



WATER ACCESS AND CLIMATE SECURITY
FOR
TALEK & PARDAMAT CONSERVATION
AREA, MAASAI MARA

August, 2019

Project Summary

Despite continued human-led destruction of biodiversity and habitat, particularly in and surrounding settlement areas, we've seen our environment show incredible resilience when counter measures are enacted. This is showcased in Kenya's Greater Maasai Mara Region, where communities and tourism investors have come together to restore habitat for wildlife – including the complete return of species – while improving economic opportunity for local people.

But there is much more work to be done. This proposal includes critically needed infrastructure development and education programs to save the Talek River, bring clean water to thousands of people, and restore climatic conditions surrounding the Maasai Mara National Reserve, including:

- **The construction and implementation of two community rainwater harvesting systems**
- **The construction of two sand dams**
- **Driving sustainability for an ongoing reforestation project**
- **Supporting community education & entrepreneurship projects through the Enjoolata Centre**

Taken together, these initiatives, totalling \$250,000 for Phase 1, serve as a pilot project for implementation in other urban areas throughout the region.



Introduction

Globally, over 663 Million – or 1 in every 9 people – still lack access to safe drinking water. This includes 19 Million Kenyans, **making up 41% of the country's population.**

In Kenya's Maasai Mara Ecosystem, where thousands of traditional Maasai families live clustered in 5 major semi-permanent settlements surrounding the Government-controlled National Reserve and 15 Community-controlled Wildlife Conservancies, close to **90% of families** use unimproved water sources.

Despite recent efforts to bring these marginalized people out of poverty through land-lease payments and other livelihood projects, the lack of proper basic infrastructure is hindering economic and social advancement. There is an urgent need for systems to provide safe, sustainable, and equitable access to clean water, particularly as weather unpredictability increasingly effects the area.

One such settlement, Talek village, sits along the Talek river just outside the Maasai Mara National Reserve. Over the past decades, the area has been badly overgrazed and subject to rampant sand harvesting, posing a threat to the sustainability of the Talek river and groundwater resources for the local community. Residents of Talek and surrounding homesteads currently rely on the Talek River, streams, and puddles for water. Not only is this water contaminated with human, livestock, and wildlife faeces, it runs dry for many months a year. Women and girls must then walk long distances to access other sources of water.



Another major urban area, Aitong, sits within the Pardamat Conservation Area, a critically important wildlife dispersal zone & migratory corridor. Pardamat Conservation Area (PCA) is premised on a dual-use conservation model, where the community's 850 landowners have legally registered their 26,000 hectares of land as a wildlife conservation area while remaining to live and work on it. It is adjacent to Naboisho, Olkinyei, Lemek and Mara North Conservancies, and serves as a migratory route from the Loita plains to the Mara Triangle and on to the Maasai Mara National Reserve.

Two community harvesting system would turn the annual rainfall the area receives in unpredictable periods into 7.2 consistent daily litres for 2,400 men, women, and children of Talek and Pardamat areas. This would improve health, school attendance, and economic opportunity for women, among others.

Such systems have been successfully installed in similar settlements through our partners Maa Trust and the Africa Water Bank, and require just \$100 in annual maintenance costs following initial construction. The sizeable area under the catchment roof also provides the community with a place to launch **entrepreneurial projects** or hold large meetings and **education programs regarding proper water usage and other development initiatives.**

But climate change forces us to think even further. In 2000, an eco-tourism camp on the Talek border initiated a tree-planting project to restore the biodiversity of the area that had been badly damaged from human interventions. Basecamp Explorer, through the Basecamp Explorer Foundation and international partnerships, has since planted over 140,000 trees, absorbing 10,000 units of carbon per year and creating its own micro-climate with improved rainfall. Two boreholes currently provide water for the camp guests, the seedlings, and about 50 landowners and their families. **The construction of two new sand dams would provide enough of a supply of water to plant 100,000 additional trees,** while improving the underground water table by reducing the reliance on the boreholes.

By restoring the climatic condition in the area while simultaneously meeting the urgent needs of its residents, the project will see more rainfall and access to water per person per day.



The Maasai Mara Ecosystem

The Mara-Serengeti Ecosystem is one of the last major wildlife refuges on earth, containing 40% of Africa's remaining larger mammals. It is also home to the Maasai people – traditional pastoralists who proudly preserve their strong culture and identity.

