



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

July 05, 2016

Dear Council Member,

The FAO as the Implementing Agency for the project entitled: ***Kenya: Capacity, Policy and Financial Incentives for PFM in Kirisia Forest and integrated Rangelands Management***, has submitted the attached proposed project document for CEO endorsement prior to final Agency approval of the project document in accordance with the FAO procedures.

The Secretariat has reviewed the project document. It is consistent with the project concept approved by the Council in April 2013 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the FAO satisfactorily details how Council's comments and those of the STAP have been addressed.

We have today posted the proposed project document on the GEF website at www.TheGEF.org for your information. We would welcome any comments you may wish to provide by August 02, 2016 before I endorse the project. You may send your comments to gcoordination@TheGEF.org.

If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,



Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee



REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Capacity, Policy and Financial Incentives for PFM in Kirisia Forest and integrated Rangelands Management			
Country(ies):	Kenya	GEF Project ID: ¹	5083
GEF Agency(ies):	FAO (select) (select)	GEF Agency Project ID:	639220
Other Executing Partner(s):	Kenya Forest Service	Submission Date:	23 July 2015
		1 st re-submission Date:	8 March 2016
		2 nd re-submission Date:	17 June 2016
GEF Focal Area (s):	Multi-focal Areas	Project Duration(Months)	60
Name of Parent Program (if applicable):		Project Agency Fee (\$):	268,227
<ul style="list-style-type: none"> > For SFM/REDD+ <input checked="" type="checkbox"/> > For SGP <input type="checkbox"/> > For PPP <input type="checkbox"/> 			

A. FOCAL AREA STRATEGY FRAMEWORK²

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Co-financing (\$)
(select) BD-2	Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation	Output 2.1. Policies and regulatory frameworks for production sectors	GEF TF	1,220,410	2,359,322
CCM-5 (select)	Outcome 5.1: Good management practices in LULUCF adopted both within the forest land and in the wider landscape	Output 5.2: Forests and non-forest lands under good management practices	GEF TF	897,671	2,090,000
(select) SFM/REDD+ - 1	Outcome 1.2: Good management practices applied in existing forests	Output 1.2: Forest area under sustainable management, separated by forest type	GEF TF	370,665	1,935,856
(select) SFM/REDD+ -2	Outcome 2.1: Enhanced institutional capacity to account for GHG emission reduction and increase in carbon stocks	Output 2.2: National forest carbon monitoring systems in place	GEF TF	334,693	2,290,000
Total project costs				2,823,439	8,675,178

¹ Project ID number will be assigned by GEFSEC.

² Refer to the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.

B. PROJECT FRAMEWORK

Project Objective: To deliver multiple BD, CC and livelihood benefits from 91,452 ha of Kirisia Forest under PFM and 50,000 ha of rangelands under Holistic Natural Resources Management respectively

Project Components/ Programs	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
Component 1: Implementation of PFM and Holistic Natural Resources Management (HNRM) over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO ₂ e (direct)/ 3,178,804 tCO ₂ e (indirect), secure wildlife migratory corridors and increase financial returns from Non-Wood Forest Products (NWFPs) by 25%;	TA	<p>1. Strengthened capacities Kenya Forest Service (KFS) and Community Forestry Association (CFA) puts PFM and HNRM over 91,452 ha and 50,000 ha respectively, mitigates 2,935,701 tCO₂e (direct), secures wildlife migratory corridors and increases financial returns from NWFPs by 25%.</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> - 50% increase in capacity over baseline value of CFA, KFS, KWS, and HNRM as measured by UNDP capacity scorecards; - 45,000 ha of intact forest under forest protection; 10,000 ha of degraded forest under regeneration regime and 17,000 ha of degraded forested landscape under SFM; - Total direct avoided emissions of 2,935,701 tCO₂e; - 50,000 ha under HNRM plans with 25% increase in productivity of 	<p>1.1: Kirisia CFA empowered to provide community leadership PFM of Kirisia forest in strong and widely representative partnership with KFS:</p> <p><i>leads to institutional capacity increment measured by UNDP capacity scorecards.; over 70% of coverage of CFA membership for the target area;</i></p> <p>1.2: KFS provided with operational capacity to implement forest management, protect forests from fire, put 45,000 ha under Forest Protection:</p> <p><i>i) reduces deforestation in the intact forest from 1.4% to about 0.84% and secures 630,912 tCO₂e direct emission avoided; ii) at least 6 Rangers/ scouts trained support CFA in implementing the Kirisia Forest;</i></p> <p>1.3: Forest Management Plan upgraded to Kirisia Ecosystem Management Plan, with a biodiversity monitoring program:</p> <p><i>results in i) an Ecosystem Management Plan in place with a carbon and biodiversity monitoring program; ii) over 20 forest management plans operational with participation of target groups and incentive mechanism; iii) data for</i></p>	GEF TF	2,329,214	6,500,000

³ Financing type can be either investment or technical assistance.

		<p>rangelands over baseline;</p>	<p>MRV, BD and program monitoring available;</p> <p>1.4: Design and implement a forest rehabilitation/ reforestation program which puts 10,000 ha under regeneration and 17,000 under SFM:</p> <p>results in: i) 10,000 ha improved tree and forest cover with 1,324,441 tCO₂eq (direct) avoided; ii) 17,000 ha of forest resources under SFM including outside the forest with 980,348 tCO₂eq (direct) avoided;</p> <p>1.5: Design and implement HNRM plans for 50,000 ha of rangelands: capacity to implement HNRM plans emplaced:</p> <p>results in i) 1 or more HNRM plan(s) implemented by communities living within 5 km radius of the Kirisia forest; ii) 50,000 ha implemented under HNRM plans;</p>			
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		<p>Outcome 2: Integrity of the Kirisia ecosystem as a wildlife refuge improved to continue playing the critical role of maintaining the Samburu Heartland as a functioning ecosystem, and habitat for wildlife.</p> <p><i>Indicators:</i></p> <ul style="list-style-type: none"> -12 conservancies with agreements being honoured that protect wildlife; -At least 40% decrease in poaching of key species; 	<p>2.1. Important dispersal areas and migratory corridors mapped and protection negotiated with land users/owners:</p> <p><i>results in at least 1 regulatory framework established with agreements/ MoUs among CFA, KFS, AWF, County and land users/owners for the greater Samburu ecosystem;</i></p> <p>2.2: Support to 3 existing and establishment of 6 new conservancies proposed by the County Government:</p> <p><i>results in i) 3 existing and establishment of 6 new conservancies proposed by the County Government; ii) more than 90% of Kirisia ecosystem under management;</i></p> <p>2.3: Equipment and materials for wildlife monitoring and protection within and outside the Forest to cover the Kirisia ecosystem:</p> <p><i>results in At least 40% decrease in incidents of poaching related deaths of wildlife species in the dispersal areas;</i></p>		
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		<p>Outcome 3: Income from honey, and other NWFPs providing financial incentives for PFM and conservation and increase household income by more than 25% for participating households;</p> <p><i>Indicators:</i></p> <p><i>-25% income increase from NWFPs over baseline for participating households</i></p>	<p>3.1: Honey producers linked to high volume buying market linkages:</p> <p><i>leads to: i) increased honey production by 25% of current baseline; ii) smoothed supply chains with 25% increase in higher value markets, iii) a business strategy completed and fundraising in progress;</i></p> <p>3.2: Tourism development model developed that seeks to deliver benefits to the local communities) and funding for its implementation secured:</p> <p><i>leads to a final tourism strategy available in tandem with improved forest and natural resources management and equitable sharing of benefits from future returns on tourism;</i></p> <p>3.3: Other NWFPs with potential identified and strategy for commercial harvesting, processing and marketing designed and implementation started (using the Market Analysis and Development Approach):</p> <p><i>leads to identified NWFPs commercially available for income generation;</i></p>			
		<p>Outcome 4: Knowledge systems inform adaptive management in PFM</p> <p><i>Indicators:</i></p> <p><i>-County Government has adopted lessons in local level PFM</i></p>	<p>4.1: A carbon, biodiversity and livelihoods monitoring plan designed, implemented, lessons being used to inform adaptive management and carbon accounting (in conjunction with Output 1.2-5):</p> <p><i>results in i) 1 integrated monitoring plan implemented; ii) 3 monitoring datasets for carbon, biodiversity and livelihoods stored in a database;</i></p>			

			<p>4.2: Knowledge management system set up, informed by project review and evaluations (Project M&E formulated, Mid-term Review and Final Evaluation undertaken).</p> <p>4.3: Resource centre established and operationalized, local traditional knowledge documented:</p> <p><i>results in at least 30 documentations describing best practices, lessons, indigenous knowledge at the resource center operational accounting (in conjunction with Output 1.2-5, 2.1, 3.1., 3.3);</i></p>			
Component 2: Policy and legal framework strengthened	TA	<p>Outcome 5: Subsidiary legislation and guidelines for County level implementation of the PFM National Policy of 2005 emplaced, informed by Community Bio-cultural community protocols</p> <p><i>Indicators:</i></p> <p><i>-80% of community management structures have legal documents that empower them with control of access and with management, harvesting and marketing rights;</i></p>	<p>5.1: Subsidiary legislation and guidelines for participatory forest management submitted to government for approval:</p> <p><i>leads to i) at least 2 final bio-cultural community protocols; ii) at least 10 self-enforcement mechanisms in place; iii) a county-specific legislation to guide the implementation of the PFM policy of 2005 developed for approval;</i></p> <p>5.2: County and National government lobbied to adopt proposed policy reforms:</p> <p><i>results in 80% of local groups in the project site involved;</i></p>	GEF TF	359,775	1,800,000
Subtotal					2,688,989	8,300,000
Project Management Cost (PMC) ⁴				GEFTF	134,450	375,178
Total project costs					2,823,439	8,675,178

⁴ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Co-financing	Co-financing Amount (\$) *
National Government	Kenya Forestry Service (KFS)	In-kind	500,000
National government	Forestry Research Institute (KEFRI)	In-kind	500,000
National Government	Kenya Wildlife Service (KWS)	In-kind	500,000
GEF Agency	FAO	In-kind	3,446,178
County	Samburu County Government	In-kind	2,515,000
CBO	Community Forestry Associations	In-kind	414,000
NGO	Kenya Forest Working Group	In kind	800,000
Total Co-financing			8,675,178

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	(in \$)		
				Grant amount (a)	Agency Fee ^{a)} (b) ²	Total (c)=a+b
FAO	GEFTF	Biodiversity	Kenya	1,220,410	115,939	1,336,349
FAO	GEFTF	Climate Change	Kenya	897,671	85,279	982,950
FAO	GEFTF	Multi-focal Areas	Kenya	705,358	67,009	772,367
Total Grant Resources				2,823,439	268,227	3,091,666

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

² Indicate fees related to this project.

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Co-financing (\$)	Project Total (\$)
National/Local Consultants	759,500	1,380,000	2,139,500
International Consultants	72,000	120,000	192,000
Total	831,500	1,500,000	2,313,500

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF⁵

1. The project has slightly changed direction from what was envisaged at PIF to align with the realities on the ground. At PIF formulation, the project intended to establish self-financing PFM via i) introduction of sustainable charcoal and earning income from selling sustainably produced charcoal and carbon credits; ii) Harvesting and selling dead timber from the Kirisia forest. To support these income generating activities, the project was going to formulate forest management plans which would be based on self-financing model, supplemented by PFM funds, to have been set up by the project. The project would have produced two models for demonstrating important aspects of sustainable forest management: i) implementing the PFM with higher levels of cash benefits for communities; and, ii) implementing the new charcoal rules and producing sustainable charcoal for sale, linked to carbon finance markets via the REDD+.
2. However, baseline assessments done during PPG showed that the conditions on the ground would not support effective implementation of any of the two pilots for three reasons:
 - a) Kirisia and Maralal are far from national charcoal production and trade routes, and the demand for charcoal in Maralal Town would not be enough to maintain a commercial charcoal production system;
 - b) Due to the poor state of roads connecting Maralal to the charcoal markets in Nayahururu, Nanyuki, Nyeri, Meru and Nairobi, the cost of transporting and hence price of charcoal produced sustainably in Samburu would not compete with charcoal produced in other areas of the country, where no investment is associated with its production and transportation;
 - c) Even if the additional transport cost was not prohibitive, it is still very difficult to get consumers in Kenya to pay a premium price for sustainably produced charcoal, to compensate the sustainable producers; so carbon finance is the only way to recover the investment on sustainably producing charcoal; however, carbon markets are currently moribund, and it is unlikely that the project could secure carbon markets for this sustainably produced charcoal;
 - d) Traditional charcoal production using earth kilns which are 10% efficient produces nine tons of carbon dioxide for every ton of charcoal (ESDA 2007). Sustainable charcoal (where trees are planted and efficient kilns are employed) is carbon neutral because the carbon emitted during production and consumption can be sequestered by trees that are planted, or allowed to continue growing (by coppicing instead of felling). Thus taking earth kilns as a baseline for every one ton of sustainable charcoal that is produced, it offsets nine tons of carbon dioxide (or nine units of CO₂). At a price of US\$ 5 per ton of CO₂, a village producing 500 tons of sustainable charcoal (that means 4500 (9 x 500) tones of CO₂) could earn US\$ 225,000 selling carbon credits, in addition to the sale value of charcoal. However, to realize these values requires very strong monitoring and verification systems, to avoid leakage; such systems are simply not available in Samburu today. It would therefore be difficult to implement such a scheme and sell the carbon credits. In addition, insecurity in the Northern borders of Kirisia (emanating from cattle raids by the Rendille and the Turkana's) have forced some Samburu households to settle inside the Kirisia gazetted forest, where all year round grazing and cultivation is a barrier to carbon finance earning schemes;
 - e) The setting up of self-financing PFM schemes was also found to be impractical; the capacity deficits in the KFS Maralal Office and the CFA would make it difficult to effectively manage such a commercial scheme – which would require two conditions currently not in place:
 - i. A clearer definition of mandates, roles and responsibilities amongst the CFA, KFS, National and County Government. The CFA has just been formed and only 36% of the eligible population are members; the County government in particular is still in establishment mode, and it is not clear what their policy will be on the role of PFM and participation of communities in financial schemes;
 - ii. There was no support for harvesting of dead or live wood by the KFS National leadership. Although there seemed to have been willingness to consider the scheme at PIF formulation, consultations during PPG confirmed that

⁵ For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question.

such a scheme would not be allowed at this point in time. Part of the reason is that there is very limited capacity for enforcement of such a scheme in KFS, not just in Maralal, but nation-wide; opening the avenue for harvesting forest resources needs to be backed up by strong capacity in KFS to ensure that the facility is not abused on site, and from similar forests. The KFS office in Maralal has such capacity limitations that it would not provide this safeguard. Discussions with the National Leadership of KFS confirmed that the institution did not feel that it currently has the capacity nationally to supervise the implementation of such a scheme safely, without it being abused and used to accelerate deforestation more widely.

3. A positive development is that the CFA and KFS, with support from the Africa Wildlife Foundation (AWF) have formulated a Kirisia Forest Management Plan (2012-2016) and, in the process, undertook capacity needs assessment, presenting a very clear picture of where capacity deficits are most glaring, and need to be supported. Building on the Forest Management process, PPG studies revealed that fire and overharvesting of resources to meet household and livestock feed requirements are far more urgent threats to the forest than charcoal or lack of access to the standing timber in the forest. The focus of the project has therefore been adjusted to address these barriers, to support the implementation of the progressive elements of the Kirisia Forest Management Plan, even as it is updated and upgraded to a Kirisia Ecosystem Management Plan (2016-2026), and to create capacity and policy enabling environment that would allow the introduction of finance schemes to support PFM in the future. In particular the project has now taken on two outputs not foreseen in the PIF:
4. Empowering communities (skills) to put over 50,000 hectares of rangelands under holistic natural resources management approach to rangeland management – to improve rangeland productivity despite the dearth of extension service support from National and County governments’ to the Samburu pastoralists; and
5. Securing wildlife dispersal areas and migratory corridors, in response to the findings at PPG that the Kirisia ecosystem is losing these important areas, with negative consequences to the ability of the broader Samburu Heartlands to continue functioning as a healthy ecosystem.
6. Other changes resulting from the foregoing are:
 - The project now contributes to BD objective 2 outcome 2.1 (instead of outcome 2.2): Thus “Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation”, where it puts 141,452 ha under improved management systems that mainstream biodiversity conservation practices into productive landscapes (91,452 ha of forest and over 50,000 ha ranches and rangelands around the forest). ;
 - The overall co-finance has reduced from the expected US\$ 11,108,000 to US\$ 8,675,178 due to the slight change in the project focus (not too focused on sustainable charcoal and reduced focus on knowledge as a component), but also due to the fact that investments that had been expected to be cofinance have become baseline investment due to the delays in project start up.
7. The modified outcomes and outputs are presented in Table B above.

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

8. When the PIF was developed, the devolution process was just starting to take off. The new constitution came into force from 2010 creating County Governments with devolved functions which included mandate for agriculture and livestock, land and natural resources. The County Governments came into power in 2013, after the General Elections are still at the formative stages with nascent technical and operational capacity to implement their constitutional mandate, against a backdrop of huge local expectations by the grassroots communities. Consultations with the County Government during the latter stages of PPG revealed very high levels of commitment to sustainable development, based on exploitation of the natural resources available in Samburu – primarily the Kirisia forest and the opportunity for tourism provided by the abundant wildlife. The County government has identified honey and tourism as two of three economic pillars. The County Government has resources, albeit limited, to invest in the development of tourism. It needs to be supported to make strategic choices, and make sure that development mainstreams biodiversity conservation, climate risks and resilience. To this end, two activities have been included, that had not been foreseen at PIF: i) to support the government to undertake a feasibility assessment of the tourism sector development, and to design a long-term tourism development plan, learning lessons from other pastoralist areas where profits from private sector led tourism development has largely bypassed the local communities; ii) to assess the feasibility of building a honey factory in Maralal to capture the northern rangelands honey, which would add value to the products, and create needed jobs.

9. The County government will therefore be supported with technical skills for participating in PFM and HNRM of the rangelands. This will be done under Component 1 under which the skills needs assessment of the institutions relevant to the project initiatives will be undertaken and a strategy developed, and implemented, to provide needed skills.

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

10. This section has been modified from PIF, to refine the project contribution to the Focal Area strategies. The revision is presented in a section of the Project Document: FIT WITH NATIONAL, GEF AND FAO STRATEGIC OBJECTIVES, summarized below.
11. The project will contribute to GEF 5 BD Objective 2 Sustainably managed landscapes that integrate biodiversity conservation increased through strengthened policy and regulatory frameworks, where it will put over 140,000 ha of land under management practices that integrate biodiversity conservation (91,452 ha of gazetted Kirisia forest and over 50,000 ha of ranches around the forest consisting of woodlands and rangelands). Biodiversity conservation in the Kirisia ecosystem will be mainstreamed through the participatory forest management and conservancy models along with forest-biodiversity management agreements (see Annex 5 in the Project Document). It will also secure wildlife dispersal areas in the ranches and wildlife migratory corridors that link Kirisia forest with the rest of the ecosystem, and Kirisia to the greater Samburu Haertlands. This will improve the overall integrity of the Kirisia and the samburu Haertlands ecosystem as a habitat capable of supporting viable populations of African ungulates such as lions, wild dogs, zebras, buffaloes, elephants, impalas, etc. The project is expected to indirectly contribute to 80,000 ha of dryland forest ecosystem under holistic ecosystem management plans in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties).
12. The project will contribute to Climate Change Strategy Objective CCM-5, Adoption of good management practices in LULUCF within the forest and in the wider landscape. The Project will establish PFM and build the capacity required to implement the PFM plans effectively. Increasing honey production and marketing and supporting prospects for benefiting from tourism, as well as the capacity and policy/governance improvement will lead to improved management of the 91,452 ha of the gazetted forest, putting 45,000 ha of intact forest under Forest Protection regime, putting 10,000 ha under rehabilitation and 17,000 ha under SFM. This will reduce deforestation from the current 1.4% to less than 0.84% (expected avoided deforestation at 40% of efficiency) and contribute to maintaining carbon stock of 2,935,701 tCO₂eq. It is also expected to promote indirect emission reduction of 3,178,804 tCO₂eq through the scaling up of activities to 80,000 ha under holistic ecosystem management plans in the greater Samburu as well as neighbouring Counties (Marsabit and Likipia Counties) (see Annex 4 in the Project Document). This will be supplemented by stronger capacities in KFS to implement the standard forest management plans (including regular protection to encourage regeneration), and more effective protection from fire (via the provision of fire tower and fire fighting equipment and skills to run and maintain equipment).
13. These activities will also contribute to Objective 1 of the Sustainable Forest Management SFM REDD+ Strategy - Good management practices applied in existing forests.
14. These capacities will be used in the future to grow the PFM into a self-financing commercial entity that can also engage in sustainable charcoal and carbon finance. However these innovative ideas will be introduced when the enabling conditions for their implementation can be secured without triggering leakages in other parts of the country; which will require a stronger KFS nationally.
15. Key indicators of contribution to the BD, CCM and SFM focal area objectives are summarized in Table below (from Table 18 in the Project Document):

Table A.2.1: Contribution to the BD, CC and SFM Focal area objectives

GEF Focal Area objectives	GEF – Indicators/Outcomes	Key Project Contribution
BD-2 Mainstream Biodiversity Conservation and Sustainable Use into Production	Increase in sustainably managed landscapes that integrate biodiversity conservation	Increasing operational capacity of KFS, KWS, CFA and communities to collaborate in PFM and covering over 91,542 ha forest and 50,000 ha of rangelands in dryland forest ecosystems under Holistic Natural Resources Management (direct). Biodiversity conservation in the Kirisia ecosystem will be mainstreamed through the

Landscapes, Seascapes and Sectors		<p>participatory forest management and conservancy models along with forest-biodiversity management agreements (Annex 5). The project will indirectly contribute to 80,000 ha under holistic ecosystem management plans in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties).</p> <p>Securing wildlife migratory corridors within Kisiria ecosystem and between the ecosystem and the rest of Samburu land, Marsabit and Laikipia, which is critical for the functioning of the greater Samburu Heartland as an ecosystem; reduction of poaching-related deaths for wildlife and high value tree species;</p> <p>Improving local level governance (via stronger CFA and revival of the Samburu traditional resource governance systems) – improves security of wildlife in the over 80% of the Kirisia ecosystem covered by group ranches, which is the wildlife dispersal areas;</p> <p>At least 40% decrease in incidents of poaching related deaths of wildlife species in the dispersal areas;</p>
CCM-5 Promote conservation and enhancement of carbon stocks through sustainable management of land use, land-use change, and forestry	Good management practices in LULUCF adopted both within the forest land and in the wider landscape	<p>PFM supported by operational capacity of KFS and CFA to lead the implementation of the Kirisia Forest Management plan which will put 91,542 hectares of the Kirisia gazetted forest under stronger and more participatory management;</p> <p>45,000 ha of intact forest put under Protected Forest Management regime; 10,000 ha under regeneration and 17,000 ha under SFM; this will safeguard the current carbon stock held in the intact forest and promote sequestration in the deforested areas, leading to direct emission reduction of 2,935,701 tCO₂eq. It is also expected to promote indirect emission reduction of 3,178,804 tCO₂eq through the scaling up of activities to 80,000 ha under holistic ecosystem management plans in the greater Samburu as well as neighbouring Counties (Marsabit and Likipia Counties) (Annex 4);</p>
SFM/REDD+ - 1 Forest Ecosystem Services: Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services	Good management practices applied in existing forests.	<p>A carbon, biodiversity and livelihoods monitoring plan designed, implemented, lessons being used to inform adaptive management and carbon accounting. It will include 3 monitoring datasets for carbon, biodiversity and livelihoods stored in a database;</p> <p>91,452 ha forests under sustainable management – will increase availability of NWFPs and wood products without resulting to overharvesting, forest degradation and deforestation.</p>
SFM/REDD+ - 2 Reducing Deforestation: Strengthen the enabling environment to reduce GHG emissions from deforestation and forest degradation and enhance carbon sinks from LULUCF activities	Enhanced institutional capacity to account for GHG emission reduction and increase in carbon stocks	

A.3 The GEF Agency's comparative advantage:

No change in relation to the PIF.

A.4. The baseline project and the problem that it seeks to address:

Kirisia Forest, Samburu County

16. The Kirisia forest is in Samburu County, in the former Rift-Valley Province. Lying between 0;40’N-2;50’N and 36;20’E-38;10’E, the Samburu County covers an area of 20,826 km² (3.6% of total area of Kenya). The County is largely arid and semi-arid, dotted with indigenous forests and woodlands on hilltops and plateaus (fig 1). Kirisia Forest (locally known as Leroghi) is a block of 91,452 hectares of gazetted dry upland forest reserve, covering the Kirisia Hills at an altitude of 2000 – 2200 m (Watai and Gachathi, 2003). The forest was gazetted vide Proclamation no.2 of 1936 and declared a Central Forest vide legal Notice No.174 of 1964. The forest and the ecosystem around it are widely recognized as critical for maintaining the Samburu Heartland as a functioning ecosystem, and particularly its role as a key habitat for wildlife and carbon storage.
17. The forest ecosystem consists of 59,198 ha dry cedar/olive forest, 20,400 ha bush, 1,066 ha bamboo, 1,130 ha grassland and 150 ha plantation. Kirisia receives a mean annual rainfall of 600 – 750 mm, falling in three rainfall peaks in a year; with the driest Months occurring in January and February. It enjoys a relatively warm climate with mean annual temperature of between 24 and 33°C (Jaetzold and Schmidt, 1983). The forest has shallow soils of generally variable fertility levels. The area around the forest is dominated by a complex of well-drained, shallow, black to very dark brown, acid humic, very friable loam soils.

Biodiversity and carbon

18. The Kirisia ecosystem hosts significant carbon stocks while simultaneously providing a safe habitat for important wildlife including: elephant, buffalo, bushbuck, bush pig, zebra, a variety of gazelles, eland, giant forest hog, warthog, suni, lion, leopard, and wild dog. The birds and insects are well represented including Hartlaubs touraco possibly the most dominant species in the forest as well as tambourine dove, which only occurs in forests, martial eagle, sunbirds etc. Table 1 shows wildlife species recorded by both Kenya Wildlife Service and Kenya Forestry Service.

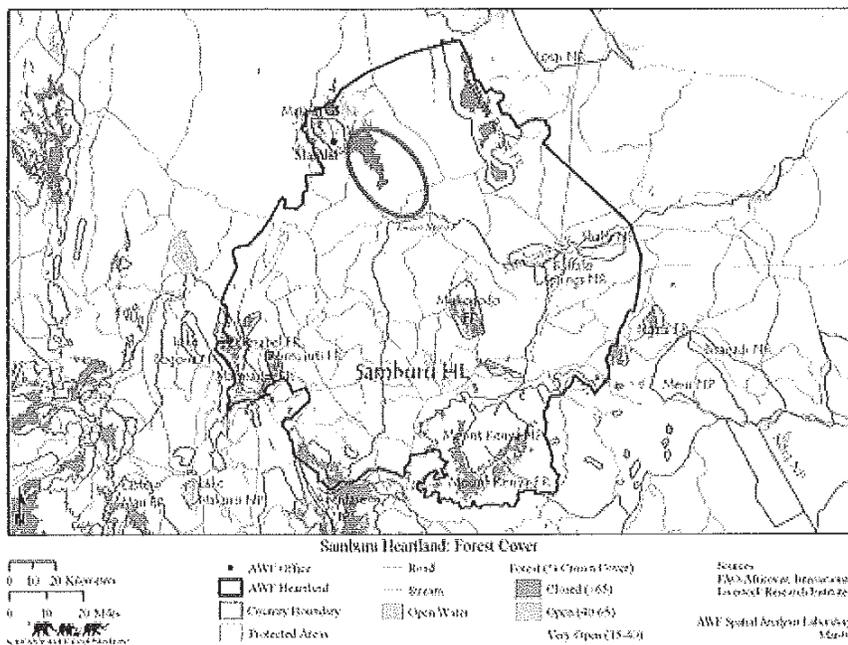


Figure 1: Location of Kirisia in the Samburu Heartlands – source Kirisia Management Plan, 2014

Table 1: Animals recorded in areas surrounding the Kirisia Forest

Lodokejek area	Naibor keju area	Baawa area	Ledero	Tamiyoi area
Common Zebra	Grevy zebra	Elephant	Thomson gazelle	Elephant
Grevy zebras	Thomson gazelle	Hyena	Gazelle grants	Zebra common
Lesser kudu	Common zebras	Leopard	Common zebra	Wild dog

<i>Greater kudu</i>	<i>Impalla</i>	<i>Kori Bustard bird</i>	<i>Hyena</i>	<i>Bush buck</i>
<i>Elephant</i>	<i>Dik dik</i>	<i>Buffalo</i>	<i>Elephant</i>	<i>Water buck</i>
<i>Hyena</i>	<i>Hyena</i>	<i>Ostrich</i>	<i>Baboon</i>	<i>Hyena</i>
<i>Lion</i>	<i>Jackal</i>	<i>Waterbuck</i>	<i>Ostrich</i>	<i>Leopard</i>
<i>Leopard</i>	<i>Elephant</i>	<i>Monkey</i>		
<i>Impala</i>	<i>Baboons</i>	<i>Bush buck</i>		
	<i>Gerenuk</i>	<i>Jackal</i>		
		<i>Common Zebra</i>		

19. The most dominant trees and shrubs and lianas in the forest include *Afrocarpus gracilior* (Lopiripiri), *Cassipourea malosana* (Machakudu), *Diospyros abyssinica* (Lekiri), *Dovyalis abyssinica* (Lmoro), *Vepris simplicifolia* (Lgilai), *Ekebergia capensis* (Songoroi), *Juniperus procera* (Ltarakwai, and *Croton megalocarpus* (15 %). Those species dominating the middle canopy all blocks combined were *P. falcatus* (12-45 %), *O. europaea ssp africana* (21 -28%), *J.procera* (20 %), *Teclea simplicifolia* (13-15 %) and *C. megalocarpus* (12 %) (Hitimana et al., 2009).
20. Baseline assessments undertaken in 2011 reported that the overall tree density varied as follows: seedlings⁶ at 1537 ha⁻¹, Saplings at 1,322ha⁻¹, Pole-sized trees† at 196 ha⁻¹ equivalent to 21.2 m²ha⁻¹ and Large trees at 86 ha⁻¹ equivalent to 24 m²ha⁻¹) (Hitimana et al., 2009). The floral composition consists of different vegetation associations, dominated by large tree species above in addition to *Nuxia* (threatened), *Olea africana ssp cuspidatus* (Lorien, threatened), *Olea capensis ssp macrocarpa* (Loliontoi, threatened), and *Toddalia asiatica* (Lparamunyu) *congesta* on much of the hills; and *Cassipourea malosana* on wetter slopes. Overall, four species dominate the forest top canopy: *Olea europaea ssp africana* (up to 34 %), *Juniperus procera* (up to 25%), *Podocarpus falcatus* (up to 26 %).
21. Understorey tree species include *Teclea nobilis*, *Maytenus undata*, and *Acokanthera schimperi* and *Myroxylon aethiopicum*. The forest is also a mixture of open, disturbed and rocky areas covered with *Euclea divinorum*, *Carissa edulis*, *Rhus natalensis* and *Croton dichogamus* small trees and shrubs. Regeneration of the tree component is characterized by saplings totalling 1,322 individuals per hectare shared among 62 out of 95 tree species recorded above 10 cm dbh. Overall, 11 species formed the bulk of regeneration in the entire Kirisia forest. Seedlings total 1,537 individuals per hectare distributed among 46 tree species among the 95 recorded above 10 cm dbh. That is, about 52 % of tree species in Kirisia did not have seedlings during the time of the survey. This is a huge deficiency.
22. According to a CAMCO REDD+ assessment (2010)⁷, the intact forest has carbon stocks of approximately 8 million tonnes (equivalent to 29,360,000 tCO₂eq). The approximate carbon values for the Kirisia Forest Reserve are highlighted in Table 2.

Table 2: Approximate carbon values for the main forest types in Kirisia Forest Reserve (CAMCO, 2010)

Forest type	Main species	Average dbh (cm)	Average height (m)	Approx. stems/ha	tC/ha
Intact	<i>Podocarpus falcatus</i> , <i>Olea africana</i> , <i>Teclea nobilis</i>	22.62	12.23	810	144
Degraded	<i>Olea africana</i> , <i>Juniperus procera</i>	41.26	5.5	500	129.8
Regenerating	<i>Euclea divinorum</i>	25	2	150	2.23

Socio-economics and land use in the Kirisia ecosystem

⁶ 2 Seedlings = Stems < 1m Ht; Saplings = Stems 1m Ht - 10 cm dbh; Pole-sized trees = Stems 10 – 20 cm dbh; Large trees = Stems > 20 cm dbh

⁷ Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya. CAMCO Company. 2010

23. The Kirisia ecosystem is inhabited by the Samburu nomadic pastoralists who are cousins to the Maasai, with similar culture and language (Figure 1). They keep camels, cattle, sheep and goats for livelihood and social interactions. The area is also home to small populations of hunter gatherers (Ndorobo) who are undoubtedly the oldest inhabitants of the Kirisia Forest. The capital of the Samburu County is Maralal town, which hosts 37,000 of the total 223,947 County population (Table 3 shows the current and projected population within the Samburu West Constituency while Table 4 shows changes in livestock population). The town's inhabitants are a fairly cosmopolitan population consisting of traders from several ethnic groups, including: Kikuyu, Meru, Samburu, Somali and Turkana (Leroghi/Kirisia Forest Station Management Plan, 2011).
24. The forest and the land around it are managed under different types of land tenure systems: the forest is State Land, owned and managed by the National government (KFS). Land in the areas around the forest is subdivided into group ranches (52% of total ecosystem) and to a lesser degree to private ownership (5%). The changing patterns of land tenure have had many implications on land use. There are ten group ranches adjoining the Leroghi/Kirisia forest, are still in existence these are; Lkiloriti, Lodokejek, Mbaringon, Morijoi, Nonkeek, Shabaa, Ngari, Lcedero, Baawa and Opiroi. The land is still communally owned with a few having a common title deed; individuals utilize the land freely as long as they are members of the group ranch but have no individual titles as yet (Figure 2 shows land tenure context around the forest). As the group ranch membership numbers (due to population increases, ever greater numbers are being registered) there is however increasing pressure for further subdivision to obtain individual titles especially as a means of obtaining collateral but the cost of processing individual titles are inhibitive. Indeed, many households have acquired titled plots within the group ranches, and have constructed homestead and are undertaking some small scale crop production.

Table 3: Past, current and projected population in Samburu County

Constituency	2009 (Census)		2012 (Projections)		2015 (Projections)		2017(Projections)	
	Population	Density – km2	Population	Density (km2)	Population	Density (km2)	Population	Density (km2)
Samburu West	81,094	21	92,676	24	105,912	27	115,770	30
Samburu North	83,759	14	95,722	16	109,393	13	119,575	17
Samburu East	59,094	6	67,534	7	77,179	8	84,363	8
Total	223,947	11	255,932	12	292,484	14	319,708	15

25. The Kirisia ecosystem constitutes an important wildlife refuge and corridor to the greater Samburu, Marsabit and Laikipia wildlife habitats. In Lodokejek major wildlife routes are concentrated in the south-western parts and connect wildlife habitats in the Group Ranch to those in the Kirisia Forest Reserve in the North and the Laikipia ecosystem in the South. Some pass near settlements / cultivation zone. Many of the group ranches have wildlife in them.

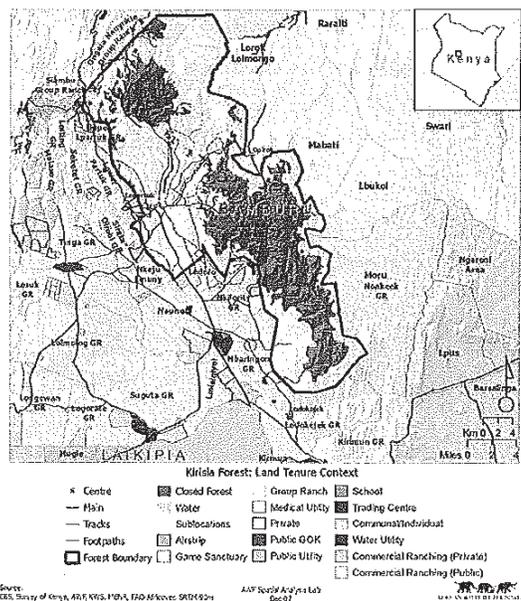
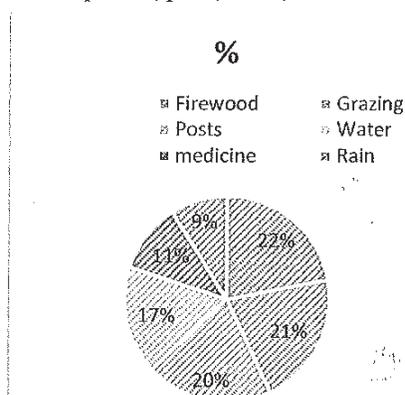


Figure 2: Map of Kirisia showing forest boundary and surrounding grazing ranches

Table 4: Livestock Population Trends from 2011 to 2013

Livestock Species	2011	2012	2013
Beef cattle	80,950	83,370	85,035
Dairy cattle	0	8	11
Sheep	178,510	187,800	197,190
Goats	400,500	420,940	444,421
Camels	30,000	30,900	31,827
Donkeys	13,500	13,905	14,322
Indigenous chicken	6,400	7,810	9,528
Chicken commercial	600	900	1,350
Bee hives	13,270	13,378	13,485

26. With the limited economic alternatives available to the Samburu community, households around the forest depend heavily on the natural resources and ecosystems services offered by the biodiversity and the forest ecosystem. Chief among them are source of firewood, pasture, posts, water, medicinal herbs and rain in a descending order (Figure 3).



27. Although most of the forest products are harvested for household use, the three most prominent products sold to raise income in 2011 were charcoal, poles and fire wood (40%), honey (10%) and herbal plants (10%). While these products are sold throughout the year, the dry months of January, February and March is much more critical. The main targeted customers are the local community according to 52% of the respondents. The sale of poles, firewood and honey provide an essential source of income, in addition to livestock rearing and crop farming which are the main sources. Wild olive trees are harvested both for dry season browse and fuel wood. Both dead and live standing cedar is targeted for posts and timber. These tree species are so important that the Samburu culture teaches that a Samburu man may only harvest a total of six cedar trees during his lifetime. Posts are used in the construction of manyattas (traditional Samburu/Maasai houses) and for fencing, including in the nearby Marallal town, the single most important market outlet of commercialised forest products from Kirisia. Preferred species for fencing was *Juniperus procera* due

to its durability in the ground and resistance to termites attack. Fifty four percent (54%) of the respondents of the baseline assessment (2011) acknowledged the medicinal value of the forest with over 92 % of them having collected medicinal herbs solely for domestic uses, 4% for commercial purposes to generate income and another 4 % for both domestic and commercial. At least 30 species of the 95 recorded woody plant species (over 30 %) were reported as being of high medicinal value, used by local people in herbal medicine to treat diverse ailments (Table 5).

Table 5: Herbal Plants and their uses in Leroghi/ Kirisia Forest

Herbal plants	Treat tonsils	Treat Malaria, cold, stomach, eyes	Gonorhea, deworming, headache	Treat stomach pains, headache	Treat cold, stomach	Many diseases
<i>Sukwoi (Aloe secundiflora)</i>	0	0	0	0	0	100
<i>Lchingei (Euclea divinorum)</i>	0	0	0	0	0	100
<i>Lkinyil (Rhamnus prinoides)</i>	0	0	0	0	0	100
<i>Lmarguit (Croton megalocarpus)</i>	0	0	0	0	0	100
<i>Lmorijoi (Akocanthera schimperi)</i>	0	0	0	0	0	100
<i>Lkokolai (Rhamnus staddo)</i> ,	0	68.66	0	0	4.48	26.87
<i>Lokitengi, (Ipomoea spathulata and or Ipomoea kituiensis)</i>	0	68.66	0	0	4.48	26.87
<i>Lkokolai (Rhamnus staddo)</i> ,	0	68.66	0	0	4.48	26.87

<i>Lakirdingai, Ldupa soro</i>	0	68.66	0	0	4.48	26.87
<i>Loisuk (Zanthoxylum usambarense)</i>	25	25	0	0	0	50
<i>Lmakutikuti, (Rothea myricoides)</i>	0	20	40	0	0	40
<i>Seketet, (Myrsine 16fricana Lakirdinglai)</i>	0	20	40	0	0	40
<i>Lkinyel, (Rhamnus prinoides)</i>	0	0	0	0	0	100
<i>Lmalany, Lngeriyo (Olea europea ssp cuspidatus)</i>	0	0	0	0	0	100
<i>Lparmunyo, (Toddalia asiatica)</i>	0	0	0	0	0	100
<i>Lerubat Seketet (Myrsine 16fricana)</i>	0	45.45	0	6.06	0	48.48
<i>Lkirdingai (Croton dichogamus)</i>	0	45.45	0	6.06	0	48.48

(Source: socio-economic survey 2011)

28. The use of the forest as a source of herbs was particularly important for treating livestock e.g. de-worming (*Olea europaea*), placenta removal after birth (*Olinia rochetiana*) and tapeworms (Lorekiri). *Calodendrum capense* is used as a perfume. Kirisia ecosystem remains a potential research site for promoting herbal medicine for biodiversity conservation and improved livelihoods, an important entry point for joint /participatory forest management scheme.
29. **Supply of honey and honey products:** Baseline assessment found that the use of forest as source of honey was particularly important (Table 6). 70%, 10% and 20% of households using honey obtained it from the Kirisia Forest, on the Group Ranches land, or purchased from honey gatherers/producers around the forest, respectively. From all households that harvested/hunted honey did so for: (i) domestic uses only (54.3%), income generation only (2.5%) or both (43.2%). Even emerging beekeeping outside the forest (e.g. Group Ranches) using different kinds of beehives still depends on the forest as a habitat for a diversity of bee forage which influence the properties and quality of honey produced, and as a source of permanent water even when all water points have dried outside the forest e.g. during droughts. Popular bee-forage tree species were *ystroxylon aethiopicum* (Lodonganayioi / Saramonai), Lpinai, Machakudu/Lcokudu, Lmuzungach and Mukinyeyi. Honey gathering in the wild was the most common method of harvesting honey supplies for households.

Table 6: Hive population and production trends from 2011 – 2013

Year	KTBH	Log Hives	Langstroth	Crude Honey (Kg)
2011	250	13000	28	80,000
2012	350	13000	30	91,380
2013	540	12905	40	101430
Total	1140	38905	98	272810

NB. Crude honey production per beehive: Log hive-7kg; KTBH-12kg; Langstroth-14kg

Table 7: Wells and Bore holes Around Leroghi/Kirisia forest

Wells around Bawaa forest area (all saline)	Wells around Mbarigon forest area (all saline)
Ngarama well	Mayai dam
Lbaalalare well	Kikwal permanent wells
Baawa borehole	Ngabolo river
Lesepetei shallow well	Lolmargwt
Lboonyieki well	Lbaglo mbarigon
Lboonyieki borehole	Kiangok springs
Baawa dam	Mbarigon borehole
Larikan shallow wells	Nalbor keju borehole
Lalaingok	Onturiri-Okonjeki
Silango dam	Ondojeki

30. **Water catchment services:** Kirisia forest is critical for water services. The Kirisia forest is indeed one of the major water towers in the larger Samburu-Laikipia landscape, with water resources being well distributed across the ecosystem. There are 45 dry riverbeds, 15 permanent rivers and springs and 17 water points and wells (highly frequented by people and the wild game mainly elephants and buffalo) and one swamp. The people living between Kirisia and the Mathews range depend entirely on water coming underground from Kirisia, as do all peoples living adjacent to the forest. Water for human, livestock and wildlife is very critical as natural resource in many of the ranches surrounding the forest. Many of the ranches have springs, boreholes, dams as well water pans all supplied by Kirisia Forest water (Table 7).
31. Traditional grazing practices in the rangelands demonstrate the adaptability of pastoralism as an efficient way of using land and natural resources in non-equilibrium environments. Seasonal livestock movements give pastures time to recover, enabling them to support large herds and a high human population in dry regions. Wide social networks, as well as close reciprocal ties among neighbours and neighbouring clans, insulate the individual herder against bad times. All this allows herders to spread their risk and restock their herds after a drought episode. These social linkages enable families that would otherwise be exposed to loss of livestock and assets due to drought and insecurity in one part of the county or beyond (Marsabit, Isiolo or Laikipia Counties) to live among their clan members and access water and feed resources in the forest during drought period.
32. Approximately thirty-six Samburu communities surrounding Leroghi have established use rights to various parts of the ecosystem. The average size of each traditional holding is less than 3,000 ha. Over the years, some Samburu pastoralists have been able to acquire land in the neighbouring County of Laikipia, where individual landownership is more widespread, and have moved their herds southwards. Those who have kept their herds around the Leroghi/Kirisia forest area, move their herd freely across the surrounding group ranches. However, increasingly, the Samburu are acquiring permanent homesteads from where they practice a transhumance type of pastoralism, moving their herds seasonally in search of pasture and water. Herd composition is dominated by traditional Zebu cows, with some improved breeds such as the Boran and Sahiwal.
33. The Samburu have well-established traditional dry season grazing rights within the Leroghi/Kirisia ecosystem, including the gazetted Forest Reserve. According to forest laws, grazing fees should be paid to the government entity in charge of managing the gazetted forest reserve. In practice, the levying of fees has been taking place in an un-systematized and often arbitrary manner. The utilization of forest resources is guided largely by traditional by-laws and enforcement by communities living in the group ranches around the forest. The practical application of this varies from one group ranch to another. Communities in Baawa group for example freely access the forest during dry spell to get feed for their livestock. They prune trees for livestock feed even at the risk of being punished by the elders. The effectiveness of the traditional regime however varies from location to location, and with proximity to Maralal town. Conflicts over resources in the forest as people access and utilize them are common, and the community has traditional conflict resolution mechanisms and regulation. This includes payment of fines and in case a life is lost the payment of blood money.

Threats specific to Kirisia Ecosystem

34. The Kirisia forest and biodiversity resident in the Kirisia ecosystem face considerable threats from fire, encroachment, dry season grazing, logging especially illegal extraction of cedar, unregulated collection of firewood, unprofessional debarking, charcoal burning, intense lopping and cutting down of whole trees for fodder and collection of honey.

Fire

35. Fire is reported to be the most serious threat to the Kirisia forest, causing both deforestation and forest degradation. The Samburu culture is very rich in conservation practices, and has helped to sustain the Kirisia forest for hundreds of years. For example, controlled burning was used for decades to manage grazing, by balancing the areas available for grasslands with the need to conserve the forest. Decisions to burn parts of the land were made by clan elders, who would agree on which parts to burn and when (normally just before the arrival of the long rains in March in order to maximize regeneration of pasture for grazing). There has however been steady weakening of these traditional, clan-based, forest management structures since the onset of the colonial period. Decisions to burn land in the forest and surrounding areas are increasingly made by individuals, both local and resettled Samburu's, leading to a situation of unchecked forest fires.
36. The use of traditional honey collection methods has contributed to the increase in wild fires. The baseline assessment found that modern beekeeping was still at infant stage in the Kirisia area; being practiced by a few progressive beekeepers. The indigenous techniques used to harvest honey from forests use fire and felling of trees to access honey up the stem. Fires are lit at the bottom of the trees during honey collection from wild hives, sometimes getting out of hand and burning whole trees and/or large parts of the forest. Incidents have been reported where whole trees have been felled in the process. This technique is wasteful and destroys bees. Baseline assessment found damage to the upper canopies of eight tree species, believed to have been damaged via this

wasteful honey collection method. The most affected species were *Juniperus procera* and *Olea europaea ssp africana*. Such fires are more frequent in the dry season. Lower altitude dryland forests are particularly hard-hit since they're less resistant to fire than moist, higher altitude forests.

37. Although natural regeneration occurs after fire events, evidence suggests that it is very slow in the Leroghi/Kirisia ecosystem, possibly because it is stymied by the commensurate increase of grazing activity. Baseline assessment reported that only the cedar (*Juniperus procera*) shows signs of regeneration to a limited extent; and most other indigenous trees species have failed to regenerate. Thus cumulative impacts of overgrazing and continuing overharvest are contributing to slow post-fire recovery.
38. Baseline assessment reported that incidents of fire have increased with the increase in population of livestock. Although data on recent estimates of annual or total area damaged by fire is not available⁸ a single wildfire event in 1980 destroyed approximately 30,000 ha of closed canopy forest. While this resulted in substantial increase of available grazing land within the Forest Reserve for both wildlife and livestock, the burnt area later became permanent settlement for Samburu families fleeing insecurity from the regular raids/skirmishes with the neighbouring Turkana (explained below).

Fuel-wood and other timber forest products

39. The second most serious threat to the Kirisia forest emanates from the fact that the main source of energy for cooking in Samburu District is fuel wood; both charcoal and fire wood. Kirisia Forest is the main source of the fuel wood, extracted for commercial purposes and domestic use. The pressure on the forest for fuel wood production is attributed to people living in the forest, adjacent communities and people from Maralal town. Although there are no definitive records of the quantities of wood and charcoal extracted from the whole forest, a CAMCO REDD+ assessment (2010) estimated that *Opiroi* produced about 100 bags of charcoal daily, depicting the potential magnitude of deforestation and forest degradation that may result from fuel wood extraction activities⁹. The Charcoal was perceived to yield higher returns on labour, especially by otherwise unemployed youths. Charcoal production, if uncontrolled and uncoordinated, is likely to turn into a major threat to the integrity of the ecosystem, as urbanization coupled with increasing change in lifestyle of the nomadic pastoral communities continue to set in.
40. The forest is further threatened by logging, mainly for timber and posts used for building materials in the local villages and Maralal. *Juniperus procera* and *Podocarpus falcatus* are the main species targeted for logging. *Juniperus procera* is resistant to termites and is therefore preferred as building and fencing material. Communities in Samburu districts are also changing their lifestyle moving from pastoral lifestyle to more settled life where permanent structures are used as dwelling place which is increasing the demand for building materials.

Encroachment with accompanying all year round, unsustainable grazing:

41. The third most serious threat to the Kirisia forest is settlement into the forest area, accompanied by all year grazing, unsustainable and inappropriate harvesting of pasture, blocking wildlife migratory corridors and poaching. Traditionally, the majority Samburu pastoralists are nomadic, and the minority Dorobo are not agriculturalists. Under the traditional grazing management system, the Kirisia forest was used as dry season grazing, particularly in drought years. This has however changed in some parts of the forest, with the settlement of the Samburu families referred to in the previous paragraph. A 2005 survey reported that there were about 600 households settled in the forest¹⁰; however, this had increased to about 2,000 by 2014 (KFS, personal communication). Clearly, in the face of weaker legitimacy of the traditional grazing management systems, the comparatively rich grazing grounds, relatively higher rainfall, year round forage availability, permanent water points, and proximity to the markets of Maralal, have continued to attract permanent settlers into the forest. These parts of the forest are now under all year grazing, with increasing incidents of accompanying crop cultivation. Although communities in the forest argue strongly that they protect the forest from illegal loggers and deforestation, there is evidence that their resources harvesting processes, as well as harvesting processes of other communities around the forest are leading to forest degradation.

Pasture / fodder for livestock

42. As reported in the previous section, the Kirisia forest plays a very important role in the local economy and livelihoods by being the main resource for dry season grazing and the source of water. Pollarding of trees for fodder was found common although only a few species are targeted. The baseline assessment found about 42 % of trees (187 out of 451), belonging to eight different species, were damaged by pollarding for calves or as dry season source of fodder for the livestock; the most popular and affected species was *Olea europaea ssp africana* (Table 8. Pollarding of *Olea europaea (O. africana)* was particularly noticeable throughout the forest with 62 % of all damaged individuals being so through pollarding. Pollarding is mainly done by harvesting the crown

⁸ This will be established during the project inception period, as part of updating the current Kirisia Forest Management Plan

⁹ Carbon Scoping Study of Kirisia Forest Reserve in Samburu, District, Kenya: CAMCO 2010.

¹⁰ See also Section SOCIAL ECONOMICS BENEFITS INCLUDING GENDER CONSIDERATIONS in the document.

biomass by overtopping the tree for fodder, firewood, posts or all types of products. During drought or prolonged dry seasons, the herbaceous plants outside the forest disappear and grass dries up.

43. The baseline report also reported that three of the commonly known fodder species were target in the “cut-and carry system” of the dry season intensive exploitation of fodder. The fact that pollarding was observed to many more species than those listed as common fodder species implied that, during dry season, people expand the range of fodder species to include those that are usually not easily accessible e.g. requiring climbing during fodder harvesting. The impact of collecting fodder from palatable tree species through pollarding is exceptionally worrying; it is unprofessional, unplanned and uncoordinated. Table 8 also shows the three most frequent damages on trees per block.

Table 8: Pollarded species for livestock fodder and other products and magnitude of the practice in Kirisia forest

Forest block	Rapar	Baawa	Tamiyoi	Nkorika	Entire Forest scenario (28.3 ha – sample size)			
Species	Pollarded trees	Pollarded trees	Pollarded trees	Pollarded trees	Total damage trees	Total Pollarded trees	Pollarded % per species	Share of pollarded trees among species
<i>Teclea simplicifolia</i>	4	1	0	0	10	5	50.0	2.7
<i>Olea europaea</i>	30	78	31	28	269	167	62.1	89.3
<i>Grewia tembensis</i>	1	0	0	0	2	1	50.0	0.5
<i>Juniperus procera</i>	2	1	2	0	139	5	3.6	2.7
<i>Croton megalocarpus</i>	0	2	0	0	13	2	15.4	1.1
<i>Euclea schimberi</i>	0	4	0	0	15	4	26.7	2.1
<i>Lamaroki / Lamarogi</i>	0	0	1	0	1	1	100	0.5
<i>Ngeriyoi</i>	0	0	2	0	2	2	100	1.1
Total	37	86	36	28	451	187	41.5	100
% pollarded per locality	29	49	34	65		41		

Table 9: Most common types of tree damage

Block	% damage from debarking	% damage from pollarding	% damage from Heart rot	Other disease	% dead
Rapar	23	29	-	-	13
Baawa	8	49	19	-	-
Tamiyoi	34	31	-	-	15
Nkorika	13	65	-	13	-

44. **Harmful methods of harvesting for medicinal purposes:** Different parts of the plant are harvested for medicinal purposes: leaf extract (*Justicia sp.*, *Trimeria grandifolia*), Bark extract (*Croton megalocarpus*, *Juniperus procera*, *Mystroxyton aethiopicum*, *Olinia rochetiana*, *Lokujok*, *Podocarpus falcatus*, *Vangueria sp.*, *Lorekiri*, *Trimeria grandifolia*), Root extract (*Trimeria grandifolia*, *Rhamnus prinoides* (concoction), *Rhamnus staddo*, *Carissa edulis*, *Croton dycotomous*, *Dombeya sp.*, *Euclea schimberi* / *E. divinorum*, *Rhus natalensis*, *Teclea simplicifolia* / *Cadia purpurea*, *Toddalia asiatica*, *Euphorbia candelabrum*, stem or twig sap (*Euphorbia candelabrum*, *Aloe secundiflora*), fruits (*Myrsine africana*). The harvesting of barks, roots and stems is a threat to plant life and potentially not sustainable. There is need to promote low impact harvesting technologies and other conservation measures (through production instead of harvesting them in the wild) to protect threatened medicinal plants, both inside and outside the forest.

Poaching and blocking wildlife corridors

45. In addition, new settlements and an increase in the number of fenced properties in the wildlife dispersal areas have started blocking the wildlife migratory corridors that connect Kirisia, Milimani, Poro, Lapurtuk, Ngari naro, and Losuk in Laikipia. Indeed, encroachment has spread to the Wildlife Sanctuary situated near Maralal Town, along with increase in incidents of poaching (Figure 1).

