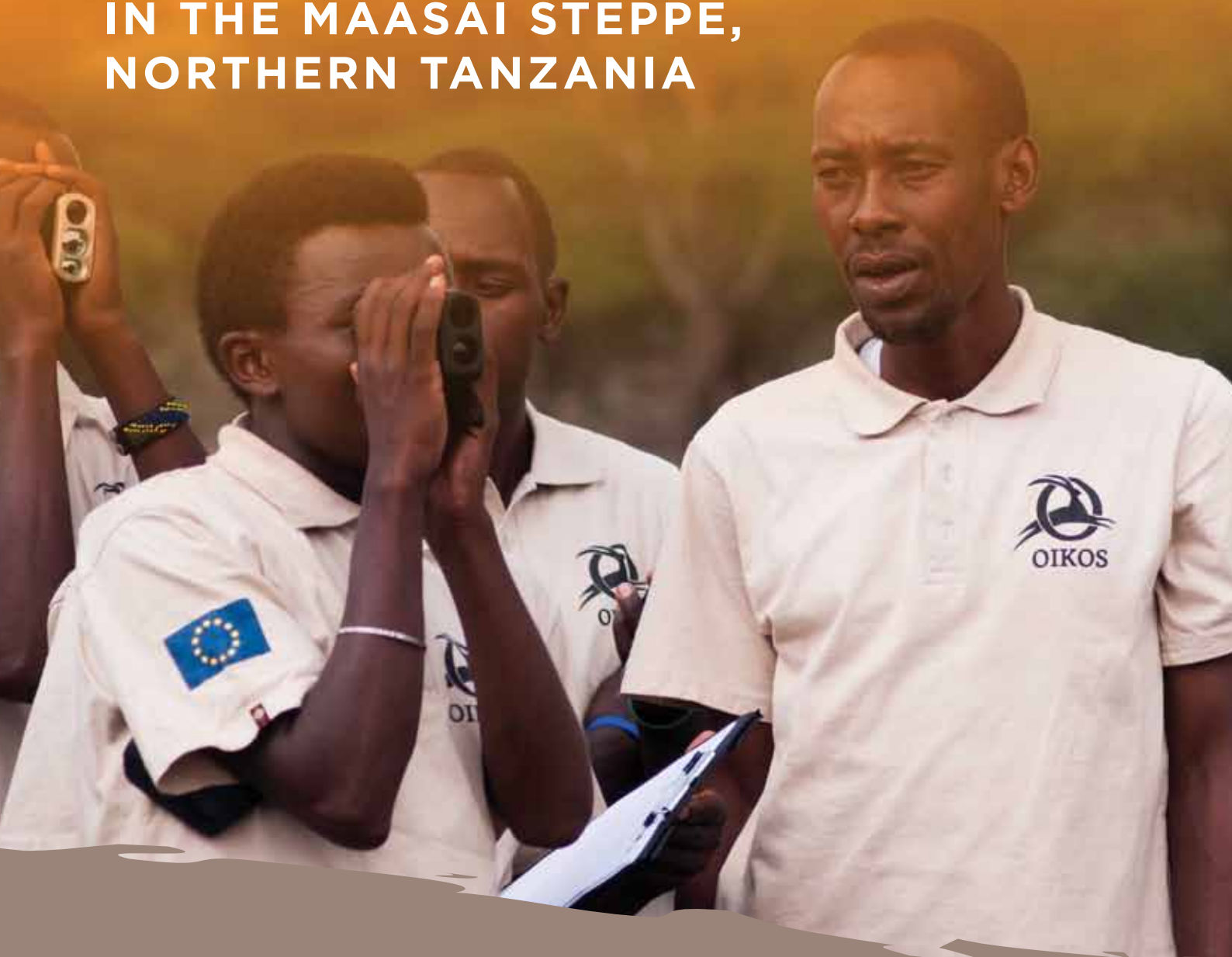




# ECO-BOMA: FOUR YEARS OF COLLABORATION TO BUILD CLIMATE RESILIENCE IN THE MAASAI STEPPE, NORTHERN TANZANIA



**This document intends to share approaches, interventions, lessons learnt and results from the Eco-boma project in Arusha, which aimed at increasing the climate resilience of pastoralist communities in Northern Tanzania through a holistic approach.**

**For this final project publication, project team collected and shared testimonies from communities, the Meru and Arusha District Government and the Nelson Mandela African Institution of Science and Technology to reflect on project design, implementation and impact.**