In the 1960s, when the Maasai Mara National Reserve (MMNR) was formalized, the Kenyan government privatized the remaining land with subdivisions into group and individual ranches where all Maasai resided. The majority of wildlife in the area lived outside the MMNR on these lands, and with reduced habitat for wildlife and livestock, population growth, and human-wildlife conflict, landowners were led to either sell their land to large agricultural companies or fence their land to protect the livestock. This resulted in further loss of natural habitat as well as the free movement of wildlife throughout the ecosystem. Meanwhile, poor governance, corruption, and lack of transparency kept the vast majority of Maasai in striking poverty.

A solution to this crisis has been found over the last decade in the form of community conservancies. These conservancies are democratic agreements between Maasai landowners and tourism parties, where the landowners receive a guaranteed monthly lease payment for their land in exchange for dedicating it to wildlife conservation. This financial lifeline amounts to over \$4 Million USD annually, with an additional \$850,000 generated through employment opportunities as rangers and within 49 tourism camps.

Today, there are 15 conservancies surrounding the MMNR, almost equalling its size. They provide numerous economic, social, and environmental benefits, but stakeholders continue to battle against the decades of misdeeds that left the Maasai stagnant.

The future of the entire Greater Maasai Mara ecosystem rests on the continued success of community conservancies. Local Maasai must continue to receive tangible benefits from tourism and other initiatives in order to renew their leases and support wildlife conservation.

Major Settlements in the Greater Maasai Mara

The majority of landowners and their families currently reside in or near 5 main city centres in the Greater Maasai Mara: Sekenani, Nkoliale, Mara Rianta, Aitong, and Talek. This allows easier access to goods & services, schools, and in some cases, sources of water. Full map of the Greater Maasai Mara Region, including these settlements, in Table 1.

Talek

Talek is a small but important settlement on the banks of the Talek river, just outside the entrance gate to the Maasai Mara National Reserve. Though its immediate population in the city centre and surrounding homesteads only numbers in the thousands, it is the largest trading center in the Mara region, with community residents traveling long distances to participate in the bustling market every Wednesday.

Despite interventions by Basecamp Explorer and other community organizations, the town lacks proper waste management and is characterized by dusty storefronts and unpaved roads filled with non-biodegradable garbage. Previous attempts were unsuccessful due to the higher rate of generation than collection and disposal: it is estimated that Talek produces 31 tons of waste annually. It is not uncommon for debris from other urban centers such as Narok and Trans-Mara to be dumped or blown into Talek, creating a massive community education issue while greatly reducing the aesthetic appeal from a luxury eco-tourism perspective.

Pardamat Conservation Area: Aitong

Pardamat Conservation Area (PCA) is a landmark dual-use conservancy, where residents dedicate their land to wildlife conservation while remaining to live and work on it. The city centre is in Aitong, another important trading and commercial hub. Thousands of residents rely on outdated, high salt and flouride groundwater from boreholes or other unimproved sources for water.

PCA is part of a larger strategy to completely secure a crucial area for wildlife, on which the success of the entire Greater Maasai Mara ecosystem relies. This will not be possible without the support of residents.



The Talek River

The Talek River is perennial and flows from east to west to join the famous Mara River at the bottom of the Siria escarpment, and stands as the boundary between community lands and the Maasai Mara National Reserve. Several seasonal streams, mainly from the Loita Hills, drain into the river which had been characterized by high biodiversity of wildlife such as crocodiles and hippos. These animals as well as many other wildlife species are drawn to the river for water and habitation. Additionally, Talek River is the main source of water for domestic purposes as well as community livestock.

The Talek River recently experienced unprecedented changes due to increase in human, livestock and wildlife populations, climate change, river sand harvesting and encroachment of towns and camps. The Talek River's biodiversity has greatly declined over the last 15 years. Unlike today, the river could withstand harsh drought conditions providing the local communities with water from shallow dug scoop holes. Currently, the rapid evaporation and drying up of the river is attributed to excessive sand harvesting which exposes rocks and the river bed preventing the percolation of water into sand contained on a typical river bed.

