Project proposal

1. **Project Name**

Ndoto Beekeeping

2. **Timeframe**

The Timeframe of this project is 24 months

3. **Project summary**

This project proposal is for the extension of a previously implemented project of which the funding has lapsed.

The milgis trust started a bee-keeping project two and a half years ago that was aimed at improving beekeeping techniques used by nomadic communities to keep native Apis mellifera honeybees - specifically subspecies scutelata and monticola in the Samburu region.

Initially this project was started because thousands of acres of forest were being lost to fires every dry season. Whilst investigating, our rangers found that most of these fires were being started by beekeepers. Open fires were being used to smoke out the bees, and the dry woodlands were catching fire – killing thousands of wild colonies of bees and many other endangered species including elephants.

The project is working with 49 bee-keepers in the Northern Ndoto mountains. Going forwards, we look to continue providing spark-less smokers and proper protective equipment aimed at reducing fire risk. We would like to continue training bee-keepers to improve how they manage their traditional log hives. We also want introduce more Langstroth hives into the area – this hive design does not have to be harvested in the tree tops, but can be managed from the ground, therefore reducing fire risk. Langstroth hives allow for the beekeeper to closely inspect the colony, check for pests and diseases and is the least destructive harvest method. This design also allows us to trial different pollen and nectar substitutes to feed the bees during the drought months.

The results so far have been very promising. We have seen a reduction in fires, with no fires so far in 2020 (fingers crossed). The bee-keepers are harvesting up to three times more honey, and some now have an alternative means of income to livestock husbandry. Most importantly, the domestic bees swarm 2 or 3 three times annually – meaning that in two years more than 240 break-away colonies have moved back into the wild.

4. **Overall mission**

The majority of crops being grown in Kenya require high pesticide inputs and the system is predominantly monocultural. This has been to the detrement of many species of pollinators in the region. In particular, honeybee (A.mellifera) populations have crashed due to habitat loss exposure to chemicals and habitat loss.

Our project lies in the remote north of the country – 200 kms from the nearest agriculture. There are vast forests which provide the perfect habitat for bees to thrive. However, even here the future for the honeybee is threatened due to the following:

- Intense fires threaten the survival of wild colonies, particularly those that exist in dense forest which is more prone to catching fire
- Desertification due to overgrazing has reduced forage (nectar and pollen) availability
- Current beekeeping techniques are exploitive, and most beekeepers are not taking into consideration the period that bees need to survive between nectar flows. They end up taking out all of the honey and even brood to eat.
- The seasons have become more extreme, with longer dry and wet spells which bees must survive only on their honey 'stores'.
- There has been little access to the bee-product market and therefore little incentive to improve bee-keeping techniques, up to now it has been subsistence.
- Widespread spraying of the recent desert locust swarms has decimated the honeybees in the Northern Ndotos
- Increased human population means that the majority of wild colonies are harvested unsustainably and end up dying.
- Increased presence of Verroa mites and wax moths. These pests have thrived due to weakened honey bee colonies.

Our overall mission is to ensure that communities have the incentive and means to improve honeybee populations. Apiculture is a slow process and usually takes 13-24 months from the day a hive is colonized to the day that honey is first harvested.

5. SMART-aim

The aim of this project is to provide the expertise, equipment and supplies needed by beekeepers in the Ndoto Mountains. We need to aim for a hive occupancy of 74% (67 hives) maintained throughout the year. New hives should reach harvest 20-24 months after occupation. We are aiming for a 50% reduction in fires over the next 24 months – from an average of 9 fires/year (average over the past 3 years). Once at full strength colonies are expected to be swarming 2-3 times/year. Each hive should be producing 20 litres of honey per annum if managed properly.

6. Activity plan

Establish fresh MOU with area chiefs, community elders and stakeholders.

Training Beekeepers

- To teach basic bee-keeping principles, biology, behavior and pest management
- To train traditional beekeepers in sustainable harvesting techniques , equipment use.
- Mitigation of fires - provide beekeepers with suits and smokers and how to use them.
- Familiarize with Langstroth hive design

Building and Allocation of Langstroth Hives

- Build hives & catcher boxes
- Deliver to site
- Establish Apiary

Management Plan and M&E

- Establish continuous management plan with our apiary manager who is already based in the field. Regular checking, harvesting and processing.
- Workshops on value addition
- Monitoring and evaluation of all beekeepers progress, and honey production methods (see below)

7. Evaluation process

- Twice daily radio call up with MT scouts to monitor fire reports
- All beekeepers to keep hive logs recording all relevant hive data including queen breeding, absconding, swarming, pests, disease, vigor and hive condition.
- Beekeeping manager to visit all hives rotationally - taking full records on colony health, feeding supplements, nectar flow, disease and pests, swarming.
- Beekeeping manager to visit traditional log hives during harvest time, recording colony strength, nectar flow etc.
- All raw data will then be analyzed by Digby and reported.