## TABLE OF CONTENTS

<b>5</b>	<b>-----</b>	<b>PROJECT FACTSHEET</b>
<b>6</b>	<b>-----</b>	<b>1. UNDERSTANDING AND CONSERVING RANGELANDS' HEALTH</b>
		<b>I. Improved access to water for livestock</b>
<b>7</b>	<b>-----</b>	<b>II. Improved pasture management and rangeland ecological monitoring</b>
<b>10</b>	<b>-----</b>	<b>2. CLIMATE RESILIENT TECHNOLOGIES FOR PASTORAL AREAS</b>
		<b>I. Leather</b>
<b>11</b>	<b>-----</b>	<b>II. Meat drying</b>
		<b>III. Biogas: an improved technology for water scarce locations</b>
<b>12</b>	<b>-----</b>	<b>IV. Climate smart agriculture</b>
<b>13</b>	<b>-----</b>	<b>V. Living fence</b>
		<b>VI. A litre of light: recycling waste to improve living conditions</b>
<b>14</b>	<b>-----</b>	<b>3. PROTECTING LIVESTOCK HEALTH</b>
<b>15</b>	<b>-----</b>	<b>4. CLIMATE CHANGE KNOWLEDGE</b>
<b>16</b>	<b>-----</b>	<b>5. GOVERNANCE</b>
<b>18</b>	<b>-----</b>	<b>6. LESSONS FROM THE FIELD AND RECOMMENDATIONS</b>
<b>19</b>	<b>-----</b>	<b>7. THE FUTURE: LOCAL GOVERNMENT AUTHORITIES LEAD CLIMATE CHANGE ADAPTATION</b>

## ECOSYSTEM SERVICES

**4** Dams rehabilitated

**20** Biogas plants constructed



**23,000**

Ha of rangeland monitored and patrolled by 30 VGS trained



**22** Committees created/facilitated

**119** Solar bottles installed



**146** Women learnt to cure meat

## MICRO-ECONOMIES

**1** Organic leather tanning group established and functioning (*Enyuata Organic Leather Tanning Group*)

**13** Livestock service providers trained

**60** Households directly trained on Climate smart agriculture practices



## INSTITUTIONAL CAPACITY BUILDING

At least  
**150**

Local Government  
Authorities from  
Regional to sub-village  
level capacitated  
through specific  
training and/or  
daily activities

**3** Meteorological  
stations installed



## KNOWLEDGE & AWARENESS RAISING

**75** Knowledge products  
prepared

**1** Online platform set-up as a  
virtual Centre of Knowledge

A total of  
**4,589**  
Students involved

**200+**  
Teachers

**100+**  
Journalists

**135,000+**  
General public individuals  
targeted by various means



# PROJECT FACTSHEET

Sector: Climate Change

Lead Partner: Istituto Oikos

Other Partners: Arusha District Council, Meru District Council, Nelson Mandela AIST, Oikos East Africa

Budget: € 1,796,262

Duration: 2015 - 2019

The Eco-boma project, covering a geographical area of circa 300 square kilometres, aimed to improve and increase the capacity of vulnerable Maasai pastoralists in Arumeru District to adapt to the adverse effects of climate change through a low cost, culturally acceptable, replicable model of holistic solutions to critical pastoral systems. The project contributed to the implementation of Tanzania's poverty reduction strategy and to improving the livelihoods of communities. As one of five eco-villages under the EU-funded GCCA, the project is aligned with SDG 13 - CLIMATE ACTION.

The specific objective is to improve livelihoods and resilience of the Maasai communities of Northern Tanzania.

## TARGET GROUPS INCLUDE:

◦ **2,000**

Families of pastoralists and agro-pastoralist (about 250 boma) to directly engage in the project

◦ **500**

Women and youth to be empowered

◦ **6,000**

Children attending 8 primary schools in the target area to be inspired and engage in activities

◦ Local authorities at 5 villages and traditional leaders to manage activities

◦ Scientific journalists from national and local media to publish/broadcast climate change information

The project design is the result of a collaboration between Istituto Oikos and the Nelson Mandela African Institution of Science and Technology, two highly experienced partners in the field of pastoralist community development, ecological monitoring and wildlife protection.



# 1. UNDERSTANDING AND CONSERVING RANGELANDS' HEALTH

## I. IMPROVED ACCESS TO WATER FOR LIVESTOCK

Water availability, accessibility and management in the target villages was very poor and an identified priority for the local communities. Yet, increasing **water availability in pastoralist areas** carries very high environmental and social risks. Good water availability attracts more livestock, causing severe negative impacts on the rangeland's ecology. By increasing water, grass can be over utilized due to overstocking, increased soil erosion and conflict between resident livestock owners and immigrants.

Eco-boma adopted a conservative approach: after carefully assessing water availability and the state of the water reservoirs, we decided to focus on what already existed in the area, but was nonfunctional or damaged due to poor management and/or deterioration of the infrastructure. The need to invest a lot of resources and technical skills in increasing capacity to manage water with a more conservative and sustainable approach was apparent.

**Four degraded earth dams** were rehabilitated and the volume of water storage increased by 47,000 m<sup>3</sup>, reaching a total of 81,000 m<sup>3</sup>. To reduce the livestock physical impact on the dams' embankment and floors, the micro-dams were equipped with **cattle troughs**. The extra water capacity can support 13,000 cows drinking 18 l/day for 6 months, or 90,000 shoats. In a good year with two rainy seasons the **potential increase** in water is at least **50% higher**.

