

Enrichment of Koali Forest plantation by replacement of Eucalyptus Sidoroxylon with Mutually inclusive indigenous, exotic and fruit trees with Koali Community through FMNR



Implementation Action Plan for Quthing District – Koali Community - in the Southern Part of Lesotho

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1.0 Introduction

Lesotho is a small land locked country of about 30 355 square kilometers and located between 28° S and 31° S latitude and 27° E and 30° E longitude. The country is divided into four Agro-ecological zones: lowlands 17% (ranges between 1400 – 1800 m), foothills 15% (1800 – 2200m), Senqu River Valley 9%, and the Mountains 59% (2200 – 3484 m above sea level). Koali community is found in Quthing district on the southern part of the country and is within the Senqu River valley where the average rain fall is 500mm.p.a. Quthing has an area of 2,916 km² and a population in 2006 of approximately 120,502 which is about 6.61% of the country's population. The district is the second largest in terms of forest cover after Leribe. The tree species mostly dominating including Indigenous species, Pinus halipensis, Eucalyptus sideroxylon, Pinus radiate, acacia species, and various fruit tree species.

Eucalyptus sideroxylon was planted in Koali Government forest reserve in 1973 during the Lesotho woodlot project. The sole reason was to test how the species will perform in different areas in the country. Although planted with other species like Pinus halipensis, this species dominated and turned to poison other understory plants. Most of the areas the species is planted, there is zero understory cover, bare land, existence of deep, long active gullies. Majority of the fringe communities where this species was planted have negative attitudes towards it as well as other forest trees species. Hence the objective of this project is to replace this species with mutually inclusive plant communities to encourage diverse biodiversity, maximum land cover and revive people's positive attitudes towards forest trees for their social, economic, and environmental benefits. This forest plantation has a total land area of 185 hectors.

2.0 Stakeholders

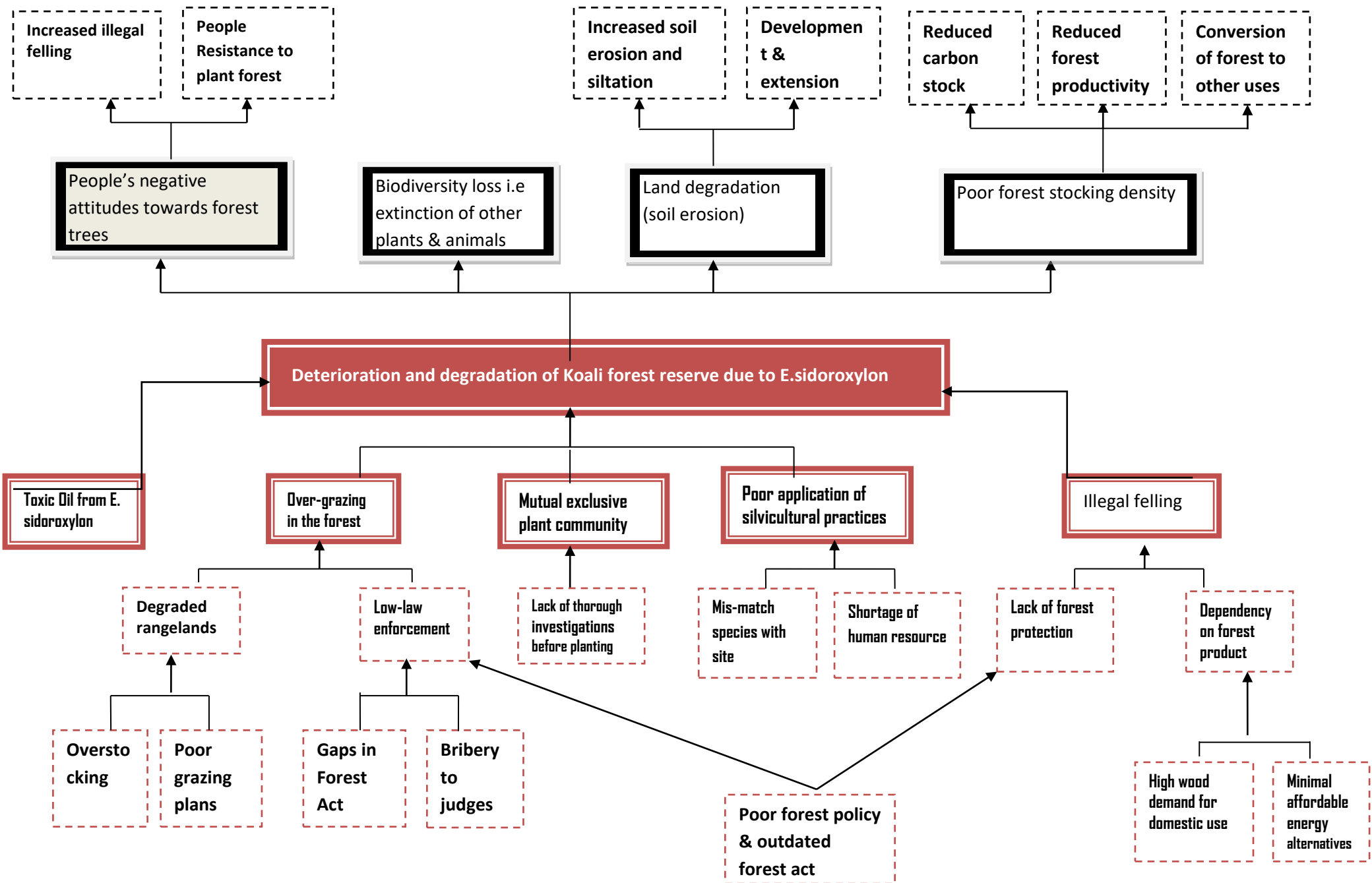
Primary	Secondary
Min of forestry Quthing	World vision Lesotho
Local Government (Chief, councilor)	Ministry of Police
Koali community	Min of Agriculture
JICA/GEF	Community church Leaders
Community organizations, associations	Church Leaders
	Wood traders (carpenters)
	Min of Environment
	Min of Trade & Small industries