This illegal sand harvesting still continues along the Talek River today, particularly in the areas reaching from Talek to Sekenani settlement. The construction of sand dams in private, protected land such as that owned by responsible tourism operators limits the accumulation in other areas that is needed to capture and sell.

And finally, when water from the Talek River is available to communities, it is contaminated by waste materials and pollutants from the neighboring communities, including human, livestock, and wildlife faeces.



Basecamp Explorer Maasai Mara

Svein Wilhelmsen founded Basecamp Explorer Maasai Mara (BCMM) in 1998, following a special meeting with an old Maasai Chief where he explained the grave environmental, economic, and social threats facing his people. Thus, BCMM was born to prove that tourism could provide direct benefit to the community. The 17 tent camp is set along the Talek river, just opposite the Maasai Mara National Reserve. It also borders Talek village.

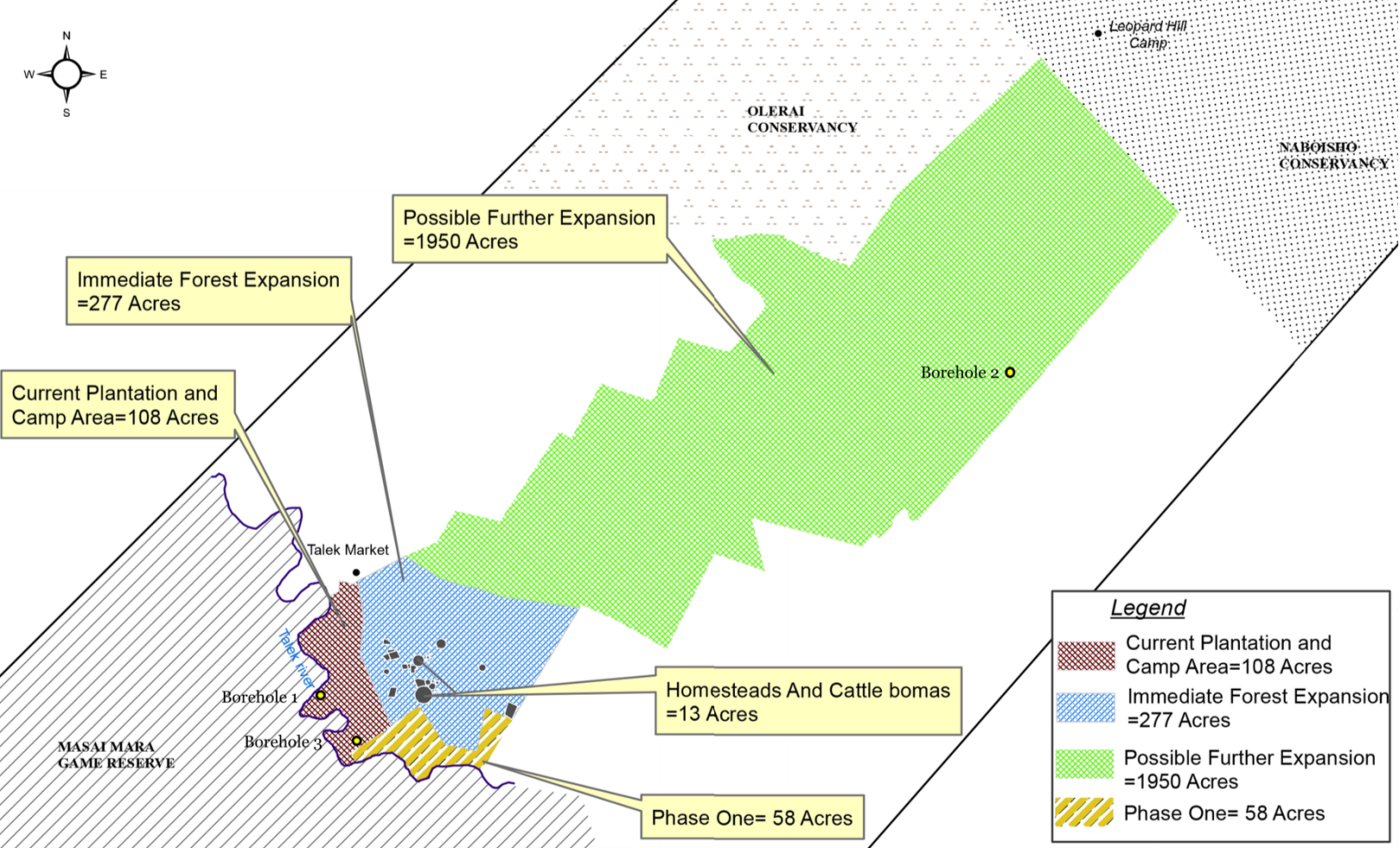
Since its founding, Basecamp Explorer has championed livelihood and environmental improvement projects, including the Basecamp Maasai Brand jewellery collection, which employs over 150 women aged 17-60, and the reforestation project, which has returned vital biodiversity to the area. It employs over 90% of its staff from the local community, further contributing to economic development and training. It has welcomed thousands of international guests and dignitaries, including Barack, Michelle, Sasha, and Malia Obama in 2008.