Women fetching water for domestic uses, such as washing clothes, now have a **nearby water source** for more months per year; this **reduces women's workloads** and, according to the respondents, improves their lives. The dam committees, responsible for regulating livestock access to water, have been exposed to new training, visited good models of water management in the ecosystem, and, as a result, all villages created **bylaws for dam management**, thus legally incorporating law enforcement among the committees duties. Although counterintuitive, dams are meant to dry up for part of the year, and before pastures are overgrazed; this reduces the numbers of livestock moving from areas with less water and the consequent pasture depletion. By harmonizing water and grass availability, we **reduced the risk of overgrazing and soil erosion**. Livestock mobility is a key livestock management strategy and there is a growing understanding of its importance for the long-term sustainability of Tanzania's rangelands. It is worth noting that the process to protect livestock mobility is driven by the National Land Use Planning Commission, working today on Joint Land Use Plans and on granting Customary Certificates of Right of Occupancy to communities, which traditionally collectively managed ecosystem services.

*"Since the dams in our village have been rehabilitated by the project we have many more days with water in the dams; when there is water in the dam I spend only an hour to fetch water from my boma while normally we used to spend the whole day to get water from the closest water point".*

Namayan Saitoti, a female member of the Engutukoit dam committee

*"During our work with the Eco-boma project we realized the importance of balancing the size of a dam and the available grazing area; it was very useful for us to participate during exchange visits to other well managed dams in neighbouring Districts. We are now planning to apply similar management systems to the dams present in our District".*

Esther Meilude, Livestock Officer and project focal person from the Arusha District Council



## II. IMPROVED PASTURE MANAGEMENT AND RANGELAND ECOLOGICAL MONITORING

Rangeland health determines resilience to climate change. Research shows that **rangelands can recover from environmental stress**, if left for enough time undisturbed. Livestock mobility perfectly exploits this property and has allowed pastoralists to thrive in the harshest ecosystems for millennia.

Measuring Eco-boma's rangelands health was the first step towards contributing to measuring resource availability and producing guidelines to conserve productivity. Consequently, this needed a large amount of data. The process to **find a suitable methodology** that could be successfully led by community members was complex, and entailed a great deal of inputs from various East African rangeland ecologists. Although lengthy, scientific networking has proven a winning strategy to identify sound, accessible and affordable methods.

Rainfall is key to rangeland's productivity but no data were available, therefore, the project installed **3 meteorological stations** to provide the first rainfall data for the area. To secure community ownership of the ecological monitoring, we **trained 14 resources assessors** from the 5 target villages, who today are able to use a GPS, a rangefinder, to understand the importance of sampling along transects, to monitor the spreading of toxic weeds, to estimate the percentage and distribution of bare ground and grass cover, and to count livestock. In collaboration with the District Game Officers, also trained in the basics of rangeland ecological monitoring, results are reported and discussed with the village Grazing Committee to inform grazing management. Furthermore, by educating pastoralists on the direct links between healthy rangelands and healthy livestock, both the District and Village Authorities requested guidance on **law enforcement against environmental crimes** such as illegal tree cutting and charcoal production. In May 2018, Eco-boma facilitated a **45-day training programme for 30 Village Game Scouts' (VGS)**. The training was conducted by the Tanzanian Wildlife Authority (TAWA) Zonal Anti-poaching unit with Arusha and Meru District Game Officers. The team became operative immediately after the completion of the training. Villages created by-laws to frame the work of the VGS and **23,000 Ha of rangeland are now patrolled and protected**.

An unexpected project impact, the result of environmental protection campaigns conducted by the project, was the **setting-aside of 156 Ha of Community Forests**: villages have designated portions of woodlands as protected areas that function as grass refuges in drought periods. Grazing and tree cutting are forbidden, and law enforcement is strict. Although specific data on biomass changes is not yet available, direct observations show a much greater vegetation cover in these areas. The advantages in having community forests in the village was picked up by two more communities, Engutukoit and Losinoni Kati, which have also set aside community forests equivalent to a total of 120 Ha.

*"Currently the community members are aware of the frequent patrols we conduct in the village and surrounding areas. Environmental destruction has reduced a lot as even offenders are now scared".*  
Dominick Njuu, VGS from Uwiro Ward

