

# Final Report

## **Leveraging Markets for Climate Friendly Sustainable Development, Laikipia Kenya**

**Grantee: NEPCon – Nature, Ecology and People Consult**

**Local Partner(s): Zeitz Foundation**

**Other Partner(s): OI Pejeta Conservancy, Vizzuality**

Project start date: *01/03/2015*

Project end date: *13/08/2017*

---

Date

---

Person responsible (Signature)

---

jpf@nepcon.org  
+4530228830

---

Jan Peter Feil  
Project Manager

**TABLE OF CONTENTS**

- 1. EXECUTIVE SUMMARY ..... 3**
- 2. ASSESSMENT OF IMPLEMENTATION OF THE PROJECT ..... 4**
  - 2.1 Implementation of Activities..... 4
  - 2.2 Deviations from the Planned Activities..... 13
  - 2.3 Achievement of Outputs and Objectives ..... 14
- 3. CLIMATE CHANGE..... 16**
- 4. DEVELOPMENT IMPACTS AND CROSS-CUTTING ISSUES ..... 17**
- 5. ASSESSMENT OF THE RESULTS AND IMPACTS OF THE PROJECT ..... 17**
  - 5.1 Relevance ..... 17
  - 5.2 Effectiveness..... 17
  - 5.3 Efficiency ..... 18
  - 5.4 Impact..... 18
  - 5.5 Innovativeness and learning..... 18
- 6. SUSTAINABILITY AND POTENTIAL FOR SCALING UP AND FOLLOW-UP INVESTMENTS..... 19**
- 7. FINANCIAL REPORTING ..... 19**
- 8. CONCLUSIONS AND RECOMMENDATIONS ..... 20**

**ANNEXES**

- Annex 1 Updated Logical Framework Matrix
- Annex 2 Pictures
- Annex 3 Other supplementary documentation

## 1. EXECUTIVE SUMMARY

Laikipia is a poor and marginalized country in central Kenya. Here subsistence farmers live alongside big private conservancies and traditional herders. The project sought to enable the communities in this highly vulnerable area to adapt to climate change through introduction to new farming techniques and improve the livelihoods by graduating from subsistence farming to producing marketable surplus. The project contribute to climate change mitigation through avoided degradation and lower greenhouse gas levels through better management of large privately-owned rangelands.

Main activities in the project was work related to introducing 4,000 farmers to Conservation Agriculture (CA); a farming practice for better soil and less water promoted internationally by the UN Food and Agriculture Organisation, FAO. Conservation Agriculture has three principles 1 minimum soil disturbance, 2 permanent organic soil cover and 3 diversification and rotation of crop species.

As another component in the adaptation to a drier climate, technologies for rainwater harvesting and drip irrigation was introduced. 3110 people were trained on the RWH methodologies and 235 people were trained on setting up installations. The uptake of the RWH was the most impressive result as the target of 1 million litres annually was passed almost tenfold.

Low-tech solutions to Human-Wildlife Conflicts (HCW) was introduced to help farm security and food production. Some areas in the project was affected by crop raiding by wildlife, while others were not. The project focused interventions where the problem was present and applied techniques that were appropriate and low cost.

Carbon sequestration was achieved through ecological restoration of degraded privately or community managed wild lands. The expectation was participation from ranches covering an area of 1.3 million acres to replant in the 10% of the rangeland. The project secured the participation of private and communal ranches with a collective area of approximately 300,000 acres, whereof 220,000 acres are rangelands used for wildlife and cattle.

After consultation with the project partners, it was established, that replanting 10% of the area would require establishing of exclusion zones, where newly planted trees are fenced off to protect them from browsing wildlife. As a result, the project then chose to focus on the other two components in the ecological restoration plan; better management of grazing cattle and removal of invasive species in the area.

These gains, along with increased productivity and sustained access to profitable markets, hold the opportunity to be replicated and enhance the socio-economic well-being of local communities and provide new long-term revenue generating opportunities for commercial and community conservancies and ranches.

## 2. ASSESSMENT OF IMPLEMENTATION OF THE PROJECT

### 2.1 Implementation of Activities

#### **Climate Friendly Conservation Agriculture introduced and scaled up:**

The project set up 10 training sites, consisting of farm areas equipped with rainwater harvesting installation so the project had a site to train and demonstrate the CA principles and rainwater harvesting (RWH) to local farmers.



**Figure 1 Project demonstration sites – excerpt from interactive Carto map**

#### **Conservation Agriculture principles**

1. Minimum tillage and soil disturbance: protects the soil against erosion, conserved soil moisture, improves soil organic matter.
2. Permanent soil cover with crop residues and live mulches: Protects soil from erosion, suppresses weed germination and growth, improves recycling of nutrients, improves organic matter accumulation and carbon sequestration.
3. Crop rotation and intercropping: Improves water use, reduces pests, improves fertility and production e.g. nitrogen fixing legumes improve the soil for successive cereal crops.