3.0 Stakeholder Matrix

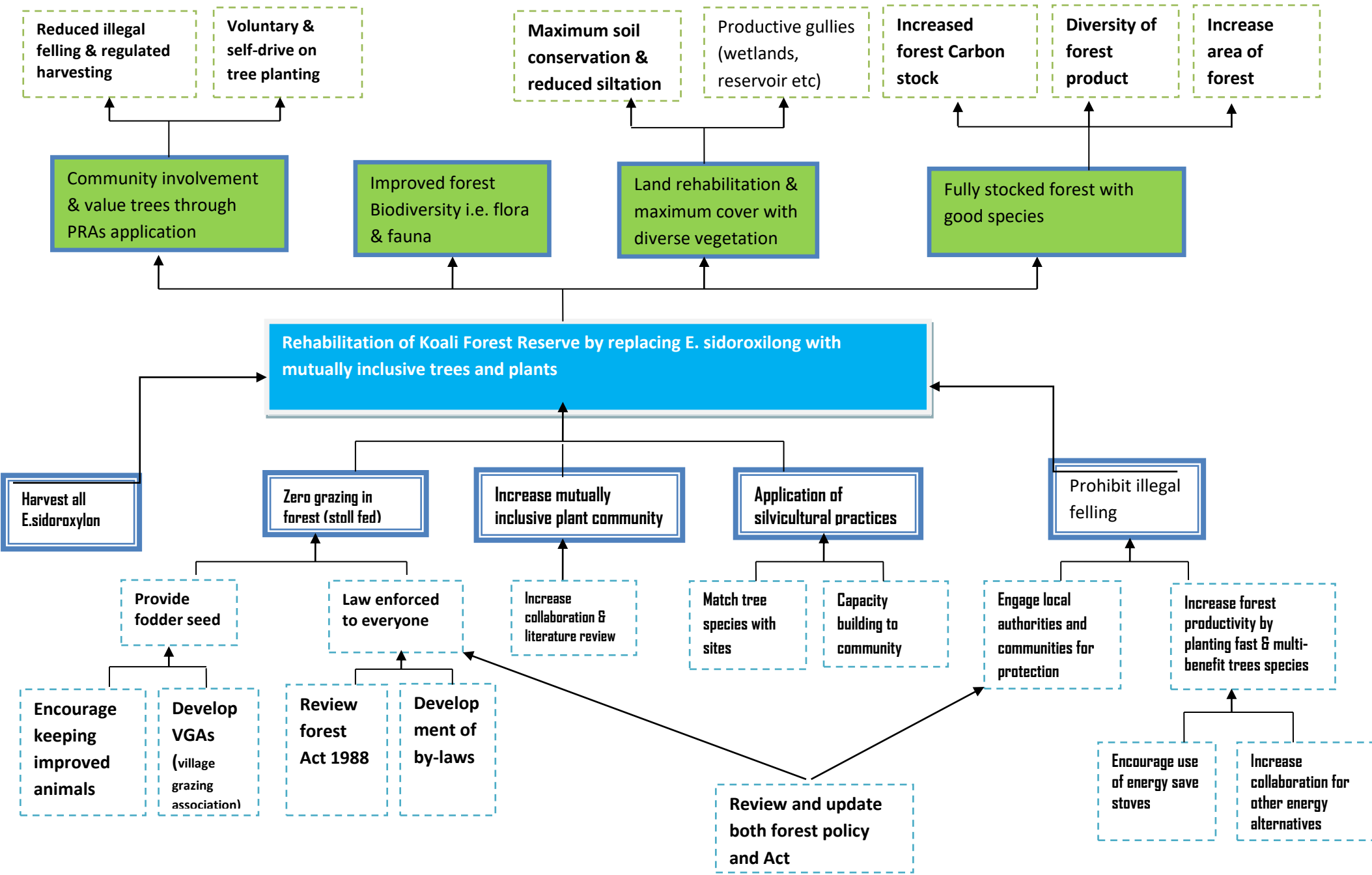
Stake holder	Interest	Role	Existing Resources			Gaps
			Financial	Technical	HR	
Min of Forestry	<p>Increase forest cover by planting different tree species</p> <p>Ensure sustained livelihoods development through forestry.</p> <p>Environmental Protection and rehabilitation</p>	<ul style="list-style-type: none"> • Provide tools for felling • Organize relevant trainings for community • Over-see efficient generation & use of Revenue • Provide funds and materials for pitting, planting, and management • Procure and Provide Seedlings to the community 	Yes	Yes	Yes	There are few forestry officers which will engagement of field supervisors
Min Local Gov	Employment of people for livelihoods developments	<ul style="list-style-type: none"> • Land Allocation for any developments • Legal protection of developed sites • Ensure Accountability on public assets 	Yes	no	Yes	No technical staff on environmental issues
Community	Wood Employment Animal fodder	<ul style="list-style-type: none"> • Developing action plans • Feeling trees 	no	no	Yes	Lack of financiers and resources but can serve as