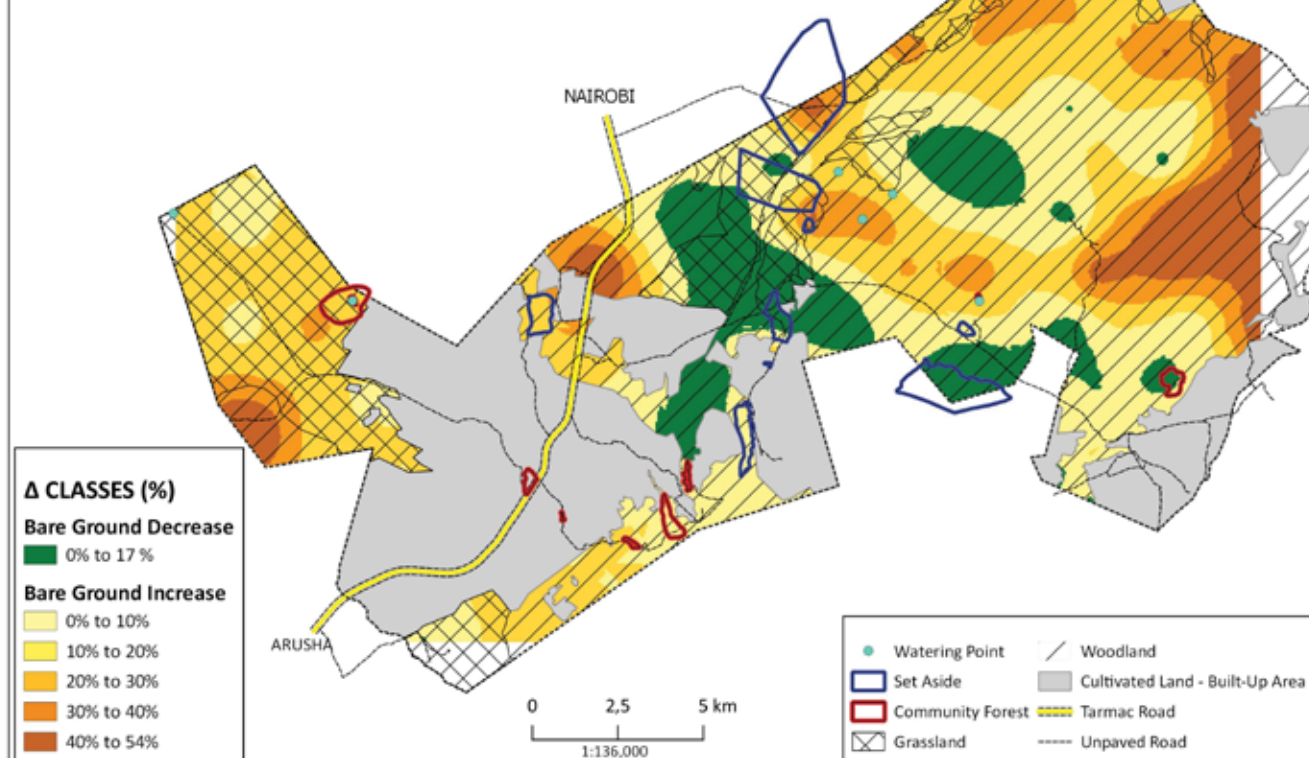
*"Since the demarcation of the area along the spring as a community forest, the water volume has increased and vegetation coverage has improved. Women's groups have installed their bee hives inside the forest as well, which also means the women can keep an eye on the forest and helps to safeguard the area from poachers".*  
Gaspar Mollel, Village Executive Officer from Lemanda village

*"I appreciate the ecological monitoring and I believe it will create a great impact in the future. We are doing this so that we can understand if the vegetation is continuously decreasing or increasing for the sake of our livestock. We saw and realised that if we understand better the vegetation that we have, it would help us in planning, during the rainy and dry seasons, on how to use our land and how to utilize the vegetation that we have for ourselves and our livestock".*  
Elibariki Olemtoto, Resource Assessor and Village Executive Officer – Engutukoit village





# **BARE GROUND % DIFFERENCE ( $\Delta$ ) FROM APRIL TO AUGUST 2018**







## 2. CLIMATE RESILIENT TECHNOLOGIES FOR PASTORAL AREAS

A pool of technologies to help build climate resilience was introduced among communities. To increase the chances of adoption and dissemination we piloted interventions that build also on the availability of livestock by-products.

### I. LEATHER

During extreme weather events, livestock's health deteriorates and many animals do not survive. Pastoralists generally do not slaughter their livestock as the carcasses would be of no value, having no access to preservation processes. Therefore, adding value to the carcass would be a winning strategy during an acute crisis. The vast majority of pastoralists are familiar with the process of sun-drying skins and hides, thus curing leather is a culturally acceptable process. Uncured leather was traditionally used to produce clothing, bedding, saddle for donkeys and shields; today, its use is limited to the production of ornaments. **Curing leather increases up to 1000% the value of skins** and hides and artisanal vegetable tanning does not require the use of toxic chrome, complex machineries or large amounts of water and its environmental impacts are minimal, although it is a labour-intensive technique. Leather tanning is also a **low-risk economic activity** as it requires minimal capital. The creation of leather commodities (belts, sandals, bags etc.) does not require a complex laboratory and can be performed at household level, meeting in particular **the needs of women** who cannot be parted from their young family members for several hours a day, or who live in very remote areas and do not have access to water for tanning.

In collaboration with the Small Industries Development Organisation, Eco-boma piloted the **start-up of a micro leather enterprise** and 15 women have today stable jobs and are part of an established group, the Enyuata Leather Centre, and have set up a **leather tannery** in the village of Mkuru, Uwiro. In two years, the group's turnover reached approximately 11,000 Euros from the sale of cured leather and handicrafts.