The CA and RWH demonstration sites were located at schools where the management had agreed to allocate the land needed for training sites. In return schools would get the produce from the demonstration plots and use it for feeding programmes for the school children.

The primary training site was created centrally in the project area at Endana primary school. Additional 9 satellite training and demonstration sites were set up. A total of 38.1 acres of demonstration plots have been established across Laikipia County.

A total of 20 community staff and 6 project and government staff received a 10-day training on climate friendly farming methods to equip them with skills and knowledge to provide extension services as trainers. The training covered principles of conservation agriculture, low cost techniques in rainwater harvesting and storage, human wildlife conflict mitigation and forestry. This was followed by a refresher training one year into the project period to the same persons to update to improve their capacity.

The project through the trained staff provided extension services in all four project components; to 4,000 farmers on a regular basis. These farmers own approximately 7,600 acres of farmland.

Extension services were provided through farm visits were conducted by the trainers and walk-in visits by farmers to the training sites. Some farmers received the services through organized farmer training days (field days) held at the training and demonstration sites.

During the 30 months, the trainers recorded a total of 19,505 contact or visits with farmers and held 36 outreach trainings at the project training sites and through other organized forums e.g. sporting events. The benefits from the training thus reached over 24,000 household members (with family size of 6) with project interventions to make them more resilient to climate change and reporting better food security as well as household incomes.

Further 2500 children now benefit from school feeding programmes based on vegetable produce from the agriculture plots at the schools. An arrangement that continues in some of the schools after the project ended through participation of school management and parents.

### ***Rainwater Harvesting Introduced for sustainable water management:***

As Laikipia is a semi-arid region with annual rainfall of 400 – 750 mm and mean temperatures of 16 – 26<sup>o</sup> C. The rainfall is however unreliable and unevenly distributed occasioned by drought and frequent floods making availability of water for crop production the most limiting factor. As rivers are already over utilized water source, many initiatives in Kenya now turn to harvesting of rainwater to meet the needs of households and crops.

The project set out to establish RWH capacity of 1 million litres annually based on two rainy seasons. Rainwater is collected from roofs via gutters and filters into storage facilities. Installations were envisaged to be both concrete cellar type and rainwater barrels of plastic. Pump systems would lead the water to elevated tanks that then by gravitation would irrigate the crops through a system of drip-irrigation tubes.

At the onset of the project, underground concrete water cellars were planned as the intervention and 72 local people were trained in the construction hereof. However, the cost of constructing the cellars was too high for the project budget and the choice of RWH facilities was changed to purchase and install of poly-tanks.

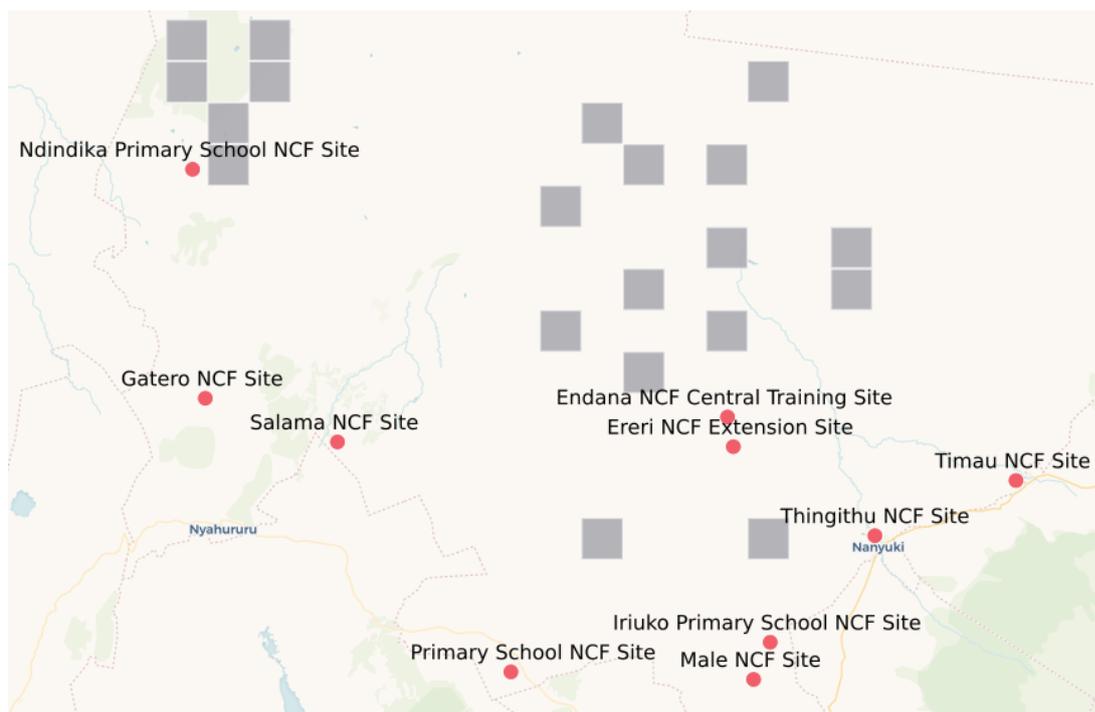
The project reached 3,310 farmers with training on RWH systems. 235 people were trained on how to install the RWH system and how to do maintenance of the installations. These people now have the skills and knowledge to use RWH facilities, and some have now started providing RWH services to the communities and are earning partial incomes to support their livelihoods.

