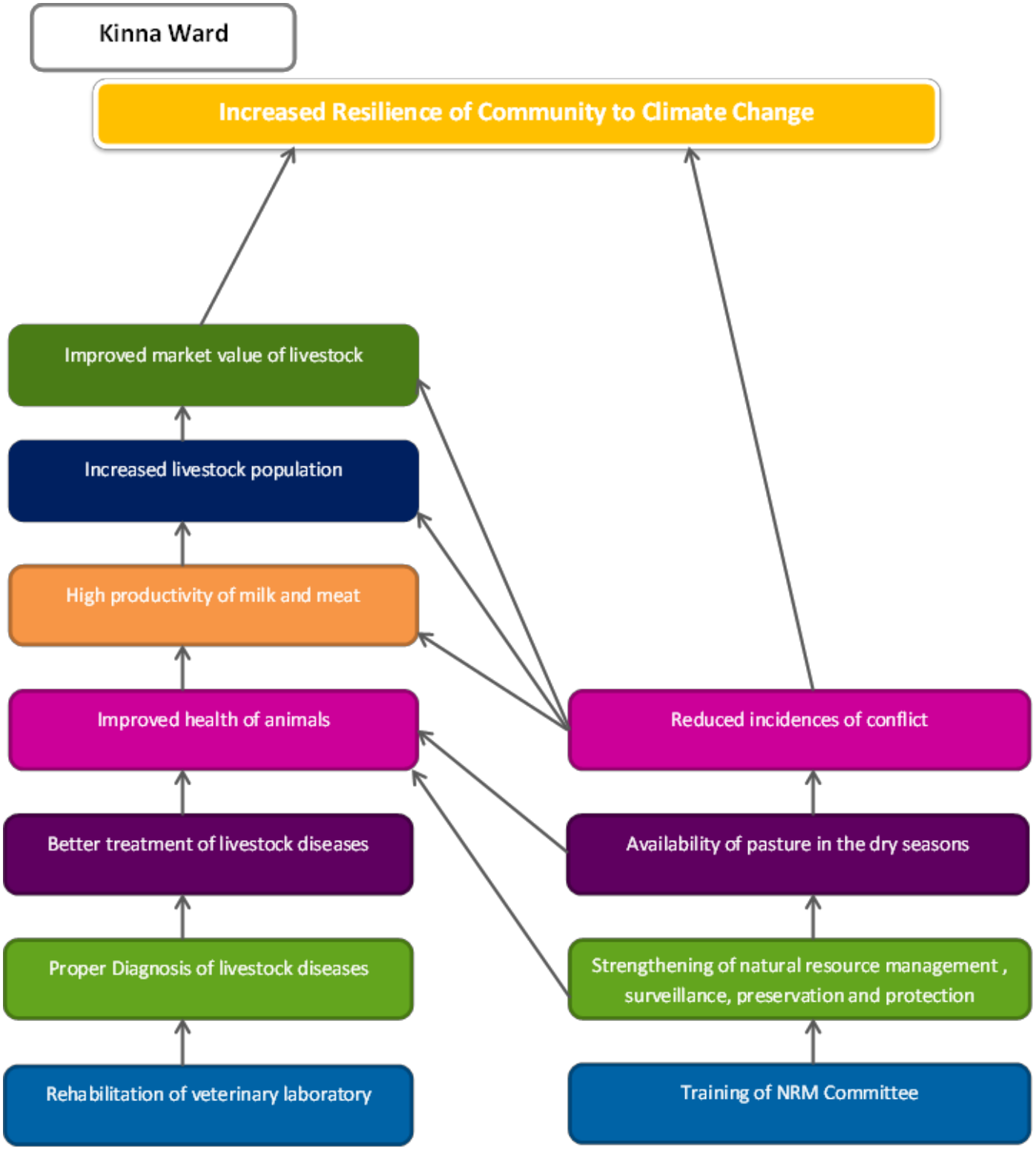


Figure 3: Kinna Theory of Change

4.1.1 Proposed Kinna indicators

Output
• Number of veterinary laboratories rehabilitated
• Number of trainings conducted for natural resource management committees
Outcome
• Household expenditure on livestock drugs
• No. of laboratory samples taken
• Number of animals properly diagnosed per month
Impact
• Number of livestock deaths
• Number of animal births
• Number of litres of milk produced per household per day
• Number of animals taken to slaughterhouse
• Number of livestock sold
• Number of livestock disease outbreaks reported
• Number of conflicts reports
• Number of livestock traders
• Number of pupils enrolled in schools
• Number of marriages
• Number of children born
• Number of businesses started or registered
• Number of cultural ceremonies
• Number of permanent houses constructed
• Number of mosques constructed