## II. MEAT DRYING

Eco-boma has introduced skills and equipment for the startup of **small-scale meat processing schemes** which favour post-harvesting preservation, reducing the losses due to a lack of refrigeration and representing a low cost, environmentally sound and effective climate change adaptation activity. Appropriate slaughtering and skinning techniques also improve the quality of the skins which enter the leather tanning value chain. So far, **45 people**, all men, have become capable skimmers and **168 people**, of which 87% are women, know how to correctly cure meat. Four groups in four villages are currently producing cured meat utilising the **16 meat driers** distributed by the project; one of the groups is selling the cured meat at the Saturday village market of Oldonyosambu and has opened a bank account.

## III. BIOGAS: AN IMPROVED TECHNOLOGY FOR WATER SCARCE LOCATIONS

Cooking with firewood is a labour intensive and unhealthy practice. **The burden on women**, walking for hours several times a week, carrying back home wood headloads weighing up to 25 kg, is very high and so is the **negative impact on forests**, which is an aggravating factor in a climate change-stricken ecosystem.

Domestic use of **biogas for cooking is a greener choice** (no tree cutting for provision of fuel, no smoke and soot when cooking, producing healthier living conditions, always available even during wetter days), but it is an expensive investment, and requires water, a commodity rarely available in rangelands. Although biogas plants require time to collect waste to feed the digester, biogas dramatically shortens the time allocated to cooking. An innovative biogas plant design developed by the Tanzania Domestic Biogas Programme allows a **50% saving of the water** needed to feed a plant. The Solid State Digesters (SSD) initial feeding, for an average family of 6, is of 30 kg of dung and 30 l of water in the morning and in the evening, whilst after the initial feeding the need for water lowers to 10 l. This mix allows for 6 hours of cooking per day.

To increase access to clean fuels, we trained 13 masons living in the target villages in biogas plants' construction and we built **20 biogas plants** for selected beneficiaries volunteering to contribute both work and cash equivalent to 20% of the value of the plant. In the last 7 months of the project only, 9 more plants were built by the newly trained masons, and entirely paid for by community members.





*“When the Eco-boma project selected our boma to pilot the new biogas model in our area I never believed it would change our lives to this extent. Before the installation of the digester, I used to collect firewood three-times a week but now I go once a week. I now use one bundle of firewood a week. This allows me time to do other things. My boma is cleaner, there is no smoke in the house, and my neighbours come to cook breakfast in my kitchen!”*

Mrs. Naeku Loitore Mrefu believes the increased use of her biogas digester will greatly reduce the rate of deforestation in their area. She also encourages other bomas to use the technology as it is simple, economical and preserves the environment by not cutting down trees for firewood.



#### IV. CLIMATE SMART AGRICULTURE

The Eco-boma project's design included the introduction of drought resistant cereals, such as sorghum, among the agro-pastoralist beneficiaries. After two years of drought and failed trials, it became clear that even a drought resistant species required **more water than was available**. Therefore, the project focus broadened to promote Climate Smart Agriculture in few areas with higher rainfall and agro-pastoralist communities. Seven District and Ward Agriculture Extension Officers were trained on Climate Smart Agriculture and organic pesticide production, including practical methods such as **terracing and drainage systems** that improve water conservation. This new team, in collaboration with the project's team, trained **60 small scale farmers** while an estimated 550 farmers have learnt about Climate Smart Agriculture through the establishment of demo plots and farmer field schools (*shamba darasa*). Although maize is not a drought resistant crop, it was used as a vehicle to increase commitment and interest of small-scale farmers, who are generally reluctant to the introduction of less familiar species. Some more drought resistant crops such as pigeon pea and cow pea were tested and were partially successful. To disseminate Climate Smart farming, we created **demo plots at household level** and organised farmer-field-day practices. Furthermore, we prepared and distributed **300 Climate smart agriculture manuals**, which are available in Kiswahili.

## V. LIVING FENCE

A traditional Maasai *boma* is a large enclosure formed by an external round fence of branches of thorny trees, with a central paddock (*kraal*) where livestock is kept safe from wild animals; a circle of huts is set between the central *kraal* and the external fence. The perimeter of both fences can easily reach 1000 m. The provision of branches to build and maintain a fence of such length has a major impact on the woody vegetation around the *boma*. Furthermore, the constant maintenance is very labour intensive. Eco-boma introduced **low-maintenance living fences**, made of thorny plants that can create a living barrier against the intrusion of wild animals, reduce the impact of wind, eliminate the need to cut branches and produce small quantities of firewood for the *boma* residents. Approximately 110 bomas were fenced with more than 40,000 cuttings of *Commiphora* sp. and *Euphorbia tirucalli*, with a 65% survival rate.

## VI. A LITRE OF LIGHT: RECYCLING WASTE TO IMPROVE LIVING CONDITIONS

A typical Maasai mud hut has no windows. Although this is a traditional and functional architectural design for temporary huts that were closed during transhumance, a more sedentary life benefits from better indoor lighting. Eco-boma tested an **innovative, open source technology** invented by a Brazilian mechanic and brought to the Philippines by the MyShelter Foundation: the ***Litre of light***. In 2017, the number of households benefiting from bottle lights has reached 353,000 worldwide.

The technology is ultra-simple: a 1.5 litre used PET plastic bottle that would normally end up in a landfill, is filled with water mixed with two capfuls of bleach to prevent the formation of algae. The bottle is inserted into a small hole in the roof of the hut. Sunlight refracts through the water into the room, with a brightness equivalent to a 60 Watt bulb.