At both household and schools, the water is now used not only for irrigation of crops but has also provided access to clean water for use in households and for children at schools. This has led to improved crop yields especially fresh vegetables and better hygiene and sanitation at homes and schools leading to better health.

***Human Wildlife Conflict Mitigation methodologies introduced:***

In some areas the farmers have problems with wildlife entering farms and eating crops – the so-called crop raiding – or more broadly Human Wildlife Conflicts. This is due to the proximity of some of the farmlands to wildlife conservancies and ranches which are widely spread in Laikipia County. While wildlife protection and management that allows tourism to flourish in the county is an important undertaking in the county, the regular crop raids especially during dry periods affects crop production for small scale farmers neighbouring these ranches. The project set out to reach 4,000 farming households with information on how best to co-exist with wildlife through adoption and implementation of a set of techniques and technologies.

The assumption was that all ten project sites experienced some level of human wildlife conflict and therefore would need to adopt interventions to mitigate its negative effects. However, during the first stakeholder workshop, information obtained from relevant government departments and stakeholder participation established that some areas were no longer affected due to wildlife movement and in some cases fencing wildlife areas off. The number reached thus was lower than anticipated at 1,806 farmers who received training and participated in practicing the promoted techniques.



**Figure 2 Project sites in relation to elephant populations (grey), some sites are not affected by elephant crop raiding and some sites are affected. HWC training was focused on areas with problems.**

At a stakeholder meeting one woman from Ndindika told the participants how an elephant had walked in to her farm and eaten all her crop of millet.

Part of the project intervention to improve livelihoods was to mitigate the risks of wildlife raiding the farm crops. In the project proposal, there were listed ideas for technologies and techniques that could be applied eg. bee-hives and chilli fences. Although these methods have gotten much publicity, the interventions were not favoured by the farmers themselves.

A successful mitigation method was to chase away wildlife in an organised collective manner. In addition, as HWC intervention, two sites applied predator proof shoat pens. Furthermore, the project team re-established a livestock watering point which is now used by wildlife at night. This keeps the animals away from homesteads and thereby helps to avoid conflicts.

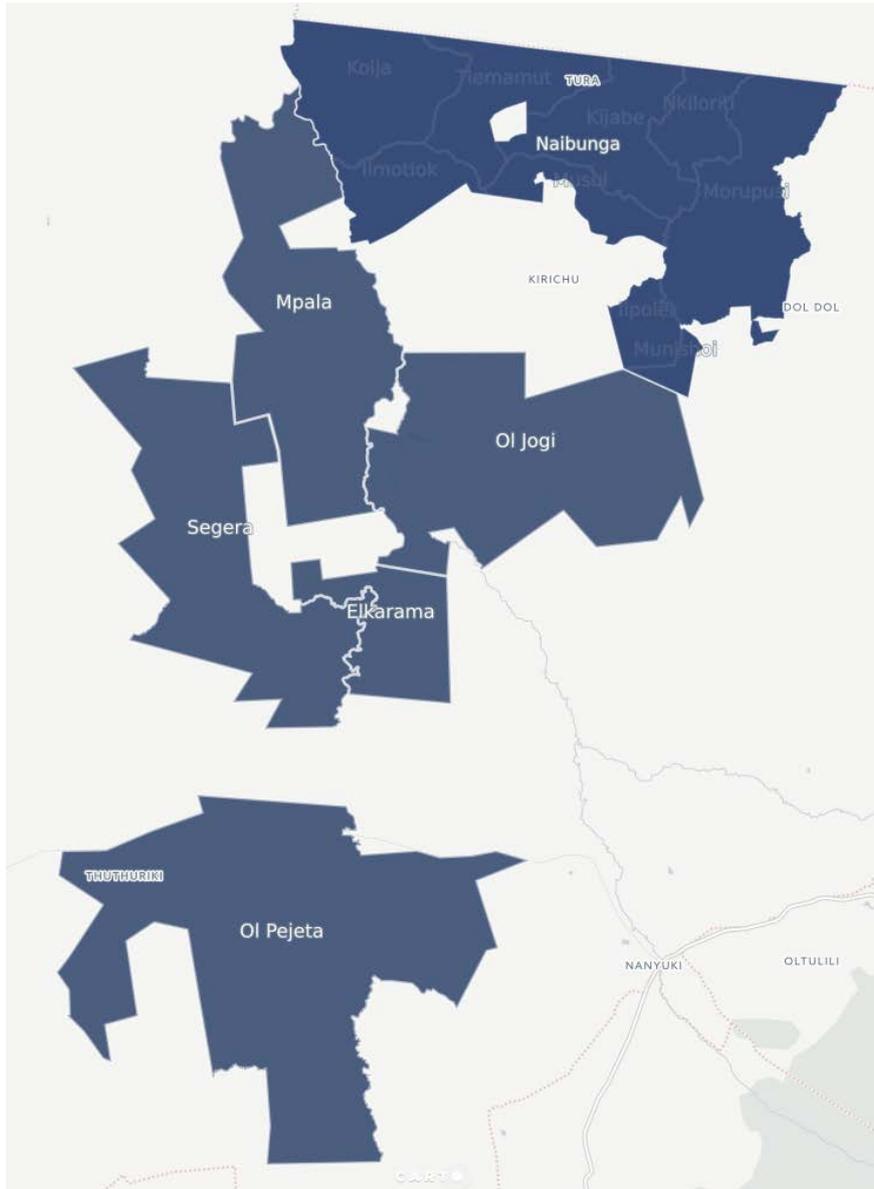
Another way of stopping crop raids was growing early maturing bean varieties (KATX56 and KATB9) in the bean exchange program has helped in mitigating conflicts, as they help to elude wildlife predation. The early maturing of crops happens in a season when wildlife is less likely to encroach farmers' fields.