Table 5: Proposed Kinna indicators

5. Sericho Theory of Change

The Sericho proposed interventions include;

- **Fencing of two water pans**
- **Capacity building of the natural resource management committee (dedha)**
- **Rehabilitation of Hawaye well**
- **Desilting of Fororsa Pan**

The outcome statement/long term goal for Sericho ward is to enhance community resilience against climate induced hazards.

The fencing of two water pans will increase the control and management of the water pans and reduce the influx from neighbouring counties; this will in turn increase the water quality and quantity. Improved water quality will reduce the incidences of water borne diseases hereby improving health in the communities in Sericho ward.

Capacity building of the dedha council should strengthen traditional governance system and reduce conflict over natural resources. Increased management of natural resources will also be an outcome leading to improved livestock production and further increase in livestock population.

The rehabilitation of Hawaye well and desilting of Fororsa pan will result in an increase in the volume and quality of water in the well and pan and also lead to an increase in the duration that water is available at both sources. The increased volume of water will enable the community to have access to water for domestic and livestock use during drought period. The increased availability of water should improve livestock production and numbers.

As livestock production is a major economic activity in the ward, an increase in livestock population should improve or create a market for livestock further providing a source of household income. Increased household income will enhance the resilience of the community.

Assumptions

- The contractor fencing the pans will construct appropriate fencing that can withstand destruction from humans and animals.
- The dedha council is able to enforce regulations on natural resource management.
- The dedha council receives recognition from local and neighbouring communities.
- The contractor that will be hired for the rehabilitation of the well and desilting of the Forosa pan are fully qualified to do the job.
- Levels of water in the well will be sufficient to increase availability of water at the height of the drought period.
- Fororsa pan inlet still has the capacity to supply sufficient volumes of water during the drought period.
- The capacity of the water pan after desilting is increased substantially so as to be able to sustain water storage for long periods of time.