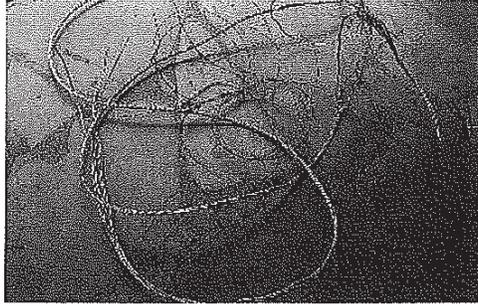


Figure 3: Crude materials used to trap animals recovered in the Wildlife Sanctuary

46. If it continues unchecked, encroachment will lead to disconnection of ecological habitats within the ecosystem and between the ecosystem and other adjoining ecosystems which reduce its viability to continue supporting the vast biodiversity due to blockage of wildlife migratory corridors, loss of habitat, shrinkage of wildlife dispersal areas and interference of interactions between predators and prey relationships, herbivores and grasslands, all of which are ecologically significant for both habitats and wildlife. Many of Kirisia's species would become extinct if links to the larger metapopulation in the Samburu Heartlands, Marsabit and Laikipia were severed. Insularization of protected areas and habitat fragmentation would hasten the extinction of species, directly reducing biodiversity. If the protected areas have no dispersal areas, genetic drift and inbreeding may occur, leading to population instability, loss of ecological integrity and possibly local extinction. These extra-ecosystem linkages are also necessary to buffer Kirisia ecosystem against extreme droughts and climatic change.
47. Poaching was reported to be a serious threat to wildlife. Poaching statistics for the Mountain Conservation Area (MCA) show that Samburu area was the second in poaching, and most of it contributed by poaching in Kirisia forest (KWS unpublished, 2014). The most common cause of death was trophy hunting (Figure 2 and 3). Other species commonly poached include leopards, Lions Elands, Grevy and common Zebra, hyenas, wild dogs, giraffes and buffalos.

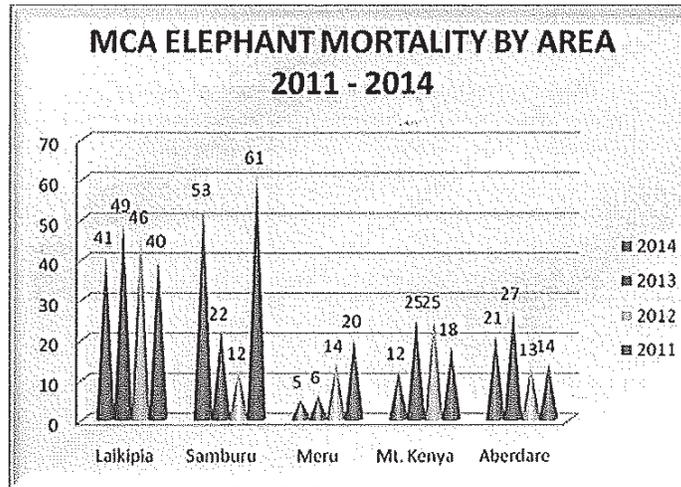


Figure 4: Elephant mortality 2011-2014

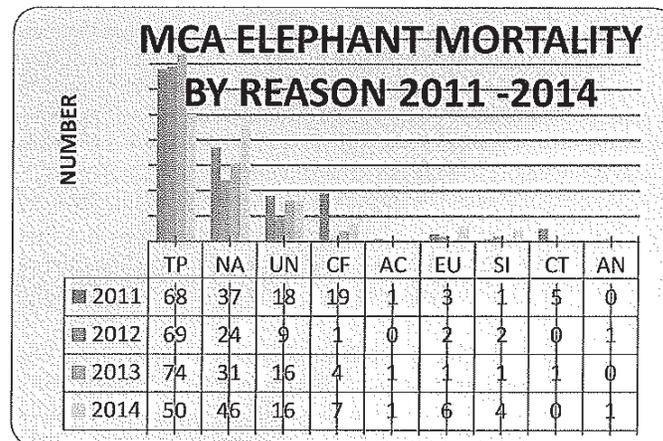


Figure 5: Common causes of elephant deaths in MCA 2011-2014

Key; TP-Trophy poaching; NA; Natural; UN; unknown.

48. Meanwhile, human and livestock populations in the Samburu County continue to grow (Table 3 and 4) as traditional controls on herd size shift. There are unconfirmed reports that the Samburu average herd has become dominated by small stock rather than cattle and camels, a change driven by the series of droughts experienced in the 80's. This further exacerbated an increase in livestock numbers and grazing pressure, intensifying the competition for grazing between wildlife and livestock.
49. All the threats described above are likely to gain even more momentum with the arrival of the County Government and the planned improvements and extension of the transport networks. The National government has begun to pave the dirt road from Nyahururu to Maralal (Leroghi) and the planned highway, railroad and pipeline complex from the Kenyan Coast to southern Sudan is expected to pass just south of Leroghi. These developments are welcome by the Samburu as they will bring great opportunities to the communities and increase local economic development. However, if the current weaknesses in natural resources governance and management are not addressed, the developments are likely to accelerate the decimation of the forest and the loss of ecosystem services, to the detriment of the communities and biodiversity in the long run.

Climate change

50. Forests and rangelands in Northern Kenya are facing additional threats from the impacts of drought and climate change. Based on data from the Kenya Meteorological department, the thirty year period between 1970 and 2000 saw a noticeable decline in the estimated mean annual rainfall in the area surrounding Lake Turkana (includes Samburu). The region experienced 10 years of mild droughts and 5 years of extreme drought. One of the effects of these droughts is that it causes moisture stress within the natural vegetation. Those species that are tolerant to drought survive but most of them are vulnerable and are negatively affected. Samburu and Pokot have a better vegetation cover than Turkana. Such droughts have direct impacts of the livelihoods of pastoralists as they are highly dependent on water and vegetation for their livestock. They also exert more pressure on the remaining resources.

Impacts to GHG emissions from deforestation and degradation

51. The threats are depleting the forest and the ecological integrity of the Leroghi/Kirisia ecosystem. This is evinced by significant degradation of biodiversity, loss of forest health, and contributions to climate change. A 2010 REDD+ assessment study by CAMCO reported that the forest had reduced from the 91,944 ha at the time of gazettelement to about 78,000 ha by 2010.¹¹ The area considered in the project to constitute intact forests is 45,000 ha used to calculate emissions reductions (Annex 4). This forest loss leads to direct emissions of 630,912 tCO₂eq in the 20 years of project lifetime.

¹¹ Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya; CAMCO 2010. However, this report does not provide the time period within which these changes have occurred.

52. **Losses from degraded forests which could be put under regeneration:** The current extent of degraded forest needs to be re-confirmed during project inception; however the CAMCO REDD+ study¹², reported that there are 10,000 ha where tree cover is very low and carbon pools are at the lowest levels. Rehabilitation of these areas, via a mix of forest regeneration and enrichment planting could increase carbon stocks dramatically – which is currently being foregone. As reported in the detailed carbon benefit calculation (Annex 4), a lack of appropriate rehabilitation measures would lead to abandon annually 66,222 tCO₂eq of potential carbon gain associated with the growth of the reforested areas with natural species. Further CO₂ is being emitted from about 17,000 ha of land, which are suitable for SFM (including 8,000ha group ranch forests), but which are currently undergoing further forest degradation. Without SFM, 49,017 tCO₂eq of annual potential carbon gain would be foregone (see Annex 4)
53. Baseline assessment carried out in 2011 confirmed that forest diversity is also affected. Livestock prefer wild olive and its regeneration is severely impacted. The severe degradation has contributed to the decline of several important species from the forest including *Olea Africana* (African Olive), *Juniperus procera* (Cedar), *Podocarpus falcatus* (Podo) and *Osyris lanceolata* (Sandalwood)¹³.
54. The threats have affected the population structure of the forest. Baseline assessment (2011) confirmed that 49% of the tree species (47 out of 95) were recorded in the timber-sized stage; an indication that a good number of tree species in the Kirisia forest can reach large diameters at maturity. However, only 33 tree species out of the 47 (14%) were represented in the pole-size category. Their populations were on the decline, particularly *Juniperus procera* population. The ageing and declining *J. procera* population paved way to other species like *Teclea simplicifolia*. *Juniperus procera*'s high representation at Tamiyoi in the pole stage may be as a result of high fire incidence which may have favoured the *J. procera* regeneration as a pioneer species, whose seed dormancy is broken by heat. The density of seedlings and saplings varied among the four blocks, from satisfactory at Rapar and Baawa to very low in Tamiyoi and Nkorika.
55. The 2011 Baseline assessment reported that the Samburu community understands the impacts of these threats to the natural capital of the Kirisia forest and reported the following tree and animal species to be either declining or have disappeared. The most frequently mentioned were camphor and podo (Table 10). These species might require to be re-introduced through enrichment planting.

Table 10: Tree Species that are scarce in the forest

<i>Tree species</i>	<i>Botanical name</i>	<i>Status</i>
<i>Mithata</i>		<i>Scarce</i>
<i>Losesiai</i>	<i>Osyris lanceolata</i>	<i>Scarce</i>
<i>Loichimi</i>	<i>Commiphora habessinica</i>	<i>Scarce</i>
<i>Sinantei</i>		<i>Scarce</i>
<i>Sukurtuti</i>	<i>Cissus sp.</i>	<i>Scarce</i>
<i>Ngariyoi</i>	<i>Olea europea ssp cuspidatus</i>	<i>Scarce</i>
<i>Tarakwai</i>	<i>Juniperus procera</i>	<i>Scarce</i>
<i>Piripirinti</i>	<i>Afrocarpus gracilior</i>	<i>Scarce</i>
<i>Loliontoi</i>	<i>Olea capensis</i>	<i>Scarce</i>
<i>Kyenia (Acacia sp.)</i>		<i>Absent</i>
<i>Inyua (Acacia sp.)</i>		<i>Absent</i>
<i>Podo</i>		<i>Scarce</i>
<i>Cedar</i>		<i>Scarce</i>

Table 11: Animal Species that have disappeared/ reduced in numbers

<i>Animal species</i>	<i>Status / Cause</i>
<i>Rhinos</i>	<i>Rare</i>
<i>Gazelles,</i>	<i>Hunting</i>

¹² Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya; CAMCO 2010. However, this report does not provide the time period within which these changes have occurred.

¹³ Socio-economic and Biodiversity Baseline Surveys – Kirisia Rehabilitation Project (GBM 2014)

<i>Eland (Suruani-Samburu)</i>	
<i>Lion</i>	<i>Scarce</i>
<i>Bush back (Lpua-Samb)</i>	<i>Drought</i>
<i>Impala (Ntarawati-Samb)</i>	
<i>Grevy zebras</i>	<i>Low numbers</i>
<i>Cheetah</i>	<i>Rare</i>
<i>Wild dogs</i>	<i>Rare</i>

56. The threats have also affected ecosystem services, especially water catchment services. Although the forest is a vital source of water especially during the dry season, there has been a general decline in the amount of water flowing through the rivers from a high in 1970s to almost scarce status in 2000s (Figure 6).

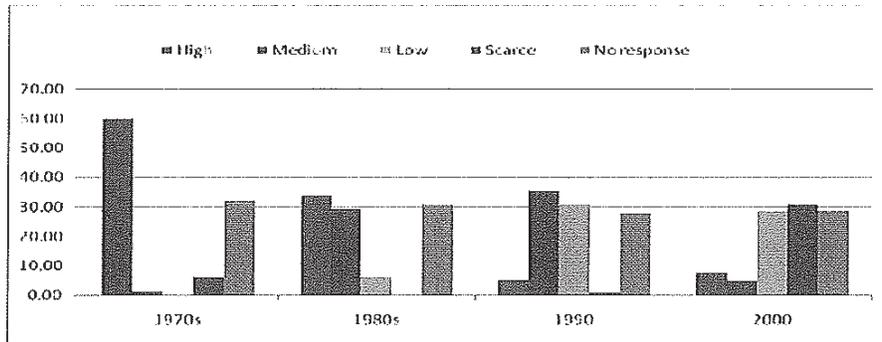


Figure 6: Trends in river flow from Leroghi/Kirisia

57. The changes have equally threatened the ability of the ecosystem to support the livelihoods of the Samburu community sustainably. Examples from Maasai land show that widespread sedentization of the pastoralists led to loss of grazing lands, reduced livestock mobility and overgrazing. The movement from a semi nomadic to a sedentary lifestyle and the shrinking access to land has reduces the sufficiency of traditional livelihoods strategies, weakens traditional resource governance institutions and increases vulnerability to drought and climate change. In addition to destroying natural habitats and altering the character of rangeland landscape, agricultural expansion also fuels the human-wildlife conflicts as wild animals destroy crops more frequently than they harm livestock. A recent study reported that over 40% of group ranch members experience crop damages annually by wildlife compared to only about 21% who experience livestock losses. Annual combined losses of both crops and livestock to wildlife become of more significance and of great concern to local communities as over 64% of community members incur both crop and livestock losses annually.

Rationale

Long-term Solution

58. The threats facing the Kirisia forest, the broader ecosystem and its constituent resources are mainly anthropogenic and can be effectively addressed through joint effort between the State, County government, local Communities and other stakeholders. Local communities are particularly aware of the threats to their livelihoods and acknowledge that most of the threats emanate from local resource governance and management issues.
59. There is therefore an urgent need to strengthen sustainable forest governance and management systems, in order to tackle current and emerging threats. It is particularly important to ensure that the ecological integrity of the ecosystem and the forest and the carbon it holds are enhanced, even as pressure increases to provide the resources the County government and the communities need to accelerate local economic development; a need that is glaringly obvious.
60. An excellent opportunity has now emerged; Supported by the KFS, KWS, AWF and other technical Line Ministries, the Kirisia Forest Association has formulated a Management Plan for the forest. The Kirisia Forest Management Agreement (FMA) was signed in June 2015, which gave the Kirisia Community Forest Association (CFA) forest user rights and the two organisations (KFS, CFA) better working modalities. It is expected that this new partnership arrangement will contribute to improved forest management, emissions reductions, improvement of wildlife habitat and better livelihoods.

61. The long-term vision encapsulated in the Management Plan is that Leroghi/Kirisia ecosystem becomes the best managed and conserved in Kenya, and that it continues to sustainably provide goods and services that lead to improved livelihoods of the Leroghi/Kirisia forest adjacent communities and Kenyans at large. To realize this ambitious vision, the development partners need to engage the communities living around the forest in a participatory process that provides policy, legal, financial and capacity incentives for sustainable forest governance and management, as well as biodiversity conservation, as the two cornerstones of resilient economic development of the Samburu County and its people.
62. Achievement of the long-term vision will therefore require the adoption of participatory forest management and improved management of the rangelands around the forest. To achieve this, the partners need to strengthen the nascent governance system (CFA for PFM), put in place incentives for PFM, specific programmes for biodiversity management (including the natural forest and wildlife), participatory biodiversity Monitoring and Evaluation programme; economic/financial incentives for conservation and sustainable use, including tourism development and other non-timber forest products; sustainable rangeland management and grazing regimes, and community legal empowerment, including harmonization of the devolution-led policy changes with local and national natural resources management policies.

Baseline Analysis: Programmes and Co-Financing

63. The project will build on baseline programs with a total investment of US\$ 62,614,000 (from about 2010 – 2020), out of which US\$ 8,675,178 will serve as direct co-finance), described below:

Relevant National Government Investments and Actions

64. Kenya Forest Service: US\$ 5,000,000; 2015 -2020: (0.5 million of which counts as co-finance to the project); The KFS will invest more than US\$ 5 million on national forest management activities, with about 0.1 million per year supporting Kirisia Forest management directly (total of 0.5million during the lifetime of the project). The co-finance emanates from the KFS's operational budgets in Samburu County and other related dryland forest programmes during 2015-2020. At the national and local levels, the funds are used to create operational institutional management systems for the new agency, to improve management operations of forest stations such as detailing felling series, planting and other silvicultural operations, mainly for timber production. The budget also goes to enforce and apply forest law within the context of the national forest extension service. The Kirisia Forest Office has 8 staff members (1 Forest Manager and 7 Forest rangers). KFS is engaged in mainly law enforcement through patrols within the forest. However this staffing level is completely inadequate to secure the whole forest.
65. **Kenya Wildlife Services (KWS): US\$ 10 million; 2015 -2020:** (0.5 million of which counts as co-finance to the project). The KWS will invest about US\$ 10 million in wildlife management and protection during the 2015 – 2020 period. However, only about US\$ 0.1 per year is allocated to the protection of wildlife in the Kirisia forest and surrounding areas (total of 0.5 million during the project period). KWS has a Wildlife Protection Department (WPD) – the Baawa plateau, which protects Kirisia forest and oversees seven conservancies. In Kirisia, KWS office has a team of 7 staff who also support the Community Policing program.
66. **Kenya Forest Research Institute (KEFRI):** US\$ 0.5 million: At the national level KEFRI is implementing a programme on dryland forests, under which it is undertaking research activities including development of technologies for establishment of trees in drylands. The co-finance emanates from the institute's operational budgets in Samburu County and other related dryland forest programmes. The co-financing is expected to support training farmers, extension officers, and other natural resources managers on forestry related matters. KEFRI, through this programme, will facilitate the replication of knowledge and best practices generated by the proposed project in other dryland regions of the country. At the same time, the institute will share existing knowledge and provide technical expertise to the proposed project.

Relevant County Government Investments and Actions

67. **County government:** US\$ 15,000,000; 2015 – 2020 (US\$ 2,515,000 of which will count as co-finance for Kirisia forest): The Samburu County government has identified the Forests (Kirisia, Mathews Range, OI-Donyo Rengai) as sources of tourism and other development for the County. The County government has therefore committed to investing resources in developing infrastructure required for tourism development, including roads, improving security on the Maralal Nyahururu road, and supporting institutional development, such as conservancies. For example, in 2015, the County Government has already supported the establishment of an eco-lodge within the Ngotca-Kirisia conservancy. The government is also investing resources in expanding the extension service and improving the marketing of honey, in line with the County Development Plans.

Relevant Donor Investments and Actions

68. There are several donor investments and actions in Kenya which serve as baseline, and the project can draw lessons from. These include;
69. FAO Kenya/EU - Land Programme 2015-2027: (US\$ 22 million out of which US\$ 1,500,000 counts as baseline and co-finance for this project). The programme's overall objective is that "equitable and secure access & management of land for better

livelihoods and socioeconomic development” in all counties of Kenya as per vision 2030. The program has four main outputs: Output 1: Land administration and management established in selected counties. Output 2: Participatory land use planning initiated and planning methodology established in selected counties. Output 3: Land Policy and legal framework for improved land governance at county established and rolled out in line with the VGGT. Output 4: Capacity of research and academic institutions on national land tenure and management issues strengthened. The proposed project will benefit from this baseline investment, in particular the strengthening of land tenure systems, which will secure land tenure for group ranches around the Kirisia forest.

70. **FAO/EU. Reviving ASAL Economies through Livestock Opportunities and Improved Coordination (RAELOC) 2014 - 2018 (US\$ 5,000,000):** This programme covers all the Counties in the Arid and Semi-Arid Lands of Kenya. It has 5 outcomes, namely: outcome 1: Agricultural- based livelihoods are supported by an enabling policy and investment environment; outcome 2: Agricultural productivity and production of medium- and small-scale producers increased, diversified and aligned to markets; outcome 3: Improved management of natural resources (rangeland, agricultural land, water and forest) at national, county and community level; outcome 4: Improved livelihood resilience of targeted, vulnerable populations; outcome 5: Access to and use of information , innovation, a global pool of knowledge and expertise drives holistic growth in the Agriculture sector. The proposed GEF project will benefit from a close interaction with this project, in particular on elements of strengthening land tenure systems, which is required for sustainability of community based forest management regimes.
71. **Kenya REDD+ Programme – US\$ 1,000,00; 2010 - 2020:** Kenya has received a grant from the Forest Carbon Partnership to support the development of a national REDD+ Strategy. The World Bank/KFS Forest Carbon Partnership Facility (FCPF) project will support Kenya REDD Readiness Preparation, specifically the stakeholder consultations and management arrangements. Kenya is also receiving support from UN-REDD on different components of its Strategy (institutional arrangements, multiple-benefits planning, safeguards), including from FAO. FAO through the UN-REDD Programme is providing support to a comprehensive gap analysis of the forest related legal framework relevant to REDD+ and to drafting REDD+ provisions to clarify and regulate major legal issues. A roadmap for the establishment of reference levels and a national forest monitoring system has recently been prepared. FAO has recently started activities to guide the Government on MRV issues, notably how it will articulate the monitoring of REDD+ activities and forestry emissions at the national level. The proposed project will contribute to the development of the REDD+ strategy by providing lessons learned and best practices on participatory forest management, which could be an important element of the strategy.
72. **KFS/ Finland - Miti Mingi Maisha Bora (More trees for better lives) 2010 – 2015 (US\$ 2,000,000):** implemented at the national level, the program supports the development of participatory forest management plans for selected forests in Kenya. The program is also in the process of re-establishing the national forest inventory and development of participatory forest management plans for non-timber products and services. The proposed GEF project will benefit from sharing lessons and methodologies applicable to drylands forests as well as carbon monitoring elements of such plans.

Relevant Community and NGO Investments and Actions

73. **African Wildlife Foundation (AWF) (US\$ 1.2 million):** The AWF supported the development of Leroghi Forest Management Plan (2012-2016). The management plan was formulated through a consultative process initiated by the Kirisia Community Forest Association (KCFA) and KFS, to provide a management guideline on the sustainable management and conservation of Leroghi Forest. The plan aims to employ a collaborative and participatory approach to forest management, which takes into account the diverse interest groups surrounding the forest, local community livelihoods and forest conservation. AWF has also supported the implementation of some of the activities of the plan specifically the development of a honey-processing plant and collection centres.
74. **Kirisia/Leroghi Community Forest Association (KCFA): US\$ 0.414 million – 2015-2020 (all of counts as co-finance):** Local communities in Leroghi have set up a structure for the management of the forest – the Kirisia/Leroghi Community Forest Association (KCFA). They are in the process of establishing operational capacities and partnerships to actualize PFM.
75. **Kenya Forests Working Group (KFWG) – subcommittee of the East African Wildlife Society, EAWS) (US\$ 150,000):** KFWG is implementing research, advocacy, and information sharing activities to support sustainable forest management and improved livelihoods. KFWG is currently implementing activities under a project funded by the United States Department of State through IUCN and EAWS “*Widening Informed Stakeholder Engagement for REDD+ (WISE REDD+)*”. KFWG will be an important partner in the proposed project particularly with regard to the implementation of the knowledge management component of the project – as a key knowledge-sharing platform. KFWG has an annual budget of US\$ 150,000.
76. **Suyian Trust – US\$ 150,000; 2008 - 2018:** Suyian Trust was set up in 2008 in order to raise funds more efficiently for people and conservation. Suyian Trust is actively involved in a number of projects in Laikipia West and Samburu North. The trust, in collaboration with the Kenya Forest Service, support communities living adjacent to indigenous forests to form Community Forest Associations. Suyian Trust is supporting Kirisia Forest Association with engaging forest scouts, provision of communication equipment and facilitates wildlife monitoring in the forest.

77. **Space for Giants – US\$ 100,000 – 2010 - 2020:** Space for giants support conservation of wildlife and people in Kirisia Hills. In collaboration with other stakeholders, Space for giants supported Kirisia CFA to improve its management and governance capacity through a training workshop.
78. **The Northern Rangelands Trust (NRT) – US\$ 50,000; 2010 -2020:** NRT is a registered Kenyan Trust with a Board of Trustees and with constituent communities as members. NRT is currently working with 19 community conservancies in Laikipia, Samburu, Isiolo, Marsabit and Baringo/East Pokot and Ijara districts, covering an area of more than 5,000km².
79. The role of the NRT is to develop the capacity and self-sufficiency of its constituent community organisations in biodiversity conservation, natural resource management and natural resource based enterprises. This is achieved through the following objectives; i) ensure the conservation, management and sustainable use of the natural resources within the Trust Area; (ii) promote and develop tourism and all other environmentally sustainable income-generating projects within the Trust Area; (iii) promote culture, education and sports of the residents of the Trust Area; (iv) promote better health of the residents of the Trust Area through the provision of better health services and facilities; (v) alleviate poverty of the inhabitants of the Trust Area through improved social services, provision of employment and establishment of community-based enterprises; and promote and (vi) support trusts, corporations, NGOs and other charitable organisations with similar objects to those of the Trust.
80. **The Green Belt Movement (GBM) – US\$ 50,000; 2012 - 2018:** With the support of the Prince Albert II of Monaco Foundation, Yves Rocher Foundation and Schooner Foundation GBM is implementing a watershed rehabilitation project. The project uses existing community structures and cultures, which strongly support conservation work, to rehabilitate the Kirisia forest, achieve community empowerment and improve livelihoods for the Samburu people. GBM has incorporated the Kirisia Forest ecosystem in its adoption of watershed-based approach in conservation of Kenya’s water towers. Twenty-seven (27) green volunteers (GVs) from the community were chosen to help monitor and report the progress of GBM activities across the forest stretch. Due to the uneven distribution of GV, attributed to the uneven settlement pattern along the forest boundary, Community Forest Association (CFA) scouts assist in monitoring forest activities in the region.

GEF Projects

81. Table 12 shows the GEF projects operational in Kenya. During the project design period, every effort was made to make certain this project is complimentary and symmetrical with these on-going efforts.

Table 12: GEF projects of relevance to the proposed Kirisia Forest Management

<i>Project Title</i>	<i>Agency</i>	<i>GEF Investment (US\$)</i>	<i>Brief Project Description</i>
<i>Fifth Operational Phase of the GEF Small Grants Program in Kenya</i>	<i>UNDP</i>	<i>US\$5,000,000</i>	<i>To secure global environmental benefits through community based initiatives and actions in key terrestrial and marine ecosystems of Kenya.</i>
<i>Adaptation to climate change in Arid Lands (KACCAL)</i>	<i>World Bank</i>	<i>US\$6,790,000</i>	<i>The proposed project contributes to the Climate Change Focal Area. It specifically focuses on the implementation of key adaptation measures to reduce vulnerability to climate change (higher temperature and increased frequency and scope of droughts and floods) in the arid and semi-arid lands of Kenya</i>
<i>Strengthening the Protected Area Network within the Eastern Montane Forest Hotspot of Kenya.</i>	<i>UNDP</i>	<i>US\$4,650,000</i>	<i>The biodiversity of Eastern Montane Forest is adequately represented and managed within Kenya PA network. Coverage in the Eastern Montane landscape provides the frame for upgrading reserve forest to higher status PAs</i>

Legal, policy and institutional context

82. Kenya is endowed with globally unique biodiversity and this biological richness is fundamental for much of the country’s economy and development prospects. It is also widely acknowledged by Kenya’s main development partners that the country’s future economic growth depends on better environmental management¹⁴.

¹⁴ Joint Assistance Strategy for the Republic of Kenya (2007–2012)

83. In recent years the Government of Kenya has developed a number of new institutional, legal and policy frameworks that govern conservation and natural resource management including those for: Land, Wildlife Management, Climate Change, Environment Management, and Tourism. These together with the adoption of a new Constitution and the anticipated legislation, changes the sphere in which civil society organizations and communities can engage in biodiversity, forest conservation and natural resource management. For example with the coming into effect of County Government in 2012 implementing organizations need to work closely with the devolved governments to implement the conservation programs on community lands. This may have the effect of hastening the pace of implementation and developing avenues of providing support to improve governance system that often prevents quick handing over of projects once they are completed.

The Constitution of Kenya 2010: National and County Authorities

84. The 2010 constitution of Kenya, adopted in 2010, creates two types of Governments; the Central National Government and 47 devolved County Governments. The Counties are semi-autonomous units of governance with responsibility for county legislation, executive functions, provision of public services, etc. Three levels of further decentralisation are sub-counties, wards and locations.

The Vision 2030

85. In late 2007 the Government of Kenya (GoK) launched its Vision 2030¹⁵ to guide all development aspirations for the entire country. Both the Kenya constitution and economic blueprint Vision 2030 recognizes the importance of the country's forests. Vision 2030 requires the country to work towards achieving a forest cover of at least 10% of the land area to ensure sustainable resource use, growth and employment creation. Further, the constitution has a whole chapter on land and environment (chapter 5), and requires that international environmental agreements, protocols and conventions to which Kenya is a signatory be domesticated and implemented within sectoral policies and laws.

Forests Policy and Forest Act 2005

86. The Forests Act 2005 provides for the establishment, development and sustainable management, including conservation and rational utilisation of forest resources for the socio-economic development of the country. The Act recognises the importance of forests for the benefits of soil and ground water regulation, agriculture and their role in absorbing green-house gases.
87. The key elements of the Forests Act are: the inclusion of management of all types of forests; involvement of adjacent forest communities and other stakeholders in forest conservation and management; an ecosystems approach to forest management planning; provision of appropriate incentives to promote sustainable use and management of forest resources; development of a framework for a forest legislation; and, establishment of Kenya Forest Service. The Act has four priority areas related to the management of forests, including: reducing pressure to clear forests for agriculture and other uses; promoting the sustainable utilisation of forests; improving governance in the forest sector; and, the enhancement of carbon stocks and reforestation of degraded lands.
88. The 2014 National Forest Policy provides a framework for improved forest governance, resource allocation, partnerships and collaboration with state and non-state actors. Important features of the revised policy framework for forest conservation and sustainable management include: the mainstreaming of forest conservation and management into national land use systems; division of responsibilities between public sector institutions; confirmation of the devolution of community forest conservation and management.
89. The Forests Act 2005 provides for the establishment of institutional frameworks that include Kenya Forest Service (KFS) under a Board at national, Forest Conservation Committees at conservancy levels and Community Forest Associations (CFA) with membership of individuals residing around forest resources. The Committees and associations bring together representatives of various stakeholders in the respective conservancies and forest associations, hence ensuring an all-inclusive institutional framework.
90. The 2014 National Forestry Policy provides more clarity on the division of roles and responsibilities of the government institutions involved in managing forests. The ministry responsible for forestry provides an oversight role in national forest policy formulation, and regulatory function of the sector, thereby allowing Kenya Forest Service to focus on the management of forests on public land. The role of the County governments relates to implementing national policies and County forest programmes, including the delivery of forest extension services to communities, farmers and private landowners, and management of forests other than those under Kenya Forest Service.

¹⁵ GoK. 2007. *Kenya Vision 2030: A Globally Competitive and Prosperous Kenya*. Government of Kenya, Nairobi, Kenya.

Kenya Forest Service

91. Kenya Forest Service is a State Corporation established in February 2007 under the Forest Act 2005 to conserve, develop and sustainably manage forest resources for Kenya's social-economic development. The KFS management structure comprises 10 conservancies that are ecologically demarcated, 76 Zonal Forest Offices, 150 forest Stations, and 250 divisional forest extension offices located countrywide. This structure is critical in forest management and surveillance.
92. Under the New Constitution, management of protected forests such as Leroghi/Kirisia Forest is invested in the National Government. Hence the Kenya Forest Service is directly responsible for management of the gazetted portion of the Leroghi/Kirisia Forest.

Community Forestry Associations

93. The participation of stakeholders in the conservation and management of the forest resources through collaborative management is strongly supported by the Forests Act 2005. The recognition of forest adjacent communities as key stakeholders and users of natural resources is considered key if successful management is to be realized. The Act provides opportunities to realize sustainable community forest management arrangement, as it allows for example for communities living adjacent to Leroghi/Kirisia Forest to enter into forest management agreements with KFS.
94. Participatory forest management (PFM) approach has been practised officially in the country since 2005 when the Forests Act of 2005 came into force. The Act also recognises Community Forest Associations (CFAs), whom participate in forest conservation and management under the KFS. The 2005 Forestry Act calls for the creation of one CFA for each forest station. According to the KFS, there are currently 325 community forest associations in the country. The new Forest Policy of 2014 supports PFM by calling for the establishment of national programs to support community forest management and afforestation/reforestation on community and private land, as well as the preparation of national standards for forest management and utilization, and the development of codes of conduct for professional forestry associations.

Kirisia Community Forest Association

95. Local communities in Leroghi/Kirisia forest have formed a CFA. Kirisia CFA together with Kenya Forests Service (KFS) and other stakeholders such as African Wildlife Foundation (AWF) and Suyian Trust have prepared a five year forest management plan (2012 -2016). The plan provides a platform for engagement with the (KFS) in forest management. Kirisia CFA has negotiated a forest user rights with KFS and a management agreement has been entered into between Leroghi/Kirisia CFA and KFS and will be signed in June 2015. Despite the delay in signing the management agreement, a number of activities stipulated in the management plan have been implemented.

Wildlife Conservation and Management Act 2013

96. Kirisia forest is an important habitat for wildlife including: elephant, buffalo, bushbuck, bush pig, giant forest hog, warthog, suni, lion, leopard, and wild dog. The birds and insects are well represented including *Hartlaubs touraco* possibly the most dominant species in the forest as well as *tambourine* dove, which only occurs in forests, martial eagle, sunbirds etc.
97. The Wildlife Conservation and Management Act 2013 places wildlife management under the general authority of the Kenya Wildlife Service. The Act is aimed at improving the protection, conservation, sustainable use, and management of the Kenya's wildlife resources. The law was drafted with a view to addressing the loss of wildlife, which had exacerbated despite conservation efforts by various institutions and has been attributed in varying proportions to a combination of policy, institutional and market failures.
98. The Government has also formulated the Wildlife Management Bill 2014 (which proposes a Kenya Wildlife Regulatory Authority) AWF expects improvements in environmental conservation with implementation of the incentives for conservancy creation and management and provision of an array of land uses suggested by the proposed new laws.
99. Vision 2030 also puts emphasis on wildlife conservation goal is to fully protect all wildlife ecosystems including securing wildlife corridors and migratory routes and reverse wildlife loss.
100. The new Act provides for restructured governance of wildlife resources by separating the regulation and management functions from those of research. Furthermore, new structures have been established at the County level in accordance with the Constitution of Kenya 2010. Each county shall have a County Wildlife Conservation and Compensation Committee.
101. The Act also sets out important principles that include: (i) Effective public participation in the management of wildlife resources, thereby setting a basis for the strengthening of community based natural resources management; (ii) Use of the ecosystem approach in the management of wildlife; (iii) Equitable sharing of benefits accruing from wildlife resources by Kenyans; (iv) Sustainable utilization; and (v) Recognition and encouragement of wildlife conservation and management as a form of land use on public, community and private land.

Kenya Wildlife Service

102. Wildlife management is under the general authority of the Kenya Wildlife Service. There are approximately 40 national parks and reserves in Kenya. KWS manages about 8 per cent of the total landmass of the country. This land contains 22 National Parks, 28 National Reserves and 5 National Sanctuaries. Also under KWS management are 4 Marine National Parks and 6 Marine National Reserves at the Coast. In addition, KWS manages 125 field stations outside protected areas. In addition to protected area management and tourism development, KWS is also responsible for wildlife management and conservation research relevant to biodiversity conservation.

Environmental Management and Coordination (EMCA) Act of 1999

103. The Environmental Management and Coordination Act No 8 of 1999, embraces all environmental management issues in the country. The Act has been a great boost in addressing the environmental concerns and safeguarding against environmental degradation within and outside protected areas. The implementing organ is the National Environmental Management Authority (NEMA).

Other Relevant Policies and Acts

Trust Land Act

104. The Trust Land Act, Cap. 288 of 1962 (revised 1970), sets out regulations for all land that is Trust land (land held by local authorities on behalf of the people resident in that area). Section 65 of the Act deals with forests and forest produce. This section stipulates that the Minister for Local Government may, with the approval of the council concerned, make rules for the protection of trees and forest product on land not within a forest area within the meaning of the Forests Act and for regulating the felling or removal of such trees or forest products.

Water Act 2002

105. The water Act 2002 provides for establishment of Water Resources Users Associations (WRUAs). The main aim of WRUAs is to regulate and coordinate water usage. For Leroghi/Kirisia Forests, Leroghi/Kirisia Water Resources Users Association has not been formed and in spite of low surface water especially in form of river. The current swampy areas in the forest and water springs need to be protected by special interest group such as WRUA.

National Energy Policy and Energy Act 2006

106. The broad objective of the energy ACT is to ensure adequate, quality, cost effective and affordable supply of energy to meet development needs, while protecting and conserving the environment.

107. Biomass is the largest form of primary energy consumed, accounting for 68% of the total national primary energy supply. The principal drivers of biomass energy demand are population growth, lack of access to biomass energy substitutes and the growing incidence of poverty among the Kenyans. The biomass energy supply and demand imbalance is exerting considerable pressure on the remaining forest and vegetation stocks, thereby accelerating the processes of land degradation. This policy and energy Act is therefore important in that it provides guidelines to address environmental problems associated with increased demand of wood fuel, some of which comes from Leroghi/Kirisia Forest.

National Land Policy 2009

108. The Government in 2009 enacted a New Land Policy. The policy designates all land in Kenya as Public, Community or Private. Sections 3.4 provisions recognises management of natural resources. For example article 131a reads, *to sustainably manage land based natural resources, the Government shall encourage preparation of participatory environmental action plans by communities and individuals living near environmentally sensitive areas to preserve cultural and socio-economic aspects.* On ecosystem protection and management principles provides for development of comprehensive and integrated land use policy with regard to fragile areas that considers the needs of neighbouring communities and individuals in such areas. *On sectoral and cross-sectoral land use provides that the Government facilitate an integrated and multi-sectoral approach to land use and encourages integrated land use planning through use of appropriate information technology and participatory process.*

National Climate Change Response Strategy: Climate Change Mitigation

109. In 2010, the Ministry of Environment and Mineral Resources Kenya launched the National Climate Change Response Strategy (NCCRS) with the primary purpose of ensuring that adaptation measures are factored into all government development plans (NEMA, 2013). As a follow-up, the Kenya National Climate Change Action Plan was launched in March 2013 to operationalize

the NCCRS. The Action Plan feeds into Kenya's development blueprint Vision 2030's Second Medium Term Plan. Additionally Threshold 21 (T21) has been developed, which is a planning tool to address climate change under uncertainty in Kenya. T21 offers a model that can be used to integrate climate change into long-term development plans.

International agreements

110. The Government of Kenya is a signatory to international treaties and conventions on conservation of fauna and flora, and fragile ecosystems, which require the signatories to integrate the same in the management of the ecosystem within their jurisdiction. These treaties include the Convention on Biological Diversity (CBD) and the Forest Principles; CITES, and Ramsar Convention.
111. The interpretation and domestication is spread among Ministries Departments and Agencies (MDAs). As the designated national authority on wildlife, KWS is called upon to interpret international conventions, adapt them to local conditions, and implement them in Kenya. Coordination of biodiversity related multi-lateral environmental agreements (MEAS), formation of the African Elephant Coalition and CITES convention.

Barriers to the achievement of the long-term vision

112. Despite the impressive investments in forest management and economic development in the Samburu County described in the baseline section above, there are two critical barriers that make it difficult for the partners to establish successful PFM systems in the Kirisia/Leroghi forest in order to achieve the vision of a healthy forest ecosystem capable of supporting biodiversity, carbon stocks, livelihoods and local economic development in perpetuity. These are: insufficient institutional capacity to support PFM as the focus of an ecosystem-based management of dry land forest regimes; and a weak legal and regulatory framework that does not adequately empower communities for SFM and inadequate systems for Knowledge management systems for supporting SFM, and especially adaptive management within SFM. These barriers are described below.

Insufficient institutional capacities for effective implementation of PFM and natural resources management

113. Participatory forest management approach is relatively new in Kenya as it became official through the 2005 Forest Act. Understandably, diverse arrays of institutional capacities that are needed for effective implementation of this approach are presently lacking or insufficient. KFS acknowledges that this is a learning process for all stakeholders involved. The baseline is likely to yield capacity gains, for example the government has pledged to build one fire station; several CSO and INGOs will continue to provide training for rangers, honey processing and marketing and some level of SFM. However, this capacity will still be insufficient to meet the required needs. In the Kirisia forest set-up, the capacity barrier takes many forms, described below:

Insufficient staff, equipment and materials for forest and wildlife management (KFS/CFA, KWS)

114. The baseline assessment undertaken in 2011 revealed that all the institutions charged with the responsibility of managing natural resources in the Kirisia ecosystem are facing serious capacity deficiencies.
115. **Human resources deficits:** the 91,452 hectares Leroghi/Kirisia Forest block is run by a

Designation	Current Number	Optimum No.	Deficit
Forester	1	2	1
Forest rangers	11	80	69
Drivers	-	2	2
Clerks	1	2	1
Store men	-	1	1
Typist	-	1	1
Support staff	5	30	25

zonal manager assisted by a forester, several forest rangers, clerical support staff and casuals. This staffing level is inadequate: the optimum requirement would be 2 foresters and 80, not 11 rangers. The lack of rangers has particularly affected law enforcement, with serious consequences to policing. Other areas affected are field operations, nursery and extension. Technical people are needed for production of adequate healthy seedlings for forest rehabilitation and afforestation. It is also needed for adequate patrol for effective policing. The situation is exacerbated by limited financing allocated for the management of the

forest by the national government. Opposite Table provides the current human resource status and requirements.

Table 13: Staff and equipment gaps in KWS

Item	Current	Required	Gap
	<i>Staff</i>		
<i>Community scouts</i>	10	40	30
<i>Elephant trackers</i>	2	20	18
<i>Wildlife monitors</i>	0	20	20

<i>Equipment</i>			
<i>Binoculars</i>	<i>0</i>	<i>12</i>	<i>12</i>
<i>Vehicles</i>	<i>2</i>	<i>5</i>	<i>3</i>
<i>Motor cycles</i>	<i>2</i>	<i>8</i>	<i>6</i>
<i>GPS</i>	<i>2</i>	<i>12</i>	<i>10</i>
<i>Night vision goggles</i>	<i>0</i>	<i>10</i>	<i>10</i>

Inadequate infrastructure to undertake forest management operations

Table 14: Capacity gaps in the KFS

Equipment	Available	Required
Fire tower	Nil	2
Light vehicles	Nil	2
Bulldozer	Nil	1
Tractor	Nil	1
Lorries	Nil	1
Motor cycles	1	2
Bicycles	Nil	10
Pangas	3	15
Pruning saws	Nil	5
Jembes	5	20
Fork jembes	Nil	5
Wheel barrows	4	8
Axe felling	Nil	10
Shovels	5	15
Pruning knives	5	20
Secateurs	Nil	5
Grass slashers	2	10
Watering cans	4	10
Computers	Nil	1
VHF radio	Nil	1
VHF handset	NIL	20
Printers	Nil	1

116. Roads, buildings, vehicles, communication and office equipment are crucial to the sustainable management of Leroghi/Kirisia forest. Currently, the KFS officer and the partners have inadequate equipment and infrastructure to undertake any meaningful forest management operations (opposite and Table 14).
117. Required equipment include; vehicles, machinery, firefighting equipment and fire towers, power generators, electricity, solar, flow measuring devices and communication gadgets. The forest has a road network with a total length of 125.8Km, in and around the forest area, all of which needs to be graded or surfaced with marram. The financial limitation within KFS has partially affected maintenance of existing infrastructure resulting to their rapid deterioration; this is particularly evident in the office, the one forest station and the village houses, which all need upgrading. All the needed requirements in the Infrastructure and equipment programme cannot be met within a short period of time and it is vital to set priorities and to develop the opportunities for sustainable funding.

Table 15: User Groups and membership in the various Divisions

User Groups	Divisions		
	Kirisia	Lorroki	Malaso
BYRUG	0	100	0
Elgwesi SHG	100	0	0
Lchoro Bee-keepers	100	0	0

Ledero conservation	100	0	0
Lorian SHS	100	0	0
Lorok SHG	100	0	0
Lpartuk Group	100	0	0
Lukira Group	100	0	0
Lulu SHG	100	0	0
Moritoi Women Group	100	0	0
Naningo SHG	100	0	0
Nkorien	0	100	0
Peto SHG	100	0	0
Porro	0	0	100
Sand harvesting Group	100	0	0
SCFG	100	0	0
Silango SHG	100	0	0
Tamiyoi SHG	100	0	0

118. The CFA is newly formed and is still in the process of building a strong membership base and operational capacity. Membership to the CFA is through user groups. The Baseline assessment found that only about 36% of the eligible members had joined a user group, mainly in the Kirisia Division (Table 14). This means that a significant percentage of community members are still outside of the CFA structure, creating a weak CFA at grass root level. In addition, majority of user group members joined the group(s) quite recently in 2010, which reflect the young status of PFM in the area. Perhaps even more worrying is the fact that 99% of those who have not joined any group were not sure which group they would like to join. This is likely to create major challenge for the community involvement in participatory forest management (PFM).
119. The capacity barrier is exacerbated by an additional and important barrier to community participation in SFM; that of inadequate economic and financial incentives for maintaining the cultural and traditional appreciation for forest resources in the face of increasing needs for livelihoods improvements and local economic development. While Samburu people are very wealthy in terms of livestock and natural capital, they fare poorly on important livelihood parameters like employment, education, energy, housing, water, health and sanitation, which are important in assessing people's quality of life. The basic parameters defining the population and the level of current and future economic activities indicate that they will continue to depend on the natural capital (forests, rangelands, biodiversity) for a long time; yet there is no clear financial or economic incentive for continuing to conserve this natural capital rather than consuming it in the quest for a rapid economic development.
120. Samburu County has a child rich population, with 51% of the population being younger than 15. This is due to high fertility rates among women in a polygamous society; 44% of the households have 4-6 members¹⁶. Literacy and levels of education are considerably lower than the national average; a total of 68% of Samburu County residents have no formal education; only 26% have a primary level of education, and 6% have a secondary level of education or above. Samburu West Constituency has slightly better statistics, but that is only because it hosts Maralal, the capital of the County. The high level of illiteracy reduces economic development options outside of livestock and consumption of the natural capital. Indeed, the 2009 National census reported that only 5% of the residents with no formal education, 14% of those with primary education and 37% of those with a secondary level of education or above are working for pay. Work for pay was highest in Nairobi at 49%, 12 percentage points above the level in Samburu for those with secondary or above level of education.
121. The County Government is keenly aware of the lower than national average poverty statistics of the Samburu community and are eager to accelerate the rate of economic development, using the rich natural resources available in the County. Fortunately, the Baseline assessment confirmed that the political leaders and those in the County Government are also keenly aware of the importance of sustainable and resilient economic development and are committed to conservation. The barrier faced by the politicians, development partners, national government and the community is identifying viable alternatives that will address the development needs while encouraging sustainable utilization and conservation, in the short and long terms. The County government has identified livestock, honey and tourism as the three pillars to drive economic development in next decade. These strategies would indeed offer the best options for now; however, their uptake faces further barriers, described below.

Barriers to tourism development:

¹⁶ Kenya Bureau of Standards and Society for International Development; Exploring Kenya's Inequality. Pulling Apart of Pulling Together – Samburu Chapter; 2013

125. The inadequate extension service has also led to poor performance of honey as an alternative income generating activity (Table 16 provides a list of bee pests and diseases). The County has a high potential for honey production, and there is a high level of technical and financial support being provided by international development partners (see baseline). Production levels have increased sharply in the last five years, but there is still need for further increase because honey provides one of the best alternative income generating activities for promoting forest conservation and ecosystem management. Despite the support provided by the AWF, World Vision and now Kerio Valley Development Authority (KVDA), there are still major difficulties with accessing skills for improved honey production, processing and marketing. Although the County Government has identified honey production as one of the pillars of advancing the local economic development, the Department of Livestock has no experts on Bee Keeping or honey production.

126. The honey business is still dominated by traders largely interested in buying honey; there is still inadequate attention to production, quality, organizing the supply chain and smoothening supply flow. Furthermore, many bee keepers engage in production as a form of supplementing income and not as a commercial venture. This has led to the difficulty of identifying reliable steady markets such as supermarkets in urban areas, which require large volumes and constant supplies. It also makes it difficult to process the honey on-site. Selling unprocessed honey exports jobs and values outside of the Samburu local economy, which needs all the jobs it can get.

127. The Baseline Assessment found that bee keeping and honey production in Kirisia faces the following additional challenges:

- Poor hive management: Reports from Resource Projects Kenya and AWF indicate that bees have been absconding in poorly managed and poorly located bee hives. Cases of vandalism and theft of beehives have also been reported especially in hives placed at the forest.
- Cultural barriers: In the culture of Samburu, honey harvesting is done by men. In his absence, especially when men are out looking for livestock pasture bees consume un-harvested honey in the hives.
- Poor harvesting methods: some of the bee keepers harvest honey using traditional methods. During honey gathering, a lot of honey combs containing brood are taken away from the crevices and eaten. In addition, Beekeepers harvesting honey at night use burning piece of wood as smoke killing bees and therefore harvesting low quality honey.
- Inadequate bee forage: There is low vegetation density around most homesteads that cannot sustain several colonies.
- Inadequate supply of modern bee hives: There is no established workshop for provision of hives. Modern hives are also not readily available locally in some areas.

128. The above problems are exacerbated by the inadequate extension service provided by the Department of Livestock.

129.

Table 16: Honey Bee pests and diseases

<i>Name of Pest/Disease</i>	<i>Damage Caused</i>	<i>Dates Of Serious Attach</i>	<i>Control Measures</i>
<i>Sugar ants, termites and safari ants</i>	<i>Attack colonies eat brood, bees and honey. Can destroy a colony in minutes</i>	<i>During dry periods</i>	<i>Regular inspection, cleaning and proper hive placement Smear grease on hanging wire</i>
<i>Wax moths</i>	<i>Larvae feed on honey & pollen</i>	<i>January-March</i>	<i>Remove and burn affected colonies</i>
<i>Honey badger</i>	<i>Smell is repulsive to bees</i>	<i>-</i>	<i>Proper hanging of hives</i>
<i>Birds</i>	<i>Eat bees</i>	<i>Regularly</i>	<i>Scare them away</i>
<i>Lizards/Geckoes</i>	<i>Infest hives eating bees and brood combs</i>	<i>Regularly</i>	<i>Regular inspection, cleaning and proper hive placement</i>
<i>Greater wax moth</i>	<i>Attacks combs and reduces them to a mass of webbing and debris</i>	<i>Rainy seasons</i>	<i>Widely spread</i>
<i>Spider/cob-webs</i>	<i>Attack and destroy bees leading to absconding</i>	<i>Through out</i>	<i>Regular inspection and cleaning easily controls wide spread</i>
<i>Hive beetles</i>	<i>Attack and destroy bees</i>	<i>Regularly</i>	<i>Regular inspection and cleaning easily controls wide spread</i>

130. The weak capacities have also resulted in another critical sub-barrier – inadequate knowledge management systems for effective and profitable SFM: PFM is not being informed by best practices and lessons learned from the rest of country and regions. This is because of the dearth of capacity and willingness to explore, collate and disseminate lessons to inform technical, ecological, socio-organizational and economic/financial aspects of participatory SFM. Most critically, the 27 years of experience and lessons

learned with community-based forest management for the production of wood fuels in Sahelian West Africa is scarcely known at all in Kenya. There is no system in place for capturing and expanding upon the best practices and lessons learned from operational field sites in Kenya. These need to be developed through the use of periodic annual participatory adaptive management reviews under which management systems are periodically revised and strengthened. The knowledge generated needs to be integrated into training programs at the university and technical school levels. Kenya is fortunate to have forestry training at both the university and technical schools levels, but none of these schools have training in participatory SFM or the REDD+ mechanism. The difficulty of changing entrenched attitudes and behaviours of hierarchical forestry departments is one of the more difficult barriers to participatory forestry development and the integration of participatory forest management in universities and technical schools where foresters are trained is one of the best ways to address this barrier.

131. In addition, although the local forest and natural resource management practices are a sound basis for conservation and management efforts, they are hardly integrated into technical forest management systems. Local communities directly dependent on the forest resource base have high levels of knowledge about the natural resource, and have rules and regulations relating to use and access. There's however inadequate documentation of this indigenous knowledge, and since it is passed on verbally through socialization, such knowledge is lost with the passing on of elders. In the face of increased cultural erosion arising from modern lifestyle, current and future generations are losing the ability to sustain and enhance its adoption in modern forest conservation approaches, weakening traditional natural resource governance mechanisms.

Barrier: Weak policy and legal framework for collaborative governance of natural resources and delivery of multiple benefits equitably amongst relevant stakeholders:

132. Although many rural communities depended on natural resources, forests and wildlife for livelihoods, many emerging nations in the transitional and post-independence periods adopted a model of conservation that separated wildlife and forests into protected areas where people were excluded. The agenda for PA managers was to conserve biodiversity, and often differed from that of the local communities, which was to regain control over natural resources and improve their lives. The model was essentially alien to the use and interactions pastoralists had with such resources, and did not accommodate customary rights of communities to continue using wildlife and protect their families, crops and livestock from attack.
133. This was further compounded by the interplay of communal land ownership and population growth. Although the Samburu people in the Kiseria ecosystem have some security of tenure through group ranches, some are starting to doubt if this form of ownership is secure enough, in the face of the rapid population growth in the country and amongst the County. Kenya's population is five times higher than the 1940s levels, driving land shortage, poverty, inequality and conflict with wildlife. Without secure land rights, the rural communities are likely to push for subdivision of the open commons, to privatise and develop their lands, ward off land-grabbers and keep out wildlife. The country has however made progress towards the development of PFM, especially with the passage of the 2005 Forests Act and its provisions for the creation of CFA. The recent devolution has transferred the responsibility for community and private forests to counties like Samburu, but the county legislation needed to define the counties' new roles and responsibilities have not been properly developed. Self-financing co-management and community management have not yet been developed and there is no legislative base for the creation of the community-controlled forest management funds that are needed. The existing subsidiary legislation and guidelines for PFM have not led to robust, effective partnerships for forest co-management and restoration as shown by the 2013 review of 20 PFMP.
134. Consequently, despite these new developments there are still conflicts between people and wildlife/forests on the one hand, and a tussle between governments, communities and conservation managers over who owns and/or has rights to the use of wildlife and forests on the other. Indeed the prevailing policy environment is still heavily stacked in favour of government, business and international conservation agencies and against communities; and, government policy is far too restrictive and local voices far too weak for the future of forests and wildlife to be secure. Indeed, a 2013 review of 20 participatory forest management plans (PFMP) and community forestry associations (CFA) found that none had succeeded in developing adequate incentives for communities and partnerships between communities and KFS. Participatory forest management plans are not followed and the management of the forests has not changed significantly. Community benefits are meagre; most of the benefits stated in the forest management agreements (FMA) between KFS and CFA are in reality traditional uses already enjoyed and recognized as community rights under the 2005 Forestry Act. This includes grazing and the collection of fuel wood and herbal plants. Many of the PFMPs and FMAs do not mention benefit sharing; and, many community members are minimally aware of the contents of the PFMPs.
135. Indeed, the 2011 Baseline assessment of the Kiseria ecosystem reported that only 41% of the respondents clearly identified KFS as being in charge of the management of the forest, with 59% saying they did not know who was in charge. This means that the envisaged involvement of community through community forest association (CFA) will require a lot of community awareness and sensitization.
136. The effective governance of natural resources requires a strong sense of congestion. Whilst bold initiatives such as the devolution of governance to County level and the development of the Kiseria Forest Management Plan have begun to pave the way for greater coordination over ecological and biological resources in the landscape, the effective implementation of the PFM will require clarity of the mandates, roles and responsibilities of the many partners involved, in light of the new political dispensation.