Farmer replication has been achieved through extension and site visits combined with training going on during farmer field days reaching 1,806 farmers that live in the areas affected by wildlife crop raiding (see map).

## Carbon sequestration through reversing land degradation

### ***Ecological Restoration:***

Five ranches, Segera, Ol Pejeta, Mpala, Ol Jogi, El Karama and on community conservancy Naibung'a covering approximately 300,000 acres of land engaged in the project to become ready to participate in a future carbon project and to contribute to climate mitigation with activities of ecological restoration in three categories: enrichment planting, planned grazing and removal of invasive species.



**Figure 3 Ranches (blue)**

Four of the ranches (Ol Pejeta, Ol Jogi, Mpala, Segera and El Karama) are privately owned ranches and one is a group ranch in the North, where community land owners have grouped their land into Naibung'a conservancy.

At stakeholder meetings the project informed ranches on the requirements and documentation needed to engage in a carbon project. To facilitate the process, the project provided a template to collect the data needed to prepare a Project Design Document (PDD) as per the Gold Standard carbon project certification scheme.

The project had initially based its mitigation estimates on replanting 10% of the expected total area, equal to 132,000 acres of wild lands, and thus anticipated 1,055,000 tCO<sub>2</sub> carbon sequestering.

Consultation with stakeholders made it evident that large-scale reforestation efforts are at high risk of failure since wildlife will damage young trees and that good survivorship of planted seedlings will require fencing. The reforestation plan was therefore adjusted to focus on approaches including the removal of invasive species (*Opuntia* spp, *Datura* spp.) and grazing management (planned grazing) within the ranches in combination with enrichment planting. All ranches implemented at least two of the three approaches. Some ranches implemented planned grazing by using traditional cattle pens called 'bomas' to keep herds of cattle safe from lions at night in distinct areas of the ranch. This technique allows the ranches to manage grazing more efficiently and avoid overgrazing where the vegetation cannot support grazing without suffering damage.



**Figure 4 the modern version of the 'boma' type fence**

At each of the 10 training and demonstration sites was established a tree nursery. The tree species grown were identified through stakeholder consultations to identify indigenous species suited to the different climatic conditions at each of the sites.

A total of 28,985 seedlings were produced during the project period. Out of these, 17,357 have been distributed to farmers for transplanting at their farms. The amount of tree seedlings produced was below the set target. The project had initial challenges in identifying the correct tree species to grow and a gap in the technical skills within the project team. The challenge was addressed through hiring of a trained forester to the project team and support from local government agriculture department through stakeholder engagement. The drought led to a delay in distributing young trees to farms, as the project team assessed that there was a high risk of seedlings dying off if planted in dry conditions.

## ***Socio-economic business development***

### ***Reliable and Profitable Market Access:***

The project set out to link local markets with importers in the Nordic countries. An external consultant and crop specialist was hired to look in to the markets in Denmark and identify potential markets for products from the project area. The initial evaluation was that organic and gluten-free products were most interesting and had low competition from productions elsewhere in the world. A shipment of 300 Kg sorghum was sent to Denmark to allow companies to test the quality of the products. A market was identified for farmers to sell their crops as three named businesses in the Denmark expressed interest in buying three popular the gluten-free sorghum varieties of Gadam, Seredo and E1271.