		<ul style="list-style-type: none"> • Re-planting • Assist chiefs on protection 				good labour
JICA/GEF	Capacity building on climate change adaptation and improve rural livelihoods	<ul style="list-style-type: none"> • Funding for capacity building on CC adaptation • Support community with required extra-tools 	Yes	no	No	Lack of technical and human resource
CBOs	support Livelihood improvements	<ul style="list-style-type: none"> • Information sharing and dissemination • Support vulnerable and disadvantage persons & groups 	no	no	No	Need to be trained to effectively play their role
Min of Environment	Protection of Natural resources	<ul style="list-style-type: none"> • EIA • Development of environment Policy 	Yes	Yes	Yes	Small on ground i.e. in district
Min of Agriculture	Food and animal production for livelihood food security	<ul style="list-style-type: none"> • Crop production • Animal improvement • Agro-forestry 	yes	yes	yes	Some have negative attitudes towards trees
Min of trade & small enterprises	Overall trade control i.e. price control	<ul style="list-style-type: none"> • Advice producers about markets • Control prices • Standards 	Yes	no	yes	Lack of officers conversant about forestry business

4.0 Problem Tree Analysis



5.0 Objective Tree Analysis



6.0 ACTION PLAN FOR REHABILITATION OF KOALI FOREST RESERVE BY REPLACING E.SIDEROXYLON WITH MUTUALLY INCLUSIVE TREES SPECIES:

Outcome	Outputs	Objectively verifiable indicators	Activities	Players	Resources	year	Schedules Quarters				Budget (M)
							1st A-J	2nd J-S	3rd O-D	4th J-M	
1. Reverse forest degradation & adapt to climate change through forest initiatives	1.1 Increase forest tree cover by 35% of total land area by 2022 (i.e. 64.75ha)	100% land preparation i.e. pitting	Pitting 33.33% of land per year	Min. forestry Community JICA/GEF Other NGOs	Tools (spades, picks, etc)	2019 - 20					
			Plant 20 ha with forest trees in the first and second year and then 24.75ha in the final year	Plant 22 220 trees	Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facilities	2019-20				
			Plant 22 220 trees	Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facilities	2019 - 20					
			Plant 27 497 trees	Min. forestry Community NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facilities	2021-22					

		Increase tree seedlings production from 5% to 85% both on the GOL and Private nurseries respectively	Provision of trees to the community per request	Min. forestry PNOs NGOs	Money to buy production Materials, shade nets ,seeds, rooting hormones, incentives for labour Irrigation systems (pipes, watering cans, tanks, irrigation ascockerries	2018 – 21	x	x	x	x	
	1.2 Increase fruit tree cover by 25% of total land area (46.25 hectares)	Plant 15.4 ha with fruit trees per years	Plant 9625 fruit trees	Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation systems	2019-20					
Plant 9625 fruit tree seedlings			Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facility	2020-21						
Plant 9625 fruit tree seedling			Min. forestry Community NGOs	Money to buy planting Materials (seedlings) & incentives for labour	2021 - 22						