137. In particular the role of the Samburu traditional governance over natural resources vis a vis that of the County government; the roles and responsibilities of national government vis a vis of the County government and its impacts on the local economic development and the mandates of the Samburu people over the forest and wildlife, etc. The lack of such clarity is a barrier to the effective governance of natural resources, and is likely to hamper the effective implementation of the Kirisia Forest Plan, with negative implications for livelihoods and biodiversity.
138. Under the new Forest Act, communities may now be empowered to manage or co-manage forest lands, but this has not yet been made operational. The laws themselves have been developed in the absence of tested, proven participatory management systems and will need future revisions based on lessons to be learned. The subsidiary legislation needed for participatory management of gazetted lands, former trust lands and for group ranches is incomplete. KFS is working on the subsidiary legislation, but any such legislation that is done in the absence of functioning systems will almost certainly need further revisions later. The legal mandate of KFS concerning former trust lands and on group ranches needs to be clarified. KFS has the oversight mandate of all types of forest in all land tenure systems. Article 5(a) of the Forest Act states: *The functions of the Service shall be to formulate for approval of the Board, policies and guidelines regarding the management, conservation and utilization of all types of forest areas in the country.* However, KFS is yet to formulate the policies and guidelines for SFM of dryland forests in private/communal lands. Enforcement systems with defined institutional roles and responsibilities have not been developed for participatory forest management for each category of land tenure. Communities and community managers must develop self-enforcement mechanisms for their own members. Once a forest management plan has been prepared and agreed upon by the main actors, then the community management structure is primarily responsible for its implementation. For conflicts between empowered community managers and outsiders, the roles and responsibilities of government authorities must be defined and enforcement systems made operational.
139. The barrier is also exacerbated by the inadequate representation of the interests and needs of local and indigenous groups in the nationalization process of international law on natural resources management. As outlined in UNEP (2009)¹⁸ there is doubt that about the ability of the instruments of international conventions such as CBD and UNCCF to adequately respect and promote communities' ways of life that have contributed to the conservation and sustainable use of biodiversity. While international regulatory frameworks are important for dealing with modern global concerns such as biodiversity loss and climate change, their implementation requires careful calibration at the local level to ensure the environmental gains and social justice they are intended to deliver. While it is acknowledged that local implementation of environmental legal frameworks is most likely to lead to environmental and social benefits when indigenous communities have the right of free, prior and informed consent (FPIC) over any activities undertaken on their lands or regarding access to their traditional knowledge, innovation and practices, these communities rarely have the capacity to ensure that international law recognizes their rights to natural resources or any specialized knowledge and relationships they have with biodiversity.
140. As noted by UNEP (above reference) without input from indigenous and local communities, there exists significant potential for laws intended to promote the overarching aims of the Rio Conventions to instead further undermine the communities that have most contributed to the protection of biodiversity and least contributed to climate change. The legal and bio-cultural empowerment of these communities is therefore the indispensable condition of the local integrity of international environmental law. As in many such places, there is a concern that the implementation of the SFM via the CFA in the Kirisia ecosystem may disproportionately emphasize the protection of the environment without also empowering the community to ensure the conservation and sustainable use of their natural resources and wider use of their indigenous knowledge according to their bio-cultural values.

Project Objective and outcomes: the modified results are presented below.

141. The project will empower the Kirisia stakeholders to effectively utilize Participatory Forest Management as the spring board for an integrated management system of the Kirisia ecosystem that will address the threats to the biodiversity, wildlife, rangelands and livelihoods of the Samburu and the Dorobo communities. It will build upon the relevant policies and legislation, the ecological and the diverse values of the forest, the socio economic considerations of the area and the views and aspirations of the local communities. The project has two components and 5 outcomes, designed to be specific yet integrated. The goal, objectives and outcomes have been formulated in recognition of the fact that Kirisia/Leroghi Forest and the surrounding ecosystem are ideal for a GEF project to demonstrate innovative, participatory, sustainable forest co-management that will maintain large quantities of carbon while securing the safety of wildlife. This will contribute greatly to the functionality of the Samburu Heartlands ecosystem. The project will remove the crippling capacity deficits in the newly formed Kirisia Community Forest Association to be an effective driving force for PFM, including grappling with the difficult challenges of year-long grazing and cultivation in the gazetted forest and boundary demarcation. It will also remove similarly crippling capacity deficits in the Kirisia KFS office, transforming it into a strong counterpart and technical partner of the CFA in forest management; in particular in fire management, enforcement to curb over harvesting and forest degradation, plantation management and biodiversity management.

¹⁸ Bio-Cultural Community Protocols - A Community Approach to Ensuring the Integrity of Environmental Law and Policy (Natural Justice) - UNEP 2009.

142. The project will further support the capacity of KWS and the group ranches in their effort to secure wildlife migratory routes, which will enhance the ecological integrity of the wildlife dispersal areas and the security of wildlife in the ecosystem. It will also find innovative ways to increase economic and financial benefits from PFM and improved natural resources management. Building on the impressive baseline investment in honey production, the project will seek to transform the industry from subsistence-dominated to commercially-oriented, all-inclusive business venture (ensuring gender considerations). In addition, it will persuade the County Government and the CFA to take leadership of the tourism development program; avoiding the models used to develop tourism business in the rest of Kenya, which have not delivered benefits to the local communities (e.g. the Maasai) at the expense of both livelihoods and wildlife. The project will therefore provide them with technical support to develop a strategic tourism development plan, to be implemented in tandem with the national government led infrastructure development plan, so that Samburu is ready to exploit the benefits from the paved Nyahururu Maralal road and the Rail line from Lamu to South Sudan, both under construction.
143. To tackle the challenges of providing government extension service to the sparsely populated rangelands, the project will upscale the sustainable rangeland management through Holistic Natural Resources Management (HNRM) approach, which was recently successfully tested by FAO in Marsabit and South Ethiopia. Under this approach, the project will empower communities to undertake participatory assessment of their challenges, strengths and opportunities for improving rangeland management. They will then be empowered to formulate and to implement action plans to increase returns from their investments in livestock rearing.
144. Finally the project will seek to provide legal and policy clarity regarding roles and responsibilities for resource management under PFM, in the context of the Kenya Forestry Bill and the devolved government. This process will be informed by a learning culture, to be delivered via a knowledge management initiative, that will also be used to document the fast-disappearing traditional natural resources management rules, regulations, norms, traditions, etc. (co-finance).
145. The benefits and impacts are summarised under each component described below.

Project Goal, Objective

146. **The project's goal is that PFM catalyses integrated natural resource management that makes Leroghi forest and the Kirisia ecosystem the best managed and conserved in Kenya, and that the forest continues to maintain carbon stocks while the ecosystem delivers goods and services to support improved livelihoods in perpetuity.**
147. The project objective is; "To deliver multiple BD, CC and livelihood benefits from 91,452 ha of Kirisia Forest under PFM and 50,000 ha of rangelands under Holistic Natural Resources Management respectively."
148. This will be achieved through two components: Component 1: Implementation of PFM and HNRM over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO₂eq, secure wildlife migratory corridors and increase financial returns from NWFPs by 25%; and, Component 2 - Policy and legal framework emplaced, and enabling PMF in support of the mitigation and financial returns targets under component 1.

Project Outcomes, Outputs and Activities

Component 1: Implementation of PFM and HNRM over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO₂eq, secure wildlife migratory corridors and increase financial returns from NWFPs by 25%:

149. This component will put in place institutional and technical capacity to put the 91,452 hectares of Kirisia forest under PFM for sustainable forest (carbon) management and biodiversity conservation, as well as put in place economic incentives for community engagement in PFM. It will be implemented through four outcomes, each with several outputs and activities, described below.

Outcome 1: Strengthened capacities of stakeholders implement PFM in the main land tenure categories of dryland forests delivers 2,935,701 tCO₂eq;

150. This outcome will provide Kenya Forest Service and the Kirisia Forest Association with the operational capacity, skills and equipment to put 91,452 hectares of gazetted dry upland forest reserve under PFM¹⁹, protect the forest from fire hazard, put 45,000 ha of the forest currently classified as intact under Forest Protection regime of management, put another 10,000 ha under regeneration and 17,000 ha under SFM. This will reduce deforestation in the intact forest from the current 1.4% per year to about 0.84% per year. These measures will lead to the mitigation values in the Table 22 below.

¹⁹ Although a 2010CAMCO Carbon assessment report stipulated that the area of the forest has reduced from the gazetted 91,452 ha to 78,000 ha, the maps of the forest areas have not changed. The project will therefore investigate this further during inception and confirm the extent of area to be managed as forests in the Inception report

Table 17: Emission reduction from the various forest management regimes (direct)

Management Regime	Target benefit area (ha)	Direct lifetime GHG emission avoided (tCO ₂ eq)
Forest Protection	45,000	630,912
Restoration/regeneration	10,000	1,324,441
Sustainable Forest Management	17,000	980,348
Total	72,000	2,935,701

151. The outcome will bridge the staffing, equipment and materials gap identified under the barrier analysis, to improve the capacity of both institutions, thereby strengthening the partnership for Participatory Forest Management. The outcome will have five outputs, as follows:
152. **Output 1.1:** Kirisia CFA empowered to provide community leadership in forest management and strong and widely representative partnership to KFS in PFM. The Kirisia management plan was signed on 24th June 2015, making the Kirisia Management Plan a legal document. CFA needs to operate efficiently and professionally, in order to expand the current membership from 36% of the community to over 70%, and to ensure that the Samburu community derives substantive benefits from SFM. To achieve this, it will need to establish office facilities with sufficient equipment and acquire professional managers to run a recruitment drive and service the membership. In particular, the CFA will lead in the design and implementation of a program to assist the households settled in the gazetted forest to return to their original homes and to implement policing measures to discourage further encroachment, this includes negotiating the and confirming forest boundaries on the southern side, which needs confirmation of the boundary pegs. To achieve this, the CFA will also need to engage in conflict resolution and peace building program with neighbouring Turkana and Rendile communities, to reduce the incidents of conflicts that triggers settlements into the gazetted forest. This will reduce the livestock grazing in the forest all year, as well as cultivation in forest patches, and restore the role of the forest to that of supporting dry season grazing.
153. The project will facilitate the restructuring of the existing Leroghi CFA into a two-tiered structure. This two-tiered-structure will consist of one Local Forest Management Group (LFMG) for each of the communities holding traditional tenure rights to a portion of Leroghi, and the CFA itself at the upper level. The CFA will comprise of representatives of forest user (user groups) and special interest groups such as adjacent group ranches. The project will create a Support Services Unit (SSU), attached to the CFA. Staff profiles of the SSU will be determined based on an analysis and identification of key support service needs and opportunities.
154. Key activities under this output will be a major awareness raising effort about the project approach and proposed rights and obligations of each partner (LFMG, CFA and KFS); the participatory land delineation of the geographic limits for each future LFMG in Leroghi. Communities with traditional tenure will be asked to validate their boundaries with their neighbours. Communities will be assisted to resolve any disputes. For the group ranches, the group ranch will define the boundary of the forests to be brought under SFM and/or forest protection management and also seek agreement with their neighbours on any disputed sections.
155. A new constitution and by-laws will be developed for the CFA. Much simpler by-laws will be developed for each LFMG. The project will guide the process to ensure a participatory process is adopted. Sensitization of CFA members on the constitution and by-laws will be undertaken. Elections will be held first at the LFMG and then these representatives will elect the members of the CFA. Guidelines will be developed spelling out the composition, terms of reference and mode of operation of LFMG. Provide support for resolving conflicts that may arise between the boundaries of Leroghi State Forest and the boundaries of the surrounding group and private ranches.
156. Sample activities under this output will be as follows.
- Acquiring office space, equipment and professional CFA staff; this will be via the creation of the SSU attached to the CFA. This will include the definition of the specific functions of the unit, the elaboration of the TOR for the staff to be recruited and their recruitment, administrative procedures, guidelines and reporting requirements. The SSU will progressively take over some of the core LFMG and SME training functions. SSU functions will be modified annually based on the annual adaptive management reviews.
 - Design and implement an awareness raising and membership recruitment drive to increase membership to CFA from 36% to at least 70% of eligible members;
 - Facilitate the participatory land delineation of the geographic limits for each future LFMG in Leroghi;
 - Learning from the recent review of PFM and CFAs, review the contents of the Kirisia Forest Management Agreement, in a participatory manner, and negotiate for substantive community benefits;
 - Design a CFA capacity maintenance financing strategy and implement it to raise funds and resources to run

the CFA from the 3rd year of the project onwards;

157. **Output 1.2:** KFS has operational capacity to implement forest management and support CFA to implement PFM in the Kirisia forest and ecosystem, reducing deforestation rate from 1.4% to about 0.84%. The current capacity deficits in the Kirisia office of KFS make it impossible for the national government to be a strong partner to the CFA in implementing the Kirisia Forest Management Plan. In particular, this output will establish capacity for fire control and increasing staff (an additional forester, recruitment and training of forest guards), thereby removing two of the greatest threats to the Kirisia forest. The output will be implemented via the following activities:
158. Improve effectiveness of KFS to oversee forest management by establishing 6 Rangers and Scouts outposts/camps, rehabilitating and maintain 50km of murram road, and providing a light vehicle, tractor, motor cycles, computer and other office equipment. This will include increasing the number of Forest Rangers posted to Kirisia Forest Station.
159. Ability to protect the forest from fires enhanced by construction of two fire towers (one via government co-finance) and acquisition of fire control and management tools and machinery. This will be accompanied by training programs to ensure that capacity to operate and maintain all the equipment is available.
160. (Crosscutting and supporting all outputs) -- Technical staff of partner institutions, CFA and resource user groups provided with skills needed to facilitate and/or participate effectively in PFM, sustainable harvesting of NWFPs (including honey and others such as herbal plants to be identified during the project implementation) and Holistic Natural Resources Management Approach to improved rangelands management. Under this cross-cutting output, the project will undertake a skills and other capacity needs assessment during the inception period. It will use the findings to design and find resources to implement training programs for the various groups of partners. Training under this output will be closely coordinated with the work of AWF, World Vision and others who are investing in human resources development in the County.
161. **Output 1.3:** Forest Management Plan upgraded to Kirisia Ecosystem Management Plan, with a carbon and biodiversity monitoring program: KFS will work with the CFA, KWS and County Government to upgrade the current Kirisia Forest Plan (2012-2016) to Kirisia Ecosystem Management Plan (2016-2026). The process of producing the Kirisia Forest Management (KFMP) plan developed a draft Kirisia Ecosystem Zonation plan (Figure 6). Working together with KFS, KWS and County government, the CFA will upgrade the KFMP to an Ecosystem Management Plan covering a period of ten years, including confirmation of the draft utilization zones. They will refine the criteria used by the Forest Management Plan process (Table 23).

Table 18: Criteria used in zonation of Leroghi/Kirisia Forest

Zone	Sub-zone	Criteria/ justification	Management Option
Natural forest Zone	Glades and bushes	Patches of grassland and busy areas with plants like <i>Acokanthera schimperi</i> (<i>Muricu</i>)	Conservation and controlled grazing, dry season grazing
	Indigenous Forest	Wildlife/biodiversity rich areas, areas with natural forest vegetation	Conservation and rehabilitation. Collection of dead material as firewood
	Water points	Natural springs, wetlands, rivers/dry river beds and dam sites	Water catchment conservation, rehabilitation and controlled utilisation
	Degraded sites	Logging area, over grazed, soil eroded and areas with invasive species	Ecosystem repair through replanting or natural recovery through exclusion of human activities
Plantation zone	Well sited Forest Plantation	Area suitable for wet area planted with Eucalyptus trees. Useful for fast growing urban and increasing sedentary community	Should be done via silviculture, PELIS for woody biomass provision such as commercial timber
Utilisation zone	Eco-tourism	Areas identified to have shrines, caves waterfalls and camp sites	Conservation and recreation
	Material extraction zone	Area used for grazing, herbal plants, fuelwood extraction, bee keeping, fishing and grass cutting,	Livelihood and income generating by CFA and other interested stakeholder

	<i>Cultural sites</i>	<i>Religion, moran, shrines, meeting venues, caves</i>	<i>Conservation recreation and</i>
	<i>Historical sites</i>	<i>Burial sites Rather unique burial sites dating back to between 200 and 300 years</i>	<i>Conservation recreation and</i>
<i>Intervention zone</i>		<i>Areas outside but surrounding the forest used by group ranches / private land</i>	<i>Increased biomass both for conservation and utilization</i>

162. The preliminary steps will involve inventory, mapping and the participatory zoning of the forest, especially of the area to be reforested, working with each LFMG on their section of the forest. Dead trees, natural regeneration, levels of degradation, biodiversity conservation status, forest products potential, water resources, access roads and trails and other features will be mapped and inventoried. The participatory zoning will serve as the basis of management planning – preliminary management objectives will be defined for each zone; and the types and timing of forest restoration and management interventions will be defined for each land use zone. These will be formalized in management plans in the second half of the project. In the deforested area, zones will include permanent glades managed for wildlife and livestock, areas to be reforested and preserved as indigenous forest with limited use for beekeeping, NWFP harvesting and controlled grazing, areas to be reforested and managed intensively for all of the above plus the sustainable production of timber products and zones for forest plantations to be managed for the commercial production of forest products.
163. Minimizing risks for wildfire poaching will be a key factor to be integrated into the land use zoning, building on the draft criteria used at the Forest Management Planning stage (in Table 24). The existence and abundance of natural regeneration will determine whether reforestation is done through enrichment plantings or through replanting. Most of the areas of healthy, intact forests will be zoned for minimal, non-destructive uses including the production of NWFP. Degraded or deforested low altitude forest margins will be zoned for much more intensive restoration and commercially oriented extractive use management including timber production. Group ranch forests will also be zoned and with generally a much higher emphasis on commercial timber production and regeneration of the wild olive that is so important for dry season browse, especially during droughts. The output will be supported by the design and implementation of carbon and biodiversity monitoring and knowledge management systems. Knowledge management will be used to provide evidence-based policy reform at the local level and adaptive management of the project. A key component of this will be the compilation and dissemination of best practices and knowledge transfer using adapted communication and capacity development tools tailored to a variety of target audience. The knowledge management outcome will build upon the annual community-level adaptive management reviews and will take them to the full project and the national levels as key tools for identifying best practices, lessons learned and gaps that need to be addressed. Kenya has institutions for training foresters at the university and technical levels but Kenya has no field school facilities for extension services and teaching people the practical skills needed for forest restoration and management. Improved dissemination of lessons learned and best practices in participatory sustainable forest management. The outcome will have the following outputs and sample activities.
164. The Biodiversity and carbon monitoring program will be formulated in a participatory process (and in conjunction with Outcome 4), involving all the key partners (KWS, KFS, CFA, and County Government) and is likely to involve an institution of higher learning, which will provide technical assistance on formulating the program and determining the capacity required to run it. To ensure the cost effectiveness and sustainability of the program, staff of partner institutions will be trained on SFM and PFM; in addition, linkages with relevant universities will be established to provide graduate students (MSc, PhDs) to utilize the project facilities as research opportunities to provide answers to the more technical questions that require research. This will provide the project with the technical capabilities of well-established universities at minimal cost, thereby increasing efficient use of the limited financial resources. Curricula for SFM and REDD+ will be developed in collaboration with these universities. The M&E system will also be used to monitor the improvements in the livelihoods of the communities, including gains in the local economies. The whole system will be closely linked to the Country Government, KFS, CFA and FAO learning platforms.
165. In addition, government and other donor co-finance will be used to establish a community Resource Centre on NRM for drylands in Leroghi. The centre will spearhead the documentation of indigenous knowledge and strengthen its application for enhanced NRM. Local resource management practices are a sound basis for conservation and have contributed to the conservation of forest and wildlife resources for decades, through the use of rules and regulations relating to use and access. The centre will address the inadequate documentation of the traditional resource governance and other indigenous knowledge, to prevent the loss of such knowledge as most of it remains essential and relevant, especially for adapting to climate change. The centre will also be used to offer tailored trainings for the local community and other stakeholders and will have capacity to collect, store, and disseminate participatory sustainable forest management information. It will be equipped with basic facilities such as computers, printers and photocopier, and with wireless internet connectivity for enhanced communication.
166. **Output 1.4:** Design and implement a forest rehabilitation/reforestation program putting 10,000 ha under regeneration and 17,000 ha under SFM: Working together with the CFA, the KFS will lead the program of reforestation, either through protection of badly

degraded patches to encourage regeneration; or, through enrichment planting. Forest restoration will focus primarily on the 22,500 hectares deforested or severely degraded by wildfires in the north-western half of Leroghi Forest but will also address the deforested portions of the deforested areas in the remote north-eastern side of Leroghi. To the extent possible, the degraded margins of the rest of Leroghi and on sections of group ranch forests will be rehabilitated, part of which will form the 17,000 ha under SFM. This will include reforestation in the ranches, enrichment planting where necessary, and rehabilitation of the current plantation.

167. The project will test the most effective methods of reforestation during the first two years. This will include a strong emphasis on assisted natural regeneration (such as brush cutting for release of natural regeneration), cost effective, community-level, local nursery production techniques, cost effective weeding techniques and fire hazard reduction through controlled livestock grazing. Much or all of the forest restoration activities may be done by community-based enterprises specialized in nursery seedling production, out-planting, plantation maintenance and similar activities. They would do this under contract with the LFMG. The CFA and the LFMG will manage their forests as profit making community enterprises, along enterprise development plans to be produced with the support of the project.
168. **Output 1.5: 50,000 hectares of rangeland under Holistic Natural Resources Management (HNRM):** Communities will be empowered to put over 50,000 ha under sustainable rangeland management through Holistic Natural Resources Management (HNRM) approach, which incorporates traditional resource management. Under this output, the project will enhance capacities of communities living within 5 kilometre radius of the Kirisia forest to improve grazing management, to increase the productivity of the rangelands and the livestock production ventures. In doing so, it will facilitate the communities to use a mixture of traditional and technical range/land management knowledge, skills and techniques to design and implement Holistic Management Plans and range rehabilitation plans in their areas. This is in response to the shortage of extension officers, which is unlikely to be resolved sustainably in the short to medium term. The project will therefore empower the community to be involved in all the steps of the process, which include assessing the challenges related to livestock production, natural resources management capacity collectively held by the community; identifying capacity gaps, making collective decisions and actions to build capacity within the community to plug these capacity gaps; and designing and implementing a community based rangeland monitoring program, which will be implemented in close collaboration with CFA, KWS and KFS-led Biodiversity monitoring program.

Outcome 2: Wildlife dispersal areas and migratory corridors secured to improve integrity of the Kirisia ecosystem as a wildlife refuge and critical part of maintaining the Samburu Heartland as a functioning ecosystem:

169. Under this outcome, the project will ensure that key corridors that link Kirisia Forest to Laikipia and Kirisia Forest to Community Group Ranches are secured through a) identification and mapping of high value biodiversity areas (HVBAs) and forest fragments outside of the gazetted blocks; b) identification and mapping of important wildlife corridors linking the Kirisia to the rest of the national parks and wildlife dispersal areas in the Samburu Heartlands (map in Figure 1); c) entering into agreements for easement of land in the corridors with KWS or other stakeholders. This will be done in close collaboration with the County government (which is the likely source of funds for easement/compensation where proven necessary), and the CFA. The outcome will be delivered via three outputs, described below:
170. **Output 2.1: Securing dispersal areas and wildlife migratory corridors:** Building on the draft zonation done by CFA, KFS and the African Wildlife Foundation (AWF) the project will support the mapping of critical wildlife habitats, and the identification of human/wildlife hotspots. KWS will therefore be facilitated to raise community awareness on the importance of wildlife corridors and the intentions of the project to work with the stakeholders to secure the corridors; highlight the benefits to communities likely to accrue from the exercise in an open and transparent manner; familiarize the community with the laws and regulations that will be followed during the exercise; enter into agreements through MoUs or any other relevant regulation bounded in the exercise; secure additional funds from national and county government to support implementation of the agreements/MoUs; enforce the corridors management through a participatory approach.
171. **Output 2.2: Support to and establishment of the new conservancies proposed by the County Government (government co-finance).** Kenya Wildlife Service has been promoting the establishment of conservancies in the country especially in Narok County where all the Group ranches around Maasai Mara Game Reserve have been transformed into conservancies. Samburu County has a total of 12 conservancies at various stages of development, six fairly established (Kalama, West Gate, Siara, Namunyak, Meibai and Nkoteya) and the other six (Kirisia, Ltungai /Malaso, Losesia, Baragoi, Ndoto and Nyiro) are at the initial stages. The project will support capacity building of existing and newly established wildlife conservancies, including the development of a participatory biodiversity monitoring system. The project will facilitate KWS to ensure that new conservancies understand the national policy guiding cost and benefit sharing under the Conservancy Bill, and that they protect wildlife migratory corridors and refuges. This will be followed by formalisation of the new conservancies with appropriate governance and management structures emplaced. Training and capacity building activities will then be conducted for key stakeholders in the new conservancies on conservancy management and land use planning.
172. **Output 2.3: Strengthening wildlife monitoring and protection within and outside the Forest to cover the Kirisia ecosystem:** The KWS and the partners only have inadequate equipment and infrastructure to undertake any meaningful management operations

for wildlife monitoring and protection. Therefore the project will support to improve the securing of wildlife migratory corridors and safer refuge in the dispersal areas. This will include the capacitation of KWS (equipment and materials) and the county government for the protection of wildlife within and outside the Forest to cover the Kirisia ecosystem. This will involve the establishment of Kenya Police Reservists training post to train local communities as anti-poaching rangers for the conservancies, the Forest Reserve (under KFS) and to improve security on roads leading to Maralal (see tourism strategy development). This will also involve improved operational support for the KWS in anti-poaching activities through provision of equipment such as communications and monitoring equipment and uniforms for rangers and other staff.

Outcome 3: Income from honey, tourism and other NWFPs providing financial incentives for PFM and conservation and increase household incomes by more than 25% for participating households

173. Under this outcome, the project will identify and promote alternative income generating strategies that would generate significant financial benefits as incentives for conservation of both the forest and wildlife resources. In doing so, gender and cost and benefit sharing considerations will be mainstreamed upfront. The component will be implemented through three outcomes.
174. **Output 3.1: Promoting high volume buying market linkages for honey.** Under this output, the project will work with the agencies supporting honey cooperatives around Kirisia (in particular AWF, KVDA, World Vision) to accelerate the training of bee keepers on improved honey production, processing and marketing. The project will lobby the County Government to employ a Bee Keeping or honey production expert, in line with its stated recognition of honey as one of the three pillars of advancing the local economic development. This will also be a sustainability measure, especially given the fact that the Ministry of Agriculture, Livestock and Fisheries, the home of the Bee Keeping Division, is devolved.
175. The project will also assist the government to develop a long-term (5-20 years) strategy for the commercialization of honey production in Samburu County that would involve the establishment of a honey processing plant. The County Government will be lobbied to include a budget for the construction of such a plant in its Community Development Fund (CDF) program for the mid to long-term. In the long-run this will increase value-addition in Samburu and create much needed employment. This venture is likely to succeed for the following reasons: i) Baseline assessments confirmed that demand for honey in Kenya is very high, and that over 90% of honey consumed is being imported; ii) although honey production in the Kirisia ecosystem has increased from 80,000 kg in 2011 to 101,430 in 2013 (with an estimated equivalent increase in returns from US\$ 160,000 to 238,000), most of it is still being harvested from log hives, which yield 7 kg per hive compared to 12 kg per Kenya Top Bar Hive (KTBH) and 14 kg per Langstroth hives (Table 24 – source The 2013 County Livestock Production Report). There is still considerable scope for increasing honey production, but only in tandem with increasing attention to production, quality, organizing the supply chain and smoothening supply flow as well as market access in the short term, and value addition in the long term; iii) accessibility to high volume markets will be improved with the completion of the paving of Nyahururu Maralal road and the eventual connection to the Kenyan coast, Ethiopia and South Sudan by the Standard Gauge rail line connecting Lamu and south Sudan, which will pass very close to Kirisia.

Table 19: Increase in honey production and incomes in recent years

Year	KTBH	Log Hives	Langstroth	Crude Honey (Kg)	Average cost per kg	Total income Ksh	Total income US\$
2011	250	13,000	28	80,000	150	12,000,000	160,000
2012	350	13,000	30	91,380	200	18,276,000	228,450
2013	540	12,905	40	101,430	200	20,286,000	238,659

176. **Output 3.2; Tourism development model developed, to deliver benefits to the local communities:** Under this output, the project will support the CFA and the County Government to improve the prospects for tourism development in the Kirisia landscape, ensuring that it is set up to be both effective and beneficial to the local community. Because of its location in the northern tourist circuit and its richness in wildlife, Kirisia Forest has a lot of tourism potential. Kirisia is however in the fortunate position of not having exploited this opportunity yet. Partners can therefore learn from the lessons generated in the other popular tourist circuits, where tourism development has been led by the private sector, and whose eventual benefits have bypassed the communities. Already the County Government owns the Maralal Safari Lodge located in the 5km squared wildlife Sanctuary near Maralal town, and it is not clear if there's community benefit sharing agreement in place. The project will therefore seek to redress this by putting a long-term tourism development strategy and assisting the County Government and CFA to secure financing for its implementation. In doing so, the project will assist the CFS and the County government to jointly produce a well thought out long-term tourism development strategy, which will position Kirisia in strategically to exploit the tourism potential by the time the infrastructure development (paved road, rail line) is completed. Guided by both scientific considerations and the need to

balance tourism opportunities/ventures to benefit the Samburu communities, this plan will build on the draft zonation map (Figure 6) produced during the Kirisia Forest Management Plan formulation, and set to be updated to an ecosystems management plan with support from the project. The project will assist the CFA and County Governments to explore sources of funding for implementing the tourism development plan, which should ideally be financed from the County Community Development Funds, to ensure total ownership of the facilities by the Samburu. It is quite possible that the tourism development feasibility study will recommend a series of discreet tented camps inside the forest linked to the Maralal and other Safari Lodges (e.g. Mugie) as well as other tourism circuits in Northern Kenya. This type of tourism infrastructure might not be too expensive, and may be well within the means of government to finance. While it is true that operating tourism business requires sophisticated hospitality industry capacities, there should be adequate time for the County Government and the CFA to find and pay for such capacities, thereby safeguarding the benefits of tourism to remain within Samburu.

177. **Output 3.3:** Identify other NWFPs such as herbal plants and edible plants with potential for viable business opportunities and design and implement strategies to exploit them commercially: Anticipating that one of the action plans expected to support the implementation of the grazing plans will be increasing opportunities for other NWFPs, the project will, early in the process, undertake a feasibility study to identify NWFPs using the Market Analysis Approach (developed by FAO: <http://www.fao.org/forestry/enterprises/25492/en/>) in consultation with local communities that can be exploited commercially and formulate a strategy and business plans for potential NWFPs. It will then work with the CFA and user groups to raise further funding to implement viable business plans to exploit such NWFPs. Other opportunities to be explored will be for example increasing poultry production, improving milk processing, bottling water, growing of cactus fruit, etc. The most critical point will be to link such ventures to viable markets.

Outcome 4: Knowledge systems inform adaptive management in PFM (in conjunction with output 1.3).

178. This will be a cross-cutting outcome, under which monitoring and evaluation will be undertaken, lessons generated and used to inform adaptive management of the project and future programming of government and GEF projects and programs. It will be implemented in close conjunction with output 1.4, and via three outputs.
179. **Output 4.1:** A carbon, biodiversity and livelihoods monitoring plan designed, implemented, lessons being used to inform adaptive management and Carbon accounting (in conjunction with output 1.4);
180. **Output 4.2:** Knowledge management system set up, informed by project evaluations and terminal reviews (Project M&E formulated, MTR and FE undertaken);
181. **Output 4.3:** Resource centre established and operationalized, local traditional knowledge documented (Co-finance).

Component 2: Policy and legal empowerment for effective governance, informed by lessons and best practices

182. Under this component the project will facilitate consultations that bring clarity to the issue of mandates, roles and responsibilities of the many institutions involved in forestry management in the Samburu County and Kirisia ecosystem. It will also facilitate the strengthening of policy and legislative provisions for local level Participatory forest management. In order to ensure that the legal and policy provisions for PFM are informed by lessons generated from other regions, the project will also provide a knowledge management facility. This will be particularly important in ensuring that Forest management Agreements provide meaningful benefits for the Samburu community. The component will be delivered under the following outcomes.

Outcome 5: Subsidiary legislation and guidelines for County level implementation of the PFM National Policy of 2005 emplaced, informed by Community Bio-cultural community protocols:

183. **Output 5.1:** Subsidiary legislation and guidelines for County level implementation of the PFM National Policy of 2005 emplaced, informed by Community Bio-cultural community protocols: Under this output, the project will facilitate the Samburu community groups to formulate bio-cultural community protocols (BCPs) to increase their capacity to drive the local implementation of international and national environmental laws. The bio-cultural community protocol (BCP) will be based on communities consultative processes to outline their core ecological, cultural and spiritual values and customary laws relating to their natural resources and indigenous knowledge, based on which they provide clear terms and conditions to regulate access to their knowledge and resources. The process of developing a BCP will involve reflection about the inter-connectedness of various aspects of community ways of life (such as between culture, customary laws, practices relating to natural resources management and TK) and may involve resource mapping, evaluating governance systems and reviewing community development plans. It will also involve legal empowerment so community members can better understand the international and national legal regimes that regulate various aspects of their lives, such as CBD, UNFCCC and their instruments such as REDD+, protected area frameworks, and payment for ecosystem services schemes, etc. By articulating the above information in a BCP, the Samburu will assert their rights to self-determination and improve their ability to engage with other stakeholders such as government agencies, researchers and project proponents. By going through this process, the Samburu will be better able to see the community in its entirety, including the extent of their territories and natural resources, their bio-cultural values and customary laws relating to the management of

natural resources, their challenges, and their visions of ways forward. By referencing international and national laws, the Bio-cultural protocol will affirm their rights to manage and benefit from their natural resources. They are also better placed to ensure that any approach to access indigenous knowledge or other programs such as the establishment of a REDD+ project, occurs according to their customary laws. Overall, the protocols will empower the Samburu BCPs to affirm their role as the drivers of conservation and sustainable use of biodiversity in ways that support their livelihoods and traditional ways of life.

184. In addition, the CFA will be facilitated to work with the County Government (Department of Natural Resources) to lead a participatory review of the PFM policy and the County Government legislations to identify the specific challenges of effective implementation of PFM for the Kirisia/Leroghi forest. This will include a review of the Samburu County legislation on forests, the legal basis for benefit sharing and the roles of community-managers in co-management, the legal basis for the role of communities and other stakeholders in enforcement in co-management, and the legal constraints to the harvest and marketing of dead and live trees on state forests under Co-management with a CFA. Based on these findings, the County Government will be facilitated to develop County-specific legislation to guide the implementation of the PFM policy of 2005. In this respect it will define the respective roles of the county, communities and other stakeholders in the management of the community forests covered under their mandates. It will also undertake revisions to the PFM guidelines and subsidiary legislation based on lessons learned and best practices developed by this project and by collaborators in the knowledge management network. It will then draft policy reforms based on the participatory review by high-level decision makers and support for their passage.

185. **Output 5.2: Advocacy:** County and National government lobbied to adopt proposed policy reforms: Under this output, the project will support the partners for better representation of the interests and needs of local and indigenous groups in the nationalization process of international law on natural resources management. This will raise awareness to consolidate the positioning of local and indigenous groups in the process for participatory sustainable resource management in the County together with knowledge management activities in Outcome 4. The output will support the advocacy by the County and line national government for policy reforms.

A.5. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

Rationale and summary of GEF alternative

186. There is currently a strong push for economic development in the Samburu County, as evidenced by the large baseline investment of US\$ 62,614,000 (from about 2010 – 2020). In the absence of the project this baseline will be implemented under the “Business as Usual” model, where: i) PFM is not centre stage of forest management; ii) Holistic Natural Resources Management is not the centre of rangelands management; iii) wildlife corridors continue to be lost constraining survival of biodiversity; iv) there are inadequate financial incentives for natural resources use that considers long-term sustainability while meeting short term household income needs. This is because although the Kenya government invests more than US\$ 5 million (KFS), US\$ 0.5 million (KWS) and US\$ 0.5 million (KEFRI) annually at the national level, the investments are completely inadequate compared to the needs for improved natural resources management for livelihoods improvements; besides, only a very small fraction of this is invested in the Kirisia forest and ecosystem.
187. Without the GEF project, the capacity building via the efforts of both government and non-government organizations will continue to be *ad hoc*, and not based on a systematic analysis of capacity gaps for the broader stakeholder participation in improved natural resources management, including capacity needs for the delivery of global environment benefits. Capacity building effort is therefore likely to only focus on individual capacity as opposed to institutions and processes, tools, equipment etc. There is likelihood of focusing on some groups at the exclusion of others as well as duplication of efforts by the various capacity supporting organizations – e.g. too much focus on individual honey producers without looking at smoothening supply chain or the possibility of constructing a honey processing plant, establishment of conservancies without a comprehensive tourist development plan, increasing capacity for on-site protection of wildlife from poachers without securing the wildlife migratory corridors and consideration for the functionality of the broader Samburu Heartlands ecosystem. The co-finances are therefore likely to provide non-strategic capacity development, making it difficult to influence the removal of the two barriers (and sub-barriers) to improved forest and biodiversity management described in the baseline analysis. A weak KFS/CFA partnership is likely to reduce deforestation marginally from 6.5% to about 4.5%, and may fail to reduce forest degradation at all due to the added pressure from the growing population for forest resources, in the face of inadequate enforcement and financial disincentives for forest conservation. Indeed, communities with inadequate financial incentives or alternatives to using the forest resources as the main livelihood support systems will continue the pattern of unsustainable harvesting of forest and wildlife resources, driving forest degradation, continued invasion of forest and wildlife migratory and dispersal corridors.
188. The County Government has started investing in local development, as a result of devolution; however given the poor state of infrastructure development in the County, the government is likely to prioritize its development funds to build roads and water systems, with little being directed to the natural resources sector. Thus its investments will fail to remove the barrier on inadequate extension service to rangelands management or the barriers to improving honey production and smoothening supply and market chains. Indeed, in the absence of the GEF alternative, this increased investment from County Government and others may fail to consider the comprehensive goods and services provided by the Kirisia ecosystem as a whole, and may place development in areas that weaken the ecosystems ability to continue functioning adequately. Already there are settlements inside the gazetted forest, opening the forest to all year long grazing; settlements are emerging along the wildlife migratory routes and important dispersal areas (such as the Maralal animal sanctuary). Without the GEF alternative, these trends will continue, despite there being a forest management plan.
189. The local government is also embarking on a policy reform, to harmonize its role and that of National government under the devolved governance model. Without the GEF alternative, the role of communities in PFM, especially the question of substantive beneficitation from forest resources might not get adequate attention.
190. The GEF investment will be used to put in place strategic capacities and incentives to influence the considerably larger baseline investment, to change the pattern of development at the expense of the natural capital towards a more sustainable economic development model. The project will empower key institutions (KFS, CFA, KWF and the County Government) to adopt and/or facilitate better forest management that will reduce the current rate of deforestation of the Kirisia forest from 1.4 per year to about 0.84% (an 40% efficiency of avoided deforestation); to put 45,000 ha of intact forest under Forest Protection Management Regime, 10,000 ha under regeneration, and 17,000 ha under SFM. Collectively, this will secure direct mitigation of 2,935,701 tCO₂e from 72,000 ha and indirect emission avoided of 3,178,804 tCO₂e. In addition, it will put 50,000 ha of rangelands under Holistic Natural Resources Management, improving rangeland productivity by 25% while securing wildlife migratory corridors that improve the integrity of the larger Samburu ecosystem’s functionality; and, reduce wildlife death from poaching by at least 40%. The project responds to the barriers preventing the KFS, CFA, KWS, County Government and other stakeholders from achieving the ambitious vision set out in the Kirisia Forest Management Plan.

191. The FAO and EU support will focus on land governance, to improve land tenure (FAO) and marketing of livestock and other drylands products (EU). These projects will begin sometime in the near future; without an ecosystem management plan that zones areas for different land use types and conservation areas, their implementation may weaken the integrity of the ecosystem due to inappropriate interventions. The AWF investment supported the initial Kirisia Forest Management Plan, but there are two challenges now: AWF has run out of funds to support the implementation of the progressive forest management plan; and, to convert the forest management plan to an ecosystem management plan, in order to provide a landscape approach, and to ensure that all ecosystems services are catered for, including the recognition of the Kirisia in the wider Samburu Heartlands ecosystem.
192. The project will take advantage of this baseline, re-orienting it to effectively redress the current tension between conservation and development; which can be advanced considerably by departing from the protectionism and segregation mode of conservation, and moving towards a continuum that promotes better coexistence of people and nature; one that re-balances the rights, responsibilities and benefits of natural resource management between conservation and local development more equitably. Table below summarises the current practices and the GEF alternative (from Table 21 in the Project Document);

Table A.5.1.: Current practices and the GEF alternative

Current Practice	Alternative to be put in place by the project
<p>Insufficient capacities for a PFM-led integrated natural resources management amongst communities and their local institutions (CFA, County government) and technical institutions (KFS, KWS); leading 1.4% deforestation, forest fires causing deforestation and degradation in over 25,000 ha; loss of tree cover in the rangelands and poor regeneration, with indigenous species such as the Red cedar and olea Africana becoming scarce and increased GHG emissions from deforestation and degradation.</p>	<p>Increasing operational capacity of KFS, KWS, CFA and communities to collaborate in PFM and covering over 91,542 ha dryland forest and 50,000 ha of rangelands under Holistic Natural Resources Management (direct). Biodiversity conservation in the Kirisia ecosystem will be mainstreamed through the participatory forest management and conservancy models along with forest-biodiversity management agreements. The project will indirectly contribute to 80,000 ha of ecosystem in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties).</p> <p>Improved capacity for both KFS and Kirisia CFA provides strong partnerships, puts 91,452 hectares under PFM; including 45,000 ha of intact forest under Forest Protection management regime; 10,000 ha under regeneration and 17,000 ha under SFM; collectively reduces rate of deforestation to less than 0.84%; this leads to direct mitigation of 2,935,701 tCO₂eq and indirect mitigation of 3,178,804 tCO₂eq.</p> <p>An empowered CFA will mobilize the Samburu community to be active in, and to demand fair distribution of costs and benefits of PFM with the conservation agencies, while a more capacitated and functional KFS will provide stronger forest management operations, including protection of the forest from fires and other threats via better policing and enforcement. Emplacing capacity in the relevant institutions at the grassroots will also put over 50,000 ha rangelands within 5 kilometres of the forest boundary under holistic natural resources management. Leading to 25% increase in rangeland productivity;</p> <p>Formulation and implementation of an ecosystem integrated ecosystem management plan that allows for multiple uses thus delivering benefits to a wide range of stakeholders. This is through:</p> <ul style="list-style-type: none"> • Arcas of high biodiversity significance identified and wildlife zones designated. • Establishment of conservancies that allow for integrated sustainable land use practices. • Improved livestock management integrated with wildlife conservation. <p>This will deliver the following benefits: reduced pressures from livestock practices and grazing, reduced threats to wildlife and conservation, better regeneration of forest species and rangelands, reduced degradation of soil and water resources and improved wildlife movement.</p> <p>In addition, implementation of the plantation improvement plan will increase the performance of the plantation; a higher yielding plantation reduces pressure from the indigenous forest by providing essential wood products (poles, charcoal, etc.);</p>

	<p>The integrity of the Kirisia ecosystem as a wildlife refuge will be improved via securing of wildlife migratory corridors and safer refuge in the dispersal areas; this will ensure that Kirisia continues to play the critical role of maintaining the Samburu Heartland as a functioning ecosystem, and habitat for wildlife.</p> <p>Empowered KWS (equipment, additional rangers) improves wildlife protection and reduces poaching from the Kirisia forest; reducing wildlife deaths associated with poaching by 40%. This will stabilize the wildlife populations, especially that of Grevy Zebra</p>
<p>Insufficient economic incentives to maintain conservation and sustainable use in the face of high demand for economic development and beneficiation – increasing the pressure towards sub-division, overgrazing, poaching of wildlife, encroachment into the forest and wildlife migratory corridors, reduction of the ecological integrity of the ecosystem and ecosystem degradation</p>	<p>Financial incentives and benefit sharing mechanisms will yield economic benefits and support traditional and cultural appreciation for forest, wildlife and natural resources in the face of increasing demands for livelihoods improvements and local economic development. Specifically, smoothening the honey supply chains and transforming the honey production from subsistence to commercial will increase the amount of honey produced and sold; increasing household incomes by a magnitude of more than 3, and increase incentives for conservation and PFM. Assisting the County government to build a honey processing (not refinery) factory in the long run will help it (Government) to advance one of the pillars of development they have identified for the County as well as add value to the honey and create much needed jobs.</p>
<p>Insufficient policy and governance for integrated and participatory forest management, wildlife conservation and economic development</p>	<p>An empowered CFA has clarity on its legal and policy foundation;</p> <p>Stronger partnerships for PFM, wildlife management and conservation between CFA, County Government, National Government Agencies (KFS, KWS) and communities helps to deforestation and to secure wildlife migratory corridors;</p>
<p>Inadequate consideration of lessons on PFM from other parts of the world; inadequate documentation and not integrating the Samburu traditional knowledge into modern day forest and livestock/ range management will continue to erode local capacity for PFM and improved range management, exacerbating the current dire capacity deficits; with consequent deforestation and land degradation.</p>	<p>Provide a synthesis of lessons on PFM from West and Southern Africa to inform policy debates and policy reform; and raise awareness of the key policy makers on the fact that PFM can be self-financing if the right policy and capacity environments are emplaced, to ensure effective control of the system so it is not abused;</p> <p>Co-finance -Document Samburu traditional resource management systems and integrate them into the training programs to be designed and delivered to a wide range of stakeholders; this will bridge both the capacity gaps in the national and county government extension service, but also alleviate the difficulty posed by very low levels of literacy among the Samburu. The skills on PFM, Improved rangelands management delivered to technical teams and community members will contribute to better resources management, biodiversity conservation and maintenance of the current carbon stocks.</p>

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

193. An identification and ranking of risks has been conducted as well as identification of mitigation measures. Overall, the risks are not exceptionally high and should be manageable. Risks, their ranking and mitigation measures are presented in the table below (from Table 26 in the Project Document).

Table A.6.1: Risks and mitigation factors

Description of risk	Ranking	Mitigation measures
<p>The benefits for communities under SFM in Leroghi Forest too small to serve as an effective incentive for communities to invest in forest management.</p>	<p>Medium</p>	<p>The 2013 review of 20 PFM showed that KFS has not granted significant new benefits to communities to date, so this is a legitimate concern. KFS has made a commitment to authorize the harvest of dead cedar for the generations of the revenues necessary to regenerate the deforested sections of the forest. The dead cedar represents a temporary resource that will be lost over time anyhow, so one can be relatively confident that this commitment will be respected. Of greater concern is whether KFS will grant communities a large enough share of the benefits in the future from the sustainable harvest of the new forests to be restored through the new KFS/CFA partnership. Logically, the benefits of the partnership should be so substantial that KFS will recognize the value of granting very substantial benefits and incentives to the communities. The awareness raising targeting decision-makers has been included in the design to mitigate this risk.</p>
<p>The displaced Samburu living in Leroghi Forest will resist the adoption of the new range management systems and the new rules for access and use of the natural resources of Leroghi Forest.</p>	<p>Medium to high</p>	<p>The local communities holding the traditional tenure rights to Leroghi Forest will be empowered and will be structured as LFMG. The LFMG will be responsible for enforcing the new rules governing access and use that are negotiated between KFS and the CFA/LFMG. This arrangement will build upon, and reinforce, traditional Samburu governance systems. In addition, the County Government is keen on exploring a carbon finance project for the Kirisia forest, and has plans to address security issues and to work with the families to ensure a safe return to their normal places.</p>
<p>There is a risk that the ecological characteristics of Leroghi and group ranch forests will make forest regeneration too difficult and too expensive to make participatory SFM a viable option.</p>	<p>Low</p>	<p>The highest value tree, pencil cedar, is the one with the greatest natural capacity for regeneration on the deforested areas and is the most resistant to livestock. There is no reason to expect that it will not be possible to raise all of the other indigenous species in community-run nurseries. Protection from livestock will be critical and will be done without fencing with livestock controlled by herders. It is expected that once tree cover of indigenous species is re-established, one will also re-establish the ecological conditions needed for natural regeneration of both native flora and fauna.</p>
<p>There is a risk that in those areas where overgrazing is a key constraint to forest regeneration, it will not be possible to integrate herders and to protect recently harvested areas from grazing long enough to ensure adequate regeneration.</p>	<p>Medium</p>	<p>This is recognized to be a difficult challenge but such livestock control was demonstrated to be quite feasible without fences on a GEF project in the Senegal River Valley. This project will generate substantial employment and revenues for community members. Livestock control will be a cost that communities pay in order to realize these very substantial benefits.</p>

Extreme climatic events associated with climate change (CC) may affect vegetation regeneration	Low	The creation of empowered community managers with adaptive management capacities may be the best strategy for adapting to CC. It is the present conditions of uncontrolled, open access, and unsustainable use of dryland forests that makes them the most susceptible to climate change.
The project interventions will not be sustainable. Communities do not continue to control reforestation and degradation and to manage the forests sustainably after the end of the project.	Low	Project results will be sustained through the legal requirements for empowered community managers to stop deforestation and degradation and to manage the forest sustainably. Communities will know that they may lose their legal rights to harvest and market forest products if they do not meet their legal responsibilities. The respect for community rights is dependent, however, on minimum standards of good governance in the institutions of the State. Future REDD+ performance based payments for carbon sequestration will need to be structured in ways that reward good governance in State institutions.

A.7. Coordination with other relevant GEF financed initiatives

No change in relation to the PIF.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in project implementation.

194. The Forestry and natural resource sector of Kirisia has multiple stakeholders. The PPG period was used to assess the stakeholders and classify them as primary, secondary, and tertiary according to livelihood dependence on natural resources. In addition, stakeholder interest and influence were also assessed. This project was formulated through a consultative process of stakeholders for Leroghi-Kirisia forest. The process was parallel to the development of Kirisia Management plan and involved a number of meetings. The first meeting involved Kirisia Community Forest Associations (CFA), African Wildlife Foundation (AWF), Suyian Trust, Resource Project-Kenya and the Kenya Forest Service (KFS). The meeting involved wide consultation on the issues related to Leroghi/Kirisia Forest, which touched on status of the forest and location of forest boundary, which has been in contention.
195. The second meeting involved selected members of the communities and government ministries. In this meeting, the following stakeholders were represented, CFA, Ministry of Livestock Development, Ministry of Agriculture, WRMA, Ministry of Water and KFS. During the meeting modalities on conducting a socio economic survey was agreed upon so as to determine the socio economic status of the households adjacent to the forest. A structured questionnaire was used in data collection while information on biodiversity was also captured through the same questionnaire and from information provided by the forester.
196. A third meeting was used to share the socio-economic survey results and also analysed problems/ challenges facing Leroghi/Kirisia and identified means of addressing them through formulation of forest programmes. During this meeting forest programmes, forest vision and zonation criteria were discussed and agreed upon. The following table (from Table 17 in the Project Document) provides a summary of stakeholders that were involved in the preparation of this project and will participate in its implementation:

Table B.1.1: Stakeholder analysis

Stakeholder	Interest in BD/SFM/CCM	Degree of interest	Level of influence	Comments	Participation in project implementation
1. Leroghi/Kirisia Community Forest Association (CFA) + 7 Group Ranches ²⁰ have formed Kirisia-Ngotea Conservancy.	Dry season grazing, sources of water, honey and medicine	High	Low	The survival of their livestock and livelihood is directly dependent on the forest, but they have low influence on decision-making. However, signing of FMA with KFS has empowered CFA by law and policy to make decisions.	Leroghi CFA has signed a Forest Management Agreement with KFS. With facilitation from the Samburu county the CFA and 7 Group ranches has formed Kirisia-Ngotea Conservancy. This management structure will be at the centre of project activities in the field. The project will build capacity on management, governance, forest-based enterprise development and natural resource management.
Sadhana Forest Kenya	Reduce forest pressure and improved livelihoods through tree planting	High	Medium	They have an interest in improving livelihood	A small NGO that has recently decided to make a long-term investment in Samburu County. They have set up field headquarters just south of Leroghi Forest. Their main focus is on support for household level multipurpose tree planting. They are very keen to participate in this project.
Nomtio Pastoralist Initiative	Creating awareness through environmental education/advocacy	High	Medium	Sensitization and awareness creation is key in behavioural change	This is a local NGO operating in Samburu and specializes in environmental education/advocacy as well as livelihoods improvement for local people. Will participate in awareness and advocacy work of the project.
World Vision	FMNR (Farmer Managed Natural Regeneration)	High	Medium	FMNR is one of the models for forest regeneration	World Vision is implementing a five-year project targeting communities around Leroghi forest. As part of the NRM component WV is piloting FMNR (Farmer Managed Natural Regeneration), which could be adopted as a forest regeneration model. WV technical expertise will be used in demonstrating FMNR.
African Wildlife Foundation	Implementation of Kirisia	High	High	AWF is keen on the biodiversity conservation	Facilitated the development of Kirisia-Leroghi Forest Management Plan. AWF has undertaken a number of studies,

²⁰ "A group ranch is a livestock production system or enterprise where a group of people jointly own freehold title to land, maintain agreed stocking levels and herd their livestock collectively which they own individually (Ministry of Agriculture, 1968)." - Group Representative Act of 1968.