A business plan was developed for sorghum grain. The plan is ready for use after project ends. The business plan was developed involving a local established agriculture organisation, that may also be able pursue the business with Nordic contacts subsequently. Further, the project an opportunity was identified because of consultation with the Danish Embassy in Nairobi.

The co-operative model was after consultation with stakeholders replaced by another type of organisation; the Produce Marketing Organisation (PMO). The stakeholder forum and the consultant report pointed to a need for produce a diversity of crops. The justification for this is that the project area has a variety of climatic conditions and therefore needs a variety of crops for each specific condition. So, instead of 1 cooperative 3 PMOs was initiated at sites where there seemed to be most viable. 2 PMOs have now registered and another is underway. Due to the changes in the approach from a cooperative to produce marketing organization, the activity was undertaken towards the end of the project limiting the number of groups that could be operationalized to only 3 against a target of ten.

- a. A total of 26 community resource persons were trained as ToTs to understand the Global GAP/Kenya GAP certification standard. The ToTs then trained farmers during their extension visits to farmers.
- b. Field staff also trained the farmers at 3 selected sites on PMO group formation and organisation, structure and records. The groups' membership was between 15 – 20 to allow for cohesion; for each group, three officials including the chairman, treasurer and secretary were elected and charged with group leadership.

307 people were trained on installation of Rainwater Harvesting Systems and maintenance and can now earn part-time incomes from providing services to communities.

## ***Monitoring of project outcomes and stakeholder involvement***

### ***Monitoring and evaluation system established.***

Monitoring and Evaluation systems were established. During the initiation phase a baseline survey was carried out to have data available for the mid-term and final evaluations to make conclusions upon. The mid-term evaluation was conducted in milestone 3 and the final project evaluation was conducted in milestone 5. Both evaluations were conducted by an external, locally based, independent consultant.

Based on the baseline survey a monitoring and evaluation system was designed proposing the indicators for impact monitoring, the measures, type of data to collect data and the frequency of the exercise. This will be essential to help learn and adapt activities, detect early potential negative changes and capture positive changes that can be attributed to the project.

Mid-term evaluation found that the project was on track and had shown considerable success in delivery of its core mandate. Many of the planned outputs, outcomes and medium-term development results had been achieved. However, the leveraging of markets for improved household income had been delayed and therefore there and there a recommendation to fast track this segment.

The final evaluation report concluded that the project was well planned, implemented and executed helping realize and achieve its goal. In addition, the project by and large achieved its planned outputs, outcomes and impact.

There were several recommendations which can be drawn from the final evaluation:

1. Continue working with relevant government departments especially the ministry of Agriculture to ensure lasting benefits of the project in the post implementation period.
2. Continue to work and liaise with likeminded organizations and government departments to ensure wider up-scaling and adoption of the different technologies.
3. Follow-up and monitor the maintenance of rain water harvesting systems and drip kits in the project sites.
4. Explore cheaper and cost-effective water harvesting for farmers beside drip kits because many farmers complain that drip kits were very expensive to buy.
5. In future develop clear indicators for measuring of outcome and impact results. For example, recommend using proxy indicators like total household expenditure as a proxy for household income.
6. If possible lobby for the Laikipia County government to make relevant crop and livestock produce market policy and framework in order to caution farmers from exploitation and frustration brought about by brokers.

7. If possible monitor and continue working with the producer marketing groups to enhance farmers bulking, marketing and sale of produce to national and international markets. This could also see a variety of crops being grown for international markets including dried seeds, chilli, essential oil and honey production in areas with HWC as recommended in the market linkages report.
8. Farmers could also diversify crop production through growing gluten free foods in future and explore the international markets for the same especially the Nordic markets.
9. Follow-up on registration of producer marketing groups for the remaining sites to ensure that farmers can bulk and market their produce.

***Community and other Stakeholder engagement in the project assured***

The project conducted three stakeholder meetings were, the last one in June 2017. All stakeholder meetings experienced a high level of engagement from both government branches and local NGOs. The meetings were instrumental in giving crucial views in shaping any changes during the project period. Participatory methods used: World Café and the Six Thinking Hats, were applied in two of the stakeholder meetings to ensure methodical and open extraction of views and opinions from all participants.



**Figure 5 Edward de Bono's Six Thinking Hats methodology in use**

Interaction with communities was mainly done during farmer field days, where feedback and exchange sessions occurred.