The hole is sealed with silicon to keep the bottle in place and to waterproof the installation preventing any roof leakages. The 5 minute installation costs 2.5 USD and the bottles last for years. After an initial phase of slow adoption, in the last year of the project **119 families** have covered the costs of the installation made by technicians trained by Eco-boma, and orders keep coming.



**“Without light I need to go outside the hut to prepare food, sew and bead - this means I can’t keep an eye on my baby”.**

Naeku Loitore Mrefu is a mother of a two-week-old baby. According to the Maasai tradition, she will remain in her hut for the next 5 months. A lit hut will make a big difference in her life.

### 3. PROTECTING LIVESTOCK HEALTH

Livestock health is very critical to enduring environmental stress and shocks, such as a shortage of water and grass. At the same time, poor health conditions to begin with, expose the animals to higher risks of contracting diseases, which are on the rise due to climate change.

A thorough assessment of the availability, accessibility and quality of the **livestock veterinary services** showed that these were virtually inaccessible to most of the livestock keepers in the project area.

The assessment included the analysis of the procedures in place at district level in terms of alert mechanisms for zoonosis, vaccination campaigns, livestock extension officers' needs and availability of cold chains for drugs. Increased accessibility was secured by **training service providers** who are based in the communities needing veterinary services. Shorter distances between service providers and clients has increased accessibility and reduced transport costs, thus increasing affordability.

A group of 13 livestock practitioners (four women and nine males) including four government livestock extension officers and seven private practitioners were **retrained by professional veterinary personnel specialised** in dryland pastoralism. The private practitioners were all young professionals with a strong interest in livestock veterinary services. The provision of a start-up kit including basic instruments and first aid drugs approved by the District Veterinary Department gave all of them the opportunity to start providing veterinary services immediately after completing the training.

An **awareness raising campaign** conducted through village meetings during which the new service providers were formally introduced to the communities, combined with an educational campaign on new livestock diseases and livestock management through video projections has increased trust and confidence in both providers and consumers. In 4 months more than **700 animals were treated**, the most frequent treatments were deworming and dip treatments against tsetse, mastitis (11 cows), anaplasmosis (9 cows), complicated births (3 cows). Twenty women requested training on poultry keeping and poultry vaccinations campaigns were also requested directly to the service providers.

Furthermore, two sets of cold chains were rehabilitated and re-equipped and are now functional in both Arusha and Meru Districts for veterinary health services.

*"Before the livestock officers were introduced to us in a village meeting, we used to prescribe drugs for our own livestock depending on the symptoms and our traditional knowledge. This was in most cases not effective, but now that we have the contacts of the livestock practitioners, we know where to run to".*

Mama Sindan, Losinoni Kati Village, Arusha District

*"Before the project trained us, we could not work because we didn't have any working tools. Now that we have additional knowledge and the project has provided us with livestock service start up kits with drugs, tools and disease training manuals, right now we are working more effectively and with much more confidence. We have been introduced to the communities during village meetings and we are now recognized by the District as we are about to be formerly registered as private practitioners. The communities call us whenever they are in need".*

Praygod Urío from Uwiro Ward, Meru District Council

*"As well as providing training, ECO-BOMA has helped maintain both district cold-chains, after four years of malfunctioning. They are now improved and are fully functional. This allows the Livestock Field Officers (LFOs) to access vaccines and other drugs available at District level".*

Dr. Joe Hiza, Livestock Officer, Meru District Council



## 4. CLIMATE CHANGE KNOWLEDGE

Climate change is a very complex phenomenon: **understanding risks and opportunities** can have a profound impact on communities that entirely depend on ecosystem services. Eco-boma has worked to increase knowledge and awareness of a diverse public through tailored communication initiatives. More than **4,500 primary school pupils and 200 teachers** were the target of participatory street theatre performances, lessons in the classroom and theme days. Risk management was an integral part of the coursework with the primary schools, hopefully preventing future unnecessary losses of children's lives during extreme weather events. The outcome of the course was measured through tests showing a 4-fold increase in the number of correct answers after the course.

A conservative estimate of **135,000 people** including the citizens of Arusha, who contribute significantly to environmental degradation in rural areas, were targeted by **radio programmes, workshops, and theme festivals** such as the Arusha Climate Change Week that included workshops led by international experts aimed at researchers, business representatives, journalists and students. More than **100 journalists**, who disseminate Climate Change information, were involved in technical workshops specifically aimed at increasing the understanding of the importance of the correct interpretation of climate change information.

With the support of the Nelson Mandela African Institution of Science and Technologies, **a public interactive online platform** was created to store and share locally relevant data and research results related to climate change and to allow District Authorities access to locally collected weather data. The platform is reachable at **[www.nm-aist.ac.tz](http://www.nm-aist.ac.tz)**, under the Centres and Projects menu tab. Furthermore, a small but updated library of Climate Change literature has been set up at the NM-AIST campus.