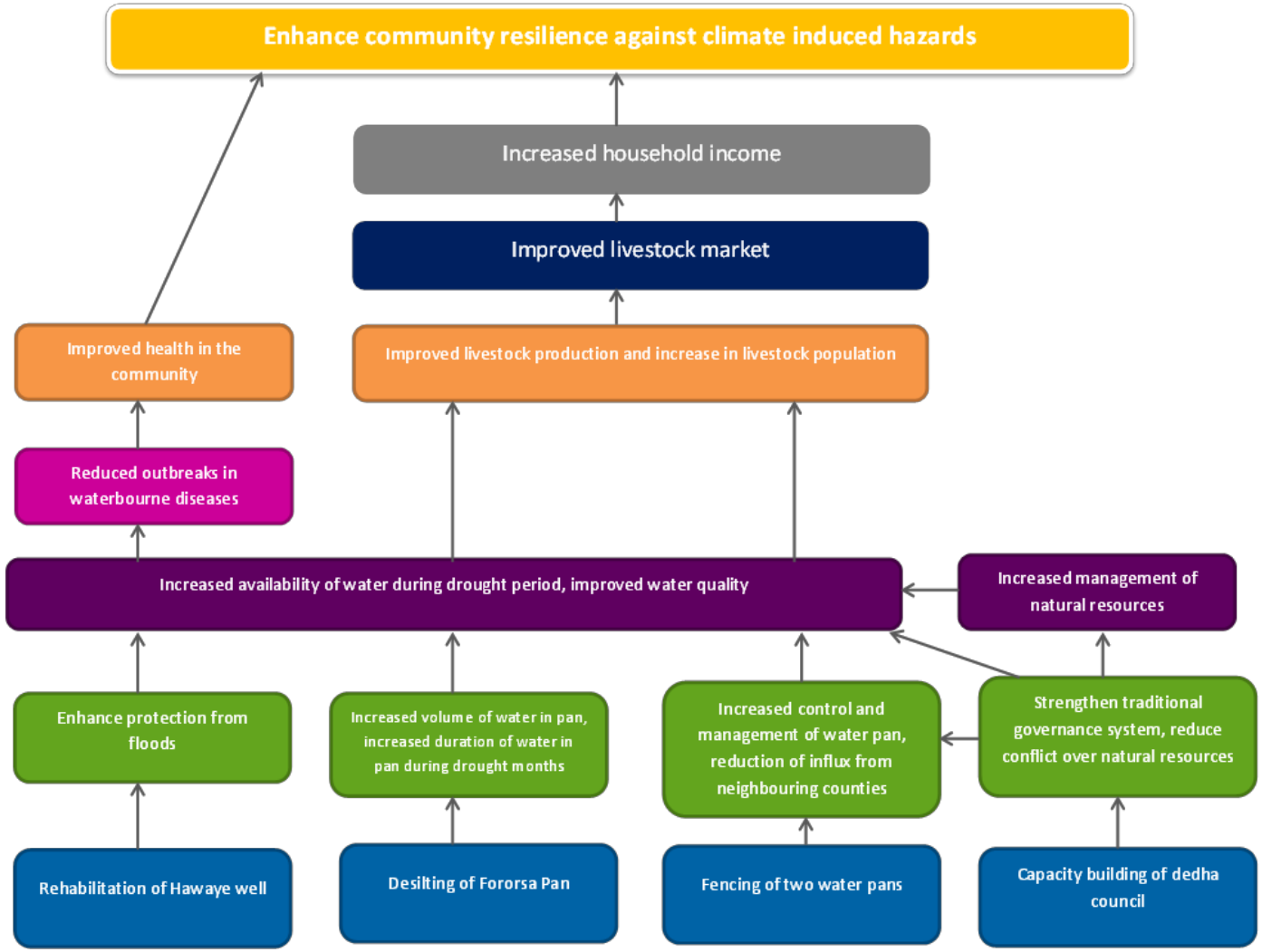


Figure 4: Sericho Theory of Change

5.1.1 Proposed Sericho indicators

Output • Number of water pans fenced • Number of trainings held for the traditional natural resource management committee (dedha) • Number of wells rehabilitated • Number of water pans desilted
Outcome • Volume of water available for both domestic and livestock use • Number of elders/dedha committee members attending NRM meetings • Number of NRM meetings held • Number of households from neighbouring counties/wards allowed to graze in Sericho • Number of conflict incidences
Impact • Number of livestock population • Number of livestock markets established • Number of livestock using water pan and well • Number of water bourne disease outbreaks • Number of wells rehabilitated • Number of water pans fenced • Population of town (human) • Number of households with regular income

Table 6: Proposed Sericho indicators

Picture 4: Sericho ward committee during group discussion

6. Merti Theory of Change

The Merti interventions include;

- **Drilling of Babotta Borehole**
- **Blocking of an inlet on Yamicha pan**
- **Strengthening and capacity building of the rangelands users association**
- **Support small scale farming along Ewaso Nyiro river**

The outcome statements of Merti's ward adaptation committee is to improve community resilience to the effects of climate induced disaster risks

The drilling of a borehole at Babotta will have an immediate outcome of reducing the distance between water points; this will in turn increase the number of permanent settlements in the area due to the presence of a permanent water source. The mushrooming of settlement should improve the local economy and create markets as traders are expected to increase

Merti community faces conflict over use of water in Yamicha pan by neighbouring communities. Therefore by blocking the inlet feeding the pan, the neighbouring communities will not be able to access the pan during the wet season since this area is a drought season grazing reserve for Merti

residents. This will lead to improved management of drought grazing reserves which will cause an increase in pasture and hence high productivity of milk and meat.

Strengthening of the rangeland users association will improve the management of the association and increase transparency and accountability. Better management of strategic boreholes will be an outcome of this capacity building and lead to an increase in supply of water for livestock use.

Small scale farming through extension of canals along the Ewaso Nyiro River is another intervention proposed and will increase the crop harvests leading to increased availability of foodstuff and enhanced food security.

The mushrooming of settlements due to the presence of permanent water is expected leading to an improvement of the local economy and markets, high productivity of milk and meat, improved life expectancy and ultimately improved community resilience.