## 2.2 Deviations from the Planned Activities

### 2.4.1 Activities that have not taken place

- In the project plan was delivery of one cooperative registered. Following the market research and visit to the farmers near the project sites, the external consultant from Kenya Organic Agriculture Network, KOAN, concluded that the farmers were at very different levels of progress towards surplus production. Further the project description did not take in to consideration, that the farms in the project was very dispersed geographically and therefore one cooperative formed in the project was not viable. Therefore, the formation of a cooperative was changed to farmer networks and the formation of Produce Marketing Organisations (PMOs).
- The project put efforts in to training on PMOs at sites where commitment was present; so far, 3 PMOs have been formed and 2 of them have been formally registered with the relevant government department.
- Large scale reforestation of 132,000 acres did not take place, as experience from the area was that such intervention required fencing off areas to be successful. As fencing larger areas was not an option, adjustments were adopted to focus on planned grazing, removal of invasive species and enrichment planting under exclusion zones.
- Nurseries output was much lower than anticipated. Partly since the trees were not needed for the large-scale planting component, but also because the nurseries had problems in the start-up phase.

### 2.4.2 Unforeseen activities that have taken place

- “Seed Bank” Seed quality among farmers was low as a result of growing the same seeds for many seasons. The project promoted use of certified seeds which were planted at all training sites. At harvest, the project host institution entered an agreement to exchange the newly harvested seeds which is viable for 8 seasons with the farmers for their old harvested crop. Hence this provided a chance to exchange their produce that they would have used as seeds with crops from the demonstration plots and that way the school children would eat the farmers’ crops and the farmers would use the seeds from the demonstration site crops to plant. This has led to better yields on the farms and this benefit of good seeds will continue to serve them for 5 more harvests post the project period.
- Rain Water Harvesting (RWH) litres increased to at 8.3 million. During project formation rain water harvesting was considered at institutional level, however RWH at farmer level was not put into consideration. Farmer innovation has

led to the creation of water pans and acquisition of tanks because of the training they received on RWH. The clean water is used for domestic and livestock supply reducing the cases of water borne diseases while excess water is used in supplemental irrigation increasing crop yield.

- Some of the schools have likewise benefitted from rain water used for washing and hygiene where they earlier had limited access of water for such purposes because their only source of water were rivers and flood water in earth dams that is not safe for domestic use.
- The project identified an ongoing carbon project in Laikipia (under Northern Rangelands Trust, NRT) that is ongoing. Project participating areas should be eligible to join this initiative rather than having the cost of initiating a separate project.

### 2.3 Achievement of Outputs and Objectives

1) improved livelihoods of marginalised communities living in an area highly vulnerable to climate change; 2) significant amounts of carbon sequestered as a contribution to stabilising global GHG emissions

Summary of project effectiveness (Quantitative).

**Table 1: Results summary chart**

Logic	Indicator	Baseline value	Cumulative total	Target (EOP)	Achievement to date in %	Comments
<b>OBJECTIVE 1: ENABLING PEOPLE AND FARMLAND PRODUCTION SYSTEMS TO ADAPT TO CLIMATE CHANGE THROUGH CA, RWH AND HWC</b>						
<b>Climate Friendly Conservation Agriculture Introduced and Scaled</b>						
Establish training centres and expand Endana site	Number established		10	10	100 %	Complete. Endana site stalled due to change of administration. Sukutan site moved to Segera mission.
Establish demo plots in CA	Number of acres established	4 Acres at Endana	38.2	38	101 %	Complete
Area under CA	Total area in acres/farmer under CA		1.09	0.5 Minimum under CA /farmer	200%	CA competes with other livelihoods like livestock keeping

Trainer of Trainers training	Number TOTs trained	None	26	26	100 %	Complete
Provide extension services in RWH, CA, Forestry and HWC	Number of farmers reached thru extension	None	19,505	4,000	487 %	Surpassed target
HH food security	% people who are food secure	60 %	86.9 % based on HH responses			Improved HH food security.
<b>Rainwater introduced for sustainable water management</b>						
Establish RWH sites	Number of sites established		9RWH BL 1 for Endana 8 new other sites	9	100 %	complete
Rainwater harvesting introduced	Amount of water harvested		8, 328,120	4,000,000	208 %	The target has been surpassed
Training of artisans	Number of artisans trained		72	160	45%	It was brought about by the change of from concrete underground water cellars to plastic tanks that needed less time and manpower
<b>Human Wildlife Conflict technologies introduced</b>						
Innovative technologies applied in HWC	Number adopting HWC		601	4,000	15%	Target was too high and only Endana, Sukutan and Kinamba are faced with HWC.
Training in construction maintenance	No of people trained in construction and maintenance		72	100	72 %	
<b>OBJECTIVE 2: CARBON SEQUESTRATION THROUGH REVERSING LAND DEGRADATION</b>						
Project design and carbon verification						
Direct carbon reduction	Total no. CO2 reduced in tons over 20 years period		1,933,920	1.055,305 Co2 tons	115 % in 20 years	Target to be surpassed.
Establish indigenous nurseries	Number of trees seedlings raised		34,248	100,000	34 %	Target was too high
Providing training in maintenance and upkeep of reforested areas	Number of people trained		72	100	72 %	

Involvement participants	Number of stakeholders workshops		2	2	100 %	Complete
<b>OBJECTIVE 3: RELIABLE AND PROFITABLE MARKET ACCESS</b>						
Strengthen or develop local enterprises (producer marketing groups)	Number of producer marketing groups (PMG) formed		2 with complete registration	10 CBOS	20 %	The remaining 8 are in the process of registration.
	Number of cooperatives		0	1	0	Cooperative was not feasible. Established PMGs

### 3. CLIMATE CHANGE

The project directed activities towards both climate mitigation and adaptation.