Eco-boma produced and disseminated a total of **75 knowledge products** including manuals and brochures.





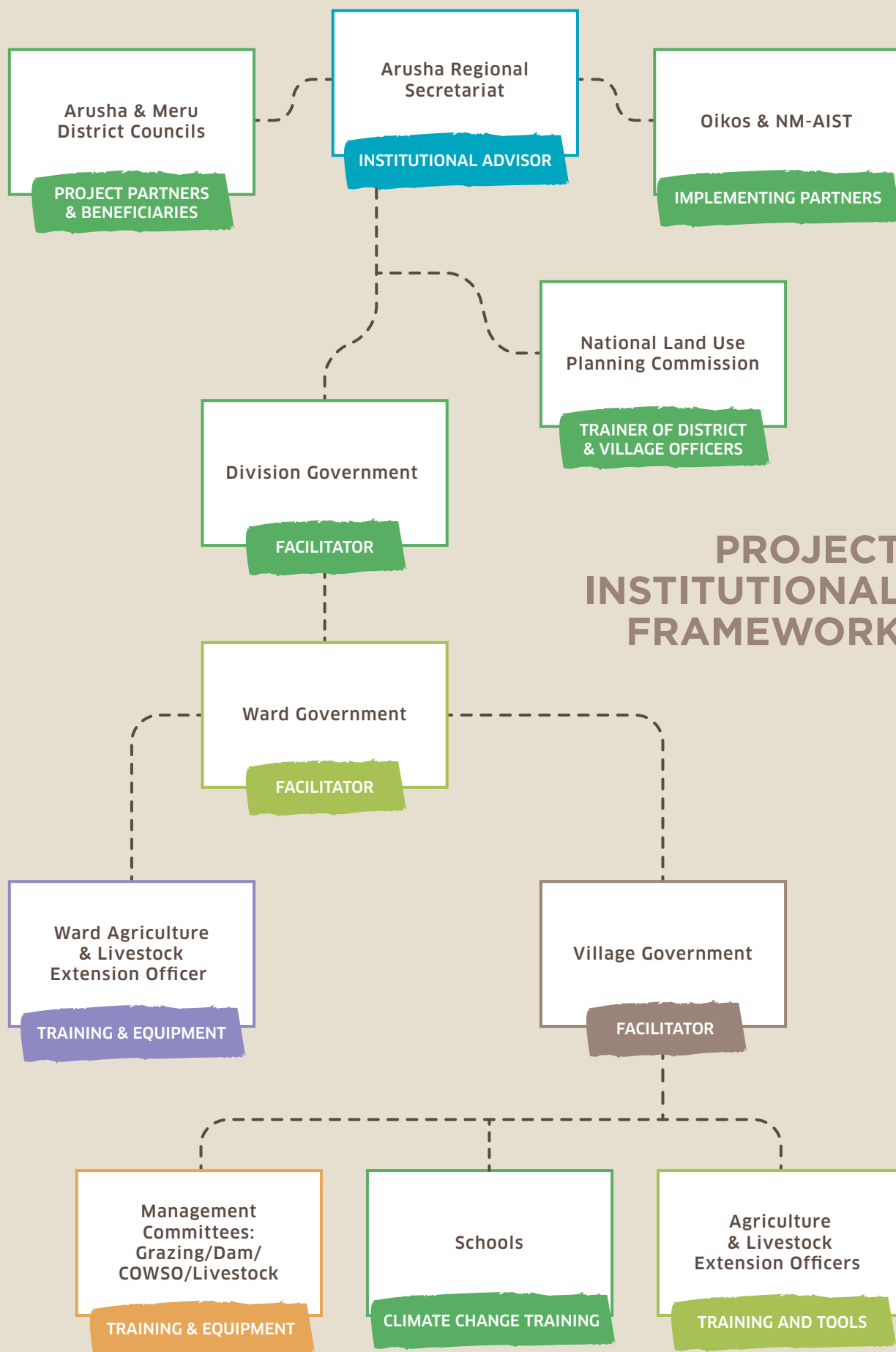
## 5. GOVERNANCE

Eco-boma engaged with all relevant government institutions. **The Arusha Regional Secretariat** played the key role of the project's institutional advisor, able to scale up successful initiatives in other districts. **A team of project technicians, government officers, village leaders and existing traditional committees** worked on project technical surveys and assessments, dam rehabilitation, beneficiary selection and the mobilization of community members. Eco-boma provided learning opportunities for government officers including an intensive **Climate Change training course** designed and delivered in collaboration with NM-AIST that targeted 20 District Officers. It also funded an intensive training on **Geographical Information Systems and rangeland monitoring** to four selected District Officers. At least 150 LGAs from Regional to sub-village level were capacitated through specific training and on-the-job learning.

The Districts of Arusha and Meru included selected and relevant Eco-boma project activities in their Development plans to pilot CC adaptation actions. The budget to carry out these activities was also included in the District official annual budget.

Furthermore in 2018 Eco-boma, in cooperation with the National Land Use Planning Commission (NLUP), facilitated the training of a total of **24 technicians** forming the two District Land Use Plan teams (Arusha and Meru DCs). The teams are now formally endorsed to prepare District Land Use Plans and coordinate Village Land-Use plans.