Stakeholder	Interest in BD/SFM/CCM	Degree of interest	Level of influence	Comments	Participation in project implementation
(AWF)	Management plan			and livelihood improvement of Kirisia forest and communities	which the project can benefit from. AWF will be involved in the feasibility study of an eco-lodge and work with Samburu County, KWS on wildlife migratory corridors
Green Belt Movement (GBM)	Protection of Kirisia forest as a water tower through tree planting and alternative livelihoods	High	Medium	Medium influence. GBM has worked in Kirisia for the last three years. May have knowledge and information to access decision making process	GBM is an environmental organization that empowers communities, particularly women, to conserve the environment and improve livelihoods. GBM encourages women to work together to grow seedlings and plant trees. It is currently involved in tree planting to restore degraded areas of Leroghi forest and promotion of alternative sources of livelihood and efficient energy technologies.
Samburu County Government	Environmental conservation and tourism	High	High	Legally mandated and empowered to facilitate improved investment and livelihood improvement for the community	The county government will play a direct role in support of the development of SFM systems Kirisia-Ngotea Conservancy. The project will assist the county government to develop appropriate legislation to define the roles of the country government and communities for forest management on community-owned lands. The county government will also be an important stakeholder for Leroghi with special interests in the watershed functions of Leroghi, the economic development aspects of the co-management system and the resolution of the issue of the displaced Samburu pastoralists living in the forest and ensuring that wildlife corridors are clear of settlements
Kenya Forestry College (KFC), Londiani	Training on Forest management	High	Low	Efforts will be made to ensure that adequate dryland forest training materials are available	The college offers training at the diploma and certificate levels, and short courses in forestry and related fields. It is expected that KFC will be one of the key users of the mobile drylands field school facility and may become a co-manager of the facility with the CFA.
Nairobi University	Training	High	Low	Training of personnel to manage dryland forests	It is expected that the University of Nairobi will become one of the key users of the drylands field school facility developed by the project.
National Environmental	Environmental Management	High	High	Mandate to ensure environmental	Will provide oversight through participation in the project steering

Stakeholder	Interest in BD/SFM/CC M	Degree of interest	Level of influence	Comments	Participation in project implementation
Management Authority (NEMA)	and Governance			laws are adhered to.	committee and project evaluations.
Kenya Wildlife Service (KWS)	Wildlife Management	High	High	High level of influence since they co-manage the forest with KFS	KWS will advise on how best to integrate wildlife conservation into the Leroghi management system. KWS will also work with the Samburu County to ensure that wildlife corridors are marked and cleared of human settlement
Ministry of Agriculture, Livestock and Fisheries	Range Management Systems	High	Low	High interest because their mandate in range management.	Will participate in the project through the project steering committee and provide technical advice in the development of sustainable range management systems.
Kenya Forestry Research Institute (KEFRI)	Forest research	High	Medium	High interest since their core business is research. Influence is medium because they can only recommend action	KEFRI's regional research centre in Kitui specialises in dryland forests hence experience with technologies for sustainable use of dryland forests. KEFRI will take the lead on the development of knowledge management in support of participatory SFM. KEFRI is the lead in certifying seeds sources and tree nurseries in Kenya. They will deliver required training and technical support to local NGOs, communities and other stakeholders involved in forest restoration, in seed collection from native species, production of seedlings and restoration techniques.
Kenya Forest Service (KFS)	Management of forests	High	High	Are empowered by an Act of Parliament to manage forests	KFS is under the Ministry of Forestry and Wildlife and is one of the executing partners. The proposed Project Management Unit (PMU) to be based in Maralal will work directly with KFS to ensure the objectives of the project are realized. KFS has a strong partnership with the local communities through the Kirisia CFA for the management of Leroghi Forest. KFS will facilitate sharing of lessons learned and partnerships and linkages with relevant on-going initiatives in the country.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

197. The focus on capacity for PFM and HNRM will provide many Samburu resource users with assured supply of the natural resources/ecosystems goods and services on which their livelihoods heavily depend on. Empowering the community groups to control the parts of the forest that traditional resource use systems has bestowed on them will alleviate the fear of losing tenure over these important resources in the short and long term. Improved community-led extension service will increase capacities and improve returns on labour and financial investments in rangelands/livestock management by the Samburu. It will also catalyse better resource management and sustain supply of honey, water, dry season forage, poles and other products, which they will be able to harvest sustainably once the forest utilization and management plans have been concluded. Jointly these measures will reduce the pressure on the forest and rangeland resources, increasing ecosystems integrity, function and ability to support resilient livelihoods and wildlife populations
198. Access to a broader range of markets for a wider variety of NWFPs, supported by greater access to training in harvesting, processing and packaging, will ensure more community members participate in the formal economy/ markets, thus increasing household incomes. This will contribute to securing livelihoods and food security in the short term as well as increasing prosperity for the rural poor in the long-term. Revitalizing local institutions for range and resources management and governance will increase social capital and improve empowerment.
199. Women play a critical role in livestock husbandry (particularly small stock) and natural resources management in Samburu, both as beneficiaries but often as victims of the effects of reduced productivity. In recognition of this fact, a gender analysis will underpin development and implementation of the alternative livelihoods promoted by the project, to ensure that critical issues related to access and control of land resources and other natural resources as they relate to women are identified and addressed. The aim will be to promote a more effective targeting of initiatives, and provide disaggregated data for monitoring, in line with the FAO and GEF gender guidelines. Thus, a number of project activities are expected to directly and indirectly contribute towards improving the condition of women. This would be through enhancing their capacity to participate in decision-making processes, and engaging in land use activities that have the potential to improve their economic situation. For instance, where there is collection of firewood, clearing of bush encroachment, milk collection, pilot activities to generate income from the sale of such activities will deliberately target women beneficiaries.
200. In addition, the project will actively empower women and other excluded groups, particularly those at high risk of suffering from the effects of rangeland degradation and climate change vulnerabilities. This will be achieved through social mobilization utilizing Women Self Help Groups (SHGs) and other such community based structures. These groups will benefit particularly from skill development (education/training), access to financial resources and markets for sustainably produced/harvested products.
201. An empowered Samburu Community Forest Association (CFA) with clarity on its legal and policy foundation will take the centre stage of PFM and integrated rangelands management; providing a more effective partner to County Government and National Government Agencies (KFS, KWS); thereby ensuring that the Samburu community are fully involved and benefit from wildlife management and biodiversity conservation. This will be critical for the sustainability of the global environmental and local economic development benefits delivered by the project.

B.3 Explain how cost-effectiveness is reflected in the project design

202. The project has been designed to be highly cost effective in 4 keys ways: i) Adopting PFM to secure forest management and to improve habitat for wildlife (wildlife migratory corridors and dispersal areas) is more cost effective than converting the forest and the surrounding ecosystem into a Protected Area, with the attendant higher costs of managing PAs, especially in an area with yet to be restored tourism circuits; ii) Providing strategic capacity building in key institutions will enable the co-finance to redirect the over US\$ 60 million to address a broad range of baseline capacity challenges, to advance improvements in local livelihoods and economic conditions while simultaneously improving ecosystems integrity and functionality. The proposed strategies for developing tourism, increasing honey processing and value increment in the County and capacity development are critical, and will provide long-term sustainability of the project benefits; iii) To overcome the chronic shortage of government employed extension service in the vast and sparsely populated drylands (considered to be very cost-ineffective compared to providing the same to densely populated farming communities), the project will empower the pastoral communities to take ownership of the challenge; in doing so, they will acquire the skills to analyse their resources, challenges facing their sustainable utilization, their capacity deficits, and to design and implement action plans to tackle the deficits. This is a cost effective and innovative way of providing nomadic pastoralism-oriented, relevant and sustainable extension service. The project has therefore had to adopt a

collaborative strategy, working with a wide range of stakeholders, investing small amounts of money in key areas to catalyse domestic investment into the project activities by a cross section of stakeholders in multiple sectors and local communities. The inclusive and collaborative nature will lead to the development of institutional and governance capacities that engages in integrated management of forests and rangelands, integrating stakeholder interests and enhancing adaptive conservation management and livelihood improvement measures.

203. The project is also considered cost effective as it builds on the best practices of other similar systems such as rangeland management via the Natural Resources Holistic Management model, which has proven to be effective in a Northern Kenya context; avoiding past mistakes, such as the private sector-driven tourism development in Amboseli, Maasai Mara and the Coast, which has not delivered adequate benefits from tourism to local communities, to the detriment of biodiversity (wildlife) and communities.
204. Project activities will reduce forest degradation together with forest protection of 45,000 ha, regeneration on 10,000 ha and SFM on 17,000 ha, this will lead to a very cost effective reduction of emissions of up to 2,935,701 tCO₂eq (direct) and 3,178,804 tCO₂eq (indirect) (see Annex E). LULUCF is acknowledged as a more cost effective means of securing climate change benefits than other methods of reducing emissions. The multiple use approach aims to reduce degradation of the ecosystem by encouraging a shift from unsustainable to sustainable practices such as sustainable pastoralism and tourism. The project will increase biodiversity benefits without undermining the economic viability of production systems. This has the added benefit of mitigating potential land degradation thereby avoiding potential rehabilitation costs.

C. DESCRIBE THE BUDGETED M&E PLAN:

Oversight and reviews

Project Oversight

205. Project oversight will be carried out by the PSC and FAO. Project oversight will be facilitated by: (i) documenting project transactions and results through traceability of related documents throughout the implementation of the project; (ii) ensuring that the project is implemented within the planned activities applying established standards and guidelines; (iii) continuous identification and monitoring of project risks and risk mitigation strategies; and (iv) ensuring project outputs are produced in accordance with the project results framework. At any time during project execution, underperforming components may be required to undergo additional assessments, implementation changes to improve performance or be halted until remedies have been identified and implemented.

Project revisions

206. The following types of revisions may be made to this project document with no-objection from the PSC and the approval of FAO GEF Coordination Unit in consultation with the LTO and BH:
207. Minor revisions that do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation. These minor amendments are changes in the project design or implementation that could include, inter alia, changes in the specification of project outputs that do not have significant impact on the project objectives or scope, changes in the work plan or specific implementation targets or dates, renaming of implementing entities.
208. Revisions in, or addition of, any of the annexes of the project document.
209. Mandatory annual revisions which, re-phase the delivery of agreed project outputs or take into account expenditure flexibility.
210. All minor revisions shall be reported in the annual Project Implementation Reviews (PIRs) submitted by FAO to the GEF Secretariat and Evaluation Office.

Monitoring responsibilities

211. Monitoring and evaluation (M&E) of progress of project in achieving results and objectives will be based on the targets and indicators established in the project results framework (Annex 1). The M&E of the project activities will follow the applicable FAO and GEF policies and guidelines. The project results framework includes SMART indicators for each of the expected outputs and outcomes. The M&E related costs are integrated in the overall project budget.
212. Project oversight will be carried out by the Project Steering Committee (PSC), the FAO GEF Coordination Unit and relevant Technical Units in HQ. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits/adaptation benefits are being delivered.
213. The FAO GEF Unit and HQ Technical Units will provide oversight of GEF financed activities, outputs and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.

214. Project monitoring will be carried out by the Project Management Unit (PMU) and the FAO Budget Holder. The day-to-day project monitoring is the responsibility of the PMU but the other project partners will have responsibilities to collect specific information to track the indicators. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception the results matrix will be reviewed to finalize identification of: i) outputs ii) indicators; and iii) missing baseline information and targets. A detailed M&E plan, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc.) will also be developed during project inception by the M&E specialist. It is the responsibility of the PSC to inform FAO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.
215. M&E is to be driven by the preparation and implementation of an AWP/B to be followed up through six-monthly PPRs. The preparation of the AWP/B and semi-annual PPRs will represent the product of a unified planning process between main project partners. As tools for results-based-management, the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output targets.
216. The first PSC meeting will be held within two months of the inception workshop. The PSC will review the project periodic reports on progress and will make recommendations to FAO concerning any need to revise aspects of the project results framework. Project oversight to ensure that the project meets FAO and GEF policies and guidelines is the responsibility to the LTO/Project Task Force in FAO. The LTO will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.
217. During the three month inception phase, an Inception Workshop will be held wherein the specific M&E issues will be refined and subsequently discussed. This will (a) assist all stakeholders to fully understand and take ownership of the project; (b) review and confirm/finalize project indicators and results framework with stakeholders; (c) review the project's first AWP and budget; (d) discuss the roles, functions, and responsibilities within the project's implementation arrangements for decision-making; (e) review a detailed M&E work plan and budget based on the M&E plan summary presented in Table 28 in the next section.

Indicators and information sources

218. To monitor project outputs and outcomes including contributions to global environmental benefits, specific indicators have been developed in the Results Framework (see Annex I). Output target indicators will be monitored on a six-monthly basis and outcome target indicators will be monitored on an annual basis if possible or as part of the mid-term review and final evaluation.

Reports and their schedule

219. The specific reports that will be prepared under the M&E program are the: project inception report; Annual Work Plan and Budget (AWP/B); Project Progress Reports (PPRs); annual project implementation review (PIR); technical reports; co-financing reports; and a terminal report. In addition, GEF tracking tools for Biodiversity, Climate Change and SFM/REDD+ will be completed by the project team at mid-term and final evaluation.
220. Project Inception Report: After FAO approval of the project and signature of the FAO/Government Cooperative Programme (GCP) Agreement, the project will initiate with a six-month inception period. An inception workshop will be held and immediately after the workshop, the National Project Coordinator will prepare a project inception report in consultation with the FAO BH and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed First Year Annual Work Plan and Budget (AWP/B) and supervision plan with all monitoring and supervision requirements. The draft report will be circulated to FAO and the Project Steering Committee for review and comments before its finalization. The report should be cleared by the FAO BH (FAO Kenya) in consultation with the LTO and the FAO GEF Coordination Unit and uploaded in FPMIS by the BH.
221. Annual Work Plan and Budget (AWP/B): The National Project Coordinator will submit to the FAO Budget Holder an Annual Work Plan and Budget for clearance. The AWP/B, divided into monthly timeframes, should include detailed activities to be implemented and outputs (targets and milestones for output indicators) to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The draft AWP/B is circulated to and reviewed by the FAO Project Task Force (LTO, GEF Coordination Unit and others), the Project Coordinator incorporates eventual comments and the final AWP/B is sent to the PSC for approval. The FAO Budget Holder will upload the final AWP/B in FPMIS.
222. Project Progress Reports: One month before the mid-point of each project year, the National Project Coordinator will prepare a semi-annual Project Progress Report (PPR). The report will contain the following: (i) an account of actual implementation of project activities compared to those scheduled in the AWP/B; (ii) an account of the achievement of outputs and progress towards achieving project objectives and outcomes (based on the indicators contained in the results framework); (iii) identification of any problems and constraints (technical, human, financial, etc.) encountered in project implementation and the reasons for these constraints; (iv) clear recommendations for corrective actions in addressing key problems resulting in lack of progress in achieving

results; (iv) lessons learned; and (v) a revised work plan for the final six months of the project year. The report will also include an estimate of co-financing received from all co-financing partners.

223. The National Project Coordinator will submit the PPR to FAO no later than one month after the end of each six-monthly reporting period (30 June and 31 December). The draft PPR will be reviewed and cleared by FAO (BH and LTO). The LTO will submit the PPR to the GEF Coordination Unit for final clearance. The BH will circulate the final cleared PPR to the PSC.

224. **Project Implementation Review:** The LTO with inputs from the Project Coordinator will prepare an annual Project Implementation Review (PIR) covering the period July (the previous year) through June (current year). The PIR will be submitted to the GEF Coordination in TCI for review and approval no later than 15 July. The GEF Coordination Unit will submit the final report to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio.

Key milestones for the PIR process:

- Early July: the LTOs submit the draft PIRs (after consultations with BHs, project teams) to the GEF Coordination Unit (faogef@fao.org, copying respective GEF Unit officer) for initial review;
- Mid July: GEF Unit responsible officers review main elements of PIR and discuss with LTO as required;
- Early/mid-August: GEF Coordination Unit prepares and finalizes the FAO Summary Tables and sends to the GEF Secretariat by (date is communicated each year by the GEF Secretariat through the FAO GEF Unit);
- September/October: PIRs are finalized. PIRs carefully and thoroughly reviewed by the GEF Coordination Unit and discussed with the LTOs for final review and clearance;
- Mid November 17: (date to be confirmed by the GEF): the GEF Coordination Unit submits the final PIR reports - cleared by the LTO and approved by the GEF Unit- to the GEF Secretariat and the GEF Independent Evaluation Office.

225. **Technical Reports:** Technical reports will be prepared to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by the National Project Coordinator to the FAO Budget Holder in Kenya who will share it with the LTO for review and clearance, prior to finalization and publication. Copies of the technical reports will be distributed to the Project Steering Committee and other project partners as appropriate. These will be posted on the FAO FPMIS by the LTO.

226. **Co-financing Reports:** The National Project Coordinator will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all co-financing partners. The National Project Coordinator will provide the information in a timely manner and will transmit such information to FAO. The co-financing reports should be completed as part of the semi-annual PPRs and annual PIRs.

227. **GEF-5 Tracking Tools:** Following the GEF policies and procedures, the tracking tools for Biodiversity, Climate Change and SFM/REDD+ will be submitted at three moments: (i) with the project document at CEO endorsement; (ii) at project mid-term review; and (iii) at final evaluation. The Project Coordinator is responsible for completing these reports with support from the LTO at mid-term review and final evaluation.

228. **Terminal Report:** Within two months before project completion, the National Project Coordinator will submit to FAO a draft Terminal Report, including a list of outputs detailing the activities taken under the Project, "lessons learned" and any recommendations to improve the efficiency of similar activities in the future. This report will specifically include the findings of the final evaluation as described above.

Monitoring and evaluation plan summary

229. Monitoring of project progress will be against indicators identified in the project results framework. These indicators will be further refined, as necessary, in consultation with project stakeholders during the project inception phase. This process of further collaborative refinement of project indicators will facilitate greater stakeholder engagement with the project and support broader monitoring and reporting of project achievements and challenges.

230. The monitoring and evaluation plan is summarized below (from Table 28 in the Project Document).

Table C.1: Monitoring and Evaluation Plan

Type of monitoring and evaluation activity	Responsible parties	Time frame	Budget (USD)
Inception Workshop	National Project Coordinator leads the organization, in close consultation with KFS and FAO.	Within first two months of project inception	5,000
Inception report	National Project Coordinator with inputs from project partners. Cleared by FAO and the Project Steering Committee.	Immediately after the project inception workshop	-
Design and implementation of monitoring and evaluation system	National Project Coordinator with support from the Chief Technical Adviser (CTA) and the FAO Lead Technical Officer	Within the first six months after the project inception	24,000
Field-based impact monitoring	National Project Coordinator with support from other project partners	Continually	36,000
Supervision missions	FAO LTO and FAO Kenya	Annual or as required.	Paid by GEF Agency fee
Project progress reports (PPRs)	National Project Coordinator. Submitted to FAO Kenya (Budget Holder). Finalized reports submitted to the FAO GEF Unit by the LTO, and to the PSC by the National Project Coordinator.	Six- monthly	-
Project Implementation Review (PIR)	FAO LTO with inputs from the National Project Coordinator and FAO Budget Holder. Submitted by the FAO GEF Coordination Unit to the GEF Secretariat. Final report also submitted to the PSC and the GEF Operational Focal Point by the National Project Coordinator.	Annually	Paid by GEF Agency fee
Reports on co-financing	National Project Coordinator with information from all co-financing partners.	Six monthly and annually as part of PPR and PIR.	-
PSC meetings	National Project Coordinator, PSC Chair, FAO Budget Holder	At least once a year	10,000
Technical reports	National Project Coordinator, Consultants, FAO	As appropriate	Component budgets
Mid- term Review	External Consultant, FAO independent evaluation unit in consultation with the project team and other partners	At mid-point of project implementation	42,500
Final Evaluation	External Consultant, FAO independent evaluation unit in consultation with the project team and other partners	At the end of project implementation	42,500
Terminal report	Project Coordinator	At least one month before end of project	-
NPC, CTA and project admin assistance estimate total cost for all M&E activities			53,750
TOTAL			213,750

Provisions for Evaluations

231. Half way through the project implementation period, an independent Mid-Term Review (MTR) will be undertaken to evaluate progress and the effectiveness of implementation in terms of achieving the project objectives, outcomes and outputs. Findings and recommendations of this evaluation will be instrumental for bringing improvement in the overall project design and execution strategy for the remaining period of the project's term. FAO will arrange for the MTR in consultation with the project partners. The evaluation will, inter alia:

- review the effectiveness, efficiency and timeliness of project implementation;
- analyse effectiveness of partnership arrangements;
- identify issues requiring decisions and remedial actions;
- propose any mid-course corrections and/or adjustments to the implementation strategy as necessary; and
- highlight technical achievements and lessons learned derived from project design, implementation and management.

232. An independent Final Evaluation (FE) will be carried out three months prior to the terminal review meeting of the project partners. The FE will aim to identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This evaluation will also have the purpose of indicating future actions needed to sustain project results and disseminate products and best practices within the country and to neighbouring countries.

Communications and Visibility

233. The project will develop a communication strategy that will provide framework for information flow and feedback to all key stakeholders. Communication activities will focus on outputs, outcomes and good practices from the project. Various communication, awareness raising, dissemination and visibility tools (press releases, seminars and workshops, newsletters, videos presenting success stories, publications, and production of visibility items) will efficiently be used. The communication/visibility plan and activities will be aligned with the GEF communication and visibility policy (www.thegef.org/gef/policies_guidelines/communication_visibility), and FAO's corporate communication strategy with input from the KFS and other partner institutions implementing the project. All publications will bear the logos of the Government of Kenya/KFS, FAO and GEF. All information generated by the project will be uploaded in open source platforms in accordance with FAO and the Government of Kenya policy of right to information.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):
 (Please attach the Operational Focal Point endorsement letter(s) with this form. For SGP, use this OPF endorsement letter).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Dr. Ayub Macharia	Director General/ National GEF Operation Focal Point	NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY	04.17.2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Gustavo Merino Director, Investment Centre Division Technical Cooperation and Programme Management FAO Viale delle Terme di Caracalla (00153) Rome, Italy TCI-Director@fao.org		17 June 2016	Dan Rugabira, FAO Representative Kenya Nairobi, Kenya Philip Kisoyan NRM Officer Representative Office Kenya Nairobi, Kenya	+254 20 7625960 Tel: +254 20 762 5920 Cell: +254 722 872 580	FAO-KE@fao.org philip.kisoyan@fao.org
Jeffrey Griffin Senior Coordinator FAO GEF Coordination Unit Investment Centre Division Technical Cooperation Department FAO - Rome, Italy			Kentaro Aoki, Asia and the Pacific Service, Investment Centre Division Technical Cooperation Department FAO - Rome, Italy	+39 0 6570 56202	kentaro.aoki@fao.org

ANNEX A: PROJECT RESULTS FRAMEWORK

See Annex I in the FAO-GEF Project Document

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comments till 30th June 2015	
<p>GEFSec Comment: question 9: Is the project consistent with the recipient country's national strategies and plans or reports and assessments under relevant conventions, including NPFE, NAPA, NCSA, or NAP? Please, note that at CEO endorsement, we would like to see more details about strategies, plans, and reports to be clear on the consistency of the approach and figure out how this project fits with national orientations.</p>	<p>FAO response: Done – section 1.6.3 of the project document explains the linkage between the project and Vision 2030.</p>
<p>GEFSec Comment on question 10: Does the proposal clearly articulate how the capacities developed, if any, will contribute to the sustainability of project outcomes?</p> <p>October 3, 2012</p> <p>Not adequately addressed. Please provide a detailed account of how this project links with REDD+ and CCM5 objectives and results in increased carbon stock in light of harvesting and charcoal production. Perhaps a better labelled spreadsheet of carbon calculations and sources cited will clear this up, but at present the capacities proposed for development do not appear to contribute to sustainability of C or socioeconomic benefits; and,</p> <p>GEFSec Comment: See (4): Please explain how harvesting and charcoal production will be sustainable after the project both economically and in the currency of GEB for C. Reasoning has not yet been adequately developed for net positives after the project. See (6): This has not yet been adequately addressed, perhaps due to unclear calculations table and lack of reference for data. Please be clear in presentation of calculations how GEB for C are calculated under the proposed project. Please ensure to account for GHG emissions other than CO₂ emitted with charcoal production.</p>	<ol style="list-style-type: none"> 1. As explained in section 2A of the CEO request, the focus of the project has changed; the project will not do sustainable charcoal or harvesting of dead wood. At PIF formulation, the project intended to establish self-financing PFM via i) introduction of sustainable charcoal and earning income from selling sustainably produced charcoal and carbon credits; ii) Harvesting and selling dead timber from the Kirisia forest. To support these income generating activities, the project was going to formulate forest management plans which would be based on self-financing model, supplemented by PFM funds, to have been set up by the project. The project would have produced two models for demonstrating important aspects of sustainable forest management: i) implementing the PFM with higher levels of cash benefits for communities; and, ii) implementing the new charcoal rules and producing sustainable charcoal for sale, linked to carbon finance markets via the REDD+. 2. However, baseline assessments done during PPG showed that the conditions on the ground would not support effective implementation of any of the two pilots for the following reasons: <ol style="list-style-type: none"> a) Kirisia and Maralal are far from national charcoal production and trade routes, and the demand for charcoal in Maralal Town would not be enough to maintain a commercial charcoal production system; b) Due to the poor state of roads connecting Maralal to the charcoal markets in Nayahururu, Nanyuki, Nyeri, Meru and Nairobi, the cost of transporting and hence price of charcoal produced sustainably in Samburu would not compete with charcoal produced in other areas of the country, where no investment is associated with its production; c) Even if the additional transport cost was not prohibitive, it is still very difficult to get consumers in Kenya to pay a premium price for sustainably produced charcoal, to compensate the sustainable producers; so

carbon finance is the only way to recover the investment on sustainably producing charcoal;

d) Traditional charcoal production using earth kilns which are 10% efficient produces nine tons of carbon dioxide for every ton of charcoal (ESDA 2007). Sustainable charcoal (where trees are planted and efficient kilns are employed) is carbon neutral because the carbon emitted during production and consumption can be sequestered by trees that are planted, or allowed to continue growing (by coppicing instead of felling). Thus taking earth kilns as a baseline for every one ton of sustainable charcoal that is produced, it offsets nine tons of carbon dioxide (or nine units of CO₂). At a price of US\$ 5 per ton of CO₂, a village producing 500 tons of sustainable charcoal (that means 4500 (9 x 500) tones of CO₂) could earn US\$ 225,000 selling carbon credits, in addition to the sale value of charcoal. However, to realize these values requires very strong monitoring and verification systems, to avoid leakage; such systems are simply not available in Samburu today. It would therefore be difficult to implement such a scheme and sell the carbon credits. In addition, insecurity in the Northern borders of Kirisia (emanating from cattle raids by the Rendille and the Turkana's) have forced some Samburu households to settle inside the Kirisia gazetted forest, where all year round grazing and cultivation is a barrier to carbon finance earning schemes;

e) The setting up self-financing PFM schemes through harvesting of dead wood was also found to be impractical for two reasons: the capacity deficits in the KFS Maralal Office and the CFA would make it difficult to effectively manage such a commercial scheme – which would require two conditions currently not in place:

a. A clearer definition of mandates, roles and responsibilities amongst the CFA, KFS, National and County Government. The CFA has just been formed and only 36% of the eligible population are members; the County government in particular is still in establishment mode, and it is not clear what their policy will be on the role of PFM and participation of communities in financial schemes;

b. There was no support for harvesting of dead or live wood by the KFS National leadership. Although there seemed to have been willingness to consider the scheme at PIF formulation, consultations during PPG confirmed that such a scheme would not be allowed at this point in time. Part of the reason is that there is very limited capacity for enforcement of such a scheme in KFS, not just in Maralal, but nation-wide; opening the avenue for harvesting forest resources needs to be backed up by strong capacity in KFS to ensure that the facility is not abused on site, and from similar forests. The KFS office in Maralal has such capacity limitations that it would not provide this safeguard. Discussions with the National Leadership of KFS confirmed that the institution did not feel that it currently has the capacity nationally to supervise the implementation of such a scheme safely, without it being abused and used to accelerate deforestation more widely.

3. A positive development is that the CFA and KFS, with support from the Africa wildlife Foundation (AWF) have formulated a Kirisia Forest Management Plan (2012-2016) and, in the process, undertook capacity needs assessment, presenting a very clear picture of where capacity deficits are most glaring, and need to be supported. Building on the Forest Management process, PPG studies revealed that fire and overharvesting of resources to meet household and livestock feed requirements are far more urgent threats to the forest than charcoal or lack of access to the standing timber in the forest. The focus of the project has therefore been adjusted to

	<p>address these barriers, to support the implementation of the progressive elements of the Kirisia Forest Management Plan, even as it is updated and upgraded to a Kirisia Ecosystem Management Plan (2016-2026), and to create capacity and policy enabling environment that would allow the introduction of finance schemes to support PFM in the future. In particular the project has now taken on two outputs not foreseen in the PIF: a) empowering communities (skills) to put over 50,000 hectares of rangelands under holistic natural resources management approach to rangeland management – to improve rangeland productivity despite the dearth of extension service support from National and County governments’ to the Samburu pastoralists; b) securing wildlife dispersal areas and migratory corridors, in response to the finding at PPG that the Kirisia ecosystem is losing these important areas, with negative consequences to the ability of the broader Samburu Heartlands to continue functioning as a healthy ecosystem.</p> <p>The project links to REDD+ and CCM5 is therefore in securing PFM and putting over 50,000 ha of forest under improved management and supporting regeneration in 25,000 of degraded forest, thereby reducing deforestation and securing 10,298,067tCO₂e in 5 years, cumulative to 30,399,894 by year 20)</p>
<p>GEFSec comment: February 8, 2013: Actually, we are of course keen with support of SFM, especially because of the multiple environmental and social benefits SFM projects can provide. However, this FAO project on sustainable fuel wood production is touching a potentially very sensitive issue, notably when looking at the justification of the use of CCM and SFM resources. At the end of the day, we have to be sure that the whole approach is positive in terms of carbon impact.</p> <p>Our understanding is that it is one point to introduce SFM practices for fuel wood production, but the charcoal demand will remain at least the same, if not higher, while the harvested biomass will be less important in the restored forest landscapes. This implies a high risk of leakage that must be acknowledged and taken into account. Therefore, to justify the use of CCM funding, mitigation measures should be clearly incorporated and explained (e.g. increased efficiency, alternative fuel sources). Requesting CCM funding supposes that the use of CCM funding leads to net carbon benefits. The considered measures for that may have to include activities beyond SFM (improved cookstoves, improved charcoal manufacturing processes).</p>	<p>Please see response to the previous question explaining that the project has changed direction and will not do sustainable charcoal.</p>
<p>GEFSec Comment: The result framework is clear with three technical components. We appreciate that 60 percent of resources are used for the component 1 to develop participatory forest management systems. However, we will need further justification and details to figure out what will really be done. These points are linked to questions raised in the cell 13. For the component 1, four outputs are proposed that describe</p>	<p>The PPG process was used to clarify what would be done under this component, which now has 4 outcomes, each with several outputs. This is detailed in the prodoc and CEO endorsement, and is summarized below. GHG emissions will be through avoided deforestation as a result of putting over 91,000 ha of indigenous forests under improved management (capacity of KFS to implement forest management programs, complemented by an empowered Community Forest Association; protection from fire (by providing a fire tower and fire fighting equipment); collectively, the stronger partnership of National government Agency and Community Forest</p>

processes and principles. However, it is relatively difficult to figure out the reasoning, the justification, and what kind of activities will be implemented at the end. (CC-M, MB, 08/28/12): Please detail what you mean by the establishment of participatory forest management system, and how GHG emissions will be reduced or avoided.

Management institution will re-enforce the traditional forest management systems of the Samburu people, which has maintained the Kirisia and other forests in the Samburu Heartlands for hundreds of years. It is noted that it is the breakdown of the Samburu traditional resources/forest management systems, without replacement by “modern” forest governance systems that has opened the forests to “new-types” of uses that threaten the forest. This situation will be arrested by empowering the CFA, providing economic/financial incentives for re-engaging the traditional forest management systems, complimented with a stronger national partner, who partner in PFM while having capacity to enforce “standard forest management “ roles – a win-win situation.

Outcome 1: Strengthened capacities of KFS and CFA puts 91,000 ha of forests under PFM and maintains 10,298,067tCO₂e in 5 years, cumulative to 30,399,894 by year 20) of carbon in the Kirisia Forest

Indicators:

50% increase in capacity over baseline value of KFS and CFA as measured by UNDP capacity scorecards; 91,000 hectares of dryland forest under PFM agreements; 25,000 ha of degraded forests under restoration; PFM contributing to maintain 10,298,067tCO₂e in 5 years, cumulative to 30,399,894 by year 20).

The outputs to deliver this outcome are: output 1. Kirisia CFA empowered, becomes operational and provides community leadership in forest management; drafts over 50 forest management plans for various groups; Output 2: KFS has operational capacity to implement forest management and PFM in the 91,000 ha forest and to manage the 150 ha plantation, reduce fire and other threats to the forest; Output 3: Kirisia Forest Management Plan upgraded to Kirisia Ecosystem Management Plan, with a biodiversity monitoring program;

Output 4: A forest rehabilitation/reforestation program being implemented to restore 25,000 ha of forests.

Outcome 2: Integrity of the Kirisia ecosystem as a wildlife refuge improved to continue playing the critical role of maintaining the Samburu Heartland as a functioning ecosystem, and habitat for wildlife.

Indicators: 75% of Kirisia landscape retains important wildlife dispersal areas and migratory corridors; Over 50% of eligible areas being management under conservancies; At least 30% decrease in poaching of key species

The outputs to deliver on this outcome are:

Output 1. Important wildlife dispersal areas and migratory corridors mapped and protection negotiated with land users/owners; Output 2: Support to 3 existing and establishment of 6 new conservancies proposed by the County Government (government co-finance); Output 3: Equipment and materials for wildlife monitoring and protection within and outside the Forest to cover the Kirisia ecosystem.

Outcome 3: Income from honey, tourism and other NTFPs providing financial incentives for PFM and conservation and increase household incomes by more than 25% for participating households;

Indicators:

25% increase in honey production per household participating; 25% increase in household incomes from honey for honey cooperative cooperative

	<p>members'; Strategy for tourism development available with a plan for financing; identified NTFPs commercially available for income generation</p> <p>The outputs to deliver on this outcome are;</p> <p>Output 1: Promoting high volume buying market linkages for honey and smoothening supply chains; Output 2; Tourism development model developed, to deliver benefits to the local communities; Output 3: Other NTFPs with potential identified and strategy for commercial exploitation designed and implementation started.</p> <p>Outcome 4: Communities empowered to put over 50,000ha under sustainable rangeland management through Holistic Natural Resources Management (HNRM) approach, which incorporates traditional resource management:</p> <p>Impacts: 50,000 ha under HNRM plans with 25% increase in productivity of rangelands over baseline.</p> <p>The outputs to deliver on this outcome are:</p> <p>Output 1: Improved grazing and Holistic Natural Resources Management outcome goals developed in a participatory process and action plans for their implementation developed, covering 50,000ha; Output 2: Communities empowered to initiate implementation of their the HRM plans; Output 3: Targeted communities develop and implement grazing plans as standard management practice.</p>
<p>Thanks to include a comprehensive risk analysis at CEO endorsement and develop the socio-economic aspects, including gender issues; and: Please include a risk analysis in the PPG and provide a robust risk analysis at CEO endorsement (see also cell 31).</p> <p>October 3, 2012</p> <p>- We did not find responses for this question. We consider it will be included in the PPG and in the CEO endorsement. Please confirm. In the same time, please include in the risk analysis an accounting of consequences of unsustainability of wood fiber production after the end of project. Also, for the consequences of not meeting expectations for GEB for C.</p>	<p>A comprehensive risk analysis is included in section 3 of the project document. We note that there is no longer need to account for unsustainability of wood fibre production after the GEF project – due to the change of project focus explained in the CEO Request and response to comment 1 (in this document).</p>
<p>Most of the partners and stakeholders who are mentioned are governmental or scientific institutions. Please confirm that a deep analysis of local partners will be included in the PPG and that partnerships will be developed with key stakeholders on the ground</p> <p>FAO Response: A comprehensive stakeholder assessment is presented in section B1 (and Table 16) of the CEO Request. Stakeholder analysis undertaken during the PPG included assessment of stakeholder interest in CCM, BD, LD PFM in Kirisia, their level of influence and role in the project implementation. It is noted that the key stakeholder is the Community Forest association;</p>	<p>Done.</p>

others include the honey producers cooperatives and resource user groups.	
<p>Please justify more clearly why university training rather than other forms of education (extension) is required.</p> <p>February 8, 2013 -- We still believe the rationale to justify the use of GEF resources is not obvious and should be covered by other sources of financing. We do not welcome this activity. At CEO endorsement, please reinforce the justification for university training or, preferably, find other partners to finance it.</p>	<p>: We have removed the reference to university education and replaced it with two types of training: i) provide technical staff and communities with skills required to implement PFM effectively (based on a skills needs assessment to be conducted during the inception period); ii) training on Holistic Natural Resources Management approach for improved rangelands management (to be provided to resource user groups, also based on a skills/capacity needs assessment). However, we note that links with universities will be made – to utilize MSc and PhD students in undertaking specific monitoring aspects. This will be cost effective because, by hosting student researchers, the project benefits from the resources of the universities, at no added cost. A list of subjects to be supported by university research will be compiled during the formulation of the ecological and biodiversity monitoring program and circulated widely (to local and international universities).</p>
<p>Again, five percent of the GEF grant used for technical activities (i.e. \$2,674,606) represents \$133,730. Please, revise the management costs accordingly. At CEO endorsement, if there is a justification to go beyond 5 percent, Please, provide a detailed budget that will thoroughly be reviewed. Thanks</p>	<p>Project management has been adjusted to US\$ 134,000 (within the allowed limit).</p>
<p>We acknowledge the use of 60 percent for the component 1. As requested above, we need more information on the role of co-financing projects to understand and justify the use of GEF resources for the component 2 (legal framework on SFM) and the component 3 (REDD+ framework).</p>	<p>As explained in the CEO request and response 1 on this document, the project has changed direction; component now focuses on creating policy and legislative environment needed for effective implementation of PFM at the local level. It is particularly important to assist the CFO and the County government to navigate the mandates, roles and responsibilities of the various partners (KFS, KWS, County Government, and CFA) within the devolved governance. This is now clearly explained in the barrier analysis and section 2 (project objectives and outcomes) of the prodoc.</p>
<p>The co-financing shows a ratio of 1:4. This is a minimum for such project and the number of potential partners active on SFM. Try to increase the co-financing at CEO endorsement and confirm it.</p>	<p>Every effort was made to increase this co-finance. However, it proved difficult to get a higher commitment. This is attributed to the low level of financial support going to the Drylands of Kenya. However, the good point is that most of FAO co-finance is cash; which will go a long way in addressing the land tenure issues in particular. These are critical to the improved governance of natural resources and forests in the arid and semi-arid areas.</p>
<p>The GEB must be more carefully described. Please confirm that carbon benefits calculations account for current carbon stocks and GHG emissions from charcoal production, and also during the project and beyond account for the short rotations and GHG emissions from charcoal production.</p>	<p>As explained in previous sections, sustainable charcoal and harvesting of dry standing tree no longer part of the project.</p>
<p>Confirm co-financing; provide a full analysis of local stakeholders and detail partnerships arrangements;</p>	<p>Done, as explained in response to similar comments in the foregoing sections</p>
<p>During the PPG, please determine whether the ecological characteristics of Kenya's dryland forests will make forest regeneration too difficult</p>	<p>As explained in the CEO request, the focus of the project has shifted to capacity and incentives for PFM. PPG assessments confirmed that reforestation via planting is very expensive; so the focus now is on</p>

<p>or expensive, and what besides plantations would be the fall-back plan</p>	<p>protection of the current forest and avoided deforestation. However, we note that KFS will engage in rehabilitation of the current forest plantation – through their signature program on “PELIS - Plantation Establishment and Livelihood Improvement Scheme”. Formerly known as the “Shamba system” this scheme allows farmers to go crops for several years in the newly planted plantation; providing incentives for seedling husbandry. The system is highly successful in plantation establishment in high potential areas, amongst crop farming communities. It is highly doubtful that it will work in Samburu – given the fact that the Samburu traditionally “look down” on crop farming. However, protecting degraded areas to promote natural regeneration is the most viable form of regeneration in the Semi-Arid areas, and will be prioritized.</p>
<p>Please, reinforce demonstration showing that the sustainable management of the forest and the sustainable harvesting of wood fuel will allow both to harvest at least the same quantity of fuel wood as before and to sequester extra carbon on top of this harvesting.</p>	<p>No longer required because project has changed focus.</p>

<p>Comments from Council members at PIF approval</p>	<p>Response</p>
<p>Japan Council member</p>	
<p>Following the GEF project will be implemented in the same countries and scopes of activities of JICA. In order to avoid duplication of assistance then create synergy between projects, close coordination with JICA is highly recommended. JICAs Projects: Forest Preservation Program http://www.mofa.go.jp/region/africa/ticad/ticad4/report09dig est08.pdf. Program Grant Aid amounting to 3.0 billion yen (equiv.US\$ 29.2 million) in total was provided to 5 African countries in Mar.2010, in order to promote sustainable forest use and conservation through implementation of assessment of forest resources and suitable forest management plan</p>	<p>Kenya was one of five countries receiving support under the Forest Preservation Program. The Forest Preservation Funds supported Kenya Forestry Service to strengthen its capacity for Sustainable Forest Management (SFM) in general. The Forest Preservation project contributed to the formulation of the Kirisia Forest Management Plan, which the current GEF project will help to operationalize. The Forest Preservation project is however already concluded and additional funds are required to support the implementation of the Draft Kirisia Management plan. The GEF project will be coordinated by KFS and will therefore benefit from the capacity established at the KFS national level by the Japan project.</p>
<p>Germany Council member</p>	
<p>Comment 1: Germany requests that the following requirements are taken into account during the design of the final project proposal; in addition, Germany requests that the Secretariat sends draft final project documents for Council review four weeks prior to CEO endorsement: We generally support the formulated objectives, but would like to request additional information in the final project document about the current natural resource and biodiversity governance situation in the project area: In this context, as applicable, traditional and customary use and laws as well as conflicts between herders and farmers, and the potential development of instruments such as Bio-Cultural Community Protocols (BCPs) should be analysed and be taken into account when</p>	<p>The weak capacity of indigenous communities to influence the process of nationalization of international laws has been added as part of the policy barriers; that might lead to further alienation local communities from benefiting from their resources, even when policies are formulated to empower them. This barrier is articulated in para 144 and 145. Output 5.1 has also been modified to reflect that the communities will be facilitated to formulate a bio-cultural community protocol which will be the basis for revising national policies to accommodate the needs of the community as well as implement national and international policy. This is now articulated in paras 185 and 186.</p>

designing measures and policies in order to improve local governance.	
There seems to be an inconsistency regarding Component 2 (Expected Outcomes 2.1b), which states that 80% of managed forest lands will be covered by community-controlled self-financing mechanisms while on Para 19 says that “the project will take a step in that direction through assisting communities to set up mechanisms that generate and manage income and might eventually lead to self-financing in the future”. We seek clarification on whether this is not contradicting to the expected outcome.	Due to the changes made to the project (explained in responses to GEFec in sections above, this contradiction no longer exists).
U.S. Council member	
The United States applauds this worthwhile project, particularly assistance provided to Kenya’s Forest Service for enhancing the management of dry land forests, which have previously received less attention. We are also pleased to note that the Government of Kenya will receive support in preparing a National REDD+ Strategy as a result of this project. This project will also serve to enhance the country’s capacities in sustainable silvicultural and forest management practices, which are key to effective implementation of REDD+ activities.	The original intention was to link the proposed GEF project with the ongoing REDD+ readiness preparations in Kenya, rather than use the project funds to actually finance the national REDD+ strategy (noting the budget for such an activity was not included in the PIF). We note that there are a number of ongoing initiatives on REDD+ supported by the UN REDD Programme in which FAO, UNEP and UNDP are supporting various components of the REDD+ readiness. FAO has been supporting the legal preparedness and MRV training for government staff and is supporting land tenure reforms in the community areas with a view to strengthening land tenure rights for more effective participation in REDD+ programs. This project will therefore remain connected to all the REDD+ initiatives as originally planned.

STAP Comments	Response
<p>247. Comment 1: STAP welcomes the proposal on "Developments of SFM and Support to REDD+ for Dryland Forests" developed by FAO with the goal to develop participatory sustainable forest management systems in dryland forests for biodiversity conservation, climate change mitigation and sustainable livelihoods benefits. The proposal describes necessary elements to produce successful outcomes and deliver global environmental benefits, including baseline description and general methodology outline. The proposal makes a reference to national and international priorities and promises to deliver biodiversity, climate change mitigation and sustainable forest management benefits. The strong participatory role of national research institutions in the project meets STAP's expectations and is warmly welcomed. To deliver the aforementioned benefits, STAP wishes to highlight the following important scientific and technical considerations:</p> <ul style="list-style-type: none"> Carbon stock assessment methodologies are critical elements of sustainable forest management and climate change mitigation projects. The technical approaches for carbon sequestration and avoidance should be based on widely tested methodologies and thus offer good opportunity for scaling-up elsewhere. FAO may also wish to consider the application of the Carbon Benefits Project simple or detailed assessment tools for the estimation of carbon stock change in biomass and soil. Further information 	<p>Advise welcomed and noted; guidance was used in calculations of emissions reductions and carbon benefits – annex 2 (below) and tables 1, 10 and 18 of this CEO request.</p>

<p>about the Carbon Benefits Project is available at http://carbonbenefitsproject-compa.colostate.edu/</p> <ul style="list-style-type: none"> • Calculations of global environmental benefits in the form of avoided and sequestered CO2e emissions are mentioned to be available in a separate Excel sheet submitted with the PIF. However, the document is not available for download in Project Management Information System (PMIS). 	
<p>Comment 2: Imperative inclusion of pilot project is mentioned in the proposal. During the development of the project document, consideration might be given to introducing some elements of experimental or quasi-experimental design such as that proposed by the STAP Advisory Report "Experimental Project Designs in the Global Environment Facility". This would assist in the generation of empirical evidence on project outcomes, and inform future investments in this area.</p>	
<p>Comment 2: Imperative inclusion of pilot project is mentioned in the proposal. During the development of the project document, consideration might be given to introducing some elements of experimental or quasi-experimental design such as that proposed by the STAP Advisory Report "Experimental Project Designs in the Global Environment Facility". This would assist in the generation of empirical evidence on project outcomes, and inform future investments in this area.</p>	<p>STAP comment and guidance noted, and appreciated. However, as explained in the CEO request, the project has changed focus and is now a set of work program that is much simpler and straight forward; no longer suitable for the suggested experimental design.</p>
<p>Comment 3: STAP welcomes the inclusion of output 2.1.5 "Review and update of the Kenya policy for sustainable charcoal production". STAP suggests that it would be valuable to assess the barriers to sustainable charcoal production, and specifically to assess the availability of skills and facilities for improved charcoal production. If these are found to be inadequate, STAP suggests that the proponent consider addressing these needs.</p>	<p>As explained in the CEO Request, the project has changed focus and will not engage in sustainable charcoal production.</p>
<p>Comment 4: Finally, STAP wishes to request more information on regarding the tradeoffs re: the selection of natural regeneration techniques (coppicing and self-set-seeding) as opposed to directed regeneration relying on nursery stock.</p>	<p>As explained in the CEO request, the project has changed focus. However, as explained in response to a similar GEFSec question, PPG assessments confirmed that reforestation via planting is very expensive for Arid Lands, where the rates of survival of seedlings is often very low. Although KFS intends to use its signature program of "PELIS (Plantation Establishment and Livelihood Improvement Scheme), it is highly doubtful that it will work in Samburu – given the fact that the Samburu traditionally "look down" on crop farming. However, protecting degraded areas to promote natural regeneration is the most cost effective method of forest restoration in the semi-arid lands.</p>

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS²¹

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF: 20 FEBRUARY 2013			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF/NPIF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Salaries Professional: Finance and administration officer (6%)	2,830	2,941.73	
Consultants			
Expert 1: International consultant	25,600	25,176.21	
Expert 2: National consultant/team leader	13,500	14,513.70	
International travel	8,070	7,121.27	
Total	50,000	49,753	247

²¹ If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

Non-grant instrument is NOT used in the project.

ANNEX E: QUANTIFYING CARBON BENEFITS (FROM ANNEX 4 IN THE PROJECT DOCUMENT)

Three forest management regimes are considered to generate carbon benefits through the project. The narrative of these regimes and intervention scenarios is as follows:

- 1) **Forest protection:** this mitigation activity will be carried out for the 45,000 ha of healthy, intact forests deserving maximum conservation given their high environmental value. No exploitation of wood stocks is to be allowed under this management activity, and the collection of non-timber forest products and use by livestock should be subject to strict rules. The main monitoring activity to be implemented in the forest area under forest protection is forest surveillance to avoid illegal exploitation. The annual deforestation rate of the project site is estimated as 1.4% (see the reference in the table below). The project expects to reduce the annual deforestation rate to 60% (from 1.4% to 0.84%) – with the efficiency factor of 40% - compared to the baseline rate through the forest protection activities.
- 2) **Restoration/regeneration:** carbon stocks will be enhanced by means of regeneration of grassland areas. This mitigation activity will be considered for project areas, where tree cover is now very low. These areas have carbon stocks in carbon pools at their lowest level. Therefore in these areas, the aim is to increase carbon stock through natural regeneration. The project will support forest regeneration instead of planting due to the nature of the dry land forests, where survival rates could be very low. In the project, a total of 10,000 ha will be under enhancement of carbon stocks by means of regeneration.
- 3) **Sustainable forest management:** the remaining degraded forests including group ranch forests will be under sustainable management to fulfil relevant environmental, social and productive objectives (17,000 ha). The project will work with the Community Forestry Association (CFA) and the owners of ranches to ensure that exploitation of forest resources happens at a pace that does not reduce the productivity of the forest and does not harm other relevant socio-economic and environmental functions. The project expects to reduce the degradation level of the grassland from 20% to 10% of biomass lost. The occurrence of fire is not considered in the GHG emissions calculation.

The carbon benefits from the project are estimated in terms of lifetime direct as well as indirect GHG emission avoided over the default time horizon of 20 years under the IPCC guideline and the guidance of the GEF Tracking Tool for LULUCF. For this project, the durations of implementation phase and the capitalization phase are defined as 5 years and 15 years, respectively. The carbon benefits are calculated using EX-Ante Carbon balance Tool (EX-ACT).

Direct lifetime GHG emission avoided

In the GEF Tracking Tool for Climate Change Mitigation projects, direct lifetime GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totalled over the respective lifetime of the investments. The following variables and assumptions are used for the calculation. The EX-ACT results file is available:

Variable	Value	Unit	Note
Lifetime length for direct GHG emission avoided	20	years	5-year implementation phase plus 15-year capitalization phase
Climate, and Moisture regime	Tropical Montane, Dry	-	EX-ACT data based on the project area (altitude: 2000 - 2200 m, mean annual rainfall: 600 – 750 mm, mean annual temperature 24-33 °C)
Dominant Regional Soil Type	High activity clay Soils	-	EX-ACT data
Total coverage area for direct GHG emission calculation	72,000	ha	Project target
Target benefit area via forest protection	45,000	ha	Project target

Target benefit area via assisted regeneration and reforestation in degraded forests	10,000	ha	Project target
Target benefit area of existing degraded ranches and forests via SFM practice	17,000	ha	Project target
Estimated historic average of annual deforestation rate (baseline)	1.4	%/year	Based on Global Forest Change data (Published by Hansen, Potapov, Moore, Hancher et al.). Corresponds to a deforestation rate of 1.4%*
Target annual deforestation rate with project through forest protection activity	0.84	%	Project target assumption. Assumed avoided deforestation per year by 40% of efficiency through project intervention compared to baseline.
Remained forest of the target benefit area after 5 years without project (baseline)	41,850	ha	$45000 - 45000 * 0.014 * 5 = 41,850$.
Forest area remained with project via forest protection activity (5 years)	43,110	ha	$45000 - 45000 * 0.0084 * 5 = 43,110$.
Tier 2 values for above- and below-ground carbon stock (stem, branches, leaves, roots) for unmanaged forest including degraded montane moist forest	137	tC/ha	Mid-point between intact and degraded forest in CAMCO (2010)**. Above ground assumed as 100 tC/ha and below-ground as 37 tC/ha based on re-allocating 73% - 27% ratio as per Exact default for deforestation and degradation.

* Global Forest Watch (GFW) Change Assessment Data for Rift Valley (Tree Cover in 2000: 863,000 ha; Assessment Period: 2000-2014; GFW Deforested Area for Rift Valley Province: 168,010 ha under canopy cover at 15%; Deforested area per year: 12,001 ha; Annual rate of deforestation: 1.4%).

** CAMCO (2010) Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya.

The estimated values of direct lifetime GHG emission avoided during 20 years (5 years of implementation phase and 15 years of capitalization phase) are as follows:

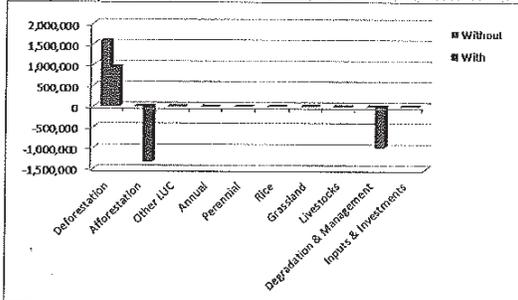
Management regime	Target benefit area (ha)	Direct lifetime GHG emission avoided (tCO ₂ eq)
Forest Protection	45,000	630,912
Restoration/regeneration	10,000	1,324,441
Sustainable Forest Management	17,000	980,348
TOTAL	72,000	2,935,701

The direct lifetime GHG emission mitigation potential from the project is estimated as 2,935,701 tCO₂eq, which is equivalent to about 2.0 tCO₂eq per hectare per year in the considered biome and time frame.

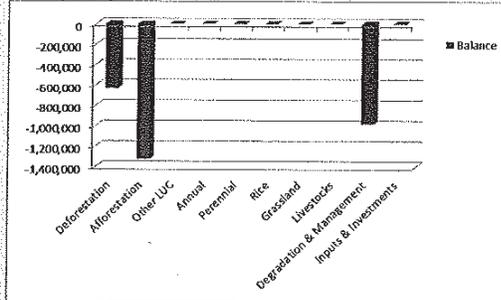
Table below provides the details of the direct lifetime GHG fluxes as calculated with the EX-ACT during 20 years of project lifetime:

Project Name	Capacity, Policy and Financ	Climate	Tropical Montane (Dg)	Duration of the Project (Years)	20				
Continent	Africa	Dominant Regional Soil Type	HAC Soils	Total area (ha)	72000				
Components of the project	Gross fluxes			Share per GHG of the Balance			Result per year		
	Without	With	Balance	CO ₂	N ₂ O	CH ₄	Without	With	Balance
	All GHG in tCO ₂ e			Biomass	Soil	Other			
	Positive = source / negative = sink								
Land use changes									
Deforestation	1,577,280	946,388	-630,912	-630,912	0	0	78,884	47,318	-31,546
Afforestation	0	-1,324,441	-1,324,441	-1,324,441	0	0	0	66,222	-66,222
Other LUC	0	0	0	0	0	0	0	0	0
Agriculture									
Annual	0	0	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0	0	0
Rice	0	0	0	0	0	0	0	0	0
Grassland & Livestocks									
Grassland	0	0	0	0	0	0	0	0	0
Livestocks	0	0	0	0	0	0	0	0	0
Degradation & Management	0	-980,348	-980,348	-976,718	-103,629	0	0	-49,017	-49,017
Inputs & Investments	0	0	0	0	0	0	0	0	0
Total	1,577,280	-1,358,421	-2,935,701	-2,832,071	-103,629	0	78,884	67,921	146,785
Per hectare	22	-19	-41	-39.3	-1.4	0.0	1.1	0.9	2.0
Per hectare per year	1.1	-0.9	-2.0	-2.0	-0.1	0.0	1.1	-0.9	-2.0

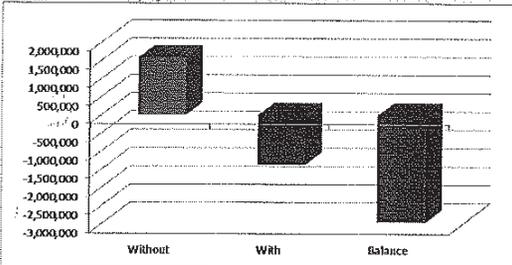
Fluxes per component



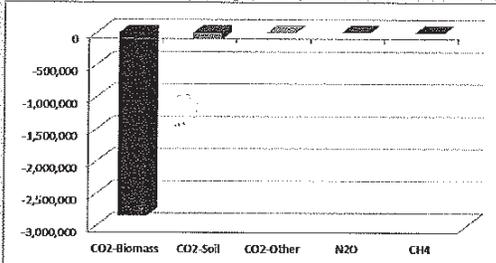
Balance per component



Total without and with project and balance



Share of the balance per GHG (plus origin for CO₂)



Evolution of land use category (hectares/ha)		Initial State	Without project	With project
Forest/Plantation	Annual	62,000	58,850	70,110
Agriculture	Perennial	0	0	0
	Rice	0	0	0
Grassland		10,000	13,150	1,890
Other lands	Degraded	0	0	0
	Other	0	0	0
Wetlands		0	0	0
Total area (ha)		72,000	72,000	72,000

Uncertainty level	% of uncertainty
Gross fluxes	
Without	1,577,280
With	-1,358,421
Net balance	-2,935,701

Detailed matrices of changes

Other indicators		Initial State	Without project	With project
Area irrigated - ha	Irrigated rice	0	0	0
	Annual Crops	0	0	0
	Total	0	0	0
Cumulated areas burnt - ha	From deforestation	0	0	0
	From degradation	0	0	0
	Afforestation	0	0	0
	Other LUC	0	0	0
	Annual	0	0	0
	Perennial	0	0	0
	Irrigated rice	0	0	0
Grassland	0	0	0	
Total		0	0	0

Indirect lifetime GHG emission avoided

In the GEF Tracking Tool for Climate Change Mitigation projects, indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, and catalytic action for replication.

The indirect potential is assumed to replicate in the greater Samburu ecosystem and in the neighbouring forest ecosystems in Marsabit and Likipia Counties. The direct target area for avoided deforestation is 50,000 ha. In addition, the scaling-up activity includes 10,000 ha of new restoration/regeneration, and 20,000 ha for SFM of degraded grassland area. The total coverage of indirect potential benefit area for the carbon calculation is 80,000 ha.