					Irrigation facilities						
	1.3 Increase indigenous tree cover by 10% of total land area	Plant 6.2 ha with indigenous trees in 3 years	Plant 6666 indigenous trees	Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facilities	2019-20					
			Plant 6666 trees	Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facilities	2020-21					
			Plant 6666 trees	Min. forestry Community JICA/GEF Other NGOs	Money to buy planting Materials (seedlings) & incentives for labour Irrigation facilities	2021-22					
2. Improve understory vegetation for maximum land cover	2.1 Increase fodder grasses by 30% of the total land area by 2022	Fodder production on the land area of about 55.5ha on the total forest land	Seeding 50 ha of area	Min. forestry Community JICA/GEF Other NGOs	Spades, rakes, picks, watering cans, horse pipes Grass seeders Grass seed Grass seeders (cyclones seeders), measuring tapes	2019-20					

			Sodding on 5.5 ha area	Min. forestry Community JICA/GEF Other NGOs	Grass seed	2020-21							
3. Improve livelihood through wood and non-wood forestry products	3.1 Harvesting 80% of total land area covered by E. Sidoroxylon (i.e. 48 ha) for wood and Poles production	Harvesting and distumping 50% of trees annually over a period of two year	Procurement of Machinery , equipment and tools	Min. of Forestry, Community ,JIC A/GEF and other NGOs	chain saws and parts, tractor, hand saws, picks, spades, forest inventory equipment, etc.	2019-20							
			Felling of trees on 24 ha	Min. of Forestry, Community ,JIC A/GEF and other NGOs	labour, Chain saw, tractor	2019-20							
			Distumping of 24 ha	Min. of Forestry, Community ,JIC A/GEF and other NGOs	labour, Chain saw, picks, spades, tractor	2020-22							
	3.2 Establishment of apicultural activities	Set up 300 hives annually	Procurement of beekeeping equipment	Min. of Forestry, Community ,JIC A/GEF and other NGOs	Bee hives and accessories protective clothes, hive products, processing and packaging equipment,	2019-20							
			Identification and planting of mellifoures plants	Min. of Forestry, Community ,JIC A/JEF and other NGOs	Planting materials, labour, tools and equipment	2020-21							
		Produce 6,000 kg of honey annually	Honey and other bee hives products harvesting	Min. of Forestry, Community ,JIC	Skilled labour	2020-21		×					

				A/GEF and other NGOs								
	3.3 construct one pole treatment plant by 2022	Fully operational plant constructed	Procurement of treatment facility	Min forestry JICA/GEF	Creosote Tools and equipment Tank	2020-21	[Purple bar]					
	3.3 increase supply of treated poles 5% annually till 2022	Area of land cleared annually	Felling of poles	Min. forestry Community CBOBs Traders	Transport Tools	2020-21	[Blue bar]					
		2778 poles produced per year	Processing for poles (debark, season)	Min. forestry community	Creosote Tools and equipment Tank labour	2018-21	[Red bar]					
		Salable treated poles produced per year	Creosote treatment of poles	Min. forestry community	Creosote Tools and equipment Tank	2018-21	[Red bar]					
	3.4. Establish income generating activities by 70% in 2022	Collection of R138 875.00 from poles sale annually	Sale of treated poles	Community Traders Local Authorities Min of trade	Transport; Storage of finished products; Labeling	2019 -21	[Red bar]					
		Collection of R10 000 from fodder production	Sale of fodder	Min. forestry Min. Trade Community CBOs Local Authorities	Storage Stationary	2019 - 21	[Red bar]					
		Collection of R5000 from different fruit sale	Sale of fruit trees	Min. forestry Min. trade Community CBOs	Storage; Stationary; Package facilities	2020 - 21	[Purple bar]				[Purple bar]	