The National Land Use Planning Commission is piloting a new model of LUP which covers more than one village at a time (joint LUP) and is tailored to communities sharing natural resources. **Specific training for District Staff, Ward and Village leaders** has been carried out with the project support.



## 6. LESSONS FROM THE FIELD AND RECOMMENDATIONS

Eco-boma would not have succeeded without the **strong collaboration with Local Government Authorities (LGA) technicians and directors**. Promoting ownership of all activities' steps and integrating the pilot initiatives in the government planning tools was strategic to increase future dissemination of successful initiatives, thus increasing the project's impact. Ten by-laws have been facilitated in the target villages and include the ruling of the Community Owned Water and Sanitation Organisations, the VGS Environmental Patrol, the Community Forests etc.

The presence of LGA members in pastoralist communities has also strengthened the trust between a traditionally government-skeptical culture and the formal institutions, increasing the long term sustainability of the interventions.

Traditional leadership was partially overlooked to begin with, but is a very important decision maker in pastoralist communities. In addition to the official government leadership, **traditional leaders were included in the decision-making processes**, increasing the acceptance of technical guidance coming from the project's pilot results. Including, among the project staff, an **advisor** who is also a highly respected leader among the pastoralist communities has helped greatly with the engagement of the traditional leaders.

By integrating the Village Game Scouts teams and the District Game Officers in charge of wildlife protection, we have been able to create a **strong and impactful liaison** based also on a regular exchange of information, which appears to be a first of its kind in the target communities.

All infrastructures that are maintained by communities must be sturdy, locally available and simple. For example, to prevent/minimize dam siltation which is a costly aspect of dam maintenance we used gabions, silt dams and tyres.

A key factor for the long-term sustainability of dam management was to establish **few and simple procedures** and incorporate them in official by-laws.

Design and location of a dam should follow an **extensive assessment on existing infrastructures**, available grazing area and their seasonal utilization (dry and wet seasons pastures) and number of livestock; the target should not be to have water in the dam for "as long as possible" but to align water availability as much as possible with seasonal availability of grass.

With the introduction of cattle troughs access to the dams has been regulated; it is important to consider specific actions to **limit the waiting time of livestock herds** around a cattle trough in order to protect the surrounding grazing area (for example: properly sizing the cattle trough and establishing an agreed time frame for accessing the cattle trough).



## 7. THE FUTURE: LOCAL GOVERNMENT AUTHORITIES LEAD CLIMATE CHANGE ADAPTATION

The phasing out of Eco-boma included a **gradual and thorough hand over process** to the partners LGAs, and to community members. This started a year before project's end with an agreed action plan among all key stakeholders: Arusha and Meru District Councils, NM-AIST and the Regional Secretariat appointed the District Authorities to drive the exit strategy, with the Eco-boma team providing technical assistance. This approach facilitates also the internalization of the project's investments into the LGAs assets.

A formal Memorandum of Understanding (MoU) between Oikos, **Arusha and Meru Districts** defined the commitment of the two Districts toward the long-term sustainability of the activities initiated by the project and the framework for further cooperation among the parties on the scale-up of successful climate resilient approaches. Thanks to the Eco-boma collaborative experience, both District Councils **have incorporated Climate Adaptation actions in the District Development Plans**.



## **European Union Support GCCA Tanzania**

Eco-boma is one of five climate change adaptation projects funded by the Global Climate Change Alliance Initiative established and funded by the European Union. The financial support of the GCCA was integrated with a dedicated Technical Assistance (TA) team to strengthen Monitoring and Evaluation and Visibility and Communication activities of the 5 projects. This setting was the first of this kind for Oikos and the outcomes were very positive. The Eco-boma team greatly benefited from accessing skills and opportunities for professional growth offered by the dedicated specialists. The team members were able to count on technical advice and strengthen their capacity in terms of monitoring and communication skills.

Dedicated workshops and cross-project field visits were an instrumental tool for technical exchange and learning with other GCCA project teams. For instance, ECO-Act, a project started in 2011 and completing its second phase of implementation, supported Eco-boma for the promotion of Climate Smart agriculture technologies. Interaction and engagement with higher institutions such as the Prime Minister's Office and the Ministry of Environment, and recognition of the projects efforts, were more impactful thanks to the improved visibility. Shared budget for specific dissemination events allowed also for a more effective use of resources. Eco-boma also had considerable media coverage including a full-length feature about its climate change activities in a national newspaper, and has received high quality videos to be used in events and for wider dissemination on web portals.

The collaboration among the 5 projects returned some important technical inputs for policy briefs which are currently worked on by the GCCA TA team.

Oikos has transferred the learning from this positive collaboration to other programmes and will promote this approach in its future project designs.

THE VIEWS EXPRESSED IN THIS PUBLICATION DO NOT NECESSARILY  
REFLECT THE VIEWS OF THE EUROPEAN COMMISSION

Project



ECOBOMA

Implemented by



In partnership with



Funded by



This project is funded  
by the European Union