Basecamp Explorer Maasai Mara Reforestation Project

The Basecamp Tree Plantation was established in 2000 to revive the Talek river ecosystem by addressing the pressing issues of deforestation and ground erosion. Since its establishment over 15 years ago, 140,000 indigenous trees have been planted. These efforts have transformed the location into a 'micro-climate' covering approximately 30 acres, with improved rainfall, animal diversity, and soil qualities. To date, there have been more than 300 identified bird species in the area, 62 species of plants otherwise unavailable restored, and 5 more inches of soil depth. The project offsets the international travel of the over 5,000 annual guests, and will soon be carbon negative.

The current plantation and camp area covers 108 acres, with 58 additional acres planned to hold the 70,000 seedlings prepared for planting this year. Another 277 acres have been designated in the immediate forest expansion, with another 1080 acres, connecting BCMM to Naboisho Conservancy, identified in the project Master Plan. BCMM plans to plant 500,000 trees in the next 3-5 years.

Currently, water for the project, particularly sustaining the young tree seedlings during dry months so they can grow to an age where they do not require constant watering, is via drilled borehole. While effective, boreholes are limited in water quality and frequently require maintenance. They also drain the underground water table. BCMM is currently looking at more sustainable methods of water collection for this project.



Naboisho Conservancy

Svein Wilhelmsen was a founding member of Naboisho Conservancy, a 50,000 acre joint partnership between 530 Maasai landowners and 5 tourism operators 6km northeast of Talek. Today, Basecamp Explorer is the largest tourism operator in the Conservancy, with 3 camps and 54 beds. Naboisho Conservancy is a success story of tourism benefiting conservation and communities, for which it was recognized by the African Responsible Tourism Awards as overall winner in 2016.

Since its establishment in 2010, Naboisho Conservancy provides a safe haven for a vast number of wildlife, such as lions, cheetahs and elephants that are under dire threat due to human expansion. The Naboisho Conservancy management model has set a groundbreaking precedence for nature conservation in Kenya and globally.

The population distribution surrounding Naboisho Conservancy is estimated to be a little fewer than 23,000 (roughly 4,900 households). When Naboisho Conservancy was formed, those residents of the former Koiyaki Block 4 moved outside its borders, including closer to Talek and into Pardamat Conservation Area, yet still receive grazing rights for their cattle in the Conservancy.

It is this population which must continue to receive tangible benefits to tourism.

Global Support

In 2016, the Kenyan Government pledged to restore 5.1 million hectares of deforested land – almost 1/10th of the country's area. This was in response to the global call-to-action Bonn Challenge, which aims to have 350 million of hectares of forest planted across the world by 2030.

This programme provides the most coherent and systematic effort to restore degraded forests and other landscapes. It provides us with the opportunity to reduce poverty, to improve food security, to address climate change and to conserve our valued biodiversity.

BCMM Ejoolata Awareness & Training Centre

In August 2019, Basecamp Explorer will open a new community resource center at Basecamp Explorer Maasai Mara. In addition to engaging guests with its improvement projects, it will house the BMB jewelry studio and serve as a gateway to the reforestation, nature, and bird walks.

The centre will display artifacts on Maasai community and culture, wildlife as well as introduce visitors to the Basecamp Community Projects.

It will provide an ideal launchpad for education surrounding clean water & waste management solutions.