For the estimation of indirect lifetime GHG emission avoided during 20 years (5 years of implementation phase and 15 years of capitalization phase), the following variables and assumptions are used for the calculation. The EX-ACT results file is available:

Variable	Value	Unit	Note
Lifetime length for indirect GHG emission avoided	20	years	5-year implementation phase plus 15-year capitalization phase
Climate, and Moisture regime	Tropical Montane, Dry	-	EX-ACT data based on the project area (altitude: 2000 - 2200 m, mean annual rainfall: 600 – 750 mm, mean annual temperature 24-33 °C)
Dominant Regional Soil Type	High activity clay Soils	-	EX-ACT data
Indirect potential benefit area	80,000	ha	Project potential target covering the greater Samburu, Marsabit and Likipia forest ecosystems.
Indirect potential area via forest protection	50,000	ha	Project potential target
Indirect potential area via assisted regeneration and reforestation in degraded forests	10,000	ha	Project potential target
Indirect potential area of existing degraded ranches and forests via SFM practice	20,000	ha	Project potential target
Estimated historic average of annual deforestation rate (baseline)	1.4	%/year	Based on Global Forest Change data (Published by Hansen, Potapov, Moore, Hancher et al.). Corresponds to a deforestation rate of 1.4%*
Target annual deforestation rate with project through forest protection activity	0.84	%	Target assumption. Assumed avoided deforestation per year by 40% of efficiency through project intervention compared to baseline.
Remained forest of the target potential benefit area after 5 years without project (baseline)	46,500	ha	$50000 - 50000 * 0.014 * 5 = 46,500$
Forest area remained with project via forest protection activity (5 years)	47,900	ha	$50000 - 50000 * 0.0084 * 5 = 47,900$

Tier 2 values for above- and below-ground carbon stock (stem, branches, leaves, roots) for unmanaged forest including degraded montane moist forest	137	tC/ha	Mid-point between intact and degraded forest in CAMCO (2010)**. Above ground assumed as 100 tC/ha and below-ground as 37 tC/ha based on re-allocating 73% - 27% ratio as per Exact default for deforestation and degradation.
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* Global Forest Watch (GFW) Change Assessment Data for Rift Valley (Tree Cover in 2000: 863,000 ha; Assessment Period: 2000-2014; GFW Deforested Area for Rift Valley Province: 168,010 ha under canopy cover at 15%; Deforested area per year: 12,001 ha; Annual rate of deforestation: 1.4%).

** CAMCO (2010) Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya.

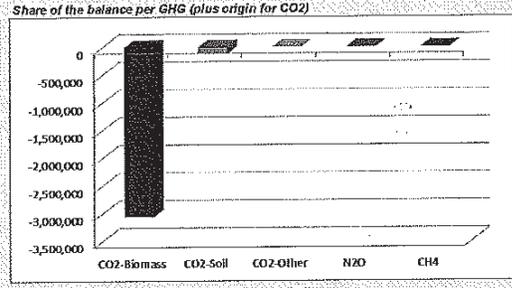
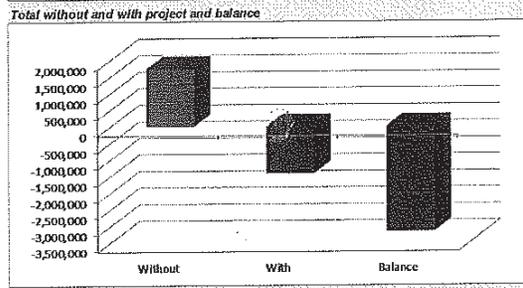
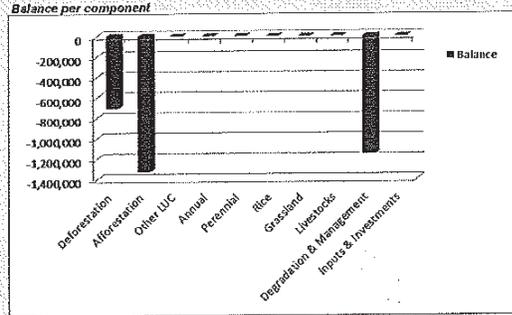
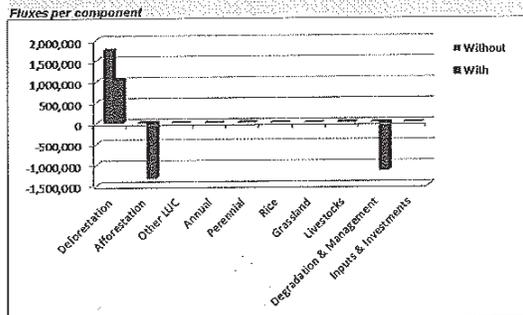
The estimated values of lifetime indirect GHG emission avoided during 20 years (5 years of implementation phase and 15 years of capitalization phase) are as follows:

Management Regime	Target benefit area (ha)	Lifetime Indirect GHG emission avoided (tCO ₂ eq)
Forest Protection	50,000	701,013
Restoration/regeneration	10,000	1,324,441
Sustainable Forest Management	20,000	1,153,350
TOTAL	80,000	3,178,804

The indirect GHG emission mitigation potential from the project is estimated as 3,178,804 tCO₂eq, which is equivalent to about 2.0 tCO₂-eq per hectare per year in the considered biome and time frame.

Table below provides the details of the indirect GHG fluxes as calculated with the EX-ACT during 20 years of project lifetime:

Project Name	Geopcity, Policy and Finan	Climate	Tropical Monhans (Dry)	Duration of the Project (Years)	20					
Continent	Africa	Dominant Regional soil type	HAC-Soils	Total area (ha)	80000					
Components of the project	Gross fluxes		Share per GHG of the Balance			Result per year				
	Without	With	Balance	CO ₂	N ₂ O	CH ₄	Without	With	Balance	
All GHG in tCO ₂ e			Biomass							
Positive = source / negative = sink										
Land use changes										
Deforestation	1,752,533	1,051,520	-701,013	-701,013	0	0	87,627	52,576	-35,051	
Afforestation	0	-1,324,441	-1,324,441	-1,324,441	0	0	0	-66,222	-66,222	
Other LUC	0	0	0	0	0	0	0	0	0	
Agriculture										
Annual	0	0	0	0	0	0	0	0	0	
Perennial	0	0	0	0	0	0	0	0	0	
Rice	0	0	0	0	0	0	0	0	0	
Grassland & Livestocks										
Grassland	0	0	0	0	0	0	0	0	0	
Livestocks	0	0	0	0	0	0	0	0	0	
Degradation & Management	0	-1,153,350	-1,153,350	-1,031,433	-121,917	0	0	-57,668	-57,668	
Inputs & Investments	0	0	0	0	0	0	0	0	0	
Total	1,752,533	1,426,272	-3,178,804	3,056,688	-121,917	0	0	87,627	-71,314	-158,940
Per hectare	22	18	-40	-38.2	-1.5	0.0	0.0	0.0	0.0	0.0
Per hectare per year	1.1	0.9	2.0	-1.9	-0.1	0.0	0.0	0.0	0.0	-2.0



Evolution of land use / category (hectares - ha)		Initial State	Without project	With project
Forest/Plantation	Annual	70,000	66,500	77,500
	Perennial	0	0	0
Agriculture	Annual	0	0	0
	Perennial	0	0	0
Grassland	Annual	10,000	13,500	2,100
	Perennial	0	0	0
Other lands	Degraded	0	0	0
	Other	0	0	0
Wetlands		0	0	0
Total area (ha)		80,000	80,000	80,000

Uncertainty level		
		% of uncertainty
Gross fluxes		
Without	1,752,533	20.0
With	1,426,272	26.5
Net balance	-3,178,804	27.0

Detailed matrices of changes

Other indications		Initial State	Without project	With project
Area irrigated - ha	Irrigated rice	0	0	0
	Annual Crops	0	0	0
	Total	0	0	0
Cumulated areas burnt - ha	From deforestation	0	0	0
	From degradation	0	0	0
	Afforestation	0	0	0
	Other LUC	0	0	0
	Annual	0	0	0
	Perennial	0	0	0
	Irrigated rice	0	0	0
	Grassland	0	0	0
Total	0	0	0	

Comparison of estimates for GHG emissions from avoided deforestation

To verify the estimated values of GHG emission reductions from the project, the EX-ACT result for the Forest Protection management regime has been compared with another study. No verification of other management regimes (i.e. Restoration/regeneration and Sustainable Forest Management) has been made due to the lack of comparable data. However, it could be reviewed when new study results became available.

The following table shows a summary of GHG emissions from avoided deforestation (tCO₂eq/year/ha) that have been estimated under various target reduction scenarios developed by CAMCO (2010) and the EX-ACT for the project. The comparison indicates that the EX-ACT estimates remains relatively conservative compared to the CAMCO (2010) assessment for the impact of GHG emission from avoided deforestation.

Reference	Deforestation rate	Target Deforestation rate	Lifetime (year)	Annual emissions avoided (tCO ₂ eq/year)	Area considered (ha)	Annual emissions avoided per unit area (tCO ₂ eq/year/ha)
CAMCO (2010)*	0.5%	0%	n/a	145,332	60,000	2.4
	1%	0%	n/a	290,664	60,000	4.8
	1.5%	0%	n/a	435,996	60,000	7.2
EX-ACT estimate for the project** (direct)	1.4%	0.84%	20	31,546	45,000	0.7
EX-ACT estimate for the project** (indirect)	1.4%	0.84%	20	35,051	50,000	0.7

* CAMCO (2010) Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya. The analysis only includes the 60,000 hectares of intact forest. It assumes that the project interventions are 100% effective in preventing deforestation from the beginning of the project and continue to be 100% effective throughout the project lifetime.

** See EX-ACT tables for average annual emissions avoided (tCO₂eq/year).

ANNEX F: MECHANISM TO MAINSTREAM BIODIVERSITY CONSERVATION IN THE KIRISIA ECOSYSTEM THROUGH THE PARTICIPATORY FOREST MANAGEMENT AND CONSERVANCIES (FROM ANNEX 5 IN THE PROJECT DOCUMENT)

Mainstreaming biodiversity conservation will be done within the Community Forest Management Areas and the Conservancies, whose formulation will be negotiated during the project implementation between the County government, Kenya Forest Service and the Community Forest Association (for PFM) and group ranches owners (for Conservancies). However, both PFM and conservancy models will provide a set of guidelines for forest and wildlife resources management that will be binding to the communities, in line with the Forest/biodiversity Management Agreements (sample below) for a defined Forest/Biodiversity/wildlife management Area developed according to the principles spelt out below.

Participatory forest management (PFM) and Conservancy mode of wildlife management in Kirisia will be informed by Forest management plans and conservancy plans respectively, which:

- will define the external and internal forest/conservancy boundaries, identify resources communities need from the forests/areas, confirm the harvesting levels and frequencies allowed in order to ensure community livelihoods and sustainable forest/wildlife management;
- be backed by a conservancy/forest management contract, signed between the various CFA groups and the Kenya Forestry Service (KFS) and conservancy owners and Kenya Wildlife Service;
- contain an institutional capacity building program to ensure long term sustainability of the PFM/conservancies;

The **methodology** of establishing PFM/Conservancies in the Kirisia ecosystem will rely upon foresters and wildlife managers (KFS and KWS) as **facilitators** (encouraging, supporting, guiding). In the process the relationship of the forester, wildlife manager with the community will change from a policing role to:

- **Technical adviser** to the community – giving practical technical information or advice;
- **Liaison** between community and district or central Government in forestry and wildlife management matters
- **Mediator** (as needed) between communities or groups - e.g. between two villages.
- **Coordinator**: linking up different villagers and actors with each other, and
- **“Environmental watchdog”**: monitoring progress and problems, knowing when to support, when to step back, and when to intervene if the community is not meeting the forest/wildlife management commitments it has made. In the process, the main learning is not from training but from acting.
- **Learning by doing** is the key. Progress will be marked by practical **problem-solving**: each time a community faces and solves a problem, its capacity to recognise and deal with the next problem is enhanced.

Contents of a Participatory Resource Management Agreement (Forest Management Agreement/Wildlife Management under a conservancy)

- Name and description of the Forest/Wildlife Area;
- Statement of what is being agreed (that X Community will manage Y forest or N wildlife Area);
- Objectives of the agreement;
- Parties to the agreement (usually CFA / Local government / Kenya Forest Service) and local community / Kenya Wildlife Service;
- Rules that will apply (completely spelt out, which will be negotiated during project implementation);

- Management Responsibilities undertaken by community/ conservancy owners;
- Management Responsibilities undertaken by KFS / KWS/ Local Governments;
- Benefits that will be provided to communities, and how these benefits will be administered (timber, firewood, volumes, harvest levels, confiscated equipment, boundary planting etc.)
- How any funds received by the community (fees, licences, fines) will be managed and expended (including how they will be split between forest management responsibilities and general community development;
- Procedure for resolving disputes which may arise during the implementation of the agreement;
- Duration of the agreement;
- How the agreement will be revised.



**FAO/GLOBAL ENVIRONMENT FACILITY
PROJECT DOCUMENT**



PROJECT TITLE: Capacity, Policy and Financial Incentives for PFM in Kisiria Forest and integrated Rangelands Management
PROJECT SYMBOL: GCP/KEN/073/GFF

Recipient Country: Kenya

Resource Partner: Global Environment Facility

FAO project ID: 639220 GEF Project ID: 5083

Executing Partner(s): Kenya Forest Service

Expected EOD (starting date): 1 July 2016

Expected NTE (End date): 30 June 2021

Contribution to FAO's Strategic Objective 2: Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner

GEF Focal Area: Multi-focal Areas

GEF Strategic Objectives: BD-2, CCM-5, SFM/REDD+-1, SFM/REDD+-2

Environmental Impact Assessment Category: C

Financing Plan:	
GEF allocation (USD):	2,823,439
<i>BD:</i> <i>US\$ 1,220,410</i>	
<i>CCM:</i> <i>US\$ 897,671</i>	
<i>SFM/REDD:</i> <i>US\$ 705,358</i>	
Co-financing (USD):	
Kenya Forestry Service (KFS)	500,000
Forestry Research Institute (KEFRI)	500,000
Kenya Wildlife Service (KWS)	500,000
FAO	3,446,178
Samburu County Government	2,515,000
Community Forestry Associations	414,000
Kenya Forest Working Group	800,000
Subtotal Co-financing:	8,675,178
Total Budget:	11,498,617

EXECUTIVE SUMMARY

The Kirisia forest is in Samburu County, in the former Rift-Valley Province. Lying between 0;40'N-2;50'N and 36;20'E-38;10'E, the Samburu County covers an area of 20,826 km² (3.6% of total area of Kenya). The County is largely arid and semi-arid, dotted with indigenous forests and woodlands on hilltops and plateaus (Figure 1). Kirisia Forest (locally known as Leroghi) is a block of 91,452 hectares of gazetted dry upland forest reserve, covering the Kirisia Hills at an altitude of 2000 - 2200 m. The forest was gazetted vide Proclamation no.2 of 1936 and declared a Central Forest vide legal Notice No.174 of 1964. The forest and the ecosystem around it are widely recognized as critical for maintaining the Samburu Heartland as a functioning ecosystem, and particularly its role as a key habitat for wildlife and carbon storage. The forest ecosystem consists of 59,198 ha dry cedar/olive forest, 20,400 ha bush, 1,066 ha bamboo, 1130 ha grassland and 150 ha plantation. Kirisia receives a mean annual rainfall of 600 – 750 mm, falling in three rainfall peaks in a year; with the driest Months occurring in January and February. It enjoys a relatively warm climate with mean annual temperature of between 24 and 33 °C.

The Kirisia ecosystem is inhabited by the Samburu nomadic pastoralists who are cousins to the Maasai, with similar culture and language (Figure 1). The area is also home to small populations of hunter gatherers (Ndorobo) who are undoubtedly the oldest inhabitants of the Kirisia Forest. The capital of the Samburu County is Maralal town, which hosts 37,000 people (Table 3 shows the current and projected population within the Samburu West Constituency). The Forest is owned by the National Government, held under Trust Land. Land in the areas around the forest is subdivided into group ranches (52% of total ecosystem) and to a lesser degree to private ownership (5%).

Threats to the Leroghi/Kirisia ecosystem are a microcosm of threats to many forests, biodiversity and ecosystems services in Kenya. They include high population pressure that puts enormous strains on limited resources; inadequate involvement of local communities, including lack of incentives for local people to conserve indigenous forests, despite of the legal provisions for community participation in forest management; limited alternative resources to offset pressure on forest resources; and low agricultural yields as a result of which forest land is encroached (i.e., excision to make room for food production). Specifically, the Kirisia forest and its biodiversity face considerable threats from fire, encroachment, dry season grazing, logging especially illegal extraction of cedar, unregulated collection of firewood, unprofessional debarking, charcoal burning, intense lopping and cutting down of whole trees for fodder and collection of honey.

The threats are depleting the ecological integrity of the Leroghi/Kirisia ecosystem, affected the population structure and species composition of the forest. This is evinced by significant degradation of biodiversity, loss of forest health, and contributions to climate change. A 2010 REDD+ assessment study by CAMCO reported that the forest had reduced from the 91,944 ha at the time of gazettement to about 78,000 ha by 2010. Based on the Global Forest Watch (GFW) Change Assessment Data, the deforestation rate for the period of 2000 - 2014 is estimated at 1.4% per annum. Baseline assessment carried out in 2011 confirmed that forest diversity is affected. Livestock prefer wild olive and its regeneration is severely impacted. The severe degradation has contributed to the decline of several important species from the forest including *Olea Africana* (African Olive), *Juniperus procera* (Cedar), *Podocarpus falcatus* (Podo) and *Osyris lanceolate* (Sandalwood).

The threats have also affected ecosystem services, especially water catchment services. Although the forest is a vital source of water especially during the dry season, there has been a general decline in the amount of water flowing through the rivers from a high in 1970s to almost scarce status in 2000s. The changes have equally threatened the ability of the ecosystem to support the livelihoods of the Samburu community sustainably. There is an increase in sedentarization which, in unchecked can lead to loss of grazing lands, reduced livestock mobility and overgrazing. Agriculture is spreading, which destroys natural habitats, alters the character of rangeland landscape, and fuels human-wildlife conflicts.

Two critical barriers make it difficult for the partners to establish successful Participatory Forest Management (PFM) systems and achieve the vision of a healthy forest ecosystem capable of supporting biodiversity, carbon stocks, livelihoods and local economic development in perpetuity. These are: insufficient institutional capacity to support PFM as the focus of an ecosystem-based management of dry land forest regimes; and an inadequate legal and regulatory framework that does not effectively empower communities for Sustainable Forest Management (SFM).

The global environmental objective of the project is to strengthen biodiversity conservation and enhance carbon sequestration through participatory sustainable forest management systems in dryland public and communal

lands. Its development objective is to improve livelihoods of communities from dryland forest-based products and services. The project aims “To deliver multiple Biodiversity, climate change and livelihood benefits from 91,452 ha of Kirisia Forest under PFM and 50,000 ha of rangelands under Holistic Natural Resources Management respectively”.

The GEF investment will be used to put in place strategic capacities and incentives to influence the considerably larger baseline investment, to change the pattern of development currently happening at the expense of the natural capital, towards a more sustainable economic development model. The project will empower key institutions: Kenya Forest Service (KFS), Community Forestry Association (CFA), Kenya Wildlife Service (KWS) and the County Government. They adopt and/or facilitate better forest management that will reduce the current rate of deforestation of the Kirisia forest from 1.4 % per year to less than 0.84%; to put 45,000 ha of intact forest under Forest Protection Management Regime, 10,000 ha under regeneration, and 17,000 ha under SFM.

Collectively, this will secure direct emission reduction of 2,935,701 tCO₂eq and indirect emission reduction of 3,178,804 tCO₂eq. In addition, it will put 50,000 ha of rangelands under Holistic Natural Resources Management, improving rangeland productivity by 25% while securing wildlife migratory corridors that improve the integrity of the larger Samburu ecosystem’s functionality; and, reduce wildlife death from poaching by at least 35%. It will also put in place a long-term tourism and capacity building strategies and increase incomes from non-wood forest products (NWFPs) by about 25% from the current baseline. Through the replication strategy, the project will indirectly contribute to mainstream biodiversity conservation practices together with SFM to about 80,000 ha of landscape in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties).

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Acronyms

AWF	African Wildlife Foundation
AWP/B	Annual Work Plan and Budget
BH	Budget Holder
CEO	Chief Executing Officer (GEF)
CFA	Community Forestry Association
CBNRM	Community Based Natural Resource Management
DBH	Diameter at breast height
EX-ACT	EX-Ante Carbon balance Tool
EP	Executing Partner
FAO	Food and Agriculture Organization of the United Nations
FLMC	Forest level Management Committee
FMA	Forest Management Agreement
FPMIS	Field Project Management Information System
GBM	Green Belt Movement
GEBs	Global Environmental Benefits
GEF	Global Environment Facility
GEFSEC	GEF Secretariat
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KEFRI	Kenya Forest Research Institute
KFS	Kenya Forest Service
KFWG	Kenya Forest Working Group
KWS	Kenya Wildlife Service
LFMG	Local Forest Management Groups
LTO	Lead Technical Officer
LULUCF	Land Use, Land-Use Change and Forestry
M&E	Monitoring and Evaluation
MRV	Measurement, Reporting and Verification (of REDD+ activities)
NBSAP	National Biodiversity Strategy and Action Plan
NEMA	National Environment Management Agency
NFP	National Forest Program
NPFE	National Priority Formulation Exercise
NTFP	Non-Timber Forest Products
NWFP	Non-Wood Forest Products
PELIS	Plantation Establishment and Livelihood Improvement Scheme
PFM	Participatory Forest Management
PFMP	Participatory Forest Management Plan
PIF	Project Identification Form (GEF)
PIR	Project Implementation Review
PPG	Project Preparation Grant (GEF)
PPR	Project Progress Report
PRODOC	Project Document
PSC	Project Steering Committee
PY	Project Year
REDD+	Reducing Emissions from Deforestation and forest Degradation and the role of conservation, enhanced carbon sinks and sustainable forest management
SME	Small and Medium Enterprise
SFM	Sustainable Forest Management
STAP	Scientific and Technical Advisory Panel
TCI	Investment Centre Division (FAO)
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNREDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation
USD	United States Dollar

1 SECTION 1: PROJECT RATIONALE

CONTEXT

National Context

1. The Republic of Kenya is part of the East African region and is located in Sub-Saharan Africa. It lies between latitudes 5⁰N and 5⁰S and longitudes 34⁰E and 42⁰E. Kenya is bordered by Somalia and the Indian Ocean to the east, Ethiopia to the north, Sudan to the north-west, Uganda to the west and Tanzania to the south. The country is divided into 47 semi-autonomous counties each headed by a Governor. Kenya has tremendous topographical diversity, including glaciated mountains with snow-capped peaks, the Rift Valley with its escarpments and volcanoes, ancient granite mountains, flat desert landscapes and coral reefs and islets.

Climate and Water

2. Kenya's climate is characterised mainly by two wet seasons and two dry seasons. The long rains occur from April to June and short rains from October to December while the hottest period is from February to March and coldest in July to August. Kenya is described as a semi-arid to arid country with over 75% of its area classed as arid or semi-arid and only around 20% being viable for agriculture. Inland, rainfall and temperatures are closely related to altitude changes with variations induced by local topography.
3. Over two-thirds of the country receives less than 500mm of rainfall per year and 79% has less than 700 mm annually. Only 11% of the country receives more than 1000mm per year. The mean annual rainfall shows a wide spatial variation, ranging from about 200mm in the driest areas in north-western and eastern parts of Kenya to the wetter areas with rainfall of 1200-2000mm in areas bordering Lake Victoria and Central Highlands east of the Rift Valley. Generally the climate is warm and humid at the coast, cool and humid in the central highlands, and hot and dry in the northeast. Kenya is regarded as a chronically water scarce country with a limited natural endowment of fresh water, amounting to only 647 cubic meters per capita per year (the recommended minimum is 1000 cubic meters).
4. Kenya's population is estimated to be around 45 million. With a Human Development Index (HDI) of 0.519, the country is ranked 145 out of 186 globally. Consequently, nearly 18% of Kenyans live on less than US\$ 1.25/day.
5. **Land use system:** Kenya has an area of approximately 582,646 sq. km. comprising 97.8% land and 2.2% water surface. Agriculture is the mainstay of the 20% of the land area classified as medium to high potential land. Forests, woodlands, national reserves and game parks cover about ten per cent (10%) of the land area, i.e. 58,264 sq. km (Sessional Paper 2009 on National Land Policy). The rest constitutes the country's arid and semi-arid lands (ASALs), which are home to approximately 36% of the human population (12% in the arid areas and 24% in semi-arid areas)¹, over 70% of the country's livestock and more than 90% of its wildlife.
6. Being a largely dry country, forests comprise the country's water towers and catchments, where over 75% of the country's renewable surface water originate, and therefore serve critical water regulation roles which are important for human livelihoods, irrigated agriculture, and production of hydro-electric power. The country is indeed endowed with a wide range of forest ecosystems ranging from montane rainforests, savannah woodlands; dry forests and coastal forests and mangroves. The current forest cover of 6.99% is however still below the constitutional requirement of 10%. Forests contribute directly and indirectly to the national and local economies through revenue generation and wealth creation, and it is estimated that forestry contributes to 3.6% of Kenya's GDP, excluding charcoal and Direct Subsistence Uses. Forests also support most productive and service sectors in the country, particularly agriculture, fisheries, livestock, energy, wildlife, water, tourism, trade and industry that contributes between 33% and 39 % of the country's GDP.

Biodiversity Context

7. Kenya is rich in biological diversity with roughly 25,000 animal species, 7,000 plant species and at least 2,000 species of fungi recorded so far²; occupying a wide range of ecosystems, from coral reefs and

¹ Vision 2030 Development Strategy for Northern Kenya and other Arid lands, August 2011

² NBU 1992. The costs, benefits and unmet needs of biological diversity conservation in Kenya. A study prepared for the Government of Kenya and the United Nations Environment Programme. Nairobi: National Biodiversity Unit.

mangroves, through semi-desert and dry savannahs, saline and freshwater lakes, to moist forests (including coastal forests in coastal areas and Afro-montane forests in interior mountain areas), which give way at high altitudes to afro-alpine vegetation. Many of the species have restricted distributions, particularly montane species, which are often restricted to single ranges or volcanic outcrops.

8. **Indigenous forests and biodiversity in the Arid Lands:** The country has 24.5 million ha of semi-arid dryland forests commonly called “bush lands”, which are habitat to more than 70% of Kenya’s wildlife. Interspersed in the drylands are pockets of mountains with higher rainfall where indigenous forests occur. Examples are Mount Marsabit, Mathews Range, Mount Kulal, Nyiro and Loima Hills. Although frequently stressed by drought, these drylands forests and the bushlands around them are rich in biodiversity and have the potential to supply marketable commodities on a sustainable basis such as gums and resins, aloe, charcoal, essential oils, silk, edible oil, fruits, honey and timber. Indeed, the drylands forests are habitats for endangered and/or vulnerable species such as the African elephant (*Loxodonta Africana*, VU), lions, Grevy’s zebra (*Equus grevyi*, EN¹), and the wild dog (*Lycaon pictus*, EN). They are also home to endangered bird species. More than 40% of Kenya’s 60 Important Bird Areas (IBAs) are found in dryland forests. Five globally threatened bird species occur in the areas where the project will work including; African Crowned Eagle (*Stephanoaetus coronatus*), Hinde’s Babbler (*Turdoides hindei* a Kenyan endemic), Martial Eagle (*Polemaetus bellicosus*), Ayres’s Hawk Eagle (*Hieraetus ayresii*) and Lesser Kestrel (*Falco naumanni*) are found in dryland forests. Dryland forests are also used by huge numbers of migratory bird species (both Palaearctic and Afro-tropical).
9. Drylands forests are also home to aloes, commonly associated with species, such as *Acacia*, *Kleinia*, *Cissus*, and *Euphorbia*. It has been suggested that aloes may be primary colonizers of habitats that enable later habitation by other less resilient plants. Of the 450 or so taxa of the genus *Aloe* known today; 180 are in Eastern Africa, sixty of them in Kenya, twenty-five of which are endemic and five of which have been identified as being commercially exploited for the aloe bitter gum trade. Nine of the species Eastern Africa aloes are listed as critically endangered, seven are endangered, four are vulnerable, three near-threatened and two are of Least Concern². The endemic and commercially exploited *A. scabrifolia* is listed as Vulnerable.
10. Threatened dryland tree species include *Melia volkensii* (a hardwood), *Terminalia sp.* And *Moringa oleifera* among others. The valuable *Dalbergia melanoxylon* that is prized as wood for carvings is also endangered and facing local extinction. The East African sandalwood (*Oxyliis lanceololata*), a dryland species, has been so over-exploited for use in the cosmetics industry that it has been put under the protection of a presidential ban.

Socio-economic context of ASALs.

11. Although they receive low and erratic rainfall, ASALs have a comparative advantage for livestock and game production based on natural pasture. Various mining and quarrying activities also take place in the ASALs. This includes sand or gravel production for urban construction, prospecting for gold and precious stones, and marble quarrying. The potential for mineral exploitation e.g. titanium, limestone, soda ash, and oil exploration is starting to bear fruit, especially with the discovery of oil in Turkana County. The sale of soda ash from Lake Magadi for instance, contributes significant revenue to the national economy, in addition to providing substantial opportunities for employment to local communities.
12. Due to years of neglect, ASALs suffer from lack of physical capital – roads, schools and health facilities. The few facilities are rarely maintained and are in serious state of disrepair. With scattered and mobile settlements and low purchasing power, markets are poorly developed. ASAL Counties also lag behind in terms of access to safe drinking water, electricity and telecommunication facilities. Since independence, the government has continued to provide essential social services such as security, health, education and local governance. However, development is expected to be accelerated due to the recent devolution of the political system.
13. Despite the continuous exposure to hardship and distress, ASAL communities however maintain a strong social system of resource sharing, borrowing, lending and gifting. For instance, there exist well-designed and extensive institutional cooperative frameworks for sharing resources and redistributing livestock when some members of the community lose their livestock herds to drought, disease or theft. Most of the ASAL

¹ IUCN Red List categories CR = Critically Endangered; EN = Endangered; VU = Vulnerable, NT = Near Threatened

² Wabuyel, E. (2006). Studies on Eastern African aloes: aspects of taxonomy, conservation and ethno-botany

population is organized into extended families and clans, which provide important support during times of hardship. Many households have considerable wealth in the form of livestock, which is regarded as both a “living bank” and a medium of exchange. Combined, the pastoralists and agro-pastoralists own about 50% of the national cattle and small ruminant herds and 100% of the camel population; and, contribute the largest share of the beef, lamb, mutton and goat meat consumed in many urban centres.

14. The vast majority of ASAL inhabitants have not yet been fully integrated into the cash economy. In many areas, barter trade still dominates business transactions. Consequently, unlike other regions of Kenya where poverty has been on a downward trend, poverty in the ASALs has generally been on the increase and food insecurity is most widespread and severe in these areas. Moreover, the ASALs’ ecology is the most fragile and most susceptible to damage from increased human activity. It is also here where the impact of climate change in Kenya has been highest, mainly reflected in increased frequency and intensity of droughts, and shifts in rainfall patterns which have rendered traditional practices in agriculture, livestock keeping and natural resource management unsustainable.

Climate change and ASAL development

15. Pastoralists are among the people most likely to be affected by impacts of climate change due to the high sensitivity of the production system and vulnerability, low adaptive capacities and resistance to adopting adaptation measures. Although pastoralists have been managing climate variability probably hundreds of years, the rapid change in climate in recent years have increased the incidents of, and the predictability of droughts, posing new and daunting challenges to resilience of already difficult livelihoods.
16. A recent study in Eastern Samburu (Wamba Division)¹ showed a 99.4% awareness level of climate change among communities. The most observed indicators included prolonged droughts (93.9%), loss of pasture (98.8%), increase in livestock diseases (81.1 %), and drying of water sources (78.9%). Key natural resources in the area in order of importance were rated as water, pasture, mountains and hills, medicinal plants, forests, wild animals and crops. The study showed females use natural resources more than males due to gender roles. Females main roles were herding of livestock, milking, collecting water, firewood, building materials, wild fruits and berries, fodder and charcoal burning whereas males roles included watering livestock, honey and bush meat provision. There were significant differences between livestock numbers owned in 2010 and those owned in 2005 and 2000 at $p < 0.05$.
17. A general trend of increasing malaria, typhoid, common cold and diarrhoea were observed and emergence and re-emergence of new livestock diseases. The study further revealed the females felt more impacts of drought and flood compared to males due to their many roles that rely on natural resources. The impacts on females were emotional and physical due to increased productive and reproductive roles. Impacts on males were more psychological. Females coped by livelihood diversification and diet change while males coped through herd management. These findings are very likely to be representative of many pastoralist communities.

Kirisia Forest, Samburu County

18. The Kirisia forest is in Samburu County, in the former Rift-Valley Province. Lying between 0;40’N-2;50’N and 36;20’E-38;10’E, the Samburu County covers an area of 20,826 km² (3.6% of total area of Kenya). The County is largely arid and semi-arid, dotted with indigenous forests and woodlands on hilltops and plateaus (fig 1). Kirisia Forest (locally known as Leroghi) is a block of 91,452 hectares of gazetted dry upland forest reserve, covering the Kirisia Hills at an altitude of 2000 – 2200 m (Watai and Gachathi, 2003). The forest was gazetted vide Proclamation no.2 of 1936 and declared a Central Forest vide legal Notice No.174 of 1964. The forest and the ecosystem around it are widely recognized as critical for maintaining the Samburu Heartland as a functioning ecosystem, and particularly its role as a key habitat for wildlife and carbon storage.
19. The forest ecosystem consists of 59,198 ha dry cedar/olive forest, 20,400 ha bush, 1,066 ha bamboo, 1,130 ha grassland and 150 ha plantation. Kirisia receives a mean annual rainfall of 600 – 750 mm, falling in three rainfall peaks in a year; with the driest Months occurring in January and February. It enjoys a relatively warm climate with mean annual temperature of between 24 and 33°C (Jaetzold and Schmidt, 1983). The forest has

¹ Munga Gesare Hyrine (b.ed. Sci. Hons), 2012. N50/CE/15080/2008. Assessment of climate change impacts on natural resources and the different gender among the pastoralist communities of Samburu, Kenya. A thesis submitted in partial fulfilment of the requirement for the award of Master of Environmental Science Degree in the School of Environmental Studies, Kenyatta university.

shallow soils of generally variable fertility levels. The area around the forest is dominated by a complex of well-drained, shallow, black to very dark brown, acid humic, very friable loam soils.

Biodiversity and carbon

20. The *Kirisia* ecosystem hosts significant carbon stocks while simultaneously providing a safe habitat for important wildlife including: elephant, buffalo, bushbuck, bush pig, zebra, a variety of gazelles, eland, giant forest hog, warthog, suni, lion, leopard, and wild dog. The birds and insects are well represented including Hartlaubs touraco possibly the most dominant species in the forest as well as tambourine dove, which only occurs in forests, martial eagle, sunbirds etc. Table 1 shows wildlife species recorded by both Kenya Wildlife Service and Kenya Forestry Service.



Figure 1: Location of *Kirisia* in the Samburu Heartlands – Source *Kirisia* Management Plan, 2014

Table 1: Animals recorded in areas surrounding the *Kirisia* Forest

Lodokejek area	Naibor keju area	Baawa area	Ledero	Tamiyoi area
Common Zebra	Grevy zebra	Elephant	Thomson gazelle	Elephant
Grevy zebras	Thomson gazelle	Hyena	Gazelle grants	Zebra common
Lesser kudu	Common zebras	Leopard	Common zebra	Wild dog
Greater kudu	Impalla	Kori Bustard bird	Hyena	Bush buck
Elephant	Dik dik	Buffalo	Elephant	Water buck
Hyena	Hyena	Ostrich	Baboon	Hyena
Lion	Jackal	Waterbuck	Ostrich	Leopard
Leopard	Elephant	Monkey		
Impala	Baboons	Bush buck		
	Gerenuk	Jackal		
		Common Zebra		

21. The most dominant trees and shrubs and lianas in the forest include *Afrocarpus gracilior* (Lopiripiri), *Cassipourea malosana* (Machakudu), *Diospyros abyssinica* (Lekiri), *Dovyalis abyssinica* (Lmoro), *Vepris simplicifolia* (Lgilai), *Ekebergia capensis* (Songoroi), *Juniperus procera* (Ltarakwai, and *Croton*

megalocarpus (15 %). Those species dominating the middle canopy all blocks combined were *P. falcatus* (12-45 %), *O. europaea ssp africana* (21 -28%), *J.procera* (20 %), *Teclea simplicifolia* (13-15 %) and *C. megalocarpus* (12 %) (Hitimana et al., 2009).

22. Baseline assessments undertaken in 2011 reported that the overall tree density varied as follows: seedlings¹ at 1537 ha⁻¹, Saplings at 1,322ha⁻¹, Pole-sized trees† at 196 ha⁻¹ equivalent to 21.2 m²ha⁻¹ and Large trees at 86 ha⁻¹ equivalent to 24 m²ha⁻¹) (Hitimana et al., 2009). The floral composition consists of different vegetation associations, dominated by large tree species above in addition to *Nuxia* (threatened), *Olea africana ssp cuspidatus* (Lorien, threatened), *Olea capensis ssp macrocarpa* (Loliontoi, threatened), and *Toddalia asiatica* (Lparamunyu) *congesta* on much of the hills; and *Cassipourea malosana* on wetter slopes. Overall, four species dominate the forest top canopy: *Olea europaea ssp africana* (up to 34 %), *Juniperus procera* (up to 25%), *Podocarpus falcatus* (up to 26 %).
23. Understorey tree species include *Teclea nobilis*, *Maytenus undata*, and *Acokanthera schimperi* and *Myroxylon aethiopicum*. The forest is also a mixture of open, disturbed and rocky areas covered with *Euclea divinorum*, *Carissa edulis*, *Rhus natalensis* and *Croton dichogamus* small trees and shrubs. Regeneration of the tree component is characterized by saplings totalling 1,322 individuals per hectare shared among 62 out of 95 tree species recorded above 10 cm dbh. Overall, 11 species formed the bulk of regeneration in the entire Kirisia forest. Seedlings total 1,537 individuals per hectare distributed among 46 tree species among the 95 recorded above 10 cm dbh. That is, about 52 % of tree species in Kirisia did not have seedlings during the time of the survey. This is a huge deficiency.
24. According to a CAMCO REDD+ assessment (2010)², the intact forest has carbon stocks of approximately 8 million tonnes (equivalent to 29,360,000 tCO₂eq). The approximate carbon values for the Kirisia Forest Reserve are highlighted in Table 2.

Table 2: Approximate carbon values for the main forest types in Kirisia Forest Reserve (CAMCO, 2010)

Forest type	Main species	Average dbh (cm)	Average height (m)	Approx. stems/ha	tC/ha
Intact	Podocarpus falcatus, Olea africana, Teclea nobilis	22.62	12.23	810	144
Degraded	Olea africana, Juniperus procera	41.26	5.5	500	129.8
Regenerating	Euclea divinorum	25	2	150	2.23

Socio-economics and land use in the Kirisia ecosystem:

25. The Kirisia ecosystem is inhabited by the Samburu nomadic pastoralists who are cousins to the Maasai, with similar culture and language (Figure 1). They keep camels, cattle, sheep and goats for livelihood and social interactions. The area is also home to small populations of hunter gatherers (Ndorobo) who are undoubtedly the oldest inhabitants of the Kirisia Forest. The capital of the Samburu County is Maralal town, which hosts 37,000 of the total 223,947 County population (Table 3 shows the current and projected population within the Samburu West Constituency while Table 4 shows changes in livestock population). The town's inhabitants are a fairly cosmopolitan population consisting of traders from several ethnic groups, including: Kikuyu, Meru, Samburu, Somali and Turkana (Leroghi/Kirisia Forest Station Management Plan, 2011).
26. The forest and the land around it are managed under different types of land tenure systems: the forest is State Land, owned and managed by the National government (KFS). Land in the areas around the forest is subdivided into group ranches (52% of total ecosystem) and to a lesser degree to private ownership (5%). The changing patterns of land tenure have had many implications on land use. There are ten group ranches adjoining the Leroghi/Kirisia forest, are still in existence these are; Lkiloriti, Lodokejek, Mbaringon, Morijoi, Nonkeek, Shabaa, Ngari, Ledero, Baawa and Opiroi. The land is still communally owned with a few having

¹ 2 Seedlings = Stems < 1m Ht; Saplings = Stems 1m Ht - 10 cm dbh; Pole-sized trees = Stems 10 – 20 cm dbh; Large trees = Stems > 20 cm dbh

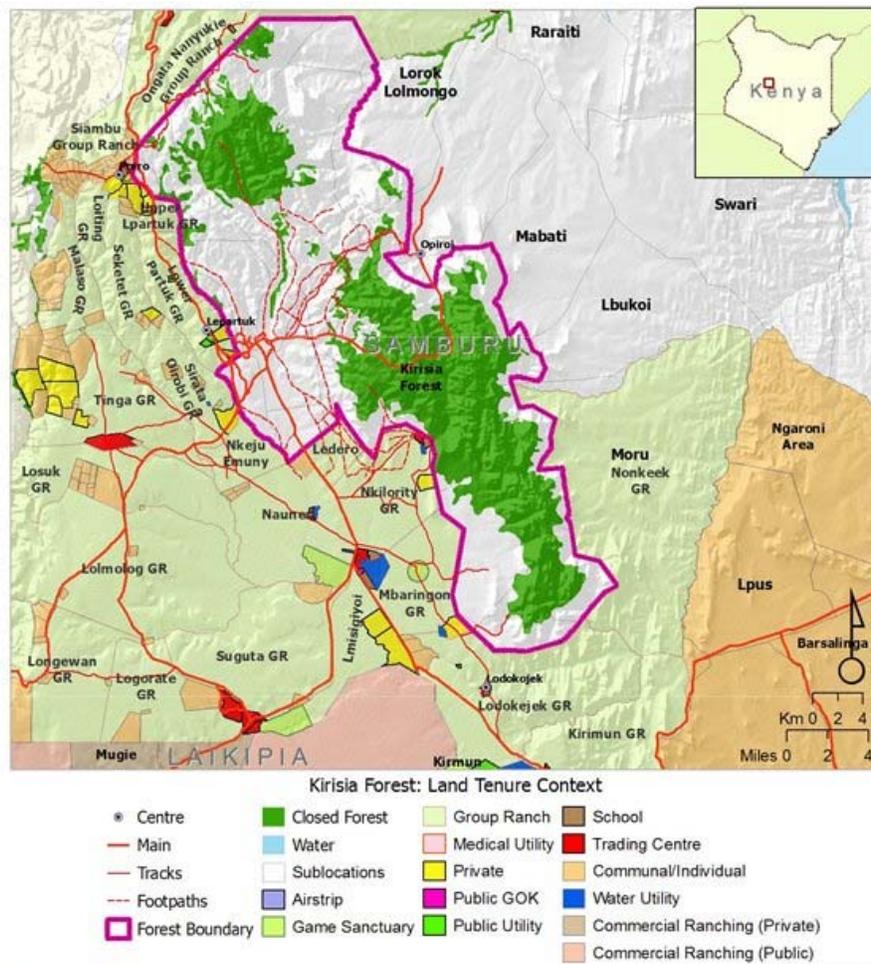
² Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya. CAMCO Company. 2010

a common title deed; individuals utilize the land freely as long as they are members of the group ranch but have no individual titles as yet (Figure 2 shows land tenure context around the forest). As the group ranch membership numbers (due to population increases, ever greater numbers are being registered) there is however increasing pressure for further subdivision to obtain individual titles especially as a means of obtaining collateral but the cost of processing individual titles are inhibitive. Indeed, many households have acquired titled plots within the group ranches, and have constructed homestead and are undertaking some small scale crop production.

Table 3: Past, current and projected population in Samburu County

Constituency	2009 (Census)		2012 (Projections)		2015 (Projections)		2017(Projections)	
	Population	Density –km2	Population	Density (km2)	Population	Density (km2)	Population	Density (km2)
Samburu West	81,094	21	92,676	24	105,912	27	115,770	30
Samburu North	83,759	14	95,722	16	109,393	13	119,575	17
Samburu East	59,094	6	67,534	7	77,179	8	84,363	8
Total	223,947	11	255,932	12	292,484	14	319,708	15

27. The Kirsia ecosystem constitutes an important wildlife refuge and corridor to the greater Samburu, Marsabit and Laikipia wildlife habitats. In Lodokejek major wildlife routes are concentrated in the south-western parts and connect wildlife habitats in the Group Ranch to those in the Kirsia Forest Reserve in the North and the Laikipia ecosystem in the South. Some pass near settlements / cultivation zone. Many of the group ranches have wildlife in them.



Source: CBS, Survey of Kenya, AWF, KWS, MBNR, FAO-Africover; SRTM-90m

AWF Spatial Analysis Lab Dec-07

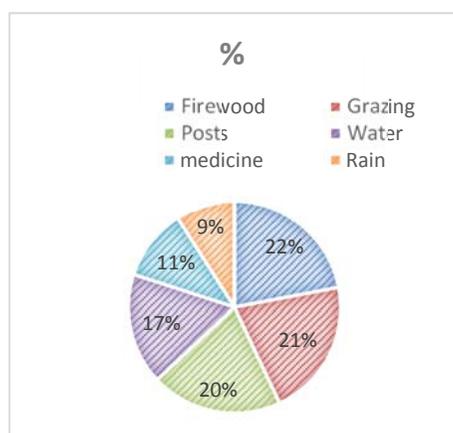


Figure 2: Map of Kirsia showing forest boundary and surrounding grazing ranches

Table 4: Livestock Population Trends from 2011 to 2013

Livestock Species	2011	2012	2013
Beef cattle	80,950	83,370	85,035
Dairy cattle	0	8	11
Sheep	178,510	187,800	197,190
Goats	400,500	420,940	444,421
Camels	30,000	30,900	31,827
Donkeys	13,500	13,905	14,322
Indigenous chicken	6,400	7,810	9,528
Chicken commercial	600	900	1,350
Bee hives	13,270	13,378	13,485

28. With the limited economic alternatives available to the Samburu community, households around the forest depend heavily on the natural resources and ecosystems services offered by the biodiversity and the forest ecosystem. Chief among them are source of firewood, pasture, posts, water, medicinal herbs and rain in a descending order (Figure 3).



29. Although most of the forest products are harvested for household use, the three most prominent products sold to raise income in 2011 were charcoal, poles and fire wood (40%), honey (10%) and herbal plants (10%). While these products are sold throughout the year, the dry months of January, February and March is much more critical. The main targeted customers are the local community according to 52% of the respondents. The sale of poles, firewood and honey provide an essential source of income, in addition to livestock rearing and crop farming which are the main sources. Wild olive trees are harvested both for dry season browse and fuel wood. Both dead and live standing cedar is targeted for posts and timber. These tree species are so important that the Samburu culture teaches that a Samburu man may only harvest a total of six cedar trees during his lifetime.

Posts are used in the construction of manyattas (traditional Samburu/Maasai houses) and for fencing, including in the nearby Marallal town, the single most important market outlet of commercialised forest products from Kirisia. Preferred species for fencing was *Juniperus procera* due to its durability in the ground and resistance to termites attack. Fifty four percent (54%) of the respondents of the baseline assessment (2011) acknowledged the medicinal value of the forest with over 92 % of them having collected medicinal herbs solely for domestic uses, 4% for commercial purposes to generate income and another 4 % for both domestic and commercial. At least 30 species of the 95 recorded woody plant species (over 30 %) were reported as being of high medicinal value, used by local people in herbal medicine to treat diverse ailments (Table 5).

Table 5: Herbal Plants and their uses in Leroghi/ Kirisia Forest

<i>Herbal plants</i>	<i>Treat tonsils</i>	<i>Treat Malaria, cold, stomach, eyes</i>	<i>Gonorrhea, deworming, headache</i>	<i>Treat stomach pains, headache</i>	<i>Treat cold, stomach</i>	<i>Many diseases</i>
Sukuroi (Aloe secundiflora)	0	0	0	0	0	100
Lchingei (Euclea divinorum)	0	0	0	0	0	100
Lkinyil (Rhamnus prinoides)	0	0	0	0	0	100
Lmarguit (Croton megalocarpus)	0	0	0	0	0	100
Lmorijoi (Akocanthera schimperii)	0	0	0	0	0	100
Lkokolai (Rhamnus staddo),	0	68.66	0	0	4.48	26.87

Lokitengi,(Ipomoea spathulata and or Ipomoea kituiensis)	0	68.66	0	0	4.48	26.87
Lkokolai (Rhamnus staddo),	0	68.66	0	0	4.48	26.87
Lakirdingai, Ldupa soro	0	68.66	0	0	4.48	26.87
Loisuk (Zanthoxylum usambarense)	25	25	0	0	0	50
Lmakutikuti,(Rothea myricoides)	0	20	40	0	0	40
Seketet,(Myrsine 15fricana Lakirdinglai)	0	20	40	0	0	40
Lkinyel,(Rhamnus prinoides)	0	0	0	0	0	100
Lmalany, Lngeriyo(Olea europea ssp cuspidatus)	0	0	0	0	0	100
Lparmunyo, (Toddalia asiatica)	0	0	0	0	0	100
Lerubat Seketet (Myrsine 15fricana)	0	45.45	0	6.06	0	48.48
Lkirdingai (Croton dichogamus)	0	45.45	0	6.06	0	48.48

(Source: socio-economic survey 2011)

30. The use of the forest as a source of herbs was particularly important for treating livestock e.g. de-worming (*Olea europaea*), placenta removal after birth (*Olinia rochetiana*) and tapeworms (Lorekiri). *Calodendrum capense* is used as a perfume. Kirisia ecosystem remains a potential research site for promoting herbal medicine for biodiversity conservation and improved livelihoods, an important entry point for joint /participatory forest management scheme.
31. **Supply of honey and honey products:** Baseline assessment found that the use of forest as source of honey was particularly important (Table 6). 70%, 10% and 20% of households using honey obtained it from the Kirisia Forest, on the Group Ranches land, or purchased from honey gatherers/producers around the forest, respectively. From all households that harvested/hunted honey did so for: (i) domestic uses only (54.3%), income generation only (2.5%) or both (43.2%). Even emerging beekeeping outside the forest (e.g. Group Ranches) using different kinds of beehives still depends on the forest as a habitat for a diversity of bee forage which influence the properties and quality of honey produced, and as a source of permanent water even when all water points have dried outside the forest e.g. during droughts. Popular bee-forage tree species were *ystroxylon aethiopicum* (Lodonganayioi / Saramonai), Lpinai, Machakudu/Lcokudu, Lmuzungach and Mukinyeyi. Honey gathering in the wild was the most common method of harvesting honey supplies for households.

Table 6: Hive population and production trends from 2011 – 2013

Year	KTBH	Log Hives	Langstroth	Crude Honey (Kg)
2011	250	13000	28	80,000
2012	350	13000	30	91,380
2013	540	12905	40	101430
Total	1140	38905	98	272810

NB. Crude honey production per beehive: Log hive-7kg; KTBH-12kg; Langstroth-14kg

32. **Water catchment services:** Kirisia forest is critical for water services. The Kirisia forest is indeed one of the major water towers in the larger Samburu-Laikipia landscape, with water resources being well distributed across the ecosystem. There are 45 dry riverbeds, 15 permanent rivers and springs and 17 water points and wells (highly frequented by people and the wild game mainly elephants and buffalo) and one swamp. The people living between Kirisia and the Mathews range depend entirely on water coming underground from Kirisia, as do all peoples living adjacent to the forest. Water for human, livestock and wildlife is very critical as natural resource in many of the ranches surrounding the forest. Many of the ranches have springs, boreholes, dams as well water pans all supplied by Kirisia Forest water (Table 7).

Table 7: Wells and Bore holes Around Leroghi/Kirisia forest

Wells around Bawaa forest area (<i>all saline</i>)	Wells around Mbarigon forest area (<i>all saline</i>)
Ngarama well	Mayai dam
Lbaalalare well	Kikwal permanent wells
Baawa borehole	Ngabolo river
Lesepetei shallow well	Lolmargwt
Lboonyieki well	Lbaglo mbarigon
Lboonyieki borehole	Kiangok springs
Baawa dam	Mbarigon borehole
Larikan shallow wells	Nalbor keju borehole
Lalaingok	Onturiri-Okonjeki
Silango dam	Ondojeki

33. Traditional grazing practices in the rangelands demonstrate the adaptability of pastoralism as an efficient way of using land and natural resources in non-equilibrium environments. Seasonal livestock movements give pastures time to recover, enabling them to support large herds and a high human population in dry regions. Wide social networks, as well as close reciprocal ties among neighbours and neighbouring clans, insulate the individual herder against bad times. All this allows herders to spread their risk and restock their herds after a drought episode. These social linkages enable families that would otherwise be exposed to loss of livestock and assets due to drought and insecurity in one part of the county or beyond (Marsabit, Isiolo or Laikipa Counties) to live among their clan members and access water and feed resources in the forest during drought period.
34. Approximately thirty-six Samburu communities surrounding Leroghi have established use rights to various parts of the ecosystem. The average size of each traditional holding is less than 3,000 ha. Over the years, some Samburu pastoralists have been able to acquire land in the neighbouring County of Laikipia, where individual landownership is more widespread, and have moved their herds southwards. Those who have kept their herds around the Leroghi/Kirisia forest area, move their herd freely across the surrounding group ranches. However, increasingly, the Samburu are acquiring permanent homesteads from where they practice a transhumance type of pastoralism, moving their herds seasonally in search of pasture and water. Herd composition is dominated by traditional Zebu cows, with some improved breeds such as the Boran and Sahiwal.
35. The Samburu have well-established traditional dry season grazing rights within the Leroghi/Kirisia ecosystem, including the gazetted Forest Reserve. According to forest laws, grazing fees should be paid to the government entity in charge of managing the gazetted forest reserve. In practice, the levying of fees has been taking place in an un-systematized and often arbitrary manner. The utilization of forest resources is guided largely by traditional by-laws and enforcement by communities living in the group ranches around the forest. The practical application of this varies from one group ranch to another. Communities in Baawa group for example freely access the forest during dry spell to get feed for their livestock. They prune trees for livestock feed even at the risk of being punished by the elders. The effectiveness of the traditional regime however varies from location to location, and with proximity to Maralal town. Conflicts over resources in the forest as people access and utilize them are common, and the community has traditional conflict resolution mechanisms and regulation. This includes payment of fines and in case a life is lost the payment of blood money.

Threats to forest, biodiversity and ecosystems services

36. Threats to the Leroghi/Kirisia ecosystem are a microcosm of threats to many forests, biodiversity and ecosystems services in Kenya. The most commonly cited threats include high population pressure that puts enormous strains on limited resources; inadequate involvement of local communities, including lack of incentives for local people to conserve indigenous forests, despite of the legal provisions for community participation in forest management; limited alternative resources to offset pressure on forest resources; and low agricultural yields as a result of which forest land is encroached (i.e., excision to make room for food production).
37. According to FAO (2005) Kenya lost 5% (12,000 ha/year) of its forests and 40,000 ha/year of other wooded

lands between 1990 and 2005¹. The country is reported to have lost 50,000 hectares of forest from Kenya's Water Towers in the period 2000-2010². Charcoal production has contributed significantly to the deforestation. By 2013, KFS data indicated that 82% of urban and 34% of rural households use charcoal, the sale of which contributed about KES 135 billion to the economy³. This is followed closely by the permanent conversion of forests to agriculture, especially in marginal/low productivity areas. Because marginal lands are inherently less productive when put under permanent agriculture, their clearance tends to set a vicious cycle in place, where low productivity leads to further encroachment. Encroachment in ASALs drastically reduces the dispersal areas of wildlife, examples in Narok, Amboseli and around the Aberdare Forests. Wildlife has as a result been confined to the protected forests and national park areas. This confinement has as a result led to degradation of protected areas, such as Tsavo National Park and the Aberdare National Parks, particularly at the Salient areas.