8. SWOT analysis

Strengths

- Remote and far away from agriculture, less risk of mass die-offs from chemicals
- Communities already understand honeybee lifecycles and habits
- Lots of forage in the area
- Already two years into the project and we have seen positive changes
- Very hardy bees compared to most
- Good quality, durable hives available

Weaknesses

- Large distances to be covered
- Bees are complicated and there are a lot of moving parts of the project that make M&E slightly more complicated.

Opportunities

- Much of Kenya has suffered from fires lit by bee-keepers, although it may not be possible to completely eradicate fires, this could be a model to replicate elsewhere.
- A huge opportunity is the high value of raw, organic honey - as agriculture increases less places in the world are able to boast completely organic honey and the quality of honey in this area is some of the best!

- This model could be self-suffecient and continue to expand providing huge alternative incomes for pastoralists

Threats

- Fires
- Pests and diseases
- Locust Spraying
- Lack of willing from beekeepers due to long term rewards (it doesnt happen overnight)
- Lack of viability to sell produce in local or international markets

Project budget

Item	Units (List salaries in hours)	Cost per unit	Total cost	Priority
1. Equipment				
Langstroth Beehives	30 pcs	81.72	2451	high
Langstroth catcher boxes	15 pcs	36.20	543	high
Bee Suits	8 pcs	100	800	high
Smokers	15 pcs	40	400	essential
Bee feeders	40 pcs	5	200	med
Centrifuge extractor	1 pcs	800	800	med
Wax Sheets	400 pcs	1.20	480	high
Sum equipment	5674			
1. Transportation				
Delivering to site	600kms	1.5	900	essential
Ongoing maintenance transport (bike)	2000 kms	0.50	1000	essential
…				
Sum transportation	1900			
2. Supplies and lodging				
Feedbee Bee Pollen Substitute	20kg	60	600	essential
…				
Sum supplies and lodging	600			
3. Salaries				
Item 1				
Item 2				
…				
Sum salaries				
4. Other				
Item 1				
Item 2				
Sum other				
Sum total	8174			

9. Commentary on budget

Detailed Breakdown of Catcher Boxes / 1 pc

Description	Unit Type	Cost/unit	number of units	total (kshs)
BOX & FRAMES				
8x1	ft	65	20	1300
Screws 2 inch	pcs	2	44	88
Screws 1 inch	pcs	1.5	6	9
nails	pcs	1	12	12
Wire	inch	0.2	400	80
			Subtotal	1489
Roof				
Flat Sheet	m3	20	2.5	50
2x1	m3	30	2.5	75
0.4 inch ply	m3	20	2.5	50
Screws 2 inch	pcs	1	5	5
Screws 0.5 inch	pcs	0.5	10	5
			Subtotal	185
Other				
Labour	lump sum	1000	1	1000
Fuel	litres	99	0.3	29.7
sandpaper	ft	30	1	30
Transport	kms	50	10	500
Glue	Tub	200	0.2	40
Paint & Varnish	litres	400	0.3	120
wax quarter	pcs	55	6	330
			Subtotal	2049.7
Contingency	%	5		186
			Total KSHS	**3909.7**
			Total USD	**36.2**

Detailed Breakdown of Langstroth Hive / 1 pc

Description	Unit Type	Cost/unit	number of units	total (kshs)
BOX & FRAMES				
8x1	ft	65	28	1820
Screws 2 inch	pcs	2	60	120
Screws 1 inch	pcs	1.5	12	18
nails	pcs	1	12	12
Wire	inch	0.2	400	80
			Subtotal	2050
Deep Super & FRAMES				
8x1	ft	65	20	1300
Screws 2 inch	pcs	2	44	88
Screws 1 inch	pcs	1.5	12	18
nails	pcs	1	12	12
Wire	inch	0.2	400	80
			Subtotal	1498
Roof				
Flat Sheet	m3	20	5	100
2x1	ft	30	10	300
0.4 inch ply	m3	20	5	100
Screws 2 inch	pcs	1	10	10
Screws 0.5 inch	pcs	0.5	20	10
			Subtotal	520
Other				
Labour	lump sum	2000	1	2000
Fuel	litres	99	2	198
sandpaper	ft	30	4	120
Transport	kms	50	10	500
Glue	Tub	200	0.5	100
Paint & Varnish	litres	400	0.8	320
wax	pcs	55	20	1100
			Subtotal	4338
Contingency	%	5		420
			Total KSHS	**8826**
			Total USD	**81.72**