Project Details

A holistic approach is needed to combat the challenges seen in the greater Maasai Mara. This solution includes sustainable water management for communities, livestock, and the environment. Together, these efforts mitigate the past errors and future challenges. It also relies on proper community education and engagement strategies, including supporting entrepreneurial projects that can create a more circular economy.

Proposed Infrastructure: Sustainable Water Management

Community Rainwater Catchment

Installed by Africa Water Bank, each structure consists of a slanted iron sheet roof, totalling 1800m² surface area, raised on tall posts, which drain into a 500,000l water tank. Using just a small amount of chlorine to maintain purity, one structure can provide 1,200 people with 7.2 litres of safe, sustainable water per day for an entire year. The tanks are guaranteed for 20 years, and only cost \$100 per year to maintain. These costs can be subsidized by the space created under the roof for social enterprise projects.

Not only will the rainwater system provide reliable clean water for the community, it will greatly reduce their reliance on the Talek River as the primary source, allowing it to retain significantly more water for wildlife to thrive in.

Sand Dam

A sand dam is a reinforced cement wall built across a sandy river. They are a simple, low cost, low maintenance technology that retains rainwater and recharges groundwater. Together with tree planting, sand dams form a cycle of water and soil conservation that is self-perpetuating.

These new dams will be built by the new BCMM reforestation areas to provide seedlings adequate water as they grow.

A small solar pump is used to pump the water from the dam to a 10,000 litre water storage tank to store water before it is used for tree plantation.



The construction of a community water system does not guarantee a reduction in negative effects; it must be implemented alongside a robust community advocacy program. Women need to be educated regarding the importance of collecting water for human consumption from a reliable source, such as a community rainwater harvesting system, as opposed to a local puddle or stream that is closer to her homestead.

Hygiene education with the newly formed water committee is also required in order to ensure the tanks are drained and cleaned from time to time, its first flush system (which prevents dirt from the roof entering the tank) is maintained and broader messages around the water safety chain are explained. These are vital steps to ensuring the water quality remains fit for human consumption. Typically, this work would be undertaken over 20 formal visits over the 5 year period. This is essential for fostering the sustainability of the project and requires an ongoing relationship with the committee for a period of 5 years.

Education is also required regarding waste management solutions. Polythene and plastic materials have quickly permeated the local Maasai community over the last few years. Management of the material has become a daunting task for the community who previously used goods made from biodegradable materials such as plant fibre, skin and other wood products all of which naturally decompose when discarded.

Community-led Enterprises

The 1800m² roof under the rain water harvesting system provides ample space for an enterprise hub for micro-business development. In return, enterprises under the rainwater harvesting roof can contribute to annual maintenance costs of the facility.