Threats specific to ASAL forests:

38. **Competition for resources between livestock and wildlife** poses an additional threat to drylands forests. Grazing in forest and woodlands by livestock mostly affect regenerating species especially of the more palatable plants. This results in a thinning effect thus changing the population densities of the palatable species. Grazing especially along riverine systems has been found to cause physical impact on the grazed sites by altering stand structure and environmental conditions. This is a common feature along rivers in the dry areas of northern Kenya and especially along the River Tana where there is a great concentration of pastoral communities. Such changes could affect populations of potential regeneration of plants and forest-dwelling herbivores and therefore, have a negative impact on richness in biodiversity.
39. **Forest and bush fires** also constitute a serious threat to ASAL forests. There is a high incidence of forest fires especially during the drought periods. It is estimated that about 20,000 ha of plantations and natural forests suffer fire damage every year⁴, leading to an annual loss to the Kenya Forest Service of US\$505,000⁵ through loss of forest produce and suppression costs. This cost does not include bush fires in dry areas where timber production is not a management priority and therefore not put into cost in the computation of losses. Severe fire may have the same effect as clearing a forest especially where large patchy openings are created as a result of fire.
40. **Poor distribution of watering points:** There is a general scarcity of water in the dry lands where very few rivers flow permanently. The lakes are generally saline due to high evaporation and the major sources of reliable water are wells and bore holes established at strategic watering points. Unfortunately watering points have turned out to be centres of vegetation and environmental degradation due to concentration of high population pressure and grazing.

Climate change and droughts in the dry areas:

41. A study carried out by the Department for International Development (DFID) in 2008 concluded that on average, Kenya experiences floods every seven years and drought occurs every five years. Using both large scale Global Climate Models (GCMs) with a grid scale of 200km x 200km and a smaller scale Regional Climate Model with grid 20km x 20km and different assumptions of economic growth, climate and population projections, the DFID study estimated Kenya's future climate into the late 2020s and beyond. According to the projections, average annual temperature is likely rise 1°C by 2020s and 4°C by 2100. The country is likely to become wetter in both rainy seasons with rainfall in northern Kenya increasing by up to 40% by the end of the century. Greater rainfall may also be experience in the west of the country with seasonality remaining unchanged. Consequently flood and drought events are likely to increase in both frequency and severity.
42. In most IPCC reports, Samburu falls within the areas predicted to experience more frequent extreme weather events. The most recent flooding associated with the 1997-98 El-Nino phenomenon left most roads and physical installations submerged. While more rainfall is expected to attract more cultivation, further mounting pressure on the County's forests, and rangelands and biodiversity, it might very well increase the

1 FAO (2010) Global Forest Resources Assessment 2010 Country Report

2 UNEP, (2012) The Role and Contribution of Montane Forests and Related Ecosystem Services to the Kenyan Economy

3 Kenya Forest Service (2013) Analysis of the Charcoal Value Chain In Kenya

4 Citation to be provided.

5 Data to be updated with citation.

land productivity with positive benefits to livelihoods and biodiversity. These changes are not expected to happen soon; in the meantime, droughts are common, and although they rarely result in massive deaths of tree species, they do exacerbate the threats described above, weakening the resilience of vegetation that is otherwise well adapted to the conditions in the ASALs.

Threats specific to Kirisia Ecosystem

43. The Kirisia forest and biodiversity resident in the Kirisia ecosystem face considerable threats from fire, encroachment, dry season grazing, logging especially illegal extraction of cedar, unregulated collection of firewood, unprofessional debarking, charcoal burning, intense lopping and cutting down of whole trees for fodder and collection of honey.

Fire

44. Fire is reported to be the most serious threat to the Kirisia forest, causing both deforestation and forest degradation. The Samburu culture is very rich in conservation practices, and has helped to sustain the Kirisia forest for hundreds of years. For example, controlled burning was used for decades to manage grazing, by balancing the areas available for grasslands with the need to conserve the forest. Decisions to burn parts of the land were made by clan elders, who would agree on which parts to burn and when (normally just before the arrival of the long rains in March in order to maximize regeneration of pasture for grazing). There has however been steady weakening of these traditional, clan-based, forest management structures since the onset of the colonial period. Decisions to burn land in the forest and surrounding areas are increasingly made by individuals, both local and resettled Samburu's, leading to a situation of unchecked forest fires.
45. The use of traditional honey collection methods has contributed to the increase in wild fires. The baseline assessment found that modern beekeeping was still at infant stage in the Kirisia area; being practiced by a few progressive beekeepers. The indigenous techniques used to harvest honey from forests use fire and felling of trees to access honey up the stem. Fires are lit at the bottom of the trees during honey collection from wild hives, sometimes getting out of hand and burning whole trees and/or large parts of the forest. Incidents have been reported where whole trees have been felled in the process. This technique is wasteful and destroys bees. Baseline assessment found damage to the upper canopies of eight tree species, believed to have been damaged via this wasteful honey collection method. The most affected species were *Juniperus procera* and *Olea europaea ssp africana*. Such fires are more frequent in the dry season. Lower altitude dryland forests are particularly hard-hit since they're less resistant to fire than moist, higher altitude forests.
46. Although natural regeneration occurs after fire events, evidence suggests that it is very slow in the Leroghi/Kirisia ecosystem, possibly because it is stymied by the commensurate increase of grazing activity. Baseline assessment reported that only the cedar (*Juniperus procera*) shows signs of regeneration to a limited extent; and most other indigenous trees species have failed to regenerate. Thus cumulative impacts of overgrazing and continuing overharvest are contributing to slow post-fire recovery.
47. Baseline assessment reported that incidents of fire have increased with the increase in population of livestock. Although data on recent estimates of annual or total area damaged by fire is not available¹ a single wildfire event in 1980 destroyed approximately 30,000 ha of closed canopy forest. While this resulted in substantial increase of available grazing land within the Forest Reserve for both wildlife and livestock, the burnt area later became permanent settlement for Samburu families fleeing insecurity from the regular raids/skirmishes with the neighbouring Turkana (explained below).

Fuel-wood and other timber forest products

48. The second most serious threat to the Kirisia forest emanates from the fact that the main source of energy for cooking in Samburu District is fuel wood; both charcoal and fire wood. Kirisia Forest is the main source of the fuel wood, extracted for commercial purposes and domestic use. The pressure on the forest for fuel wood production is attributed to people living in the forest, adjacent communities and people from Maralal town. Although there are no definitive records of the quantities of wood and charcoal extracted from the whole forest, a CAMCO REDD+ assessment (2010) estimated that *Opiroi* produced about 100 bags of charcoal daily, depicting the potential magnitude of deforestation and forest degradation that may result from

¹ This will be established during the project inception period, as part of updating the current Kirisia Forest Management Plan

fuel wood extraction activities¹. The Charcoal was perceived to yield higher returns on labour, especially by otherwise unemployed youths. Charcoal production, if uncontrolled and uncoordinated, is likely to turn into a major threat to the integrity of the ecosystem, as urbanization coupled with increasing change in lifestyle of the nomadic pastoral communities continue to set in.

49. The forest is further threatened by logging, mainly for timber and posts used for building materials in the local villages and Maralal. *Juniperus procera* and *Podocarpus falcatus* are the main species targeted for logging. *Juniperus procera* is resistant to termites and is therefore preferred as building and fencing material. Communities in Samburu districts are also changing their lifestyle moving from pastoral lifestyle to more settled life where permanent structures are used as dwelling place which is increasing the demand for building materials.

Encroachment with accompanying all year round, unsustainable grazing:

50. The third most serious threat to the Kirisia forest is settlement into the forest area, accompanied by all year grazing, unsustainable and inappropriate harvesting of pasture, blocking wildlife migratory corridors and poaching. Traditionally, the majority Samburu pastoralists are nomadic, and the minority Dorobo are not agriculturalists. Under the traditional grazing management system, the Kirisia forest was used as dry season grazing, particularly in drought years. This has however changed in some parts of the forest, with the settlement of the Samburu families referred to in the previous paragraph. A 2005 survey reported that there were about 600 households settled in the forest²; however, this had increased to about 2,000 by 2014 (KFS, personal communication). Clearly, in the face of weaker legitimacy of the traditional grazing management systems, the comparatively rich grazing grounds, relatively higher rainfall, year round forage availability, permanent water points, and proximity to the markets of Maralal, have continued to attract permanent settlers into the forest. These parts of the forest are now under all year grazing, with increasing incidents of accompanying crop cultivation. Although communities in the forest argue strongly that they protect the forest from illegal loggers and deforestation, there is evidence that their resources harvesting processes, as well as harvesting processes of other communities around the forest are leading to forest degradation.

Pasture / fodder for livestock

51. As reported in the previous section, the Kirisia forest plays a very important role in the local economy and livelihoods by being the main resource for dry season grazing and the source of water. Pollarding of trees for fodder was found common although only a few species are targeted. The baseline assessment found about 42 % of trees (187 out of 451), belonging to eight different species, were damaged by pollarding for calves or as dry season source of fodder for the livestock; the most popular and affected species was *Olea europaea* ssp *africana* (Table 8. Pollarding of *Olea europaea* (*O. africana*) was particularly noticeable throughout the forest with 62 % of all damaged individuals being so through pollarding. Pollarding is mainly done by harvesting the crown biomass by overtopping the tree for fodder, firewood, posts or all types of products. During drought or prolonged dry seasons, the herbaceous plants outside the forest disappear and grass dries up.
52. The baseline report also reported that three of the commonly known fodder species were target in the “cut-and carry system” of the dry season intensive exploitation of fodder. The fact that pollarding was observed to many more species than those listed as common fodder species implied that, during dry season, people expand the range of fodder species to include those that are usually not easily accessible e.g. requiring climbing during fodder harvesting. The impact of collecting fodder from palatable tree species through pollarding is exceptionally worrying; it is unprofessional, unplanned and uncoordinated. Table 8 also shows the three most frequent damages on trees per block.

Table 7: Pollarded species for livestock fodder and other products and magnitude of the practice in Kirisia forest

Forest block	Rapar	Baawa	Tamiyoi	Nkorika	Entire Forest scenario (28.3 ha – sample size)
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¹ Carbon Scoping Study of Kirisia Forest Reserve in Samburu, District, Kenya: CAMCO 2010.

² See also Section SOCIAL ECONOMICS BENEFITS INCLUDING GENDER CONSIDERATIONS in the document.

Species	Pollarded trees	Pollarded trees	Pollarded trees	Pollarded trees	Total damaged trees	Total Pollarded trees	Pollarded % per species	Share of pollarded trees among species
<i>Teclea simplicifolia</i>	4	1	0	0	10	5	50.0	2.7
<i>Olea europaea</i>	30	78	31	28	269	167	62.1	89.3
<i>Grewia tembensis</i>	1	0	0	0	2	1	50.0	0.5
<i>Juniperus procera</i>	2	1	2	0	139	5	3.6	2.7
<i>Croton megalocarpus</i>	0	2	0	0	13	2	15.4	1.1
<i>Euclea schimberi</i>	0	4	0	0	15	4	26.7	2.1
Lamaroki / Lamarogi	0	0	1	0	1	1	100	0.5
Ngeriyoi	0	0	2	0	2	2	100	1.1
Total	37	86	36	28	451	187	41.5	100
% pollarded per locality	29	49	34	65		41		

Table 8: Most common types of tree damage

Block	% damage from debarking	% damage from pollarding	% damage from Heart rot	Other disease	% dead
<i>Rapar</i>	23	29	-	-	13
<i>Baawa</i>	8	49	19	-	-
<i>Tamiyoi</i>	34	31	-	-	15
<i>Nkorika</i>	13	65	-	13	-

53. **Harmful methods of harvesting for medicinal purposes:** Different parts of the plant are harvested for medicinal purposes: leaf extract (*Justicia sp.*, *Trimeria grandifolia*), Bark extract (*Croton megalocarpus*, *Juniperus procera*, *Mystroxydon aethiopicum*, *Olinia rochetiana*, *Lokujok*, *Podocarpus falcatus*, *Vangueria sp.*, *Lorekiri*, *Trimeria grandifolia*), Root extract (*Trimeria grandifolia*, *Rhamnus prinoides* (concoction), *Rhamnus staddo*, *Carissa edulis*, *Croton dycotomous*, *Dombeya sp.*, *Euclea schimberi* / *E. divinorum*, *Rhus natalensis*, *Teclea simplicifolia* / *Cadia purpurea*, *Toddalia asiatica*, *Euphorbia candelabrum*, stem or twig sap (*Euphorbia candelabrum*, *Aloe secundiflora*), fruits (*Myrsine 20fricana*). The harvesting of barks, roots and stems is a threat to plant life and potentially not sustainable. There is need to promote low impact harvesting technologies and other conservation measures (through production instead of harvesting them in the wild) to protect threatened medicinal plants, both inside and outside the forest.

Poaching and blocking wildlife corridors

54. In addition, new settlements and an increase in the number of fenced properties in the wildlife dispersal areas have started blocking the wildlife migratory corridors that connect Kirisia, Milimani, Poro, Lapurtuk, Ngari naro, and Losuk in Laikipia. Indeed, encroachment has spread to the Wildlife Sanctuary situated near Maralal Town, along with increase in incidents of poaching (Figure 1).

Figure 3: Crude materials used to trap animals recovered in the Wildlife Sanctuary



55. If it continues unchecked, encroachment will lead to disconnection of ecological habitats within the ecosystem and between the ecosystem and other adjoining ecosystems which reduce its viability to continue supporting the vast biodiversity due to blockage of wildlife migratory corridors, loss of habitat, shrinkage of wildlife dispersal areas and interference of interactions between predators and prey relationships, herbivores and grasslands, all of which are ecologically significant for both habitats and wildlife. Many of Kirisia's species would become extinct if links to the larger metapopulation in the Samburu Heartlands, Marsabit and Laikipia were severed. Insularization of protected areas and habitat fragmentation would hasten the extinction of species, directly reducing biodiversity. If the protected areas have no dispersal areas, genetic drift and inbreeding may occur, leading to population instability, loss of ecological integrity and possibly local extinction. These extra-ecosystem linkages are also necessary to buffer Kirisia ecosystem

against extreme droughts and climatic change.

56. Poaching was reported to be a serious threat to wildlife. Poaching statistics for the Mountain Conservation Area (MCA) show that Samburu area was the second in poaching, and most of it contributed by poaching in Kirisia forest (KWS unpublished, 2014). The most common cause of death was trophy hunting (Figure 2 and 3). Other species commonly poached include leopards, Lions Elands, Grevy and common Zebra, hyenas, wild dogs, giraffes and buffalos.

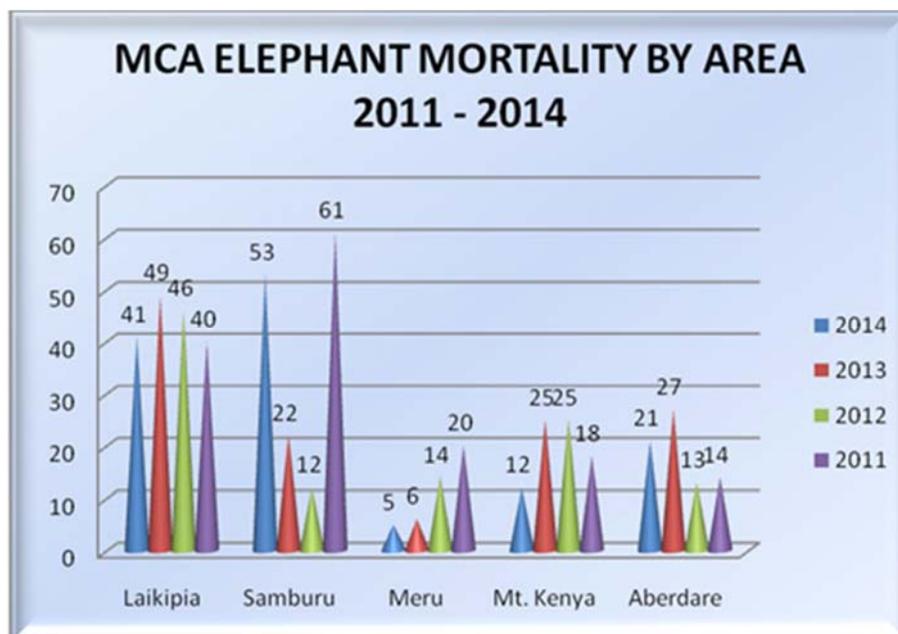


Figure 4: Elephant mortality 2011-2014

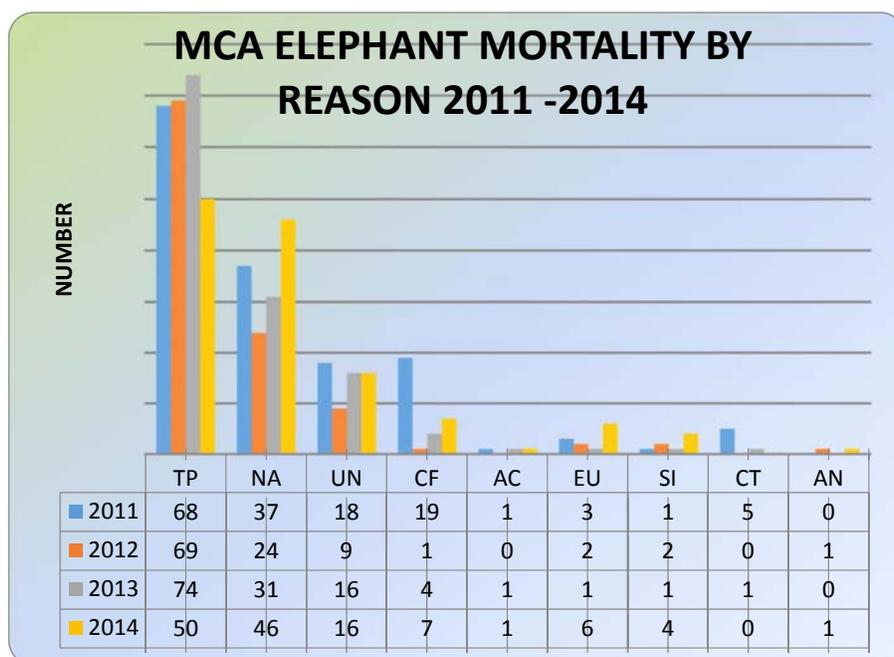


Figure 5: Common causes of elephant deaths in MCA 2011-2014

Key; TP-Trophy poaching: NA; Natural: UN; unknown.

57. Meanwhile, human and livestock populations in the Samburu County continue to grow (Table 3 and 4) as traditional controls on herd size shift. There are unconfirmed reports that the Samburu average herd has become dominated by small stock rather than cattle and camels, a change driven by the series of droughts experienced in the 80's. This further exacerbated an increase in livestock numbers and grazing pressure, intensifying the competition for grazing between wildlife and livestock.
58. All the threats described above are likely to gain even more momentum with the arrival of the County Government and the planned improvements and extension of the transport networks. The National government has begun to pave the dirt road from Nyahururu to Maralal (Leroghi) and the planned highway, railroad and pipeline complex from the Kenyan Coast to southern Sudan is expected to pass just south of Leroghi. These developments are welcome by the Samburu as they will bring great opportunities to the communities and increase local economic development. However, if the current weaknesses in natural resources governance and management are not addressed, the developments are likely to accelerate the decimation of the forest and the loss of ecosystem services, to the detriment of the communities and biodiversity in the long run.

Climate change

59. Forests and rangelands in Northern Kenya are facing additional threats from the impacts of drought and climate change. Based on data from the Kenya Meteorological department, the thirty year period between 1970 and 2000 saw a noticeable decline in the estimated mean annual rainfall in the area surrounding Lake Turkana (includes Samburu). The region experienced 10 years of mild droughts and 5 years of extreme drought. One of the effects of these droughts is that it causes moisture stress within the natural vegetation. Those species that are tolerant to drought survive but most of them are vulnerable and are negatively affected. Samburu and Pokot have a better vegetation cover than Turkana. Such droughts have direct impacts of the livelihoods of pastoralists as they are highly dependent on water and vegetation for their livestock. They also exert more pressure on the remaining resources.

Impacts to GHG emissions from deforestation and degradation

60. The threats are depleting the forest and the ecological integrity of the Leroghi/Kirisia ecosystem. This is evinced by significant degradation of biodiversity, loss of forest health, and contributions to climate change. A 2010 REDD+ assessment study by CAMCO reported that the forest had reduced from the 91,944 ha at the time of gazettelement to about 78,000 ha by 2010.¹ The area considered in the project to constitute intact forests is 45,000 ha used to calculate emissions reductions (Annex 4). This forest loss leads to direct emissions of 630,912 tCO₂eq in the 20 years of project lifetime.
61. **Losses from degraded forests which could be put under regeneration:** The current extent of degraded forest needs to be re-confirmed during project inception; however the CAMCO REDD+ study², reported that there are 10,000 ha where tree cover is very low and carbon pools are at the lowest levels. Rehabilitation of these areas, via a mix of forest regeneration and enrichment planting could increase carbon stocks dramatically – which is currently being foregone. As reported in the detailed carbon benefit calculation (Annex 4), a lack of appropriate rehabilitation measures would lead to abandon annually 66,222 tCO₂eq of potential carbon gain associated with the growth of the reforested areas with natural species. Further CO₂ is being emitted from about 17,000 ha of land, which are suitable for SFM (including 8,000ha group ranch forests), but which are currently undergoing further forest degradation. Without SFM, 49,017 tCO₂eq of annual potential carbon gain would be foregone (see Annex 4).
62. Baseline assessment carried out in 2011 confirmed that forest diversity is also affected. Livestock prefer wild olive and its regeneration is severely impacted. The severe degradation has contributed to the decline of several important species from the forest including *Olea Africana* (African Olive), *Juniperus procera* (Cedar), *Podocarpus falcatus* (Podo) and *Osyris lanceolate* (Sandalwood)³.
63. The threats have affected the population structure of the forest. Baseline assessment (2011) confirmed that

¹ Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya; CAMCO 2010. However, this report does not provide the time period within which these changes have occurred.

² Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya; CAMCO 2010. However, this report does not provide the time period within which these changes have occurred.

³ Socio-economic and Biodiversity Baseline Surveys – Kirisia Rehabilitation Project (GBM 2014)

49% of the tree species (47 out of 95) were recorded in the timber-sized stage; an indication that a good number of tree species in the Kirisia forest can reach large diameters at maturity. However, only 33 tree species out of the 47 (14%) were represented in the pole-size category. Their populations were on the decline, particularly *Juniperus procera* population. The ageing and declining *J. procera* population paved way to other species like *Teclea simplicifolia*. *Juniperus procera*'s high representation at Tamiyoi in the pole stage may be as a result of high fire incidence which may have favoured the *J. procera* regeneration as a pioneer species, whose seed dormancy is broken by heat. The density of seedlings and saplings varied among the four blocks, from satisfactory at Rapar and Baawa to very low in Tamiyoi and Nkorika.

64. The 2011 Baseline assessment reported that the Samburu community understands the impacts of these threats to the natural capital of the Kirisia forest and reported the following tree and animal species to be either declining or have disappeared. The most frequently mentioned were camphor and podo (Table 10). These species might require to be re-introduced through enrichment planting.

Table 9: Tree Species that are scarce in the forest

Tree species	Botanical name	Status
Mithata		Scarce
Losesiai	<i>Osyris lanceolata</i>	Scarce
Loichimi	<i>Commiphora habessinica</i>	Scarce
Sinantei		Scarce
Sukurtuti	<i>Cissus</i> sp.	Scarce
Lngeriyoi	<i>Olea europea</i> ssp <i>cuspidatus</i>	Scarce
Ltarakwai	<i>Juniperus procera</i>	Scarce
Lpiripirinti	<i>Afrocarpus gracilior</i>	Scarce
Loliontoi	<i>Olea capensis</i>	Scarce
Kyenia (Acacia sp.)		Absent
Inyua (Acacia sp.)		Absent
Podo		Scarce
Cedar		Scarce

Table 10: Animal Species that have disappeared/ reduced in numbers

Animal species	Status / Cause
Rhinos	Rare
Gazelles,	Hunting
Eland (Suruani-Samburu)	
Lion	Scarce
Bush back (Lpua-Samb)	Drought
Impala (Ntarawati-Samb)	
Grevy zebras	Low numbers
Cheetah	Rare
Wild dogs	Rare

65. The threats have also affected ecosystem services, especially water catchment services. Although the forest is a vital source of water especially during the dry season, there has been a general decline in the amount of water flowing through the rivers from a high in 1970s to almost scarce status in 2000s (Figure 5).

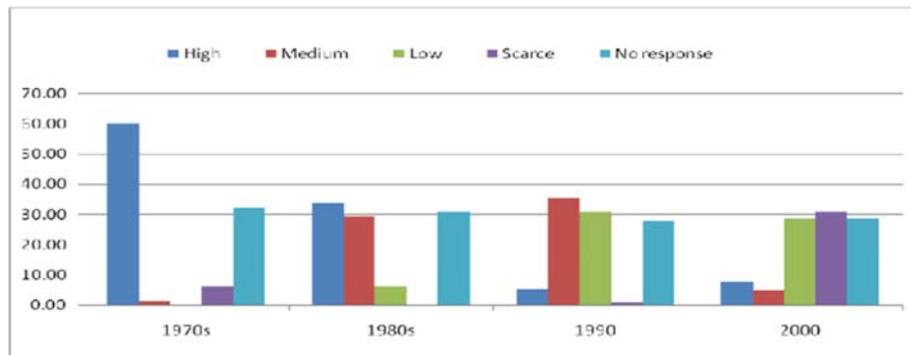


Figure 5: Trends in River Flow from Leroghi/ Kirisia

66. The changes have equally threatened the ability of the ecosystem to support the livelihoods of the Samburu community sustainably. Examples from Maasai land show that widespread sedentization of the pastoralists led to loss of grazing lands, reduced livestock mobility and overgrazing. The movement from a semi nomadic to a sedentary lifestyle and the shrinking access to land has reduces the sufficiency of traditional livelihoods strategies, weakens traditional resource governance institutions and increases vulnerability to drought and climate change. In addition to destroying natural habitats and altering the character of rangeland landscape, agricultural expansion also fuels the human-wildlife conflicts as wild animals destroy crops more frequently than they harm livestock. A recent study reported that over 40% of group ranch members experience crop damages annually by wildlife compared to only about 21% who experience livestock losses. Annual combined losses of both crops and livestock to wildlife become of more significance and of great concern to local communities as over 64% of community members incur both crop and livestock losses annually.

RATIONALE

Long-term Solution

67. The threats facing the Kirisia forest, the broader ecosystem and its constituent resources are mainly anthropogenic and can be effectively addressed through joint effort between the State, County government, local Communities and other stakeholders. Local communities are particularly aware of the threats to their livelihoods and acknowledge that most of the threats emanate from local resource governance and management issues.
68. There is therefore an urgent need to strengthen sustainable forest governance and management systems, in order to tackle current and emerging threats. It is particularly important to ensure that the ecological integrity of the ecosystem and the forest and the carbon it holds are enhanced, even as pressure increases to provide the resources the County government and the communities need to accelerate local economic development; a need that is glaringly obvious.
69. An excellent opportunity has now emerged; Supported by the KFS, KWS, AWF and other technical Line Ministries, the Kirisia Forest Association has formulated a Management Plan for the forest. The Kirisia Forest Management Agreement (FMA) was signed in June 2015, which gave the Kirisia Community Forest Association (CFA) forest user rights and the two organisations (KFS, CFA) better working modalities. It is expected that this new partnership arrangement will contribute to improved forest management, emissions reductions, improvement of wildlife habitat and better livelihoods.
70. The long-term vision encapsulated in the Management Plan is that Leroghi/Kirisia ecosystem becomes the best managed and conserved in Kenya, and that it continues to sustainably provide goods and services that lead to improved livelihoods of the Leroghi/Kirisia forest adjacent communities and Kenyans at large. To realize this ambitious vision, the development partners need to engage the communities living around the forest in a participatory process that provides policy, legal, financial and capacity incentives for sustainable forest governance and management, as well as biodiversity conservation, as the two cornerstones of resilient economic development of the Samburu County and its people.
71. Achievement of the long-term vision will therefore require the adoption of participatory forest management and improved management of the rangelands around the forest. To achieve this, the partners need to

strengthen the nascent governance system (CFA for PFM), put in place incentives for PFM, specific programmes for biodiversity management (including the natural forest and wildlife), participatory biodiversity Monitoring and Evaluation programme; economic/financial incentives for conservation and sustainable use, including tourism development and other non-timber forest products; sustainable rangeland management and grazing regimes, and community legal empowerment, including harmonization of the devolution-led policy changes with local and national natural resources management policies.

Baseline Analysis: Programmes and Co-Financing

72. The project will build on baseline programs with a total investment of US\$ 62,614,000 (from about 2010 – 2020), out of which US\$ 8,675,178 will serve as direct co-finance), described below:

Relevant National Government Investments and Actions

73. Kenya Forest Service: US\$ 5,000,000; 2015 -2020: (0.5 million of which counts as co-finance to the project); The KFS will invest more than US\$ 5 million on national forest management activities, with about 0.1 million per year supporting Kirisia Forest management directly (total of 0.5million during the lifetime of the project). The co-finance emanates from the KFS's operational budgets in Samburu County and other related dryland forest programmes during 2015-2020. At the national and local levels, the funds are used to create operational institutional management systems for the new agency, to improve management operations of forest stations such as detailing felling series, planting and other silvicultural operations, mainly for timber production. The budget also goes to enforce and apply forest law within the context of the national forest extension service. The Kirisia Forest Office has 8 staff members (1 Forest Manager and 7 Forest rangers). KFS is engaged in mainly law enforcement through patrols within the forest. However this staffing level is completely inadequate to secure the whole forest.
74. **Kenya Wildlife Services (KWS): US\$ 10 million; 2015 -2020:** (0.5 million of which counts as co-finance to the project). The KWS will invest about US\$ 10 million in wildlife management and protection during the 2015 – 2020 period. However, only about US\$ 0.1 per year is allocated to the protection of wildlife in the Kirisia forest and surrounding areas (total of 0.5 million during the project period). KWS has a Wildlife Protection Department (WPD) – the Baawa plateau, which protects Kisiria forest and oversees seven conservancies. In Kirisia, KWS office has a team of 7 staff who also support the Community Policing program.
75. **Kenya Forest Research Institute (KEFRI): US\$ 0.5 million:** At the national level KEFRI is implementing a programme on dryland forests, under which it is undertaking research activities including development of technologies for establishment of trees in drylands. The co-finance emanates from the institute's operational budgets in Samburu County and other related dryland forest programmes. The co-financing is expected to support training farmers, extension officers, and other natural resources managers on forestry related matters. KEFRI, through this programme, will facilitate the replication of knowledge and best practices generated by the proposed project in other dryland regions of the country. At the same time, the institute will share existing knowledge and provide technical expertise to the proposed project.

Relevant County Government Investments and Actions

76. **County government:** US\$ 15,000,000; 2015 – 2020 (US\$ 2,515,000 of which will count as co-finance for Kirisia forest): The Samburu County government has identified the Forests (Kirisia, Mathews Range, Ol-Donyo Rengai) as sources of tourism and other development for the County. The County government has therefore committed to investing resources in developing infrastructure required for tourism development, including roads, improving security on the Maralal Nyahururu road, and supporting institutional development, such as conservancies. For example, in 2015, the County Government has already supported the establishment of an eco-lodge within the Ngotea-Kirisia conservancy. The government is also investing resources in expanding the extension service and improving the marketing of honey, in line with the County Development Plans.

Relevant Donor Investments and Actions

77. There are several donor investments and actions in Kenya which serve as baseline, and the project can draw lessons from. These include;
78. FAO Kenya/EU - Land Programme 2015-2027: (US\$ 22 million out of which US\$ 1,500,000 counts as baseline and co-finance for this project). The programme's overall objective is that "equitable and secure

access & management of land for better livelihoods and socioeconomic development” in all counties of Kenya as per vision 2013. The program has four main outputs: Output 1: Land administration and management established in selected counties. Output 2: Participatory land use planning initiated and planning methodology established in selected counties. Output 3: Land Policy and legal framework for improved land governance at county established and rolled out in line with the VGGT. Output 4: Capacity of research and academic institutions on national land tenure and management issues strengthened. The proposed project will benefit from this baseline investment, in particular the strengthening of land tenure systems, which will secure land tenure for group ranches around the Kirisia forest.

79. **FAO/EU. Reviving ASAL Economies through Livestock Opportunities and Improved Coordination (RAELOC) 2014 - 2018 (US\$ 5,000,000):** This programme covers all the Counties in the Arid and Semi-Arid Lands of Kenya. It has 5 outcomes, namely: outcome 1: Agricultural- based livelihoods are supported by an enabling policy and investment environment; outcome 2: Agricultural productivity and production of medium- and small-scale producers increased, diversified and aligned to markets; outcome 3: Improved management of natural resources (rangeland, agricultural land, water and forest) at national, county and community level; outcome 4: Improved livelihood resilience of targeted, vulnerable populations; outcome 5: Access to and use of information , innovation, a global pool of knowledge and expertise drives holistic growth in the Agriculture sector. The proposed GEF project will benefit from a close interaction with this project, in particular on elements of strengthening land tenure systems, which is required for sustainability of community based forest management regimes.
80. **Kenya REDD+ Programme – US\$ 1,000,00; 2010 - 2020:** Kenya has received a grant from the Forest Carbon Partnership to support the development of a national REDD+ Strategy. The World Bank/KFS Forest Carbon Partnership Facility (FCPF) project will support Kenya REDD Readiness Preparation, specifically the stakeholder consultations and management arrangements. Kenya is also receiving support from UN-REDD on different components of its Strategy (institutional arrangements, multiple-benefits planning, safeguards), including from FAO. FAO through the UN-REDD Programme is providing support to a comprehensive gap analysis of the forest related legal framework relevant to REDD+ and to drafting REDD+ provisions to clarify and regulate major legal issues. A roadmap for the establishment of reference levels and a national forest monitoring system has recently been prepared. FAO has recently started activities to guide the Government on MRV issues, notably how it will articulate the monitoring of REDD+ activities and forestry emissions at the national level. The proposed project will contribute to the development of the REDD+ strategy by providing lessons learned and best practices on participatory forest management, which could be an important element of the strategy.
81. **KFS/ Finland - Miti Mingi Maisha Bora (More trees for better lives) 2010 – 2015 (US\$ 2,000,000):** implemented at the national level, the program supports the development of participatory forest management plans for selected forests in Kenya. The program is also in the process of re-establishing the national forest inventory and development of participatory forest management plans for non-timber products and services. The proposed GEF project will benefit from sharing lessons and methodologies applicable to drylands forests as well as carbon monitoring elements of such plans.

Relevant Community and NGO Investments and Actions

82. **African Wildlife Foundation (AWF) (US\$ 1.2 million):** The AWF supported the development of Leroghi Forest Management Plan (2012-2016). The management plan was formulated through a consultative process initiated by the Kirisia Community Forest Association (KCFA) and KFS, to provide a management guideline on the sustainable management and conservation of Leroghi Forest. The plan aims to employ a collaborative and participatory approach to forest management, which takes into account the diverse interest groups surrounding the forest, local community livelihoods and forest conservation. AWF has also supported the implementation of some of the activities of the plan specifically the development of a honey-processing plant and collection centres.
83. **Kirisia/Leroghi Community Forest Association (KCFA): US\$ 0.414 million – 2015-2020** (all of counts as co-finance): Local communities in Leroghi have set up a structure for the management of the forest – the Kirisia/Leroghi Community Forest Association (KCFA). They are in the process of establishing operational capacities and partnerships to actualize PFM.
84. **Kenya Forests Working Group (KFWG) – subcommittee of the East African Wildlife Society, EAWS) (US\$ 150,000):** KFWG is implementing research, advocacy, and information sharing activities to support

sustainable forest management and improved livelihoods. KFWG is currently implementing activities under a project funded by the United States Department of State through IUCN and EAWS “*Widening Informed Stakeholder Engagement for REDD+ (WISE REDD+)*”. KFWG will be an important partner in the proposed project particularly with regard to the implementation of the knowledge management component of the project – as a key knowledge-sharing platform. KFWG has an annual budget of US\$ 150,000.

85. **Suyian Trust – US\$ 150,000; 2008 - 2018:** Suyian Trust was set up in 2008 in order to raise funds more efficiently for people and conservation. Suyian Trust is actively involved in a number of projects in Laikipia West and Samburu North. The trust, in collaboration with the Kenya Forest Service, support communities living adjacent to indigenous forests to form Community Forest Associations. Suyian Trust is supporting Kirisia Forest Association with engaging forest scouts, provision of communication equipment and facilitates wildlife monitoring in the forest.
86. **Space for Giants – US\$ 100,000 – 2010 - 2020:** Space for giants support conservation of wildlife and people in Kirisia Hills. In collaboration with other stakeholders, Space for giants supported Kirisia CFA to improve its management and governance capacity through a training workshop.
87. **The Northern Rangelands Trust (NRT) – US\$ 50,000; 2010 -2020:** NRT is a registered Kenyan Trust with a Board of Trustees and with constituent communities as members. NRT is currently working with 19 community conservancies in Laikipia, Samburu, Isiolo, Marsabit and Baringo/East Pokot and Ijara districts, covering an area of more than 5,000km².
88. The role of the NRT is to develop the capacity and self-sufficiency of its constituent community organisations in biodiversity conservation, natural resource management and natural resource based enterprises. This is achieved through the following objectives; i) ensure the conservation, management and sustainable use of the natural resources within the Trust Area; (ii) promote and develop tourism and all other environmentally sustainable income-generating projects within the Trust Area; (iii) promote culture, education and sports of the residents of the Trust Area; (iv) promote better health of the residents of the Trust Area through the provision of better health services and facilities; (v) alleviate poverty of the inhabitants of the Trust Area through improved social services, provision of employment and establishment of community-based enterprises; and promote and (vi) support trusts, corporations, NGOs and other charitable organisations with similar objects to those of the Trust.
89. **The Green Belt Movement (GBM) – US\$ 50,000; 2012 - 2018:** With the support of the Prince Albert II of Monaco Foundation, Yves Rocher Foundation and Schooner Foundation GBM is implementing a watershed rehabilitation project. The project uses existing community structures and cultures, which strongly support conservation work, to rehabilitate the Kirisia forest, achieve community empowerment and improve livelihoods for the Samburu people. GBM has incorporated the Kirisia Forest ecosystem in its adoption of watershed-based approach in conservation of Kenya’s water towers. Twenty-seven (27) green volunteers (GVs) from the community were chosen to help monitor and report the progress of GBM activities across the forest stretch. Due to the uneven distribution of GV’s, attributed to the uneven settlement pattern along the forest boundary, Community Forest Association (CFA) scouts assist in monitoring forest activities in the region.

GEF Projects

90. Table 12 shows the GEF projects operational in Kenya. During the project design period, every effort was made to make certain this project is complimentary and symmetrical with these on-going efforts.

Table 11: GEF projects of relevance to the proposed Kirisia Forest Management

Project Title	Agency	GEF Investment (US\$)	Brief Project Description
Fifth Operational Phase of the GEF Small Grants Program in Kenya	UNDP	US\$5,000,000	To secure global environmental benefits through community based initiatives and actions in key terrestrial and marine ecosystems of Kenya.
Adaptation to climate change in Arid Lands (KACCAL)	World Bank	US\$6,790,000	The proposed project contributes to the Climate Change Focal Area. It specifically focuses on the implementation of key adaptation measures to reduce vulnerability to climate change (higher temperature and increased frequency and scope of droughts and floods) in the arid and semi-arid lands of Kenya

Strengthening the Protected Area Network within the Eastern Montane Forest Hotspot of Kenya.	UNDP	US\$4,650,000	The biodiversity of Eastern Montane Forest is adequately represented and managed within Kenya PA network. Coverage in the Eastern Montane landscape provides the frame for upgrading reserve forest to higher status PAs
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Legal, policy and institutional context

91. Kenya is endowed with globally unique biodiversity and this biological richness is fundamental for much of the country's economy and development prospects. It is also widely acknowledged by Kenya's main development partners that the country's future economic growth depends on better environmental management¹.
92. In recent years the Government of Kenya has developed a number of new institutional, legal and policy frameworks that govern conservation and natural resource management including those for: Land, Wildlife Management, Climate Change, Environment Management, and Tourism. These together with the adoption of a new Constitution and the anticipated legislation, changes the sphere in which civil society organizations and communities can engage in biodiversity, forest conservation and natural resource management. For example with the coming into effect of County Government in 2012 implementing organizations need to work closely with the devolved governments to implement the conservation programs on community lands. This may have the effect of hastening the pace of implementation and developing avenues of providing support to improve governance system that often prevents quick handing over of projects once they are completed.

The Constitution of Kenya 2010: National and County Authorities

93. The 2010 constitution of Kenya, adopted in 2010, creates two types of Governments; the Central National Government and 47 devolved County Governments. The Counties are semi-autonomous units of governance with responsibility for county legislation, executive functions, provision of public services, etc. Three levels of further decentralisation are sub-counties, wards and locations.

The Vision 2030

94. In late 2007 the Government of Kenya (GoK) launched its Vision 2030² to guide all development aspirations for the entire country Both the Kenya constitution and economic blueprint Vision 2030 recognizes the importance of the country's forests. Vision 2030 requires the country to work towards achieving a forest cover of at least 10% of the land area to ensure sustainable resource use, growth and employment creation. Further, the constitution has a whole chapter on land and environment (chapter 5), and requires that international environmental agreements, protocols and conventions to which Kenya is a signatory be domesticated and implemented within sectoral policies and laws.

Forests Policy and Forest Act 2005

95. The Forests Act 2005 provides for the establishment, development and sustainable management, including conservation and rational utilisation of forest resources for the socio-economic development of the country. The Act recognises the importance of forests for the benefits of soil and ground water regulation, agriculture and their role in absorbing green-house gases.
96. The key elements of the Forests Act are: the inclusion of management of all types of forests; involvement of adjacent forest communities and other stakeholders in forest conservation and management; an ecosystems approach to forest management planning; provision of appropriate incentives to promote sustainable use and management of forest resources; development of a framework for a forest legislation; and, establishment of Kenya Forest Service. The Act has four priority areas related to the management of forests, including: reducing pressure to clear forests for agriculture and other uses; promoting the sustainable utilisation of forests; improving governance in the forest sector; and, the enhancement of carbon stocks and reforestation

¹ Joint Assistance Strategy for the Republic of Kenya (2007–2012)

² GoK. 2007. *Kenya Vision 2030: A Globally Competitive and Prosperous Kenya*. Government of Kenya, Nairobi, Kenya.

of degraded lands.

97. The 2014 National Forest Policy provides a framework for improved forest governance, resource allocation, partnerships and collaboration with state and non-state actors. Important features of the revised policy framework for forest conservation and sustainable management include: the mainstreaming of forest conservation and management into national land use systems; division of responsibilities between public sector institutions; confirmation of the devolution of community forest conservation and management.
98. The Forests Act 2005 provides for the establishment of institutional frameworks that include Kenya Forest Service (KFS) under a Board at national, Forest Conservation Committees at conservancy levels and Community Forest Associations (CFA) with membership of individuals residing around forest resources. The Committees and associations bring together representatives of various stakeholders in the respective conservancies and forest associations, hence ensuring an all-inclusive institutional framework.
99. The 2014 National Forestry Policy provides more clarity on the division of roles and responsibilities of the government institutions involved in managing forests. The ministry responsible for forestry provides an oversight role in national forest policy formulation, and regulatory function of the sector, thereby allowing Kenya Forest Service to focus on the management of forests on public land. The role of the County governments relates to implementing national policies and County forest programmes, including the delivery of forest extension services to communities, farmers and private landowners, and management of forests other than those under Kenya Forest Service.

Kenya Forest Service

100. Kenya Forest Service is a State Corporation established in February 2007 under the Forest Act 2005 to conserve, develop and sustainably manage forest resources for Kenya's social-economic development. The KFS management structure comprises 10 conservancies that are ecologically demarcated, 76 Zonal Forest Offices, 150 forest Stations, and 250 divisional forest extension offices located countrywide. This structure is critical in forest management and surveillance.
101. Under the New Constitution, management of protected forests such as Leroghi/Kirisia Forest is invested in the National Government. Hence the Kenya Forest Service is directly responsible for management of the gazetted portion of the Leroghi/Kirisia Forest.

Community Forestry Associations

102. The participation of stakeholders in the conservation and management of the forest resources through collaborative management is strongly supported by the Forests Act 2005. The recognition of forest adjacent communities as key stakeholders and users of natural resources is considered key if successful management is to be realized. The Act provides opportunities to realize sustainable community forest management arrangement, as it allows for example for communities living adjacent to Leroghi/Kirisia Forest to enter into forest management agreements with KFS.
103. Participatory forest management (PFM) approach has been practised officially in the country since 2005 when the Forests Act of 2005 came into force. The Act also recognises Community Forest Associations (CFAs), whom participate in forest conservation and management under the KFS. The 2005 Forestry Act calls for the creation of one CFA for each forest station. According to the KFS, there are currently 325 community forest associations in the country. The new Forest Policy of 2014 supports PFM by calling for the establishment of national programs to support community forest management and afforestation/reforestation on community and private land, as well as the preparation of national standards for forest management and utilization, and the development of codes of conduct for professional forestry associations.

Kirisia Community Forest Association

104. Local communities in Leroghi/Kirisia forest have formed a CFA. Kirisia CFA together with Kenya Forests Service (KFS) and other stakeholders such as African Wildlife Foundation (AWF) and Suyian Trust have prepared a five year forest management plan (2012 -2016). The plan provides a platform for engagement with the (KFS) in forest management. Kirisia CFA has negotiated a forest user rights with KFS and a management agreement has been entered into between Leroghi/Kirisia CFA and KFS and will be signed in June 2015. Despite the delay in signing the management agreement, a number of activities stipulated in the management plan have been implemented.

Wildlife Conservation and Management Act 2013

105. Kirisia forest is an important habitat for wildlife including: elephant, buffalo, bushbuck, bush pig, giant forest hog, warthog, suni, lion, leopard, and wild dog. The birds and insects are well represented including *Hartlaubs touraco* possibly the most dominant species in the forest as well as *tambourine* dove, which only occurs in forests, martial eagle, sunbirds etc.
106. The Wildlife Conservation and Management Act 2013 places wildlife management under the general authority of the Kenya Wildlife Service. The Act is aimed at improving the protection, conservation, sustainable use, and management of the Kenya's wildlife resources. The law was drafted with a view to addressing the loss of wildlife, which had exacerbated despite conservation efforts by various institutions and has been attributed in varying proportions to a combination of policy, institutional and market failures.
107. The Government has also formulated the Wildlife Management Bill 2014 (which proposes a Kenya Wildlife Regulatory Authority) AWF expects improvements in environmental conservation with implementation of the incentives for conservancy creation and management and provision of an array of land uses suggested by the proposed new laws.
108. Vision 2030 also puts emphasis on wildlife conservation goal is to fully protect all wildlife ecosystems including securing wildlife corridors and migratory routes and reverse wildlife loss.
109. The new Act provides for restructured governance of wildlife resources by separating the regulation and management functions from those of research. Furthermore, new structures have been established at the County level in accordance with the Constitution of Kenya 2010. Each county shall have a County Wildlife Conservation and Compensation Committee.
110. The Act also sets out important principles that include: (i) Effective public participation in the management of wildlife resources, thereby setting a basis for the strengthening of community based natural resources management; (ii) Use of the ecosystem approach in the management of wildlife; (iii) Equitable sharing of benefits accruing from wildlife resources by Kenyans; (iv) Sustainable utilization; and (v) Recognition and encouragement of wildlife conservation and management as a form of land use on public, community and private land.

Kenya Wildlife Service

111. Wildlife management is under the general authority of the Kenya Wildlife Service. There are approximately 40 national parks and reserves in Kenya. KWS manages about 8 per cent of the total landmass of the country. This land contains 22 National Parks, 28 National Reserves and 5 National Sanctuaries. Also under KWS management are 4 Marine National Parks and 6 Marine National Reserves at the Coast. In addition, KWS manages 125 field stations outside protected areas. In addition to protected area management and tourism development, KWS is also responsible for wildlife management and conservation research relevant to biodiversity conservation.

Environmental Management and Coordination (EMCA) Act of 1999

112. The Environmental Management and Coordination Act No 8 of 1999, embraces all environmental management issues in the country. The Act has been a great boost in addressing the environmental concerns and safeguarding against environmental degradation within and outside protected areas. The implementing organ is the National Environmental Management Authority (NEMA).

Other Relevant Policies and Acts

Trust Land Act

113. The Trust Land Act, Cap. 288 of 1962 (revised 1970), sets out regulations for all land that is Trust land (land held by local authorities on behalf of the people resident in that area). Section 65 of the Act deals with forests and forest produce. This section stipulates that the Minister for Local Government may, with the approval of the council concerned, make rules for the protection of trees and forest product on land not within a forest area within the meaning of the Forests Act and for regulating the felling or removal of such trees or forest products.

Water Act 2002

114. The water Act 2002 provides for establishment of Water Resources Users Associations (WRUAs). The main aim of WRUAs is to regulate and coordinate water usage. For Leroghi/Kirisia Forests, Leroghi/Kirisia Water

Resources Users Association has not been formed and in spite of low surface water especially in form of river. The current swampy areas in the forest and water springs need to be protected by special interest group such as WRUA.

National Energy Policy and Energy Act 2006

115. The broad objective of the energy ACT is to ensure adequate, quality, cost effective and affordable supply of energy to meet development needs, while protecting and conserving the environment.
116. Biomass is the largest form of primary energy consumed, accounting for 68% of the total national primary energy supply. The principal drivers of biomass energy demand are population growth, lack of access to biomass energy substitutes and the growing incidence of poverty among the Kenyans. The biomass energy supply and demand imbalance is exerting considerable pressure on the remaining forest and vegetation stocks, thereby accelerating the processes of land degradation. This policy and energy Act is therefore important in that it provides guidelines to address environmental problems associated with increased demand of wood fuel, some of which comes from Leroghi/Kirisia Forest.

National Land Policy 2009

117. The Government in 2009 enacted a New Land Policy. The policy designates all land in Kenya as Public, Community or Private. Sections 3.4 provisions recognises management of natural resources. For example article 131a reads, *to sustainably manage land based natural resources, the Government shall encourage preparation of participatory environmental action plans by communities and individuals living near environmentally sensitive areas to preserve cultural and socio-economic aspects.* On ecosystem protection and management principles provides for development of comprehensive and integrated land use policy with regard to fragile areas that considers the needs of neighbouring communities and individuals in such areas. *On sectoral and cross-sectoral land use provides that the Government facilitate an integrated and multi-sectoral approach to land use and encourages integrated land use planning through use of appropriate information technology and participatory process.*

National Climate Change Response Strategy: Climate Change Mitigation

118. In 2010, the Ministry of Environment and Mineral Resources Kenya launched the National Climate Change Response Strategy (NCCRS) with the primary purpose of ensuring that adaptation measures are factored into all government development plans (NEMA, 2013). As a follow-up, the Kenya National Climate Change Action Plan was launched in March 2013 to operationalize the NCCRS. The Action Plan feeds into Kenya's development blueprint Vision 2030's Second Medium Term Plan. Additionally Threshold 21 (T21) has been developed, which is a planning tool to address climate change under uncertainty in Kenya. T21 offers a model that can be used to integrate climate change into long-term development plans.

International agreements

119. The Government of Kenya is a signatory to international treaties and conventions on conservation of fauna and flora, and fragile ecosystems, which require the signatories to integrate the same in the management of the ecosystem within their jurisdiction. These treaties include the Convention on Biological Diversity (CBD) and the Forest Principles; CITES, and Ramsar Convention.
120. The interpretation and domestication is spread among Ministries Departments and Agencies (MDAs). As the designated national authority on wildlife, KWS is called upon to interpret international conventions, adapt them to local conditions, and implement them in Kenya. Coordination of biodiversity related multi-lateral environmental agreements (MEAS), formation of the African Elephant Coalition and CITES convention.

Barriers to the achievement of the long-term vision

121. Despite the impressive investments in forest management and economic development in the Samburu County described in the baseline section above, there are two critical barriers that make it difficult for the partners to establish successful PFM systems in the Kirisia/Leroghi forest in order to achieve the vision of a healthy forest ecosystem capable of supporting biodiversity, carbon stocks, livelihoods and local economic development in perpetuity. These are: insufficient institutional capacity to support PFM as the focus of an ecosystem-based management of dry land forest regimes; and a weak legal and regulatory framework that does not adequately empower communities for SFM and inadequate systems for Knowledge management systems for supporting SFM, and especially adaptive management within SFM. These barriers are described

below.

Insufficient institutional capacities for effective implementation of PFM and natural resources management

122. Participatory forest management approach is relatively new in Kenya as it became official through the 2005 Forest Act. Understandably, diverse arrays of institutional capacities that are needed for effective implementation of this approach are presently lacking or insufficient. KFS acknowledges that this is a learning process for all stakeholders involved. The baseline is likely to yield capacity gains, for example the government has pledged to build one fire station; several CSO and INGOs will continue to provide training for rangers, honey processing and marketing and some level of SFM. However, this capacity will still be insufficient to meet the required needs. In the Kirisia forest set-up, the capacity barrier takes many forms, described below:

Insufficient staff, equipment and materials for forest and wildlife management (KFS/CFA, KWS)

123. The baseline assessment undertaken in 2011 revealed that all the institutions charged with the responsibility of managing natural resources in the Kirisia ecosystem are facing serious capacity deficiencies.

124. **Human resources deficits:** the 91,452 hectares Leroghi/Kirisia Forest block is run by a

Designation	Current Number	Optimum No.	Deficit
Forester	1	2	1
Forest rangers	11	80	69
Drivers	-	2	2
Clerks	1	2	1
Store men	-	1	1
Typist	-	1	1
Support staff	5	30	25

zonal manager assisted by a forester, several forest rangers, clerical support staff and casuals. This staffing level is inadequate: the optimum requirement would be 2 foresters and 80, not 11 rangers. The lack of rangers has particularly affected law enforcement, with serious consequences to policing. Other areas affected are field operations, nursery and extension. Technical people are needed for production of adequate healthy seedlings for

forest rehabilitation and afforestation. It is also needed for adequate patrol for effective policing. The situation is exacerbated by limited financing allocated for the management of the forest by the national government. Opposite Table provides the current human resource status and requirements.

Table 12: Staff and equipment gaps in KWS

Item	Current	Required	Gap
Staff			
Community scouts	10	40	30
Elephant trackers	2	20	18
Wildlife monitors	0	20	20
Equipment			
Binoculars	0	12	12
Vehicles	2	5	3
Motor cycles	2	8	6
GPS	2	12	10
Night vision goggles	0	10	10

Inadequate infrastructure to undertake forest management operations

Table 13: Capacity gaps in the KFS

Equipment	Available	Required
Fire tower	Nil	2
Light vehicles	Nil	2
Bulldozer	Nil	1
Tractor	Nil	1
Lorries	Nil	1
Motor cycles	1	2
Bicycles	Nil	10
Pangas	3	15
Pruning saws	Nil	5

Jembes	5	20
Fork jembes	Nil	5
Wheel barrows	4	8
Axe felling	Nil	10
Shovels	5	15
Pruning knives	5	20
Secateurs	Nil	5
Grass slashers	2	10
Watering cans	4	10
Computers	Nil	1
VHF radio	Nil	1
VHF handset	NIL	20
Printers	Nil	1

125. Roads, buildings, vehicles, communication and office equipment are crucial to the sustainable management of Leroghi/Kirisia forest. Currently, the KFS officer and the partners have inadequate equipment and infrastructure to undertake any meaningful forest management operations (opposite and Table 14).

126. Required equipment include; vehicles, machinery, firefighting equipment and fire towers, power generators, electricity, solar, flow measuring devices and communication gadgets. The forest has a road network with a total length of 125.8Km, in and around the forest area, all of which needs to be graded or surfaced with marram. The financial limitation within KFS has partially affected maintenance of existing infrastructure resulting to their rapid deterioration; this is

particularly evident in the office, the one forest station and the village houses, which all need upgrading. All the needed requirements in the Infrastructure and equipment programme cannot be met within a short period of time and it is vital to set priorities and to develop the opportunities for sustainable funding.