Mitigation: Reducing carbon emissions from degradation of rangeland areas by restoring the wildlands by applying planned grazing, enrichment planting and removal of invasive species.

The project prepared a Project Design Document (PDD) as per the Gold Standard. The PDD and guidance on the requirement for participating in a carbon project and the way forward was presented to the ranches at two stakeholder meetings. However, it was found that an ongoing climate initiative by NRT (mentioned in 2.4.2) was more promising to document carbon credits earned.

Approximately reduced degradation equivalent to 20 tCO<sub>2</sub>e/ha metric ton on average based on VCS/CCB standard. The expected annual removals, based on a similar project in the nearby conservancies, would be of approximately 1 metric ton CO<sub>2</sub>e/ha on average. Based on the area which was under planned grazing of 234,000 acres (94,696 Ha) therefore infer that total carbon removed annually is 94,696 tCO<sub>2</sub> and estimated 1,893,920 metric ton of CO<sub>2</sub>e over a 20 years period.

Adaptation: 4,000 households of average 6 persons; adults and children approximately 24,000 beneficiaries now benefit from more drought resilient agriculture methods and has reported better food security (see section 4).

Rainwater harvest facilities were introducing and 8.3 million litres of water can now be harvested annually. These benefits are not only available for the farms but also for domestic use with improved hygiene and health improvements as expected results.

Farmers have also adapted by growing bean varieties like the KATX56 and KATB9 which can do well with little rainfall and help to elude wildlife as they are early maturing therefore also mitigating conflicts between farmers and wildlife.

#### **4. DEVELOPMENT IMPACTS AND CROSS-CUTTING ISSUES**

The majority (80%) of the farmers in the project were women (Sustainable Development Goal 5 (SDG 5)).

95% of households reported an increase in income (SDG 1) 46% of respondents saw 25%-49% increase in income and 35% of respondents have experienced 50%-100% increase in income and around 300 semi-permanent jobs were created providing services.

Food-security was enhanced as 16% of households before could satisfy hunger during a 6-12-month period, now 61% can satisfy hunger during a 6-12-months period. Schools feeding programmes benefitted 2500 children (SDG 2). This is an impressive result because there has been severe drought during the lifespan of the project.

Habitats for wildlife was restored (SDG 15) and invasive species removed. Degradation of land and soils is mitigated (SDG 13).

307 people was trained on Rainwater harvesting installation and service, and can now earn part-time incomes from services in their communities.

2,500 children received food from the school-food programmes.

4,000 farmers (3,200 women) were trained on rainwater harvesting and conservation agriculture.

24,700 Household members experience increased income.

#### **5. ASSESSMENT OF THE RESULTS AND IMPACTS OF THE PROJECT**

##### **5.1 Relevance**

Close consultation with stakeholders and the advisory group as well as open dialogue and participatory meeting techniques, lead the project to adapt the activities and approaches and thereby kept the project relevant to the beneficiaries. This is supported by the good interest and participation in the here stakeholder meetings. Also, the positive evaluations showed that the project activities are relevant and appreciated by the target group.

The certification/standard setting component was changed from the initial Fairtrade or organic farming certification to the Kenya GAP to ensure the relevance and accessibility for local farmers.

##### **5.2 Effectiveness**

The project had two main objectives which were by and large met. However, the objective of improving livelihoods of marginalized communities living in an area highly vulnerable to climate change was very successful. The objective of supporting the future sequestering

significant amounts of carbon as a contribution to stabilizing global carbon emissions, was met though there were changes in the ecological restoration plan to allow for maximum social and environmental benefits.

### **5.3 Efficiency**

The project used qualified local experts whenever possible. This reduced the cost of high salaries and travels by international experts. The project applied free software and tools where possible.

### **5.4 Impact**

An estimated more than 24,000 household members have benefitted from the project.

2,500 children have access to a school food programme from the project's demonstration plots.

More than 8 million litres of water annually can now be used for irrigation and hygiene and household needs. The project has led to an 45% increase in households that can keep hunger at distance for 6-12 months.

Ecological restoration activities are ongoing on ranches covering 300,000 acres, and ranches have learned about the requirements of carbon projects, and a draft Project Design Document has been prepared as a starting point for pursuing carbon credit projects in the future.