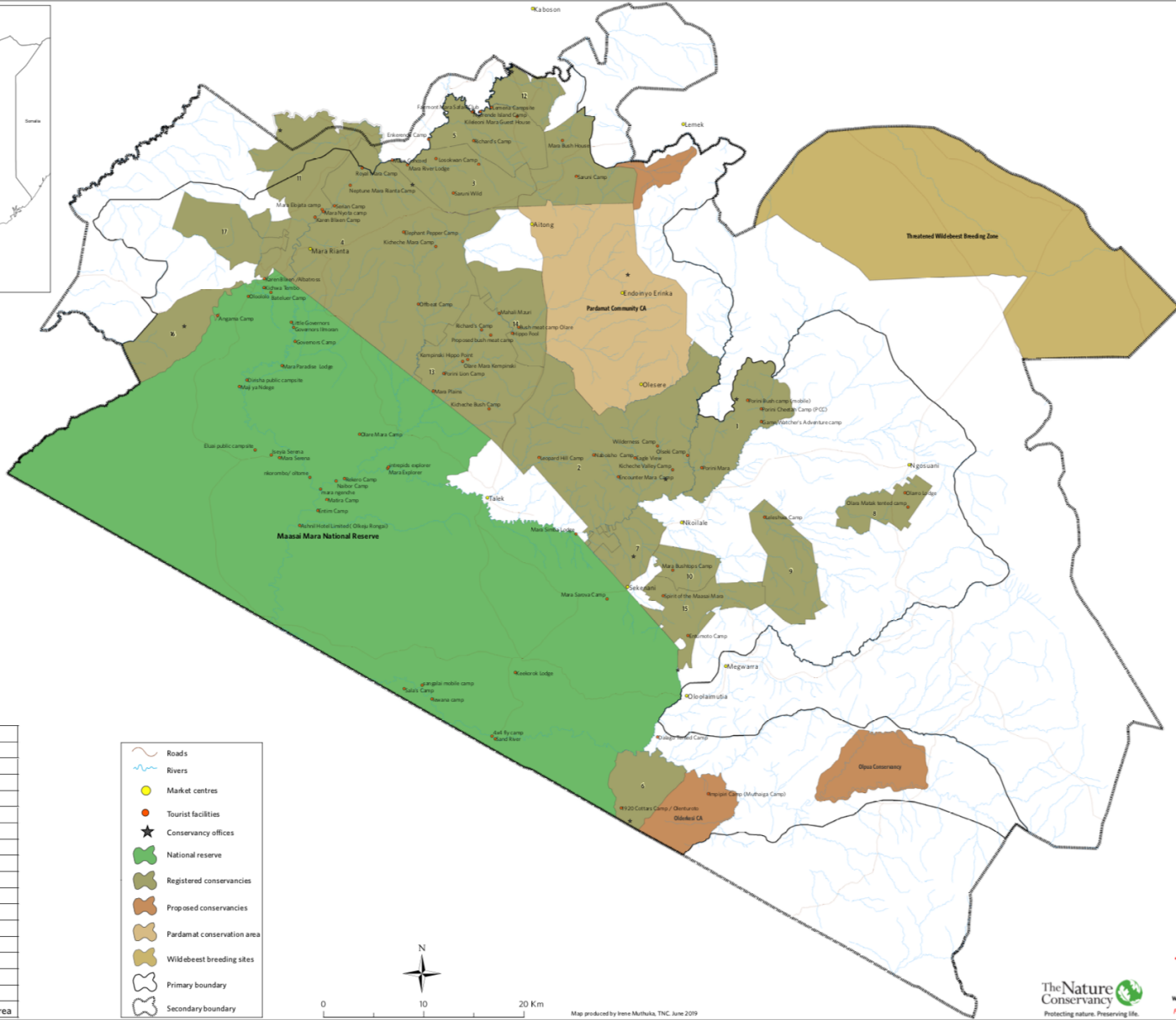
In this plan, we support the development of 1 waste management related enterprise to support the additional programs, with the goal of making Talek the centre for recycling and composting in the Mara ecosystem.

Through the integrated model, there is also an untapped resource in the BCMM reforestation project. Acacia sap can be harnessed and sold for fuel, and other tree species produce biochemical products such as natural medicines and pharmaceuticals that help in reducing illnesses among the local communities.

Budget

	Item	Cost (USD)
Rain water harvesting	500,000 litre masonry tank with 1,800 square metres of roofing (Talek)	70,000
	500,000 litre masonry tank with 1,800 square metres of roofing (Pardamat)	70,000
	Community Education & Management through Enjoolata Centre	10,000
	Development of 2 Enterprises, one for waste management	10,000
	Sub Total	160,000
Sand dam	1 small solar powered pump, 10,000 litre tank and excavation system for each of 2, 2 million litre dam with 1mm lining gauge	50,000
	2 sand dams	40,000
	Sub Total	90,000
	Total Cost	250,000

Index 1: The Greater Mara Ecosystem



Number	Conservancy Name
1	Oi Kinyei Conservancy
2	Naboisho Conservancy
3	Lemek Conservancy
4	Mara North Conservancy
5	Olchorro Olroua Conservancy
6	Olderkesi Conservancy
7	Nashulai Maasai Conservancy
8	Olarro North Conservancy
9	Olarro South Conservancy
10	Isaaten Conservancy
11	Oloisikut Conservancy
12	Enonkishu Conservancy
13	Olare Orok Conservancy
14	Motorogi Conservancy
15	Siana Mara Conservancy
16	Maasai Moran Conservancy
17	Nyakweri Forest Conservation Area

- Roads
- Rivers
- Market centres
- Tourist facilities
- Conservancy offices
- National reserve
- Registered conservancies
- Proposed conservancies
- Pardamat conservation area
- Wildebeest breeding sites
- Primary boundary
- Secondary boundary



Map produced by Irene Muthika, TNC, June 2019

Index 1A: Close-up on Talek and surrounding areas