Table 14: User Groups and membership in the various Divisions

User Groups	Divisions		
	Kirisia	Lorroki	Malaso
BYRUG	0	100	0
Elgvesi SHG	100	0	0
Lchoro Bee-keepers	100	0	0
Ledero conservation	100	0	0
Lorian SHS	100	0	0
Lorok SHG	100	0	0
Lpartuk Group	100	0	0
Lukira Group	100	0	0
Lulu SHG	100	0	0
Moritoi Women Group	100	0	0
Naningo SHG	100	0	0
Nkorien	0	100	0
Peto SHG	100	0	0
Porro	0	0	100
Sand harvesting Group	100	0	0
SCFG	100	0	0
Silango SHG	100	0	0
Tamiyoi SHG	100	0	0

127. The CFA is newly formed and is still in the process of building a strong membership base and operational capacity. Membership to the CFA is through user groups. The Baseline assessment found that only about 36% of the eligible members had joined a user group, mainly in the Kirisia Division (Table 14). This means that a significant percentage of community members are still outside of the CFA structure, creating a weak CFA at grass root level. In addition, majority of user group members joined the group(s) quite recently in 2010, which reflect the young status of PFM in the area. Perhaps even more worrying is the fact that 99% of those who have not joined any group were not sure which group they would like to join. This is likely to create major challenge for the community involvement in participatory forest management (PFM).

128. The capacity barrier is exacerbated by an additional and important barrier to community participation in SFM; that of inadequate economic and financial incentives for

maintaining the cultural and traditional appreciation for forest resources in the face of increasing needs for livelihoods improvements and local economic development. While Samburu people are very wealthy in terms of livestock and natural capital, they fare poorly on important livelihood parameters like employment, education, energy, housing, water, health and sanitation, which are important in assessing people's quality of life. The basic parameters defining the population and the level of current and future economic activities indicate that they will continue to depend on the natural capital (forests, rangelands, biodiversity) for a long time; yet there is no clear financial or economic incentive for continuing to conserve this natural capital rather than consuming it in the quest for a rapid economic development.

129. Samburu County has a child rich population, with 51% of the population being younger than 15. This is due

to high fertility rates among women in a polygamous society; 44% of the households have 4-6 members¹. Literacy and levels of education are considerably lower than the national average; a total of 68% of Samburu County residents have no formal education; only 26% have a primary level of education, and 6% have a secondary level of education or above. Samburu West Constituency has slightly better statistics, but that is only because it hosts Maralal, the capital of the County. The high level of illiteracy reduces economic development options outside of livestock and consumption of the natural capital. Indeed, the 2009 National census reported that only 5% of the residents with no formal education, 14% of those with primary education and 37% of those with a secondary level of education or above are working for pay. Work for pay was highest in Nairobi at 49%, 12 percentage points above the level in Samburu for those with secondary or above level of education.

130. The County Government is keenly aware of the lower than national average poverty statistics of the Samburu community and are eager to accelerate the rate of economic development, using the rich natural resources available in the County. Fortunately, the Baseline assessment confirmed that the political leaders and those in the County Government are also keenly aware of the importance of sustainable and resilient economic development and are committed to conservation. The barrier faced by the politicians, development partners, national government and the community is identifying viable alternatives that will address the development needs while encouraging sustainable utilization and conservation, in the short and long terms. The County government has identified livestock, honey and tourism as the three pillars to drive economic development in next decade. These strategies would indeed offer the best options for now; however, their uptake faces further barriers, described below.

Barriers to tourism development:

131. Kirisia ecosystem has high potential for tourism. There is especially high potential for low footprint camping/hiking safaris in the forest (Figure 6). Indeed the area had a reasonable level of tourism activities in the 80s, when it was part of the circuit for tourists visiting Lake Turkana. Unfortunately, tourism in the Maralal Kirisia area dropped drastically in the last 20 years due to insecurity from bandits on the roads leading to Maralal from Nanyuki and Nyahururu. The security is set to improve with the arrival of the County Government in Maralal and the on-going paving of the Nyahururu Maralal road. The Maralal Safari Lodge was re-opened earlier this year after a long period of closure.

132. In addition, the potential of the common person benefiting from tourism is not guaranteed. Lessons from the Amboseli, Kenya's premier tourism destination shows that despite the 130,000 visitors annually, the Maasai have not benefitted much from the proceeds, due to limited tourism infrastructure outside the core PAs, poor financial endowment limiting their opportunities for participation and investment, and low levels of expertise in tourism enterprises. Similar conditions are likely to prevail in Samburu, given the similarity of the Samburu and the Maasai social economics conditions. Indeed, the development of tourism facilities within the national parks in Kenya has so far been investor driven with most development concentrated in a few places without any effort to distribute it more evenly throughout an ecosystem where it can be beneficial to communities. Like the Maasai, the low levels of education and limited technical expertise among the Samburu will likely exacerbated the skewed distribution of benefits even when tourism spreads into the group ranches. It is especially difficult to negotiate leases and tenancy agreements for facilities with external investors. Yet since a viable and sustainable wildlife tourism sector depends primarily on maintaining connectivity between the National Parks and adjacent ranches to allow wildlife to access forage, it is vital that local communities receive tangible benefits for them to continue supporting wildlife tourism.

Inadequate staffing, equipment and material for extension service work at the Livestock Department²

133. The Samburu are natural livestock keepers; there are considerable opportunities to increase productivity of the livestock industry while simultaneously improving the rangelands and the forest. However, such effort is hampered by the low capacity of the extension services in the County. In its 2013 annual report, the Department of Livestock indicated that it implemented very little of its planned extension work for the year due to shortage of staff and materials. Samburu County has 14 extension units, out of which only one had

¹ Kenya Bureau of Standards and Society for International Development; Exploring Kenya's Inequality. Pulling Apart of Pulling Together – Samburu Chapter; 2013

² Part of the Ministry of agriculture, and Fisheries

any staff members. With a total household number of 11,699, this gives a ratio of staff to household of 1:3,900. The consequent lack of extension support has led to several difficulties (opposite chief among them the poor quality of pastures, virtually no dairy production (two farmers in the whole of Samburu have improved dairy cattle), no organised milk marketing system except a few livestock producers who hawk milk in the market centres. The total effect of these challenges is that the local economy is rudimentary, and except for livestock, most people look upon the forest as the source of saleable products during periods of financial needs.

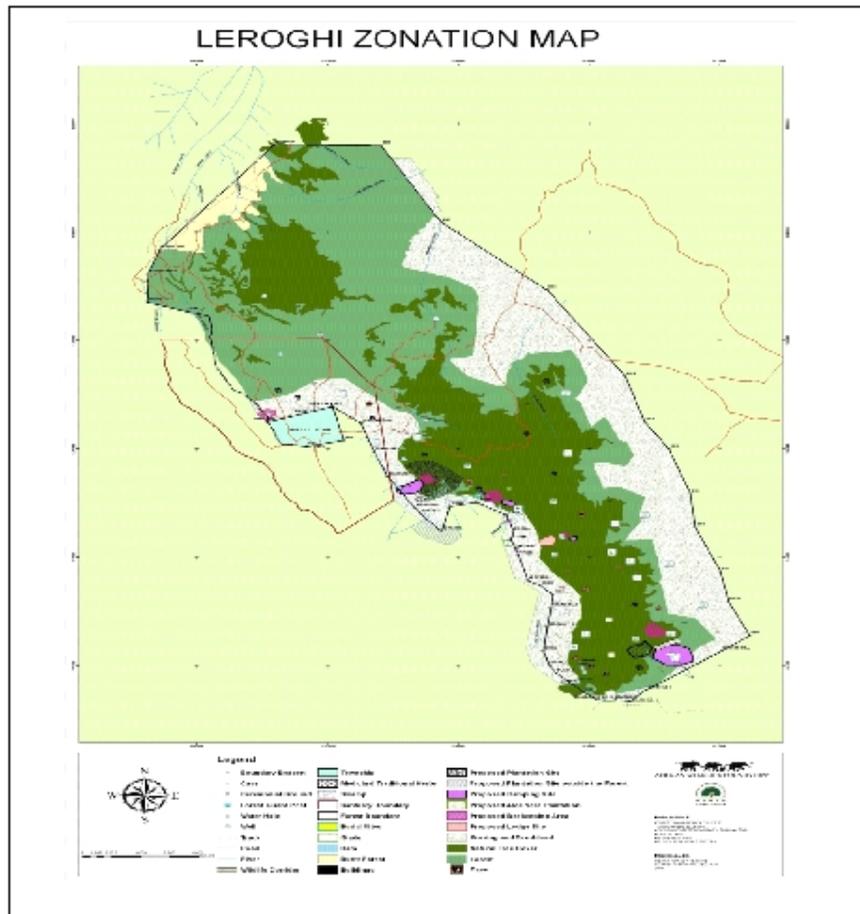


Figure 6: Zonation map of Leroghi including tourist trails and potential camp sites

134. The inadequate extension service has also led to poor performance of honey as an alternative income generating activity (Table 16 provides a list of bee pests and diseases). The County has a high potential for honey production, and there is a high level of technical and financial support being provided by international development partners (see baseline). Production levels have increased sharply in the last five years, but there is still need for further increase because honey provides one of the best alternative income generating activities for promoting forest conservation and ecosystem management. Despite the support provided by the AWF, World Vision and now Kerio Valley Development Authority (KVDA), there are still major difficulties with accessing skills for improved honey production, processing and marketing. Although the County Government has identified honey production as one of the pillars of advancing the local economic development, the Department of Livestock has no experts on Bee Keeping or honey production.
135. The honey business is still dominated by traders largely interested in buying honey; there is still inadequate attention to production, quality, organizing the supply chain and smoothening supply flow. Furthermore, many bee keepers engage in production as a form of supplementing income and not as a commercial venture. This has led to the difficulty of identifying reliable steady markets such as supermarkets in urban areas, which require large volumes and constant supplies. It also makes it difficult to process the honey on-site.

Selling unprocessed honey exports jobs and values outside of the Samburu local economy, which needs all the jobs it can get.

136. The Baseline Assessment found that bee keeping and honey production in Kirisia faces the following additional challenges:

- Poor hive management: Reports from Resource Projects Kenya and AWF indicate that bees have been absconding in poorly managed and poorly located bee hives. Cases of vandalism and theft of beehives have also been reported especially in hives placed at the forest.
- Cultural barriers: In the culture of Samburu, honey harvesting is done by men. In his absence, especially when men are out looking for livestock pasture bees consume un-harvested honey in the hives.
- Poor harvesting methods: some of the bee keepers harvest honey using traditional methods. During honey gathering, a lot of honey combs containing brood are taken away from the crevices and eaten. In addition, Beekeepers harvesting honey at night use burning piece of wood as smoke killing bees and therefore harvesting low quality honey.
- Inadequate bee forage: There is low vegetation density around most homesteads that cannot sustain several colonies.
- Inadequate supply of modern bee hives: There is no established workshop for provision of hives. Modern hives are also not readily available locally in some areas.

137. The above problems are exacerbated by the inadequate extension service provided by the Department of Livestock.

Table 15: Honey Bee pests and diseases

Name of Pest/Disease	Damage Caused	Dates Of Serious Attach	Control Measures
Sugar ants, termites and safari ants	Attack colonies eat brood, bees and honey. Can destroy a colony in minutes	During dry periods	Regular inspection, cleaning and proper hive placement Smear grease on hanging wire
Wax moths	Larvae feed on honey & pollen	January-March	Remove and burn affected colonies
Honey badger	Smell is repulsive to bees	-	Proper hanging of hives
Birds	Eat bees	Regularly	Scare them away
Lizards/Geckoes	Infest hives eating bees and brood combs	Regularly	Regular inspection, cleaning and proper hive placement
Greater wax moth	Attacks combs and reduces them to a mass of webbing and debris	Rainy seasons	Widely spread
Spider/cob-webs	Attack and destroy bees leading to absconding	Through out	Regular inspection and cleaning easily controls wide spread
Hive beetles	Attack and destroy bees	Regularly	Regular inspection and cleaning easily controls wide spread

138. The weak capacities have also resulted in another critical sub-barrier – inadequate knowledge management systems for effective and profitable SFM: PFM is not being informed by best practices and lessons learned from the rest of country and regions. This is because of the dearth of capacity and willingness to explore, collate and disseminate lessons to inform technical, ecological, socio-organizational and economic/financial aspects of participatory SFM. Most critically, the 27 years of experience and lessons learned with community-based forest management for the production of wood fuels in Sahelian West Africa is scarcely known at all in Kenya. There is no system in place for capturing and expanding upon the best practices and lessons learned from operational field sites in Kenya. These need to be developed through the use of periodic annual participatory adaptive management reviews under which management systems are periodically revised and strengthened. The knowledge generated needs to be integrated into training programs at the university and technical school levels. Kenya is fortunate to have forestry training at both the university and technical schools levels, but none of these schools have training in participatory SFM or the REDD+ mechanism. The difficulty of changing entrenched attitudes and behaviours of hierarchical forestry departments is one of the more difficult barriers to participatory forestry development and the integration of

participatory forest management in universities and technical schools where foresters are trained is one of the best ways to address this barrier.

139. In addition, although the local forest and natural resource management practices are a sound basis for conservation and management efforts, they are hardly integrated into technical forest management systems. Local communities directly dependent on the forest resource base have high levels of knowledge about the natural resource, and have rules and regulations relating to use and access. There's however inadequate documentation of this indigenous knowledge, and since it is passed on verbally through socialization, such knowledge is lost with the passing on of elders. In the face of increased cultural erosion arising from modern lifestyle, current and future generations are losing the ability to sustain and enhance its adoption in modern forest conservation approaches, weakening traditional natural resource governance mechanisms.

Barrier 2: Weak policy and legal framework for collaborative governance of natural resources and delivery of multiple benefits equitably amongst relevant stakeholders:

140. Although many rural communities depended on natural resources, forests and wildlife for livelihoods, many emerging nations in the transitional and post-independence periods adopted a model of conservation that separated wildlife and forests into protected areas where people were excluded. The agenda for PA managers was to conserve biodiversity, and often differed from that of the local communities, which was to regain control over natural resources and improve their lives. The model was essentially alien to the use and interactions pastoralists had with such resources, and did not accommodate customary rights of communities to continue using wildlife and protect their families, crops and livestock from attack.

141. This was further compounded by the interplay of communal land ownership and population growth. Although the Samburu people in the Kisiria ecosystem have some security of tenure through group ranches, some are starting to doubt if this form of ownership is secure enough, in the face of the rapid population growth in the country and amongst the County. Kenya's population is five times higher than the 1940s levels, driving land shortage, poverty, inequality and conflict with wildlife. Without secure land rights, the rural communities are likely to push for subdivision of the open commons, to privatise and develop their lands, ward off land-grabbers and keep out wildlife. The country has however made progress towards the development of PFM, especially with the passage of the 2005 Forests Act and its provisions for the creation of CFA. The recent devolution has transferred the responsibility for community and private forests to counties like Samburu, but the county legislation needed to define the counties' new roles and responsibilities have not been properly developed. Self-financing co-management and community management have not yet been developed and there is no legislative base for the creation of the community-controlled forest management funds that are needed. The existing subsidiary legislation and guidelines for PFM have not led to robust, effective partnerships for forest co-management and restoration as shown by the 2013 review of 20 PFMP.

142. Consequently, despite these new developments there are still conflicts between people and wildlife/forests on the one hand, and a tussle between governments, communities and conservation managers over who owns and/or has rights to the use of wildlife and forests on the other. Indeed the prevailing policy environment is still heavily stacked in favour of government, business and international conservation agencies and against communities; and, government policy is far too restrictive and local voices far too weak for the future of forests and wildlife to be secure. Indeed, a 2013 review of 20 participatory forest management plans (PFMP) and community forestry associations (CFA) found that none had succeeded in developing adequate incentives for communities and partnerships between communities and KFS. Participatory forest management plans are not followed and the management of the forests has not changed significantly. Community benefits are meagre; most of the benefits stated in the forest management agreements (FMA) between KFS and CFA are in reality traditional uses already enjoyed and recognized as community rights under the 2005 Forestry Act. This includes grazing and the collection of fuel wood and herbal plants. Many of the PFMPs and FMAs do not mention benefit sharing; and, many community members are minimally aware of the contents of the PFMPs.

143. Indeed, the 2011 Baseline assessment of the Kirisia ecosystem reported that only 41% of the respondents clearly identified KFS as being in charge of the management of the forest, with 59% saying they did not know who was in charge. This means that the envisaged involvement of community through community forest association (CFA) will require a lot of community awareness and sensitization.

144. The effective governance of natural resources requires a strong sense of congestion. Whilst bold initiatives

such as the devolution of governance to County level and the development of the Kirisia Forest Management Plan have begun to pave the way for greater coordination over ecological and biological resources in the landscape, the effective implementation of the PFM will require clarity of the mandates, roles and responsibilities of the many partners involved, in light of the new political dispensation.

145. In particular the role of the Samburu traditional governance over natural resources vis a vis that of the County government; the roles and responsibilities of national government vis a vis of the County government and its impacts on the local economic development and the mandates of the Samburu people over the forest and wildlife, etc. The lack of such clarity is a barrier to the effective governance of natural resources, and is likely to hamper the effective implementation of the Kirisia Forest Plan, with negative implications for livelihoods and biodiversity.
146. Under the new Forest Act, communities may now be empowered to manage or co-manage forest lands, but this has not yet been made operational. The laws themselves have been developed in the absence of tested, proven participatory management systems and will need future revisions based on lessons to be learned. The subsidiary legislation needed for participatory management of gazetted lands, former trust lands and for group ranches is incomplete. KFS is working on the subsidiary legislation, but any such legislation that is done in the absence of functioning systems will almost certainly need further revisions later. The legal mandate of KFS concerning former trust lands and on group ranches needs to be clarified. KFS has the oversight mandate of all types of forest in all land tenure systems. Article 5(a) of the Forest Act states: *The functions of the Service shall be to formulate for approval of the Board, policies and guidelines regarding the management, conservation and utilization of all types of forest areas in the country.* However, KFS is yet to formulate the policies and guidelines for SFM of dryland forests in private/communal lands. Enforcement systems with defined institutional roles and responsibilities have not been developed for participatory forest management for each category of land tenure. Communities and community managers must develop self-enforcement mechanisms for their own members. Once a forest management plan has been prepared and agreed upon by the main actors, then the community management structure is primarily responsible for its implementation. For conflicts between empowered community managers and outsiders, the roles and responsibilities of government authorities must be defined and enforcement systems made operational.
147. The barrier is also exacerbated by the inadequate representation of the interests and needs of local and indigenous groups in the nationalization process of international law on natural resources management. As outlined in UNEP (2009)¹ there is doubt that about the ability of the instruments of international conventions such as CBD and UNCCF to adequately respect and promote communities' ways of life that have contributed to the conservation and sustainable use of biodiversity. While international regulatory frameworks are important for dealing with modern global concerns such as biodiversity loss and climate change, their implementation requires careful calibration at the local level to ensure the environmental gains and social justice they are intended to deliver. While it is acknowledged that local implementation of environmental legal frameworks is most likely to lead to environmental and social benefits when indigenous communities have the right of free, prior and informed consent (FPIC) over any activities undertaken on their lands or regarding access to their traditional knowledge, innovation and practices, these communities rarely have the capacity to ensure that international law recognizes their rights to natural resources or any specialized knowledge and relationships they have with biodiversity.
148. As noted by UNEP (above reference) without input from indigenous and local communities, there exists significant potential for laws intended to promote the overarching aims of the Rio Conventions to instead further undermine the communities that have most contributed to the protection of biodiversity and least contributed to climate change. The legal and bio-cultural empowerment of these communities is therefore the indispensable condition of the local integrity of international environmental law. As in many such places, there is a concern that the implementation of the SFM via the CFA in the Kirisia ecosystem may disproportionately emphasize the protection of the environment without also empowering the community to ensure the conservation and sustainable use of their natural resources and wider use of their indigenous knowledge according to their bio-cultural values.

¹ Bio-Cultural Community Protocols - A Community Approach to Ensuring the Integrity of Environmental Law and Policy (Natural Justice) – UNEP 2009.

FAO'S COMPARATIVE ADVANTAGE

149. Globally, sustainable natural resources management is a core area of expertise for FAO and sustainable forest management is one of FAO's greatest strengths. FAO has long standing experience in providing technical advice on participatory forest management. Between 1986 and 1993, FAO developed what is now the oldest large participatory, self-financing dryland forest management pilot project in all of Africa, covering over 80,000 hectares and functioning very well to this day. In addition, FAO has strong programs for knowledge management in support of SFM and restoration in drylands, disseminated through capacity development projects and events. FAO's online platforms such as its SFM Tool Box, technical guidelines and forestry papers will provide critical support to this project.
150. FAO has a system of providing backstopping and sharing of knowledge during project implementation. FAO's Forest Assessment, Management and Conservation Division (FOM) together with in close collaboration with FAO country, sub regional offices and regional office in Africa has backstopped field projects in diverse habitats including in drylands and assisted in improving the production and marketing of a wide range of ecosystem services and commodities, such as gums, resins and other non-timber forest products using a Market Analysis and Development approach (s analysis). FOM provides technical oversight on interregional studies, guidelines and publications based on field experience and lessons learned through country-driven processes.
151. FAO has worked with the Government of Kenya in implementing a number of forest-related activities. These include the "Sustainable livelihood development in the Mau forest complex" project, which assisted in promoting eco-friendly livelihood activities and natural resources management through multi-ethnic Community Forest Associations. FAO has recently started activities to guide the Government of Kenya on issues related to the monitoring of REDD+ activities and forestry emissions at the national level. This is part of the joint FAO, UNDP and UNEP UN-REDD Program. Working with partners, FAO Kenya has implemented a number of holistic natural resources management. Some of these projects include community management grazing plans and regeneration of degraded lands.
152. FAO has experience in working with partners. FAO with funding by EC supported VSF Germany to implement *Improved Community Drought Risk Reduction-Holistic Natural Resource Management* was through FAO. The project was implemented in Illeret location, North Horr Sub- County from October 2012 to July 2014.

STAKEHOLDER ANALYSIS

153. This project was formulated through a consultative process of stakeholders for Leroghi-Kirisia forest. The process was parallel to the development of Kirisia Management plan and involved a number of meetings. The first meeting involved Kirisia Community Forest Associations (CFA), African Wildlife Foundation (AWF), Suyian Trust, Resource Project-Kenya and the Kenya Forest Service (KFS). The meeting involved wide consultation on the issues related to Leroghi/Kirisia Forest, which touched on status of the forest and location of forest boundary, which has been in contention.
154. The second meeting involved selected members of the communities and government ministries. In this meeting, the following stakeholders were represented, CFA, Ministry of Livestock Development, Ministry of Agriculture, WRMA, Ministry of Water and KFS. During the meeting modalities on conducting a socio economic survey was agreed upon so as to determine the socio economic status of the households adjacent to the forest. A structured questionnaire was used in data collection while information on biodiversity was also captured through the same questionnaire and from information provided by the forester.
155. A third meeting was used to share the socio-economic survey results and also analysed problems/ challenges facing Leroghi/Kirisia and identified means of addressing them through formulation of forest programmes. During this meeting forest programmes, forest vision and zonation criteria were discussed and agreed upon. Table 17 provides a summary of stakeholders that were involved in the preparation of this project and will participate in its implementation:

Table 16: Stakeholder analysis

Stakeholder	Interest in BD/SFM/CM	Degree of interest	Level of influence	Comments	Participation in project implementation
1. Leroghi/Kirisia Community Forest Association (CFA) + 7 Group Ranches ¹ has formed Kirisia-Ngotea Conservancy.	Dry season grazing, sources of water, honey and medicine	High	Low	The survival of their livestock and livelihood is directly dependent on the forest, but they have low influence on decision-making. However, signing of FMA with KFS has empowered CFA by law and policy to make decisions.	Leroghi CFA has signed a Forest Management Agreement with KFS. With facilitation from the Samburu county the CFA and 7 Group ranches has formed Kirisia-Ngotea Conservancy. This management structure will be at the centre of project activities in the field. The project will build capacity on management, governance, forest-based enterprise development and natural resource management.
Sadhana Forest Kenya	Reduce forest pressure and improved livelihoods through tree planting	High	Medium	They have an interest in improving livelihood	A small NGO that has recently decided to make a long-term investment in Samburu County. They have set up field headquarters just south of Leroghi Forest. Their main focus is on support for household level multipurpose tree planting. They are very keen to participate in this project.
Nomotio Pastoralist Initiative	Creating awareness through environmental education/advocacy	High	Medium	Sensitization and awareness creation is key in behavioral change	This is a local NGO operating in Samburu and specializes in environmental education/advocacy as well as livelihoods improvement for local people. Will participate in awareness and advocacy work of the project.
World Vision	FMNR (Farmer Managed Natural Regeneration)	High	Medium	FMNR is one of the models for forest regeneration	World Vision is implementing a five-year project targeting communities around Leroghi forest. As part of the NRM component WV is piloting FMNR (Farmer Managed Natural Regeneration), which could be adopted as a forest regeneration model. WV technical expertise will be used in demonstrating FMNR.
African Wildlife Foundation (AWF)	Implementation of Kirisia Management plan	High	High	AWF is keen on the biodiversity conservation and livelihood improvement of Kirisia forest and communities	Facilitated the development of Kirisia-Leroghi Forest Management Plan. AWF has undertaken a number of studies, which the project can benefit from. AWF will be involved in the feasibility study of an ecotourism lodge and work with Samburu County, KWS on wildlife migratory corridors

¹ "A group ranch is a livestock production system or enterprise where a group of people jointly own freehold title to land, maintain agreed stocking levels and herd their livestock collectively which they own individually (Ministry of Agriculture, 1968)." - Group Representative Act of 1968.

Stakeholder	Interest in BD/SFM/CM	Degree of interest	Level of influence	Comments	Participation in project implementation
Green Belt Movement (GBM)	Protection of Kirisia forest as a water tower through tree planting and alternative livelihoods	High	Medium	Medium influence. GBM has worked in Kirisia for the last three years. May have knowledge and information to access decision making process	GBM is an environmental organization that empowers communities, particularly women, to conserve the environment and improve livelihoods. GBM encourages women to work together to grow seedlings and plant trees. It is currently involved in tree planting to restore degraded areas of Leroghi forest and promotion of alternative sources of livelihood and efficient energy technologies.
Samburu County Government	Environmental conservation and tourism	High	High	Legally mandated and empowered to facilitate improved investment and livelihood improvement for the community	The county government will play a direct role in support of the development of SFM systems Kirisia-Ngotea Conservancy. The project will assist the county government to develop appropriate legislation to define the roles of the country government and communities for forest management on community-owned lands. The county government will also be an important stakeholder for Leroghi with special interests in the watershed functions of Leroghi, the economic development aspects of the co-management system and the resolution of the issue of the displaced Samburu pastoralists living in the forest and ensuring that wildlife corridors are clear of settlements
Kenya Forestry College (KFC), Londiani	Training on Forest management	High	Low	Efforts will be made to ensure that adequate dryland forest training materials are available	The college offers training at the diploma and certificate levels, and short courses in forestry and related fields. It is expected that KFC will be one of the key users of the mobile drylands field school facility and may become a co-manager of the facility with the CFA.
Nairobi University	Training	High	Low	Training of personnel to manage dryland forests	It is expected that the University of Nairobi will become one of the key users of the drylands field school facility developed by the project.
National Environmental Management Authority (NEMA)	Environmental Management and Governance	High	High	Mandate to ensure environmental laws are adhered to.	Will provide oversight through participation in the project steering committee and project evaluations.
Kenya Wildlife Service (KWS)	Wildlife Management	High	High	High level of influence since they co-manage	KWS will advise on how best to integrate wildlife conservation into the Leroghi management system. KWS will also work with

Stakeholder	Interest in BD/SFM/CM	Degree of interest	Level of influence	Comments	Participation in project implementation
				the forest with KFS	the Samburu County to ensure that wildlife corridors are marked and cleared of human settlement
Ministry of Agriculture, Livestock and Fisheries	Range Management Systems	High	Low	High interest because their mandate in range management.	Will participate in the project through the project steering committee and provide technical advice in the development of sustainable range management systems.
Kenya Forestry Research Institute (KEFRI)	Forest research	High	Medium	High interest since their core business is research. Influence is medium because they can only recommend action	KEFRI's regional research centre in Kitui specialises in dryland forests hence experience with technologies for sustainable use of dryland forests. KEFRI will take the lead on the development of knowledge management in support of participatory SFM. KEFRI is the lead in certifying seeds sources and tree nurseries in Kenya. They will deliver required training and technical support to local NGOs, communities and other stakeholders involved in forest restoration, in seed collection from native species, production of seedlings and restoration techniques.
Kenya Forest Service (KFS)	Management of forests	High	High	Are empowered by an Act of Parliament to manage forests	KFS is under the Ministry of Forestry and Wildlife and is one of the executing partners. The proposed Project Management Unit (PMU) to be based in Maralal will work directly with KFS to ensure the objectives of the project are realised. KFS has a strong partnership with the local communities through the Kirisia CFA for the management of Leroghi Forest. KFS will facilitate sharing of lessons learned and partnerships and linkages with relevant on-going initiatives in the country.

LESSONS LEARNED FROM PAST AND RELATED WORK, INCLUDING EVALUATIONS

156. The oldest PFM initiative in Africa was initiated by FAO in 1986 and has a community management structure. In this project, the need for a minimum level of on-going support service for community-based natural resources management is emerging as a lesson learned.
157. Kenya embraced PFM through the Forest Act 2005. A recent review of 20 participatory forest management initiatives in Kenya found that there has been no significant positive change to the way forests are managed due to a number of constraints including: a) the absence of a benefit sharing framework, and no significant increase in benefits for communities over and above the traditional benefits they were already receiving prior to the development of PFM; b) low management capacity among CFA members at various levels; c) information is often passed orally and records are poorly kept causing inadequate documentation of good lessons that could contribute to improved PFM implementation. The review recommends that the issue of

benefit sharing should be addressed, as it has remained largely unclear especially in the absence of a benefit-sharing framework. Most of the current benefits are viewed as benevolent act, rather than having been clearly articulated in the Forest Management Agreements and with backing from a negotiated national benefit sharing strategy as relates forests resources.

158. The proposed project is aimed at weaning Kirisia CFA from donor dependency to self-reliance through provision of an enabling environment for gainful engagement in enterprise development and raising of their own funds. The project has a component on capacity building to put in place good governance structures and enterprise development and management skills. Though self-regulation among CFAs is encouraged to adopt good governance practices, external support to ensure compliance to governance systems and requirements such as upholding democratic processes and observing free and fair elections is recommended. FMA development and negotiation process require review to provide for safeguards for assured incorporation of CFAs needs and aspirations.
159. PFM is most successful where empowerment of communities is strongest, especially in terms of: (i) simple and practical procedures and guidelines for legalization of community tenure rights; (ii) local community definition of forest management areas; (iii) legally recognized community-level management entities; (iv) community establishment of community forest management rules governing access and use; and (v) inclusion of marginalized groups that hold a stake in the resource. Common objectives between the donor and/or government objectives coincide with community objectives has shown to increase the success of PFM. This is especially true when the benefits and incentives for communities are: clear, tangible and defined in national laws and policies; greater than the transaction and management costs associated with community forestry; and equitably distributed between national and local level stakeholders, as well as within participating communities. Overall, the benefits accrued by communities have been limited, especially where externally initiated community forestry has focused solely on conservation.
160. Experience in other countries across Africa has shown that financial incentives are generally key to the greatest success stories to community resource management and co-management. The two greatest success stories that each has spread to cover several countries are community-based wildlife management in three countries in southern Africa and community-based dryland forest management and co-management in about six countries of Sahelian West Africa. Both of them generate very significant levels of employment and cash revenues for local communities, with a portion of the revenues reinvested back to cover resource management costs. Such self-financing systems have not been developed for Kenya's indigenous forests. Restoration of deforested lands can only be done through the development of a strong partnership between KFS and the Samburu community.
161. The project proposed the use of HNRM model. FAO has supported a number of HNRM projects and documented some lessons. The *Improved Community Drought Risk Reduction-Holistic Natural Resource Management* project implemented in Illeret location, North Horr Sub- County had several lessons;
162. Participation and involvement of all stakeholders in Natural resource management is crucial for the success in development and implementation of grazing plans and sustainability of the process. The HNRM has resulted in gradual appreciation, acceptance and support of planned grazing especially among the herders and elders who influence livestock grazing patterns and movement. There is need to target Morans directly who are directly engaged in grazing of animals for the successful implementation on the grazing plans.
 - A harmonized and localized HNRM resource tool kit for managers and field level implementers is necessary.
 - There is need for more emphasis on borderline resource sharing through reciprocal agreements and development of mutually agreed inter-community grazing plans. Kirisia forest borders a number of group ranches, which are key in the establishment of grazing plans.
 - HNRM projects require longer periods. The two years of implementation of HRM processes was adequate to fully anchor the expected practices in the pastoral traditional system despite acceptance by communities. Such a project should be implemented for 3-5 years, in phases.
 - Gender mainstreaming, targeting community opinion leaders should be included as a theme in this kind of project to change perception of the role of women in resource management at community level.

FIT WITH NATIONAL, GEF AND FAO STRATEGIC OBJECTIVES

GEF-5 Focal Area Strategy and Programme

163. The proposed project will draw from three GEF 5 focal areas of Biodiversity, Climate Change Mitigation and Sustainable Forest Management (SFM)/REDD+. Under the GEF5 Biodiversity Strategy, the project will contribute to Objective 2, Outcome 2.1: *Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation*, where it will put over 140,000 ha of land under management practices that integrate biodiversity conservation (91,452 ha of gazetted Kirisia forest and over 50,000 ha of ranches around the forest consisting of woodlands and rangelands). It will also secure wildlife dispersal areas in the ranches and wildlife migratory corridors that link Kirisia forest to the rest of the ecosystem, and Kirisia to the greater Samburu Heartlands. This will improve the overall integrity of the Kirisia and the Samburu Heartlands ecosystem as a habitat capable of supporting viable populations of African angulates such as lions, wild dogs, zebras, buffaloes, elephants, and impalas. It will also reduce incidents of poaching-related deaths of wildlife by at least 35% from the current baseline (Figures 4 and 5).
164. The project will contribute to Climate Change Strategy Objective CCM-5, *Adoption of good management practices in LULUCF within the forest land and in the wider landscape*. The project will empower key institutions (KFS, CFA, KWF and the County Government) to adopt and/or facilitate better forest management that will reduce the current rate of deforestation of the Kirisia forest from 1.4 % per year to less than 0.84% (expected by 40% reduction efficiency) to put 45,000 ha of intact forest under Forest Protection Management Regime, 10,000 ha under regeneration, and 17,000 ha under SFM. Collectively, this will secure direct GHG emission avoided of 2,935,701 tCO₂eq and indirect GHG emission avoided of 3,178,804 tCO₂eq over 20 years of project lifetime. This will be supplemented by stronger capacities in KFS to implement the standard forest management plans (including regular protection to encourage regeneration), and more effective protection from fire (via the provision of fire tower and fire fighting equipment and skills to run and maintain equipment).
165. These activities will also contribute to Objective 1 of the Sustainable Forest Management SFM REDD+ Strategy - *Good management practices applied in existing forests* (Table 18).
166. These capacities will be used in the future to grow the PFM into a self-financing commercial entity that can also engage in sustainable charcoal and carbon finance. However these innovative ideas will be introduced when the enabling conditions for their implementation can be secured without triggering leakages in other parts of the country; which will require a stronger KFS nationally.

Table 17: Contribution to the BD, CC and SFM Focal area objectives

GEF Focal Area objectives	GEF – Indicators/Outcomes	Key Project Contribution
BD-2 Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors	Increase in sustainably managed landscapes that integrate biodiversity conservation	<p>Increasing operational capacity of KFS, KWS, CFA and communities to collaborate in PFM and covering over 91,542 ha forest and 50,000 ha of rangelands in dryland forest ecosystems under Holistic Natural Resources Management (direct). Biodiversity conservation in the Kirisia ecosystem will be mainstreamed through the participatory forest management and conservancy models along with forest-biodiversity management agreements (Annex 5). The project will indirectly contribute to 80,000 ha under holistic ecosystem management plans in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties).</p> <p>Securing wildlife migratory corridors within Kisiria ecosystem and between the ecosystem and the rest of Samburu land, Marsabit and Laikipia, which is critical for the functioning of the greater Samburu Heartland as an ecosystem; reduction of poaching-related deaths for wildlife and high value tree species;</p> <p>Improving local level governance (via stronger CFA and revival of the Samburu traditional resource</p>

		governance systems) – improves security of wildlife in the over 80% of the Kirisia ecosystem covered by group ranches, which is the wildlife dispersal areas; At least 40% decrease in incidents of poaching related deaths of wildlife species in the dispersal areas;
CCM-5 Promote conservation and enhancement of carbon stocks through sustainable management of land use, land-use change, and forestry	Good management practices in LULUCF adopted both within the forest land and in the wider landscape	PFM supported by operational capacity of KFS and CFA to lead the implementation of the Kirisia Forest Management plan which will put 91,542 hectares of the Kirisia gazetted forest under stronger and more participatory management; 45,000 ha of intact forest put under Protected Forest Management regime; 10,000 ha under regeneration and 17,000 ha under SFM; this will safeguard the current carbon stock held in the intact forest and promote sequestration in the deforested areas, leading to direct emission reduction of 2,935,701 tCO ₂ eq. It is also expected to promote indirect emission reduction of 3,807,701 tCO ₂ eq through the scaling up of activities to 80,000 ha under holistic ecosystem management plans in the greater Samburu as well as neighbouring Counties (Marsabit and Likipia Counties) (Annex 4);
SFM/REDD+ - 1 Forest Ecosystem Services: Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services	Good management practices applied in existing forests.	
SFM/REDD+ - 2 Reducing Deforestation: Strengthen the enabling environment to reduce GHG emissions from deforestation and forest degradation and enhance carbon sinks from LULUCF activities	Enhanced institutional capacity to account for GHG emission reduction and increase in carbon stocks	A carbon, biodiversity and livelihoods monitoring plan designed, implemented, lessons being used to inform adaptive management and carbon accounting. It will include 3 monitoring datasets for carbon, biodiversity and livelihoods stored in a database; 91,452 ha forests under sustainable management – will increase availability of NWFPs and wood products without resulting to overharvesting, forest degradation and deforestation.

National Strategic Objectives

167. Kenya is endowed with globally unique biodiversity and this biological richness is fundamental for much of the country's economy and development prospects. It is also widely acknowledged by Kenya's main development partners that the country's future economic growth depends on better environmental management¹.
168. In late 2007 the Government of Kenya (GoK) launched its Vision 2030² to guide all development aspirations for the entire country. Kenya's Vision envisages an increase in the land area under forest cover by 2030. This is to be accomplished through intensification of tree growing and management in farmlands and drylands, restoration of degraded forests in the main water towers and the involvement of communities in the management of gazetted forests.
169. The project is fully consistent with Vision 2030 and the 2014 Forest Policy. Objectives of the recently approved Forest Policy, 2014 include the promotion of public, private and community participation and partnership in forest sector development. In recognition of the importance of dryland forests in the provision of ecosystem services, the Government intends to: promote sustainable management of dryland forests; promote sustainable production of charcoal; create a conducive environment for the establishment of forest based enterprises; support the rehabilitation of degraded dryland forests; promote conservation of genetic resources in dryland forests; and promote the production of wood and non-wood forest products.
170. This project originated from one of the concepts approved in Kenya's National Priority Formulation Exercise

¹ Joint Assistance Strategy for the Republic of Kenya (2007–2012)

² GoK. 2007. *Kenya Vision 2030: A Globally Competitive and Prosperous Kenya*. Government of Kenya, Nairobi, Kenya.

(NPFE) entitled: “Mainstreaming Sustainable Forest Management to enhance payment of ecosystem services and support for REDD+ Readiness activities in Kenya”. Kenya’s National Biodiversity Strategy and Action Plan (NBSAP) seek to strengthen Kenya’s legal framework governing forest resources to ensure that forests are sustainably utilized, conserved or protected. The update of the NBSAP that is underway will seek to improve equitable access and benefit sharing from biodiversity and ecosystem services by 2020.

National Eligibility

171. Kenya is a signatory to a number of environmental conventions, agreements and treaties. Table 19 gives a summary of some of these conventions and their ratification dates.

Table 18: Kenya's commitments to the Multi-lateral Agreements on Environment and Climate

Convention/Agreement	Date Ratified
United Nations Convention on Biological Diversity	26 Jul 1994
United Nations Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	13 Dec 1978
United Nations Convention to Combat Desertification	14 Oct 1994
Framework Convention on Climate Change	30th August 1994
Kyoto Protocol to the United Nations Framework Convention on Climate Change	25 Feb 2005 a
Cartagena Protocol on Biosafety to the Convention on Biological Diversity	May 1992
Convention to Wetlands of International Importance especially as Waterfowl Habitats [RAMSAR]	5 Oct 1999
World Heritage Convention on Nature and Culture Sites under UNESCO	24th October 2007

172. On climate change, Kenya has ratified the UNFCCC and the Kyoto Protocol and has signed the Copenhagen Accord. Kenya’s National Climate Change Response Strategy (NCCRS) has identified forestry as one of the key sectors for delivering climate change mitigation and adaptation goals. One of the mitigation options proposed in this sector is protection, proper planning and clear definition of land use policy including classification of forests and their management strategies.

173. The country has joined the Forest Carbon Partnership Facility and the UN-REDD Programme. As a UN-REDD member, Kenya has engaged in developing a national REDD+ strategy in 3 phases. This project will assist Kenya on aspects related to the first two phases of REDD+, namely Phase 1 (Readiness) and Phase 2 (Demonstration Activities). For Phase 1, the project will contribute to enhance the country’s capacities (both at the national and community level) in sustainable silvicultural and forest management practices, which are key to effective planning and implementation of REDD+ activities. In addition, demonstration activities such as the one proposed by this project will directly contribute to enhancing capacities in three of the five REDD+ activities, namely “deforestation”, “degradation” and “sustainable management of forests”. The project will adapt the national MRV approach to the field level at Leroghi Forest and will develop a knowledge management system for participatory SFM in ways that also support REDD+.

174. Kenya’s Technology Needs Assessment for Climate Change Mitigation (2013) highlights (i) limited technological capacity in forest management; (ii) poor frameworks for integrating populations into management planning; and (iii) many forests are virtually unmanaged and communities harvest forest products in uncontrolled ways as factors affecting the forest sector that the proposed project will address.

FAO Strategic Framework Objectives & Country Programming Framework (2014 – 2017)

175. The new FAO Strategic Framework is comprised of five Strategic Objectives (SOs) that represent the main areas of work of FAO. This project is linked to Strategic Objective 2 (SO-2): *increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner*, at the global level.

176. At national level, the project will also contribute to the achievement of specific outcomes within the Country Programming Framework for Kenya (2014 – 2017) agreed between FAO and the Government of Kenya. Within this framework, the project will contribute to Outcome 3: Improved management of natural resources (rangeland, agricultural land, water and forest) at national level and one of its associated Output 3.1. Capacity for improved management of commonly managed natural resources strengthened at the community level with activities that include training communities to be able to develop and implement mutually beneficial resource management agreements and plans. Table 20 provides a summary of indicators and how the project

will contribute to each indicator.

Table 19: Fit with FAO strategic objectives

FAO Strategic objective	Indicators	Project Contribution
Outcome 3: Improved management of natural resources (rangeland, agricultural land, water and forest) at national level and community level	Number of targeted groups adopting improved NRM and climate smart practices	Kirisia/Leroghi forest
	No. of government policies and strategies which incorporate improved NRM practices	The project will contribute immensely in providing evidence-based policy both at national and county level. The development of an SFM model for dryland forests will contribute towards the management of other water tours in ASAL areas.
	No. of households engaged in the sustainable management and marketing of wood and non-wood products	The project will work with over 600 HH, living around the forest in the development of woodlots and sustainable charcoal production, using the charcoal production rules
Outcome 3.1: Capacity for improved management of commonly managed natural resources strengthened at the community level	No. of people acquiring skills on HNRM	HNRM is one of the main activities of the project. The project will facilitate a series of trainings on HNRM. It is anticipate that all the members of Kirisia CFA and the seven group ranches will be training through a TOT model.
	No. of groups acquiring skills on market analysis and enterprise development	The project has proposed a number of enterprises (sustainable charcoal production, honey, medicinal herbs and eco-tourism based enterprises
	No. of resource use plans developed	Kirisia forest has a management plan (2012-2016). The project will contribute in updating the management plan into a conservation plan which will include seven group ranches surrounding the forest

2 PART II: PROJECT STRATEGY

RATIONALE AND SUMMARY OF GEF ALTERNATIVE

177. There is currently a strong push for economic development in the Samburu County, as evidenced by the large baseline investment of US\$ 62,614,000 (from about 2010 – 2020). In the absence of the project this baseline will be implemented under the “Business as Usual” model, where: i) PFM is not centre stage of forest management; ii) Holistic Natural Resources Management is not the centre of rangelands management; iii) wildlife corridors continue to be lost constraining survival of biodiversity; iv) there are inadequate financial incentives for natural resources use that considers long-term sustainability while meeting short term household income needs. This is because although the Kenya government invests more than US\$ 5 million (KFS), US\$ 10 million (KWS) and US\$ 0.5 million (KEFRI) annually at the national level, the investments are completely inadequate compared to the needs for improved natural resources management for livelihoods improvements; besides, only a very small fraction of this is invested in the Kirisia forest and ecosystem.
178. Without the GEF project, the capacity building via the efforts of both government and non-government organizations will continue to be adhoc, and not based on a systematic analysis of capacity gaps for the broader stakeholder participation in improved natural resources management, including capacity needs for the delivery of global environment benefits. Capacity building effort is therefore likely to only focus on individual capacity as opposed to institutions and processes, tools, equipment etc. There is likelihood of focusing on some groups at the exclusion of others as well as duplication of efforts by the various capacity supporting organizations – e.g. too much focus on individual honey producers without looking at smoothening supply chain or the possibility of constructing a honey processing plant, establishment of conservancies without a comprehensive tourist development plan, increasing capacity for on-site protection of wildlife from poachers without securing the wildlife migratory corridors and consideration for the functionality of the broader Samburu Heartlands ecosystem. The baseline is therefore likely to provide non-strategic capacity development, making it difficult to influence the removal of the two barriers (and sub-barriers) to improved forest and biodiversity management described in the baseline analysis. A weak KFS/CFA partnership is likely to reduce deforestation marginally and may fail to reduce forest degradation at all due to the added pressure from the growing population for forest resources, in the face of inadequate enforcement and financial disincentives for forest conservation. Indeed, communities with inadequate financial incentives or alternatives to using the forest resources as the main livelihood support systems will continue the pattern of unsustainable harvesting of forest and wildlife resources, driving forest degradation, continued invasion of forest and wildlife migratory and dispersal corridors.
179. The County Government has started investing in local development, as a result of devolution; however given the poor state of infrastructure development in the County, the government is likely to prioritize its development funds to build roads and water systems, with little being directed to the natural resources sector. Thus its investments will fail to remove the barrier on inadequate extension service to rangelands management or the barriers to improving honey production and smoothening supply and market chains. Indeed, in the absence of the GEF alternative, this increased investment from County Government and others may fail to consider the comprehensive goods and services provided by the Kirisia ecosystem as a whole, and may place development in areas that weaken the ecosystems ability to continue functioning adequately. Already there are settlements inside the gazetted forest, opening the forest to all year long grazing; settlements are emerging along the wildlife migratory routes and important dispersal areas (such as the Maralal animal sanctuary). Without the GEF alternative, these trends will continue, despite there being a forest management plan.
180. The local government is also embarking on a policy reform, to harmonize its role and that of National government under the devolved governance model. Without the GEF alternative, the role of communities in PFM, especially the question of substantive beneficiation from forest resources might not get adequate attention.
181. The GEF investment will be used to put in place strategic capacities and incentives to influence the considerably larger baseline investment, to change the pattern of development which is currently at the expense of the natural capital towards a more sustainable economic development model. The project will empower key institutions (KFS, CFA, KWF and the County Government) to adopt and/or facilitate better forest management that will reduce the current rate of deforestation of the Kirisia forest from 1.4 % per year to less than 0.84%; to put 45,000 ha of intact forest under Forest Protection Management Regime, 10,000 ha

under regeneration, and 17,000 ha under SFM. Collectively, this will secure direct emission reduction of 2,935,701 tCO₂eq and indirect emission reduction of 3,807,701 tCO₂eq. In addition, it will put 50,000 ha of rangelands under Holistic Natural Resources Management, improving rangeland productivity by 25% while securing wildlife migratory corridors that improve the integrity of the larger Samburu ecosystem's functionality; and, reduce wildlife death from poaching by at least 35%. The project responds to the barriers preventing the KFS, CFA, KWS, County Government and other stakeholders from achieving the ambitious vision set out in the Kirisia Forest Management Plan.

182. The FAO and EU support will focus on land governance, to improve land tenure (FAO) and marketing of livestock and other drylands products (EU). These projects will begin sometime in the near future; without an ecosystem management plan that zones areas for different land use types and conservation areas, their implementation may weaken the integrity of the ecosystem due to inappropriate interventions. The AWF investment supported the initial Kirisia Forest Management Plan, but there are two challenges now: AWF has run out of funds to support the implementation of the progressive forest management plan; and, to convert the forest management plan to an ecosystem management plan, in order to provide a landscape approach, and to ensure that all ecosystems services are catered for, including the recognition of the Kirisia in the wider Samburu Heartlands ecosystem.

183. The project will take advantage of this baseline, re-orienting it to effectively redress the current tension between conservation and development; which can be advanced considerably by departing from the protectionism and segregation mode of conservation, and moving towards a continuum that promotes better coexistence of people and nature; one that re-balances the rights, responsibilities and benefits of natural resource management between conservation and local development more equitably. The table below summarises the current practices and the GEF alternative;

Table 20: Current Practices and the GEF Alternative

Current Practice	Alternative to be put in place by the project
<p>Insufficient capacities for a PFM-led integrated natural resources management amongst communities and their local institutions (CFA, County government) and technical institutions (KFS, KWS); leading 1.4% deforestation, forest fires causing deforestation and degradation in over 25,000 ha; loss of tree cover in the rangelands and poor regeneration, with indigenous species such as the Red cedar and olea Africana becoming scarce and increased GHG emissions from deforestation and degradation.</p>	<p>Increasing operational capacity of KFS, KWS, CFA and communities to collaborate in PFM and covering over 91,542 ha dryland forest and 50,000 ha of rangelands under Holistic Natural Resources Management (direct). Biodiversity conservation in the Kirisia ecosystem will be mainstreamed through the participatory forest management and conservancy models along with forest-biodiversity management agreements. The project will indirectly contribute to 80,000 ha of ecosystem in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties).</p> <p>Improved capacity for both KFS and Kirisia CFA provides strong partnerships, puts 91,452 hectares under PFM; including 45,000 ha of intact forest under Forest Protection management regime; 10,000 ha under regeneration and 17,000 ha under SFM; collectively reduces rate of deforestation to less than 0.84%; this leads to direct mitigation of 2,935,701 tCO₂eq and indirect mitigation of 3,807,701 tCO₂eq.</p> <p>An empowered CFA will mobilize the Samburu community to be active in, and to demand fair distribution of costs and benefits of PFM with the conservation agencies, while a more capacitated and functional KFS will provide stronger forest management operations, including protection of the forest from fires and other threats via better policing and enforcement. Emplacing capacity in the relevant institutions at the grassroots will also put over 50,000 ha rangelands within 5 kilometres of the forest boundary under holistic natural resources management. Leading to 25% increase in rangeland productivity;</p> <p>Formulation and implementation of an ecosystem integrated ecosystem management plan that allows for multiple uses thus delivering benefits to a wide range of stakeholders. This is through:</p> <ul style="list-style-type: none"> ✓ Areas of high biodiversity significance identified and wildlife zones designated. ✓ Establishment of conservancies that allow for integrated sustainable land use practices. ✓ Improved livestock management integrated with wildlife conservation.

	<p>This will deliver the following benefits: reduced pressures from livestock practices and grazing, reduced threats to wildlife and conservation, better regeneration of forest species and rangelands, reduced degradation of soil and water resources and improved wildlife movement.</p> <p>In addition, implementation of the plantation improvement plan will increase the performance of the plantation; a higher yielding plantation reduces pressure from the indigenous forest by providing essential wood products (poles, charcoal, etc.);</p> <p>The integrity of the Kirisia ecosystem as a wildlife refuge will be improved via securing of wildlife migratory corridors and safer refuge in the dispersal areas; this will ensure that Kirisia continues to play the critical role of maintaining the Samburu Heartland as a functioning ecosystem, and habitat for wildlife.</p> <p>Empowered KWS (equipment, additional rangers) improves wildlife protection and reduces poaching from the Kirisia forest; reducing wildlife deaths associated with poaching by 40%. This will stabilize the wildlife populations, especially that of Grevy Zebra</p>
<p>Insufficient economic incentives to maintain conservation and sustainable use in the face of high demand for economic development and beneficiation – increasing the pressure towards sub-division, overgrazing, poaching of wildlife, encroachment into the forest and wildlife migratory corridors, reduction of the ecological integrity of the ecosystem and ecosystem degradation</p>	<p>Financial incentives and benefit sharing mechanisms will yield economic benefits and support traditional and cultural appreciation for forest, wildlife and natural resources in the face of increasing demands for livelihoods improvements and local economic development. Specifically, smoothening the honey supply chains and transforming the honey production from subsistence to commercial will increase the amount of honey produced and sold; increasing household incomes by a magnitude of more than 3, and increase incentives for conservation and PFM. Assisting the County government to build a honey processing (not refinery) factory in the long run will help it (Government) to advance one of the pillars of development they have identified for the County as well as add value to the honey and create much needed jobs.</p>
<p>Insufficient policy and governance for integrated and participatory forest management, wildlife conservation and economic development</p>	<p>An empowered CFA has clarity on its legal and policy foundation; Stronger partnerships for PFM, wildlife management and conservation between CFA, County Government, National Government Agencies (KFS, KWS) and communities helps to deforestation and to secure wildlife migratory corridors;</p>
<p>Inadequate consideration of lessons on PFM from other parts of the world; inadequate documentation and not integrating the Samburu traditional knowledge into modern day forest and livestock/ range management will continue to erode local capacity for PFM and improved range management, exacerbating the current dire capacity deficits; with consequent deforestation and land degradation.</p>	<p>Provide a synthesis of lessons on PFM from West and Southern Africa to inform policy debates and policy reform; and raise awareness of the key policy makers on the fact that PFM can be self-financing if the right policy and capacity environments are emplaced, to ensure effective control of the system so it is not abused;</p> <p>Co-finance -Document Samburu traditional resource management systems and integrate them into the training programs to be designed and delivered to a wide range of stakeholders; this will bridge both the capacity gaps in the national and county government extension service, but also alleviate the difficulty posed by very low levels of literacy among the Samburu. The skills on PFM, Improved rangelands management delivered to technical teams and community members will contribute to better resources management, biodiversity conservation and maintenance of the current carbon stocks.</p>

184. The benefits and impacts are summarised under each component, described below.

Project Goal, Objective

185. **The project’s** goal is that PFM catalyses integrated natural resource management that makes Leroghi forest and the Kirisia ecosystem the best managed and conserved in Kenya, and that the forest continues to maintain carbon stocks while the ecosystem delivers goods and services to support improved livelihoods in perpetuity.

186. The project objective is; “To deliver multiple BD, CC and livelihood benefits from 91,452 ha of Kirisia Forest under PFM and 50,000 ha of rangelands under Holistic Natural Resources Management respectively.”

187. This will be achieved through two components: Component 1: Implementation of PFM and HNRM over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO₂eq, secure wildlife migratory corridors and increase financial returns from NWFPs by 25%; and, Component 2 - Policy and legal framework emplaced, and enabling PMF in support of the mitigation and financial returns targets under component 1.