Assumptions

- The drilling of Babotta borehole will be done by a qualified contractor.
- Neighbouring communities will adhere to the grazing regulations.
- The RUA members have the ability to enforce rangeland management.
- The RUA and its members are recognised by local and neighbouring communities.
- Members of Merti community embrace small scale farming as a long term livelihood strategy that can lead to enhanced resilience.
- Harvests from small scale farming are sufficient for subsistence and commercial purposes.
- Communities practice good farming practices that do not lead to maladaption.

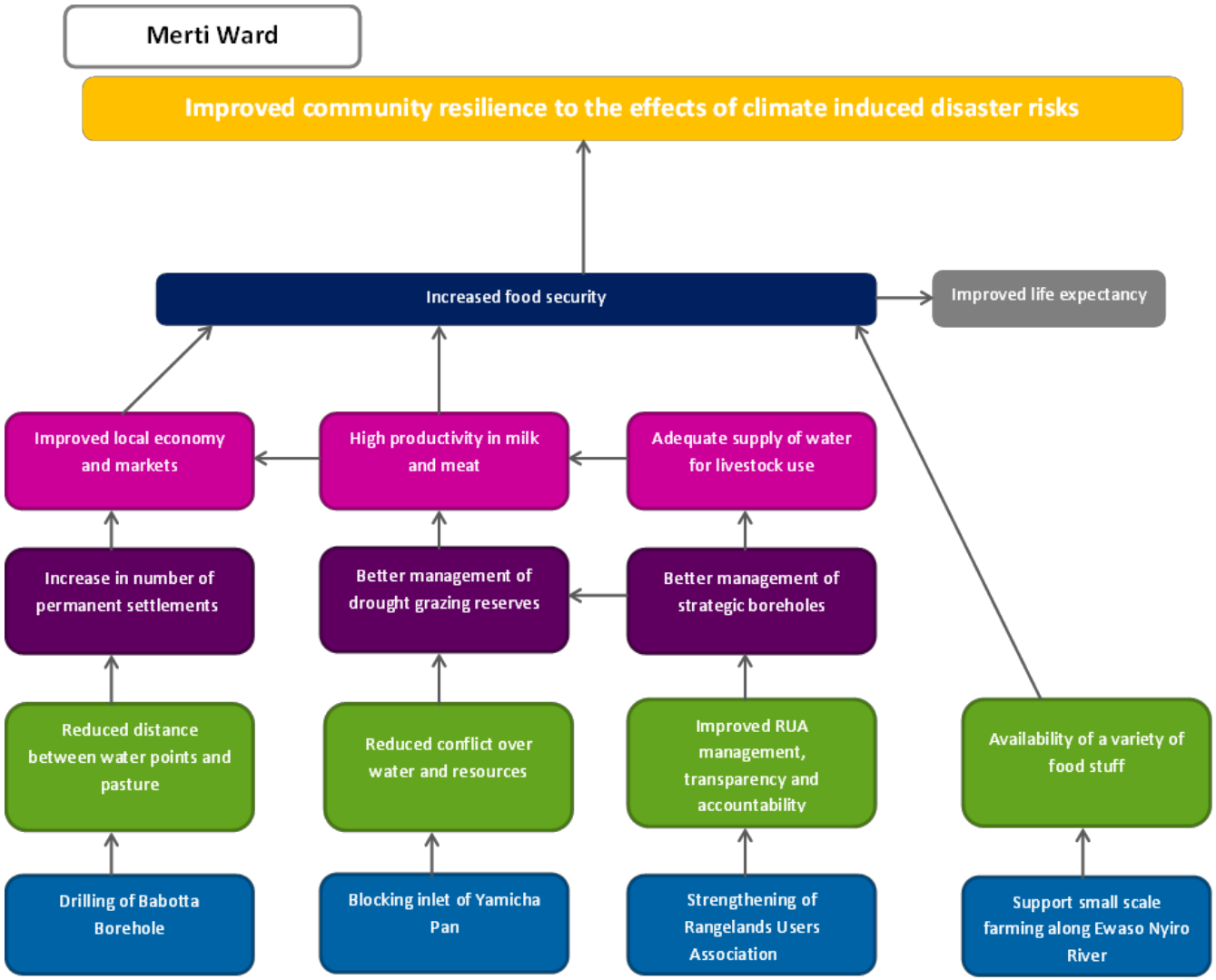


Figure 5: Merti Theory of Change

6.1.1 Proposed Merti indicators

7. Way Forward

Output

- Number of boreholes drilled
- Number of water pan/ inlets blocked
- Number of small scale farm canals extended
- Number of trainings held for the RUA management committee