### **5.5 Innovativeness and learning**

The project used smartphone based reporting from the start. The team of trainers made use of the free tier of ona.oi platform for mobile data collection and data aggregation. This allowed the project team to monitor data easily during the project period and to share it with the advisory board and during stakeholders at meetings.

Farmers showed an overwhelming uptake of the RWH techniques. Especially in the west have started creating water pans. Trying to innovate approaches used in the water cellar building on the experiences from the project.

Communities have adopted techniques to avoid wildlife conflicts both in practical ways and by postponing the harvest time to when animals are less likely to be a pest.

Using the participatory methodologies during stakeholder meetings exposed points of views that were not likely to be heard in a conventional meeting setup.

## 6. SUSTAINABILITY AND POTENTIAL FOR SCALING UP AND FOLLOW-UP INVESTMENTS

The project has spearheaded the way for introducing Conservation Agriculture in Laikipia and was mentioned by the local county agriculture minister for its accomplishments. Currently, the county government is implementing a project with activities derived directly from the present project and scaled up in other parts of the county that were not reached by the project. This is done with funding from Food and Agriculture Organization (FAO) of the United Nations and is considered a sustained impact from the present project.

The extent to which the rainwater harvesting, component has been scaled up is likely to continue after project end.

A market for gluten-free grains has been identified and a business plan is ready to be implemented if the right consortium of Produce Marketing Organization – PMOs finds that the opportunity is attractive enough. Local partner will continue to be involved with communities nearest the conservancy.

The planned grazing will continue as it is a clear and present problem in the region. During the last drought, the need for measures to decrease grazing pressure became evident on many levels. The problem of invasive species is also a persisting problem where multiple approaches will be needed. This project has contributed to the exchange of knowledge in the area and has provided ranches with a template for compiling the information needed for a carbon credit Project Design Document.

The continuation of the impressive uptake of rainwater harvesting by communities is supported by the 307 people were trained in rainwater harvesting installations set-up and management and can now earn income from supporting other members of their communities.

## 7. FINANCIAL REPORTING

In total 799,812 was spent and of that NCF financed 58% and EUR 334,764 was leveraged as co-funding (42%).

	Total	NEPCon			Zeit			OI Pejeta			Vizzuality		
		NCF	Cash	In-kind	NCF	Cash	In-kind	NCF	Cash	In-kind	NCF	Cash	In-kind
Milestone 1	157,870.23	30,365.81	893.13	8,747.00	61,535.70	11,440.85	28,257.28			10,343.58			6,286.88
Milestone 2	195,770.81	34,467.56		1,635.00	62,126.63	47,466.44	41,971.47			8,103.71			
Milestone 3	166,917.12	16,779.16		8,812.50	80,860.10	21,975.14	29,758.15			8,732.07			
Milestone 4	132,607.62	17,036.16		334.49	59,984.27	21,138.19	24,938.44	489.28		8,686.79			
Milestone 5	146,646.27	25,928.81		5,262.50	75,474.34	19,568.24	0.00	0.00		7,612.39	0.00	12,800.00	0.00
	799,812.05	124,577.50	893.13	24,791.49	339,981.04	121,588.86	124,925.34	489.28	0.00	43,478.54	0.00	12,800.00	6,286.88

**Table 2 Funding and co-funding in project**

		58%	42%
	Total	NCF	Co-funding
<b>TOTALLY REPORTED</b>	799,812.05	465,047.82	334,764.23
<b>MILESTONE 1</b>	157,870.23	91,901.51	65,968.72
<b>MILESTONE 2</b>	195,770.81	96,594.19	99,176.62
<b>MILESTONE 3</b>	166,917.12	97,639.27	69,277.86
<b>MILESTONE 4</b>	132,607.62	77,509.71	55,097.91
<b>MILESTONE 5</b>	146,646.27	101,403.14	45,243.13

## 8. CONCLUSIONS AND RECOMMENDATIONS

The project has been a very important facilitator to adopt Conservation Agriculture in the area. The project received positive attention by local government for its approach and the method has been replicated by other organisations. A good example is a project by FAO through the agriculture department at the county, work done in the county by other non-governmental organizations among them CARITAS, a Catholic Church programme and the African Conservation Tillage Network among others. With the rainwater harvest the adaptation component of the project was the most successful component and we are confident the project will leave farmers better equipped to deal with climate changes and serve as examples and inspiration for neighbours and community members alike.

To link farmer groups to international markets appeared difficult to achieve within in the short span of the project. Furthermore, local markets are ready to absorb farmers produce. This may be a better option than the international market for farmers in Laikipia. It became clear that there is need for crop diversification. The suggested crop, Sorghum, received positive feedback from stakeholders as it is drought tolerant and has high nutritional value.

Ranches in the project had focus on better management of grazing through efforts on ecological restoration it is expected that degradation is reduced. However, pressure from the drier climate, conflicts and population growth risks undermine the efforts. We recommend pursuing income diversification in the area and looking in to alternatives to cattle farming.