				Local Authorities								
		Marketing of honey and other hive products	Sale of 6,000kg honey and other hive products	Min. Forestry Community Local	Packaging materials, marketing equipment	2020-21						
4. Forest land rehabilitation	4.1 reverse degraded land by 80% in 2022 and convert it into productive use	Rehabilitation of 23% of area covered by gullies each year	Construction of gully rehabilitation structures (mechanical structures)	Min. Forestry Community Local Authorities Church Leaders Min. Environment Min. Agriculture NGOs	Gabions; Tools; Labour; Surveying equipment; Transport; Stones for structures; Wood for Plugs	2018 -21						
		1 Establishment of water harvesting structures	Construction of range pits, catch dams, infiltration furrows and ditches ponds, etc)	Min. forestry Min. Agriculture Church Leaders Community Min. Environment Local authorities NGOS	Tools; Cement; Water pipes & accessories; Labour; Surveying equipment;	2020-21						
5. Stakeholder capacity building	5.1 Training of technical staff and farmers	Designed and developed of training manuals	<ul style="list-style-type: none"> • Identification of training needs for technical staff and stakeholders • Development of training plans, career 	Min forestry Min of agriculture community Min of Environment NGOs Local Authorities	Training materials Funds Software program Transport	2018 -21						

			<p>guidelines and operations manual</p> <ul style="list-style-type: none"> • Monitoring and evaluation of the implementation of training schedules • Coordination of training on forest management & utilization activities • Development of outreach programmes • Awareness campaigns 								
Monitoring and evaluation											

Budget

Outcome	Activity	Resource	Quantity	Unit Price (M)	Total Price (M)
Reverse forest degradation & adapt to climate change through forest initiatives	Land preparation and planting of trees	Picks	500	150.00	75,000.00
		Spade	400	120.00	48,000.00
		Labor	1500	1200.00	1,800,000.00
		Forest tree seedlings	91935	3.00	275,805.00
		Fruit tree seedlings	28875	35.00	1,010,625.00
Improve understory vegetation for maximum land cover	Fodder production	Cyclone sedder	20	1500.00	30,000.00
		Fodder seeds 25kgs	10	3000.00	30,000.00
		Labor	400	1200.00	480,000.00
		Rake	50	100.00	5,000.00
		Grass mowers/bailer	2	45,000.00	90,000.00
Improve livelihood through wood and non-wood forestry	Forest harvesting	chain saws and parts	5	8,000.00	40,000.00

products					
		Tractor	1	300,000.00	300,000.00
		Manual Saws	20	300.00	6000.00
		Forest inventory equipment	2*package/kid	50,000.00	100,000.00
	Procurement of beekeeping equipment	Complete Bee hives	900	1500.00	1,350,000.00
		Protective clothes	250	800.00	200,000.00
		hive tools	300	150	45,000.00
		smokers	300	500	150,000.00
		Bee brushes	300	100	30,000.00
		Queen excluder	900	300	270,000.00
		Queen guard	200	100	20,000.00
		Wax foundation	18,000	45	810,000.00
	Honey and other hive products processing	Honey extractors	10	6000	60,000.00
		Containers	10,000	10	100,000.00
		Honey table frames	150	2500	375,000.00

		Wax solar heaters	10	6500	65,000.00
		Propolis chemicals	20liter	150	3,000.00
	Procurement and planting of Melliferous plants	Seedlings	5000	35.00	175,000.00
		Labeling tags	5000	20.00	100,000.00
	Establishment of Poles treatment plant	Lump sum	1	150,000.00	150,000.00
Forest land rehabilitation	Gully rehabilitation and water harvesting structures	Gabions;	3000	1500	4,500,000.00
		labour	1500	1200	180,000.00
		Surveying Equipment	2*lump sum	250000	500,000.00
		cement	800	120	96,000.00
		Wire mesh	20	600	12,000.00
		Water Tanks	10	7000	70,000
		Pipes and Accessories	25mm*100m*150 rolls	1800	270,000.00
Stakeholder capacity building	Trainings manual preparation	software	Collect earth	18,000.00	18,000.00
		Stationary	Lump sum	20,000.00	20,000.00

		Printing & binding	Printer & binding Machine	6000.00	6000.00
		Accommodation	50people*6times	800.00	240,000.00
		Meals	6trainings*50people	120.00	36,000.00
		Study tour	50people*3times*5days	1,100.00	825,000.00
		Field Days	50people*3times	150.00	22,500.00
Monitoring and Evaluation	Development of monitoring and Evaluation tool	software	Office & internet	15,000.00	15,000.00
		Stationary	Lump sum	5000.00	5000.00
		Laptops	4	12,000.00	48,000.00
	Timely Assessment of implementation progress	Vehicles	2 pickups	500,000.00	1,000,000.00
	EIA assessment	Consultant	1	50,000.00	50,000.00
	Livelihoods improvement Evaluation	Consultant	2 times	50,000.00	100,000.00
	Data base consolidation	Soft ware	Lump sum	15,000.00	15,000.00
					32,371,930.00

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