Outcome

- Number of Rangeland users association meetings held
- Number of users involved in meetings
- Number of attacks/incidences of conflict reported
- Number of farm implements provided
- Number of bags harvested
- Amount of money from water levies collected each month
- Number of kilometres travelled to water point

Impact

- Number of people living/residing in the area
- Number of social services (schools, clinics built)
- Number of small scale traders in the market
- Number of cases of malnutrition
- Number of food surplus sold at market

After the trainings were conducted the ward committees and their members were able to understand the need for M&E and were very enthusiastic about the task of developing theories of change.

In a bid to start collecting base line data, the ward committee members agreed to collect baseline information on the indicators they had proposed. An indicator data sheet with the indicator, the possible source of information and the actual numbers was drafted and sent to each of the ward committee representatives. The ward committees would distribute indicator data sheets to a few assigned members who will then collect the information. The LTSA team expects to get the baseline data by 31st August 2013.

The team was not able to schedule a meeting with the County Planner to assist him in integrating adaptation indicators (top-down) in the County Integrated Development Plan that is yet to be developed. The team has however scheduled to meet the County Planner in July 2013.

Annex 1: Ward Committee Meeting Participant List

Name	Ward/ Organisation
1. Boru Godana	**Merti**
2. Hawo S Jirmo	**Merti**
3. Abdi Mohamed Koricha	**Merti**
4. Fatuma Duba	**Merti**
5. Hussein Godana	**Merti**
6. Abdikadir Godana	**Merti**
7. Abdikarim Hussein	**Merti**
8. Dabasso Halkano	**Merti**
9. Kassim Gufu Jirma	**Merti**
10. Nuria Galgalo	**Merti**
11. Mohamed Adan	**Merti**
12. Hussein Konsulle	**Garbatulla**
13. Yusuf Warabo	**Garbatulla**
14. Rukia Ali	**Garbatulla**
15. Halima Golicha	**Garbatulla**
16. Mohb Guyo	**Garbatulla**
17. Adan Gine	**Garbatulla**
18. Francisco Letimalo	**Oldonyiro**
19. Peter Molka	**Oldonyiro**
20. Paul Nashio	**Oldonyiro**
21. Kuterei Lemantile	**Oldonyiro**
22. Leiroiya Simon	**Oldonyiro**
23. Nairewa Joseph	**Oldonyiro**
24. Lesengei Francis	**Oldonyiro**
25. Esther Letapi	**Oldonyiro**
26. Doris Loitianya	**Oldonyiro**
27. Ismail Jarso Guta	**Kinna**
28. Amina Molu	**Kinna**
29. Ibrahim Abdul	**Kinna**
30. Mohamed Halake	**Kinna**
31. Mariam Sereka	**Kinna**
32. Salad Gufu	**Kinna**
33. Rukia Diba	**Kinna**
34. Mohamed Dabaso Guyo	**Kinna**
35. Ibrahim Jarso	**Kinna**
36. Salad Tutana	**Sericho**
37. Mumina Bonaya	**IIED**
38. Daoud Tari	**RAP**

Annex 2: Sample Indicator Data Sheet

Indicator to be collected	Possible source of Information	Number

Annex 2: Sample Data Collection Sheet

Indicator to be collected	Possible source of information	Numbers at Baseline/ before project implementation
Oldonyiro		
Livestock		
Number of livestock with access to water during dry season (2012)	Water point	
Number of livestock disease outbreaks per year (2012)	Livestock Officer	
Number of litres of milk produced per households per day	Manyattas/ Household Survey	
Number of kilos of meat produced over the year (2012)	Market/ Slaughter house	
Number of livestock births	Livestock officer	

Project materials

Climate change

Keywords:
Kenya, TAMD

International Institute for Environment and Development
80-86 Gray's Inn Road, London WC1X 8NH, UK
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
email: info@iied.org
www.iied.org

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