PROJECT OUTCOMES, OUTPUTS AND ACTIVITIES

Component 1: Implementation of PFM and HNRM over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO₂eq, secure wildlife migratory corridors and increase financial returns from NWFPs by 25%:

188. This component will put in place institutional and technical capacity to put the 91.452 hectares of Kirisia forest under PFM for sustainable forest (carbon) management and biodiversity conservation, as well as put in place economic incentives for community engagement in PFM. It will be implemented through four outcomes, each with several outputs and activities, described below.

Outcome 1: Strengthened capacities of stakeholders implement PFM in the main land tenure categories of dryland forests delivers 2,935,701 tCO₂eq;

189. This outcome will provide Kenya Forest Service and the Kirisia Forest Association with the operational capacity, skills and equipment to put 91,452 hectares of gazetted dry upland forest reserve under PFM¹, protect the forest from fire hazard, put 45,000 ha of the forest currently classified as intact under Forest Protection regime of management, put another 10,000 ha under regeneration and 17,000 ha under SFM. This will reduce deforestation in the intact forest from the current 1.4% per year to about 0.84% per year. These measures will lead to the mitigation values in the Table 22 below.

Table 21: Emission reduction from the various forest management regimes (direct)

Management Regime	Target benefit area (ha)	Direct lifetime GHG emission avoided (tCO ₂ eq)
Forest Protection	45,000	630,912
Restoration/regeneration	10,000	1,324,441
Sustainable Forest Management	17,000	980,348
Total	72,000	2,935,701

190. The outcome will bridge the staffing, equipment and materials gap identified under the barrier analysis, to improve the capacity of both institutions, thereby strengthening the partnership for Participatory Forest Management. The outcome will have five outputs, as follows:

191. **Output 1.1:** Kirisia CFA empowered to provide community leadership in forest management and strong and widely representative partnership to KFS in PFM. The Kirisia management plan was signed on 24th June 2015, making the Kirisia Management Plan a legal document. CFA needs to operate efficiently and professionally, in order to expand the current membership from 36% of the community to over 70%, and to ensure that the Samburu community derives substantive benefits from SFM. To achieve this, it will need to establish office facilities with sufficient equipment and acquire professional managers to run a recruitment drive and service the membership. In particular, the CFA will lead in the design and implementation of a program to assist the households settled in the gazetted forest to return to their original homes and to implement policing measures to discourage further encroachment, this includes negotiating the and confirming forest boundaries on the southern side, which needs confirmation of the boundary pegs. To achieve this, the CFA will also need to engage in conflict resolution and peace building program with neighbouring Turkana and Rendille communities, to reduce the incidents of conflicts that triggers settlements into the gazetted forest. This will reduce the livestock grazing in the forest all year, as well as cultivation in

¹ Although a 2010CAMCO Carbon assessment report stipulated that the area of the forest has reduced from the gazetted 91,452 ha to 78,000 ha, the maps of the forest areas have not changed. The project will therefore investigate this further during inception and confirm the extent of area to be managed as forests in the Inception report

forest patches, and restore the role of the forest to that of supporting dry season grazing.

192. The project will facilitate the restructuring of the existing Leroghi CFA into a two-tiered structure. This two-tiered structure will consist of one Local Forest Management Group (LFMG) for each of the communities holding traditional tenure rights to a portion of Leroghi, and the CFA itself at the upper level. The CFA will comprise of representatives of forest user (user groups) and special interest groups such as adjacent group ranches. The project will create a Support Services Unit (SSU), attached to the CFA. Staff profiles of the SSU will be determined based on an analysis and identification of key support service needs and opportunities.
193. Key activities under this output will be a major awareness raising effort about the project approach and proposed rights and obligations of each partner (LFMG, CFA and KFS); the participatory land delineation of the geographic limits for each future LFMG in Leroghi. Communities with traditional tenure will be asked to validate their boundaries with their neighbours. Communities will be assisted to resolve any disputes. For the group ranches, the group ranch will define the boundary of the forests to be brought under SFM and/or forest protection management and also seek agreement with their neighbours on any disputed sections.
194. A new constitution and by-laws will be developed for the CFA. Much simpler by-laws will be developed for each LFMG. The project will guide the process to ensure a participatory process is adopted. Sensitization of CFA members on the constitution and by-laws will be undertaken. Elections will be held first at the LFMG and then these representatives will elect the members of the CFA. Guidelines will be developed spelling out the composition, terms of reference and mode of operation of LFMG. Provide support for resolving conflicts that may arise between the boundaries of Leroghi State Forest and the boundaries of the surrounding group and private ranches.
195. Sample activities under this output will be as follows.
- a. Acquiring office space, equipment and professional CFA staff; this will be via the creation of the SSU attached to the CFA. This will include the definition of the specific functions of the unit, the elaboration of the TOR for the staff to be recruited and their recruitment, administrative procedures, guidelines and reporting requirements. The SSU will progressively take over some of the core LFMG and SME training functions. SSU functions will be modified annually based on the annual adaptive management reviews.
 - b. Design and implement an awareness raising and membership recruitment drive to increase membership to CFA from 36% to at least 70% of eligible members;
 - c. Facilitate the participatory land delineation of the geographic limits for each future LFMG in Leroghi;
 - d. Learning from the recent review of PFM and CFAs, review the contents of the Kirisia Forest Management Agreement, in a participatory manner, and negotiate for substantive community benefits;
 - e. Design a CFA capacity maintenance financing strategy and implement it to raise funds and resources to run the CFA from the 3rd year of the project onwards;
196. **Output 1.2:** KFS has operational capacity to implement forest management and support CFA to implement PFM in the Kirisia forest and ecosystem, reducing deforestation rate from 1.4% to about 0.84%. The current capacity deficits in the Kirisia office of KFS make it impossible for the national government to be a strong partner to the CFA in implementing the Kirisia Forest Management Plan. In particular, this output will establish capacity for fire control and increasing staff (an additional forester, recruitment and training of forest guards), thereby removing two of the greatest threats to the Kirisia forest. The output will be implemented via the following activities:
197. Improve effectiveness of KFS to oversee forest management by establishing 6 Rangers and Scouts outposts/camps, rehabilitating and maintain 50km of murrum road, and providing a light vehicle, tractor, motor cycles, computer and other office equipment. This will include increasing the number of Forest Rangers posted to Kirisia Forest Station.
198. Ability to protect the forest from fires enhanced by construction of two fire towers (one via government co-finance) and acquisition of fire control and management tools and machinery. This will be accompanied by training programs to ensure that capacity to operate and maintain all the equipment is available.

199.(Crosscutting and supporting all outputs) -- Technical staff of partner institutions, CFA and resource user groups provided with skills needed to facilitate and/or participate effectively in PFM, sustainable harvesting of NWFPs (including honey and others such as herbal plants to be identified during the project implementation) and Holistic Natural Resources Management Approach to improved rangelands management. Under this cross-cutting output, the project will undertake a skills and other capacity needs assessment during the inception period. It will use the findings to design and find resources to implement training programs for the various groups of partners. Training under this output will be closely coordinated with the work of AWF, World Vision and others who are investing in human resources development in the County.

200.**Output 1.3:** Forest Management Plan upgraded to Kirisia Ecosystem Management Plan, with a carbon and biodiversity monitoring program: KFS will work with the CFA, KWS and County Government to upgrade the current Kirisia Forest Plan (2012-2016) to Kirisia Ecosystem Management Plan (2016-2026). The process of producing the Kirisia Forest Management (KFMP) plan developed a draft Kirisia Ecosystem Zonation plan (Figure 6). Working together with KFS, KWS and County government, the CFA will upgrade the KFMP to an Ecosystem Management Plan covering a period of ten years, including confirmation of the draft utilization zones. They will refine the criteria used by the Forest Management Plan process (Table 23).

Table 22: Criteria used in zonation of Leroghi/Kirisia Forest

Zone	Sub-zone	Criteria/ justification	Management Option
Natural forest Zone	Glades and bushes	Patches of grassland and busy areas with plants like <i>Acokanthera schimperi</i> (Muricu)	Conservation and controlled grazing, dry season grazing
	Indigenous Forest	Wildlife/biodiversity rich areas, areas with natural forest vegetation	Conservation and rehabilitation. Collection of dead material as firewood
	Water points	Natural springs, wetlands, rivers/dry river beds and dam sites	Water catchment conservation, rehabilitation and controlled utilisation
	Degraded sites	Logging area, over grazed, soil eroded and areas with invasive species	Ecosystem repair through replanting or natural recovery through exclusion of human activities
Plantation zone	Well sited Forest Plantation	Area suitable for wet area planted with Eucalyptus trees. Useful for fast growing urban and increasing sedentary community	Should be done via silviculture, PELIS for woody biomass provision such as commercial timber
Utilisation zone	Eco-tourism	Areas identified to have shrines, caves waterfalls and camp sites	Conservation and recreation
	Material extraction zone	Area used for grazing, herbal plants, fuelwood extraction, bee keeping, fishing and grass cutting,	Livelihood and income generating by CFA and other interested stakeholder
	Cultural sites	Religion, moran, shrines, meeting venues, caves	Conservation and recreation
	Historical sites	Burial sites Rather unique burial sites dating back to between 200 and 300 years	Conservation and recreation
Intervention zone		Areas outside but surrounding the forest used by group ranches / private land	Increased biomass both for conservation and utilization

201.The preliminary steps will involve inventory, mapping and the participatory zoning of the forest, especially of the area to be reforested, working with each LFMG on their section of the forest. Dead trees, natural regeneration, levels of degradation, biodiversity conservation status, forest products potential, water resources, access roads and trails and other features will be mapped and inventoried. The participatory zoning will serve as the basis of management planning – preliminary management objectives will be defined for each zone; and the types and timing of forest restoration and management interventions will be defined for

each land use zone. These will be formalized in management plans in the second half of the project. In the deforested area, zones will include permanent glades managed for wildlife and livestock, areas to be reforested and preserved as indigenous forest with limited use for beekeeping, NWFP harvesting and controlled grazing, areas to be reforested and managed intensively for all of the above plus the sustainable production of timber products and zones for forest plantations to be managed for the commercial production of forest products.

202. Minimizing risks for wildfire poaching will be a key factor to be integrated into the land use zoning, building on the draft criteria used at the Forest Management Planning stage (in Table 24). The existence and abundance of natural regeneration will determine whether reforestation is done through enrichment plantings or through replanting. Most of the areas of healthy, intact forests will be zoned for minimal, non-destructive uses including the production of NWFP. Degraded or deforested low altitude forest margins will be zoned for much more intensive restoration and commercially oriented extractive use management including timber production. Group ranch forests will also be zoned and with generally a much higher emphasis on commercial timber production and regeneration of the wild olive that is so important for dry season browse, especially during droughts. The output will be supported by the design and implementation of carbon and biodiversity monitoring and knowledge management systems. Knowledge management will be used to provide evidence-based policy reform at the local level and adaptive management of the project. A key component of this will be the compilation and dissemination of best practices and knowledge transfer using adapted communication and capacity development tools tailored to a variety of target audience. The knowledge management outcome will build upon the annual community-level adaptive management reviews and will take them to the full project and the national levels as key tools for identifying best practices, lessons learned and gaps that need to be addressed. Kenya has institutions for training foresters at the university and technical levels but Kenya has no field school facilities for extension services and teaching people the practical skills needed for forest restoration and management. Improved dissemination of lessons learned and best practices in participatory sustainable forest management. The outcome will have the following outputs and sample activities.
203. The Biodiversity and carbon monitoring program will be formulated in a participatory process (and in conjunction with Outcome 4), involving all the key partners (KWS, KFS, CFA, and County Government) and is likely to involve an institution of higher learning, which will provide technical assistance on formulating the program and determining the capacity required to run it. To ensure the cost effectiveness and sustainability of the program, staff of partner institutions will be trained on SFM and PFM; in addition, linkages with relevant universities will be established to provide graduate students (MSc, PhDs) to utilize the project facilities as research opportunities to provide answers to the more technical questions that require research. This will provide the project with the technical capabilities of well-established universities at minimal cost, thereby increasing efficient use of the limited financial resources. Curricula for SFM and REDD+ will be developed in collaboration with these universities. The M&E system will also be used to monitor the improvements in the livelihoods of the communities, including gains in the local economies. The whole system will be closely linked to the Country Government, KFS, CFA and FAO learning platforms.
204. In addition, government and other donor co-finance will be used to establish a community Resource Centre on NRM for drylands in Leroghi. The centre will spearhead the documentation of indigenous knowledge and strengthen its application for enhanced NRM. Local resource management practices are a sound basis for conservation and have contributed to the conservation of forest and wildlife resources for decades, through the use of rules and regulations relating to use and access. The centre will address the inadequate documentation of the traditional resource governance and other indigenous knowledge, to prevent the loss of such knowledge as most of it remains essential and relevant, especially for adapting to climate change. The centre will also be used to offer tailored trainings for the local community and other stakeholders and will have capacity to collect, store, and disseminate participatory sustainable forest management information. It will be equipped with basic facilities such as computers, printers and photocopier, and with wireless internet connectivity for enhanced communication.
205. **Output 1.4:** Design and implement a forest rehabilitation/reforestation program putting 10,000 ha under regeneration and 17,000 ha under SFM: Working together with the CFA, the KFS will lead the program of reforestation, either through protection of badly degraded patches to encourage regeneration; or, through enrichment planting. Forest restoration will focus primarily on the 22,500 hectares deforested or severely degraded by wildfires in the north-western half of Leroghi Forest but will also address the deforested portions of the deforested areas in the remote north-eastern side of Leroghi. To the extent possible, the degraded

margins of the rest of Leroghi and on sections of group ranch forests will be rehabilitated, part of which will form the 17,000 ha under SFM. This will include reforestation in the ranches, enrichment planting where necessary, and rehabilitation of the current plantation.

206. The project will test the most effective methods of reforestation during the first two years. This will include a strong emphasis on assisted natural regeneration (such as brush cutting for release of natural regeneration), cost effective, community-level, local nursery production techniques, cost effective weeding techniques and fire hazard reduction through controlled livestock grazing. Much or all of the forest restoration activities may be done by community-based enterprises specialized in nursery seedling production, out-planting, plantation maintenance and similar activities. They would do this under contract with the LFMG. The CFA and the LFMG will manage their forests as profit making community enterprises, along enterprise development plans to be produced with the support of the project.

207. Output 1.5: 50,000 hectares of rangeland under Holistic Natural Resources Management (HNRM): Communities will be empowered to put over 50,000 ha under sustainable rangeland management through Holistic Natural Resources Management (HNRM) approach, which incorporates traditional resource management. Under this output, the project will enhance capacities of communities living within 5 kilometre radius of the Kirisia forest to improve grazing management, to increase the productivity of the rangelands and the livestock production ventures. In doing so, it will facilitate the communities to use a mixture of traditional and technical range/land management knowledge, skills and techniques to design and implement Holistic Management Plans and range rehabilitation plans in their areas. This is in response to the shortage of extension officers, which is unlikely to be resolved sustainably in the short to medium term. The project will therefore empower the community to be involved in the all the steps of the process, which include assessing the challenges related to livestock production, natural resources management capacity collectively held by the community; identifying capacity gaps, making collective decisions and actions to build capacity within the community to plug these capacity gaps; and designing and implementing a community based rangeland monitoring program, which will be implemented in close collaboration with CFA, KWS and KFS-led Biodiversity monitoring program.

Outcome 2: Wildlife dispersal areas and migratory corridors secured to improve integrity of the Kirisia ecosystem as a wildlife refuge and critical part of maintaining the Samburu Heartland as a functioning ecosystem:

208. Under this outcome, the project will ensure that key corridors that link Kirisia Forest to Laikipia and Kirisia Forest to Community Group Ranches are secured through a) identification and mapping of high value biodiversity areas (HVBAs) and forest fragments outside of the gazetted blocks; b) identification and mapping of important wildlife corridors linking the Kirisia to the rest of the national parks and wildlife dispersal areas in the Samburu Heartlands (map in Figure 1); c) entering into agreements for easement of land in the corridors with KWS or other stakeholders. This will be done in close collaboration with the County government (which is the likely source of funds for easement/compensation where proven necessary), and the CFA. The outcome will be delivered via three outputs, described below:

209. **Output 2.1:** Securing dispersal areas and wildlife migratory corridors: Building on the draft zonation done by CFA, KFS and the African Wildlife Foundation (AWF) the project will support the mapping of critical wildlife habitats, and the identification of human/wildlife hotspots. KWS will therefore be facilitated to raise community awareness on the importance of wildlife corridors and the intentions of the project to work with the stakeholders to secure the corridors; highlight the benefits to communities likely to accrue from the exercise in an open and transparent manner; familiarize the community with the laws and regulations that will be followed during the exercise; enter into agreements through MoUs or any other relevant regulation bounded in the exercise; secure additional funds from national and county government to support implementation of the agreements/MoUs; enforce the corridors management through a participatory approach.

210. **Output 2.2:** Support to and establishment of the new conservancies proposed by the County Government (government co-finance). Kenya Wildlife Service has been promoting the establishment of conservancies in the country especially in Narok County where all the Group ranches around Maasai Mara Game Reserve have been transformed into conservancies. Samburu County has a total of 12 conservancies at various stages of development, six fairly established (Kalama, West Gate, Siara, Namunyak, Meibai and Nkoteya) and the other six (Kirisia, Ltungai /Malaso, Losesia, Baragoi, Ndoto and Nyiro) are at the initial stages. The project will support capacity building of existing and newly established wildlife conservancies, including the

development of a participatory biodiversity monitoring system. The project will facilitate KWS to ensure that new conservancies understand the national policy guiding cost and benefit sharing under the Conservancy Bill, and that they protect wildlife migratory corridors and refuges. This will be followed by formalisation of the new conservancies with appropriate governance and management structures emplaced. Training and capacity building activities will then be conducted for key stakeholders in the new conservancies on conservancy management and land use planning.

211. **Output 2.3:** Strengthening wildlife monitoring and protection within and outside the Forest to cover the Kirisia ecosystem: The KWS and the partners only have inadequate equipment and infrastructure to undertake any meaningful management operations for wildlife monitoring and protection. Therefore the project will support to improve the securing of wildlife migratory corridors and safer refuge in the dispersal areas. This will include the capacitation of KWS (equipment and materials) and the county government for the protection of wildlife within and outside the Forest to cover the Kirisia ecosystem. This will involve the establishment of Kenya Police Reservists training post to train local communities as anti-poaching rangers for the conservancies, the Forest Reserve (under KFS) and to improve security on roads leading to Maralal (see tourism strategy development). This will also involve improved operational support for the KWS in anti-poaching activities through provision of equipment such as communications and monitoring equipment and uniforms for rangers and other staff.

Outcome 3: Income from honey, tourism and other NWFPs providing financial incentives for PFM and conservation and increase household incomes by more than 25% for participating households

212. Under this outcome, the project will identify and promote alternative income generating strategies that would generate significant financial benefits as incentives for conservation of both the forest and wildlife resources. In doing so, gender and cost and benefit sharing considerations will be mainstreamed upfront. The component will be implemented through three outcomes.
213. **Output 3.1: Promoting high volume buying market linkages for honey.** Under this output, the project will work with the agencies supporting honey cooperatives around Kirisia (in particular AWF, KVDA, World Vision) to accelerate the training of bee keepers on improved honey production, processing and marketing. The project will lobby the County Government to employ a Bee Keeping or honey production expert, in line with its stated recognition of honey as one of the three pillars of advancing the local economic development. This will also be a sustainability measure, especially given the fact that the Ministry of Agriculture, Livestock and Fisheries, the home of the Bee Keeping Division, is devolved.
214. The project will also assist the government to develop a long-term (5-20 years) strategy for the commercialization of honey production in Samburu County that would involve the establishment of a honey processing plant. The County Government will be lobbied to include a budget for the construction of such a plant in its Community Development Fund (CDF) program for the mid to long-term. In the long-run this will increase value-addition in Samburu and create much needed employment. This venture is likely to succeed for the following reasons: i) Baseline assessments confirmed that demand for honey in Kenya is very high, and that over 90% of honey consumed is being imported; ii) although honey production in the Kirisia ecosystem has increased from 80,000 kg in 2011 to 101,430 in 2013 (with an estimated equivalent increase in returns from US\$ 160,000 to 238,000), most of it is still being harvested from log hives, which yield 7 kg per hive compared to 12 kg per Kenya Top Bar Hive (KTBH) and 14 kg per Langstroth hives (Table 24 – source The 2013 County Livestock Production Report). There is still considerable scope for increasing honey production, but only in tandem with increasing attention to production, quality, organizing the supply chain and smoothening supply flow as well as market access in the short term, and value addition in the long term; iii) accessibility to high volume markets will be improved with the completion of the paving of Nyahuru Maralal road and the eventual connection to the Kenyan coast, Ethiopia and South Sudan by the Standard Gauge rail line connecting Lamu and south Sudan, which will pass very close to Kirisia.

Table 23: Increase in honey production and incomes in recent years

Year	KTBH	Log Hives	Langstroth	Crude Honey (Kg)	Average cost per kg	Total income Ksh	Total income US\$
2011	250	13,000	28	80,000	150	12,000,000	160,000

2012	350	13,000	30	91,380	200	18,276,000	228,450
2013	540	12,905	40	101,430	200	20,286,000	238,659

215. Output 3.2; Tourism development model developed, to deliver benefits to the local communities:

Under this output, the project will support the CFA and the County Government to improve the prospects for tourism development in the Kirisia landscape, ensuring that it is set up to be both effective and beneficial to the local community. Because of its location in the northern tourist circuit and its richness in wildlife, Kirisia Forest has a lot of tourism potential. Kirisia is however in the fortunate position of not having exploited this opportunity yet. Partners can therefore learn from the lessons generated in the other popular tourist circuits, where tourism development has been led by the private sector, and whose eventual benefits have bypassed the communities. Already the County Government owns the Maralal Safari Lodge located in the 5km squared wildlife Sanctuary near Maralal town, and it is not clear if there's community benefit sharing agreement in place. The project will therefore seek to redress this by putting a long-term tourism development strategy and assisting the County Government and CFA to secure financing for its implementation. In doing so, the project will assist the CFS and the County government to jointly produce a well thought out long-term tourism development strategy, which will position Kirisia in strategically to exploit the tourism potential by the time the infrastructure development (paved road, rail line) is completed. Guided by both scientific considerations and the need to balance tourism opportunities/ventures to benefit the Samburu communities, this plan will build on the draft zonation map (Figure 6) produced during the Kirisia Forest Management Plan formulation, and set to be updated to an ecosystems management plan with support from the project. The project will assist the CFA and County Governments to explore sources of funding for implementing the tourism development plan, which should ideally be financed from the County Community Development Funds, to ensure total ownership of the facilities by the Samburu. It is quite possible that the tourism development feasibility study will recommend a series of discreet tented camps inside the forest linked to the Maralal and other Safari Lodges (e.g. Mugie) as well as other tourism circuits in Northern Kenya. This type of tourism infrastructure might not be too expensive, and may be well within the means of government to finance. While it is true that operating tourism business requires sophisticated hospitality industry capacities, there should be adequate time for the County Government and the CFA to find and pay for such capacities, thereby safeguarding the benefits of tourism to remain within Samburu.

216. Output 3.3: Identify other NWFPs such as herbal plants and edible plants with potential for viable business opportunities and design and implement strategies to exploit them commercially: Anticipating that one of the action plans expected to support the implementation of the grazing plans will be increasing opportunities for other NWFPs, the project will, early in the process, undertake a feasibility study to identify NWFPs using the Market Analysis Approach (developed by FAO: <http://www.fao.org/forestry/enterprises/25492/en/>) in consultation with local communities that can be exploited commercially and formulate a strategy and business plans for potential NWFPs. It will then work with the CFA and user groups to raise further funding to implement viable business plans to exploit such NWFPs. Other opportunities to be explored will be for example increasing poultry production, improving milk processing, bottling water, growing of cactus fruit, etc. The most critical point will be to link such ventures to viable markets.

Outcome 4: Knowledge systems inform adaptive management in PFM (in conjunction with output 1.3).

217. This will be a cross-cutting outcome, under which monitoring and evaluation will be undertaken, lessons generated and used to inform adaptive management of the project and future programming of government and GEF projects and programs. It will be implemented in close conjunction with output 1.4, and via three outputs.

218. **Output 4.1:** A carbon, biodiversity and livelihoods monitoring plan designed, implemented, lessons being used to inform adaptive management and Carbon accounting (in conjunction with output 1.4);

219. **Output 4.2:** Knowledge management system set up, informed by project evaluations and terminal reviews (Project M&E formulated, MTR and FE undertaken);

220. **Output 4.3:** Resource centre established and operationalized, local traditional knowledge documented (Co-finance).

Component 2: Policy and legal empowerment for effective governance, informed by lessons and best practices

221. Under this component the project will facilitate consultations that bring clarity to the issue of mandates, roles and responsibilities of the many institutions involved in forestry management in the Samburu County and Kirisia ecosystem. It will also facilitate the strengthening of policy and legislative provisions for local level Participatory forest management. In order to ensure that the legal and policy provisions for PFM are informed by lessons generated from other regions, the project will also provide a knowledge management facility. This will be particularly important in ensuring that Forest management Agreements provide meaningful benefits for the Samburu community. The component will be delivered under the following outcomes.

Outcome 5: Subsidiary legislation and guidelines for County level implementation of the PFM National Policy of 2005 emplaced, informed by Community Bio-cultural community protocols:

222. **Output 5.1:** Subsidiary legislation and guidelines for County level implementation of the PFM National Policy of 2005 emplaced, informed by Community Bio-cultural community protocols: Under this output, the project will facilitate the Samburu community groups to formulate bio-cultural community protocols (BCPs) to increase their capacity to drive the local implementation of international and national environmental laws. The bio-cultural community protocol (BCP) will be based on communities consultative processes to outline their core ecological, cultural and spiritual values and customary laws relating to their natural resources and indigenous knowledge, based on which they provide clear terms and conditions to regulate access to their knowledge and resources. The process of developing a BCP will involve reflection about the interconnectedness of various aspects of community ways of life (such as between culture, customary laws, practices relating to natural resources management and TK) and may involve resource mapping, evaluating governance systems and reviewing community development plans. It will also involve legal empowerment so community members can better understand the international and national legal regimes that regulate various aspects of their lives, such as CBD, UNFCCC and their instruments such as REDD+, protected area frameworks, and payment for ecosystem services schemes, etc. By articulating the above information in a BCP, the Samburu will assert their rights to self-determination and improve their ability to engage with other stakeholders such as government agencies, researchers and project proponents. By going through this process, the Samburu will be better able to see the community in its entirety, including the extent of their territories and natural resources, their bio-cultural values and customary laws relating to the management of natural resources, their challenges, and their visions of ways forward. By referencing international and national laws, the Bio-cultural protocol will affirm their rights to manage and benefit from their natural resources. They are also better placed to ensure that any approach to access indigenous knowledge or other programs such as the establishment of a REDD+ project, occurs according to their customary laws. Overall, the protocols will empower the Samburu BCPs to affirm their role as the drivers of conservation and sustainable use of biodiversity in ways that support their livelihoods and traditional ways of life.

223. In addition, the CFA will be facilitated to work with the County Government (Department of Natural Resources) to lead a participatory review of the PFM policy and the County Government legislations to identify the specific challenges of effective implementation of PFM for the Kirisia/Leroghi forest. This will include a review of the Samburu County legislation on forests, the legal basis for benefit sharing and the roles of community-managers in co-management, the legal basis for the role of communities and other stakeholders in enforcement in co-management, and the legal constraints to the harvest and marketing of dead and live trees on state forests under Co-management with a CFA. Based on these findings, the County Government will be facilitated to develop County-specific legislation to guide the implementation of the PFM policy of 2005. In this respect it will define the respective roles of the county, communities and other stakeholders in the management of the community forests covered under their mandates. It will also undertake revisions to the PFM guidelines and subsidiary legislation based on lessons learned and best practices developed by this project and by collaborators in the knowledge management network. It will then draft policy reforms based on the participatory review by high-level decision makers and support for their passage.

224. **Output 5.2:** Advocacy: County and National government lobbied to adopt proposed policy reforms: Under this output, the project will support the partners for better representation of the interests and needs of local and indigenous groups in the nationalization process of international law on natural resources management. This will raise awareness to consolidate the positioning of local and indigenous groups in the process for participatory sustainable resource management in the County together with knowledge management

activities in Outcome 4. The output will support the advocacy by the County and line national government for policy reforms.

SOCIAL ECONOMICS BENEFITS INCLUDING GENDER CONSIDERATIONS

225. The focus on capacity for PFM and HNRM will provide many Samburu resource users with assured supply of the natural resources/ecosystems goods and services on which their livelihoods heavily depend on. Empowering the community groups to control the parts of the forest that traditional resource use systems has bestowed on them will alleviate the fear of losing tenure over these important resources in the short and long term. Improved community-led extension service will increase capacities and improve returns on labour and financial investments in rangelands/livestock management by the Samburu. It will also catalyse better resource management and sustain supply of honey, water, dry season forage, poles and other products, which they will be able to harvest sustainably once the forest utilization and management plans have been concluded. Jointly these measures will reduce the pressure on the forest and rangeland resources, increasing ecosystems integrity, function and ability to support resilient livelihoods and wildlife populations.
226. Access to a broader range of markets for a wider variety of NWFPs, supported by greater access to training in harvesting, processing and packaging, will ensure more community members participate in the formal economy/ markets, thus increasing household incomes. This will contribute to securing livelihoods and food security in the short term as well as increasing prosperity for the rural poor in the long-term. Revitalizing local institutions for range and resources management and governance will increase social capital and improve empowerment.
227. Women play a critical role in livestock husbandry (particularly small stock) and natural resources management in Samburu, both as beneficiaries but often as victims of the effects of reduced productivity. In recognition of this fact, a gender analysis will underpin development and implementation of the alternative livelihoods promoted by the project, to ensure that critical issues related to access and control of land resources and other natural resources as they relate to women are identified and addressed. The aim will be to promote a more effective targeting of initiatives, and provide disaggregated data for monitoring, in line with the FAO and GEF gender guidelines. Thus, a number of project activities are expected to directly and indirectly contribute towards improving the condition of women. This would be through enhancing their capacity to participate in decision-making processes, and engaging in land use activities that have the potential to improve their economic situation. For instance, where there is collection of firewood, clearing of bush encroachment, milk collection, pilot activities to generate income from the sale of such activities will deliberately target women beneficiaries.
228. In addition, the project will actively empower women and other excluded groups, particularly those at high risk of suffering from the effects of rangeland degradation and climate change vulnerabilities. This will be achieved through social mobilization utilizing Women Self Help Groups (SHGs) and other such community based structures. These groups will benefit particularly from skill development (education/training), access to financial resources and markets for sustainably produced/harvested products.
229. The population of forest-dependent people that is expected to directly benefit from the project will be 96,147, of which male and female population is 46,990 and 49,157, respectively¹. About 76,918 of people are living below the poverty line, of which male and female population is estimated as 37,592 and 39,326, respectively². This population is also expected to directly benefit from the project. The composition of gender per administrative unit in the adjacent communities/sub-location of Leroghi Forest is listed in Table 25.

Table 24: Leroghi forest: population of adjacent communities/sub-location

Administrative Unit (Sub-Location)	Male	Female	Total	Households	Area (Km²)
Maralal town	18087	18668	36755	8380	17.5
Shabaa	2973	3175	6148	1279	78.8
Ngari	2526	2501	5027	1036	25.5
Ledero	828	994	1822	406	26.6

¹ No recent enumeration of squatters living in the forest. It is estimated to be about 2000 households (15,000 people).

² 1.80% of the people live below the poverty line (Samburu County Development Profile. Ministry of Devolution and Planning May 2013, Government Printers)

Milimani	2211	2257	4468	979	28.6
Lpartuk	1667	1785	3452	674	22.9
Opiroi	1513	1602	3115	704	185.5
Mabati	478	564	1042	231	111.8
Loroklol Mongo	753	754	1507	328	89.3
Lbukoi	555	557	1112	287	170.3
Moru	680	821	1506	384	22.2
Barsaloi	816	709	1525	272	64.5
Lulu	616	632	1238	289	44.3
Soit Naibor	468	521	989	208	76.7
Angata Nanyuki	1303	1085	2388	471	172.6
Loibashae	619	620	1239	262	57.0
Morijo	1495	873	2368	504	154.4
Siambu (Poro)	381	364	745	128	27.7
Mugur	501	489	990	198	36.9
Kisima	1997	2556	4553	1027	106.8
Mbaringon	821	989	1810	373	31.2
Mugur	627	773	1400	364	86.7
Lodokejek	1749	1935	3684	785	120.3
Nonkeek	773	958	1731	409	159.7
Baawa	827	972	1799	364	133.4
Lkiloriti	986	1117	2103	422	69.7
Nauneri	740	886	1626	370	82.6
Total	46990	49157	96142	21134	2203.5

Source: Kenya National Bureau of Statistics (National Population and Housing Census 2009)

230. An empowered Samburu Community Forest Association (CFA) with clarity on its legal and policy foundation will take the centre stage of PFM and integrated rangelands management; providing a more effective partner to County Government and National Government Agencies (KFS, KWS); thereby ensuring that the Samburu community are fully involved and benefit from wildlife management and biodiversity conservation. This will be critical for the sustainability of the global environmental and local economic development benefits delivered by the project.

COST-EFFECTIVENESS

231. The project has been designed to be highly cost effective in 4 keys ways: i) Adopting PFM to secure forest management and to improve habitat for wildlife (wildlife migratory corridors and dispersal areas) is more cost effective than converting the forest and the surrounding ecosystem into a Protected Area, with the attendant higher costs of managing PAs, especially in an area with yet to be restored tourism circuits: ii) Providing strategic capacity building in key institutions will enable the co-finance to redirect the over US\$ 60 million to address a broad range of baseline capacity challenges, to advance improvements in local livelihoods and economic conditions while simultaneously improving ecosystems integrity and functionality. The proposed strategies for developing tourism, increasing honey processing and value increment in the County and capacity development are critical, and will provide long-term sustainability of the project benefits: iii) To overcome the chronic shortage of government employed extension service in the vast and sparsely populated drylands (considered to be very cost-ineffective compared to providing the same to densely populated farming communities), the project will empower the pastoral communities to take ownership of the challenge; in doing so, they will acquire the skills to analyse their resources, challenges facing their sustainable utilization, their capacity deficits, and to design and implement action plans to tackle the deficits. This is a cost effective and innovative way of providing nomadic pastoralism-oriented, relevant and sustainable extension service. The project has therefore had to adopt a collaborative strategy, working with a wide range of stakeholders, investing small amounts of money in key areas to catalyse domestic investment into the project activities by a cross section of stakeholders in multiple sectors and local communities. The inclusive and collaborative nature will lead to the development of institutional and governance capacities that engages in integrated management of forests and rangelands, integrating stakeholder interests and enhancing adaptive conservation management and livelihood improvement measures.

232. The project is also considered cost effective as it builds on the best practices of other similar systems such as rangeland management via the Natural Resources Holistic Management model, which has proven to be effective in a Northern Kenya context; avoiding past mistakes, such as the private sector-driven tourism development in Amboseli, Maasai Mara and the Coast, which has not delivered adequate benefits from tourism to local communities, to the detriment of biodiversity (wildlife) and communities.
233. Project activities will reduce forest degradation by 40% of efficiency (from 1.4% to 0.84% of deforestation rate); together with forest protection of 45,000 ha, regeneration on 10,000 ha and SFM on 17,000 ha, this will lead to a very cost effective reduction of emissions of up to 2,935,701 tCO₂eq. LULUCF is acknowledged as a more cost effective means of securing climate change benefits than other methods of reducing emissions. The multiple use approach aims to reduce degradation of the ecosystem by encouraging a shift from unsustainable to sustainable practices such as sustainable pastoralism and tourism. The project will increase biodiversity benefits without undermining the economic viability of production systems. This has the added benefit of mitigating potential land degradation thereby avoiding potential rehabilitation costs.

Innovativeness

234. This project is designed to either upscale innovative ideas/models tested elsewhere, or to test innovative ideas to avoid mistakes that have failed to tackle the tension between conservation and development in other places. Specifically, the innovativeness is expressed in the following concepts:
- Implementing PFP in the arid lands forests is quite innovative because this model has largely been tested in high rainfall forests; but, the real innovation with this project is that the CFA will be supported to challenge the finding from the review of PFM in the past which showed that communities have not benefitted significantly from adoption of the PFM, and that the so called community benefits are uses they traditionally enjoy such as grazing in the dry season, honey and collection of medicinal products. The Kirisia CFA will engage KFS in a discussion that will challenge this limited extension of benefits and seek to gain more significant benefits, e.g. the harvesting of dry red cedar to raise funds and make the PMF more financially viable;
 - The project will demonstrate the advantages of active, self-financing, revenue generating SFM. It will demonstrate how socio-economic benefits could support the achievement of global environmental benefits. Innovative aspects include:
 - The two-tiered community management structure which includes lower LFMG groups based on traditional forest tenure of surrounding communities and self-financing CFA function of the upper tier of this structure;
 - Development of large financial benefits and strong incentives for communities to engage in joint management partnerships;
 - Using PMF of a gazetted forest as the springboard of improved natural resources management and biodiversity conservation in a landscape – broader ecosystem: the livelihoods of the Samburu pastoralists and the Dorobo hunter gathers, as well as the survival of the wildlife in this region are intertwined with the health of the ecosystem and its various components – where the forests provides critical dry season grazing, and the surrounding plains provide dry season grazing and relieve for the forest to regenerate. Upgrading the Kirisia Forest Management Plan to an ecosystem management plan will enable the CFA, the group ranches, the conservation agencies (KWS, KFS) and the County Government to manage the natural resources in an integrated manner, which promotes biodiversity conservation, maintenance of carbon stocks and improvement of rangelands; this system can easily be replicated in the many surrounding forests e.g. Mount Kulal, Mount Marsabit, Nyiro and the Mathews Range;
 - Tourism development in similar rangelands, e.g. the Amboseli, have been led by the private sector, without due consideration for spreading the benefits to the communities that are custodians of wildlife and who pay the highest price for living with the wildlife (in destruction to crops, livestock and lives); learning from these lessons, this project will be highly innovative in developing a tourism development strategy that will be informed by not only the need to maximise profits from the ventures, but to also spread tourism benefits equitably across the community. The County government will be encouraged to take a strategic approach to tourism development where it should own the tourism facilities, which it can finance via Constituency Development Funds (CDF). It will be supported to formulate a benefits sharing strategy early on so that benefits from tourism, no matter how modest, are shared as equitably as possible, and serve as economic incentives for conservation;

- The project will also upscale a highly innovative model developed in Northern Kenya – allowing pastoralist communities to wean themselves from depending on National and County Government led extension service, which is very expensive to provide for vast and sparsely populated ASALs. The rangelands grazing management through holistic natural resources management scheme will empower the pastoralists to take charge of the challenges facing their production system, including challenges related to climate change. They will be facilitated to do SWOT analysis and to act on the results to put solutions in place that enable them to improve the returns on their investments.
- Finally, the project will establish a resource centre that documents the Samburu IK – and will teach it to the younger generations. This will correct the loss of such IK from the community, and is probably the first time it will be done in a formal teaching set up.

3. FEASIBILITY

3.1: ENVIRONMENTAL IMPACT ASSESSMENT

235. As described in the previous section, the project is designed to have positive benefits to the environment. No adverse environmental impacts are likely and it conforms to FAO's pre-approved list of projects excluded from a detailed environmental assessment. The project is classified as Category C under FAO's Environmental Impact Assessment guidelines.

3.2: RISK MANAGEMENT

236. An identification and ranking of risks has been conducted as well as identification of mitigation measures. Overall, the risks are not exceptionally high and should be manageable. Risks, their ranking and mitigation measures are presented in table 26.

Table 25: Risks and mitigation factors

Description of risk	Ranking	Mitigation measures
The benefits for communities under SFM in Leroghi Forest too small to serve as an effective incentive for communities to invest in forest management.	Medium	The 2013 review of 20 PFM showed that KFS has not granted significant new benefits to communities to date, so this is a legitimate concern. KFS has made a commitment to authorize the harvest of dead cedar for the generations of the revenues necessary to regenerate the deforested sections of the forest. The dead cedar represents a temporary resource that will be lost over time anyhow, so one can be relatively confident that this commitment will be respected. Of greater concern is whether KFS will grant communities a large enough share of the benefits in the future from the sustainable harvest of the new forests to be restored through the new KFS/CFA partnership. Logically, the benefits of the partnership should be so substantial that KFS will recognize the value of granting very substantial benefits and incentives to the communities. The awareness raising targeting decision-makers has been included in the design to mitigate this risk.
The displaced Samburu living in Leroghi Forest will resist the adoption of the new range management systems and the new rules for access and use of the natural resources of Leroghi Forest.	High	The local communities holding the traditional tenure rights to Leroghi Forest will be empowered and will be structured as LFMG. The LFMG will be responsible for enforcing the new rules governing access and use that are negotiated between KFS and the CFA/LFMG. This arrangement will build upon, and reinforce, traditional Samburu governance systems. In addition, the County Government is keen on exploring a carbon finance project for the Kirisia forest, and has plans to address security issues and t work with the families to ensure a safe return to their normal places.

<p>There is a risk that the ecological characteristics of Leroghi and group ranch forests will make forest regeneration too difficult and too expensive to make participatory SFM a viable option.</p>	<p>Low</p>	<p>The highest value tree, pencil cedar, is the one with the greatest natural capacity for regeneration on the deforested areas and is the most resistant to livestock. There is no reason to expect that it will not be possible to raise all of the other indigenous species in community-run nurseries. Protection from livestock will be critical and will be done without fencing with livestock controlled by herders. It is expected that once tree cover of indigenous species is re-established, one will also re-establish the ecological conditions needed for natural regeneration of both native flora and fauna.</p>
<p>There is a risk that in those areas where overgrazing is a key constraint to forest regeneration, it will not be possible to integrate herders and to protect recently harvested areas from grazing long enough to ensure adequate regeneration.</p>	<p>Medium</p>	<p>This is recognized to be a difficult challenge but such livestock control was demonstrated to be quite feasible without fences on a GEF project in the Senegal River Valley. This project will generate substantial employment and revenues for community members. Livestock control will be a cost that communities pay in order to realize these very substantial benefits.</p>
<p>Extreme climatic events associated with climate change (CC) may affect vegetation regeneration</p>	<p>Low</p>	<p>The creation of empowered community managers with adaptive management capacities may be the best strategy for adapting to CC. It is the present conditions of uncontrolled, open access, and unsustainable use of dryland forests that makes them the most susceptible to climate change.</p>
<p>The project interventions will not be sustainable. Communities do not continue to control reforestation and degradation and to manage the forests sustainably after the end of the project.</p>	<p>Low</p>	<p>Project results will be sustained through the legal requirements for empowered community managers to stop deforestation and degradation and to manage the forest sustainably. Communities will know that they may lose their legal rights to harvest and market forest products if they do not meet their legal responsibilities. The respect for community rights is dependent, however, on minimum standards of good governance in the institutions of the State. Future REDD+ performance based payments for carbon sequestration will need to be structured in ways that reward good governance in State institutions.</p>

4. IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1 INSTITUTIONAL ARRANGEMENTS

237. The overall client for the project is the Government of Kenya under the Ministry of Environment Water and Natural Resources with the Kenya Forest Service (KFS) as the lead executing agency. KFS will be the centre of the project's work and operations. The project will be implemented through strategic partnerships with national, county and local institutions (please also see section 1.4) over a period of six years. An inception period will be used to refine the project institutional arrangements and to bring on board other relevant stakeholders for implementation.

238. The project is designed to coordinate closely with on-going related initiatives. The coordination will be undertaken at several levels: (i) coordination with "baseline programmes or projects" (projects/ programmes that provide critical baseline investments on which this GEF investment is built); (ii) coordination with other, related GEF projects in Kenya and in the region, and; (iii) coordination with other national and international initiatives with which lessons can be shared. KFS will ensure coordination with national initiatives, whereas FAO will facilitate coordination with internationally supported initiatives.

4.2. IMPLEMENTATION ARRANGEMENTS

239. The Food and Agriculture Organization (FAO) will be the GEF Agency responsible for the supervision and provision of technical guidance during the implementation of the project.

240. KFS, in consultation with FAO, shall second a senior staff member as a project focal point responsible for ensuring the smooth execution of the project. The duties of the project focal point will include (i) acting as the responsible focal point at the policy level within KFS; (ii) ensuring all necessary support from KFS is provided for implementation of all of the proposed components' activities; (iii) reviewing and providing input to annual work plans and budgets in consultation/collaboration with FAO; and (iv) participating in the selection of consultants. KFS will chair the multi-stakeholder Project Steering Committee (PSC) which will bring together all key institutions including the National Environment Management Agency (NEMA), Kenya Wildlife Service, Kenya Forestry Research Institute (KEFRI), Kenya REDD+ programme representative, African Wildlife Foundation (AWF), Green Belt Movement (GBM), Suiyan Trust, Sandana, Samburu County Government, and local community representatives¹.

241. The **Project Steering Committee**² will guide and oversee implementation of the project. Specifically the PSC will:

- Provide guidance to ensure that project implementation is in accordance with the project document;
- Review and approve any proposed revisions to the project - project results framework and implementation arrangements;
- Review, amend (if appropriate) and endorse all Annual Work Plans and Budgets;
- Review project progress and achievement of planned results as presented in six-monthly Project Progress Reports, annual Project Implementation Reviews (PIRs) and Financial Reports;
- Advise on issues and problems arising from project implementation, submitted for consideration by the Project Management Unit or by various stakeholders; and
- Facilitate cooperation between all project partners and facilitate collaboration between the Project and other relevant programmes, projects and initiatives in Kenya.

242. A **Project Management Unit** will be established in Maralal, Samburu County. The staffing at the PMU will consist of a National Project Coordinator (NPC), a Chief Technical Advisor (CTA) and short-term consultants paid by the project. The PMU will also be supported by KFS technical and administrative staff through part-time secondment, as necessary, as Government co-financing. The PMU will be responsible for the day-to-day management of the project and timely and efficient implementation and monitoring of

¹ Please see also section 1.4 stakeholders and participants.

² Detailed terms of reference of the PSC, including functions of Chairperson(s), meetings of the PSC etc., should be agreed during project inception.

approved annual work plans. In close consultation with other partners involved in the execution of project components, the PSC, and FAO, the PMU will:

- Act as secretariat to the PSC;
- Organize project meetings and workshops, as required;
- Prepare Annual Work Plans and detailed Budgets (AWP/B) and submit these for approval by FAO and the PSC;
- Coordinate and monitor the implementation of the approved AWP/B;
- During project inception period, review the project's M&E plan and propose refinements, as necessary, and implement the plan;
- Prepare the six-monthly Project Progress Reports (PPRs) and give inputs in the preparation of the annual Project Implementation Review (PIR) by the FAO Lead Technical Officer. Ensure that all co-financing partners provide information on co-financing disbursed during the course of the year for inclusion in the PIR;
- Coordinate the project with other related on-going activities and ensure a high degree of inter-institutional collaboration; and
- Assist in the organization of mid-term review and final evaluation.

243. **National Project Coordinator (NPC)** will lead the PMU and work closely with the PSC. The NPC reports to FAO on operational issues and to the KFS and the FAO project LTO on technical issues. The NPC is a full-time position. The NPC will lead and organize the day-to-day execution of the project. The NPC will also take the lead in communications with government agencies and advocacy. The NPC will also be responsible for providing technical advice and guidance in his/her area of technical expertise. The NPC will report on Project progress to PSC meetings, and will develop and submit semi-annual PPRs and annual PIRs. In addition to technical and substantive duties, the NPC will:

- ensure real-time monitoring of Project progress and alert KFS and FAO of potential problems that could result in delays in implementation;
- ensure the Project's effective and efficient work with stakeholders in the pilot areas;
- organize and supervise consultant and partners' inputs;
- oversee creation of the Project's approach to managing and sharing knowledge, and to identifying and disseminating lessons learned;
- communicate, advocate and engage in policy dialogue.

244. **Chief Technical Adviser (CTA)** will directly support the NPC and the PMU and ensure best international technical and management practices are integrated into project activities. The CTA reports to the FAO Representative in Kenya on operational issues and to the LTO on technical issues.

245. The CTA will support all aspects of the day-to-day execution of the Project. The CTA will also be responsible for providing technical advice and guidance in his/her area of technical expertise. The CTA will support the NPC in reporting on Project progress to PSC meetings, and will contribute to the development of semi-annual PPRs and annual PIRs. In addition the CTA will:

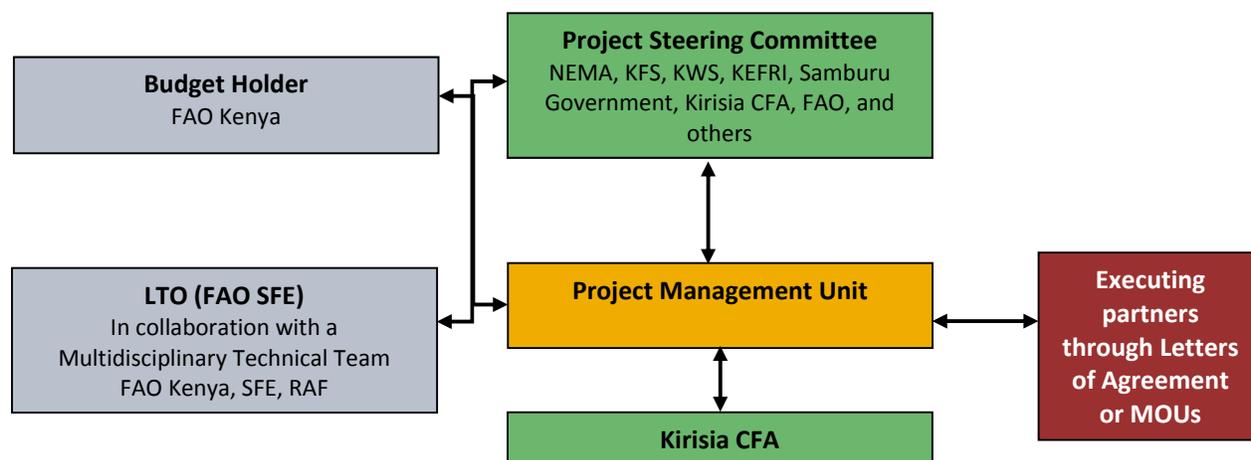
- ensure latest and best international practices and approaches are reflected in the design and planning of Project Activities;
- design and propose a participatory monitoring system for the Project's work;
- support the National Project Coordinator in the day-to-day monitoring of Project progress and alert the FAOR and the LTO of potential problems that could result in delays in implementation;
- support the design of the Project's work with stakeholders in the pilot areas;
- help organize and supervise consultants and partners' inputs;
- Organize capacity development needs assessments of project team and in collaboration with partners develop the capacity development plan(s) and supervise their implementation

4.2.1. Other executing partners

246. The project will work with a number of partners who will contribute to the execution of specific components/outputs through Letters of Agreement.

247. Letters of Agreement with partners will be based on specific activities in each annual work plan and budget approved by the Project Steering Committee.

Organogram for project implementation.



4.2.2. FAO's Role

248. FAO will be the GEF Agency of the Project as well as the financial and operational executing agency. At the request of the Government of Kenya and the agreement with FAO, the project will be executed by FAO via its Direct Execution (DEX) modality in close consultation with Kenya Forest Service. FAO will be technically and fiduciarily accountable for the achievement of all expected project results under the DEX modality. FAO, in consultation with the PSC, will deliver procurement and contracting services to the project using FAO rules and procedures, as well as financial services to manage the GEF resources.

249. As the GEF Agency, FAO will be responsible for project oversight to ensure that project implementation adheres to GEF policies and criteria, and that the Project efficiently and effectively meets its objectives and achieves expected outcomes and outputs as delimited in the Project document. FAO will hold the ultimate reporting responsibility to the GEF. FAO will report on Project progress to the GEF Secretariat and provide financial reporting will be to the GEF Trustee. FAO will closely supervise and provide technical guidance to the Project by drawing upon its capacity at the global, regional and national levels, through the concerned units at FAO-HQ, the Regional and/or sub-Regional Office and the FAO Representation in Kenya. In summary, FAO will:

250. As the GEF agency for the project, FAO will:

- manage and disburse funds from GEF in accordance with the rules and procedures of FAO;
- oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers and the rules and procedures of FAO;
- provide technical guidance to ensure that appropriate technical quality is applied to all activities;
- carry out at least one supervision mission per year; and
- report to the GEF Secretariat and Evaluation Office, through the annual Project Implementation
- review, on project progress and provide financial reports to the GEF Trustee.

251. FAO will also be responsible for the financial execution of the project. This implies that FAO will be responsible for the procurement of goods and services for the project in consultation with project partners based on the annual work plans and budgets approved by the PSC.

252. The **FAO Representative in Kenya** will be the **Budget Holder** (BH) responsible for the timely operational,

administrative and financial management of the project. The BH, working closely with the PMU, especially the FAO Lead Technical Officer, will be responsible for:

- Clear and monitor annual work plans and budgets;
- Schedule technical backstopping and monitoring missions of FAO Project Task Force (PTF) members etc.;
- Participate in project supervision missions;
- Authorize the disbursement of the project's GEF resources;
- Give final approval of procurement, project staff recruitment, LoAs, and financial transactions in accordance with the FAO's clearance/approval procedures;
- Review procurement and subcontracting material and documentation of processes and obtain internal approvals;
- Be responsible for the management of project resources and all aspects in the agreements between the FAO and the various executing partners;
- Provide operational oversight of activities to be carried out by project partners;
- Be responsible for budget matters such as budget revision, financial and monitoring reports etc.;
- Monitor all areas of work and suggest corrective measures as required;
- Submit to the GEF Coordination Unit, the TCID Budget Group semi-annual budget revisions that have been prepared in close consultation with the LTO;
- Be accountable for safeguarding resources from inappropriate use, loss, or damage;
- Be responsible for addressing recommendations from oversight offices, such as Audit and Evaluation; etc.

253. The BH will also be responsible for reviewing and giving no-objection to Annual Work Plans and Budgets (AWP/B), Project Progress Reports and co-financing reports submitted by the Project Management Unit, in consultation with the FAO Lead Technical Officer (LTO) and the GEF Coordination Unit.

254. **FAO Project Task Force (PTF)** is a management and consultative body established for each FAO project. The PTF will be led by the BH and include the LTO, Funding Liaison Officer from FAO-GEF Coordination Unit (GCU), and Headquarter Technical Officer from relevant technical units supporting the project's work. Other FAO experts may be invited to the Task Force as required. The main role of the task force is to provide guidance to the Budget Holder and the project manager/team for the implementation of the project, contribute to specific project activities as required and troubleshoot should implementation issues arise.

255. **FAO Lead Technical Officer (LTO)** will be the officer from the Regional Office, if available and will have the primary accountability for the timelines and quality of the technical services provided throughout project execution. The LTO will work in close collaboration with the BH but also NPD and Headquarter Technical Officer, as appropriate. The LTO will provide technical guidance to the project team to ensure delivery of quality technical outputs. The LTO will coordinate the provision of appropriate technical backstopping from all the concerned FAO units represented in the FAO Project Task Force. The Project Task Force is thus composed of technical officers from the participating units, operational officers, the Investment Centre Division/GEF Coordination Unit and is chaired by the BH. The primary areas of LTO support to the project include:

- Supported by the FAO Representation in Kenya, ensure clearance of TORs for consultancies and contracts to be performed under the project and to CVs and short-listed for key project positions;
- Ensure clearance of the technical Terms of Reference, Letters of Agreement (LoA) and sub-contracts goods, minor works, and services to be financed by the project;
- Supported by the FAO Representation in Kenya, review and clear final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;
- In close collaboration with PSC, lead the selection of the project manager, consultants and other institutions to be contracted or with whom an LoA will be signed;
- Review and clear technically reports, publications, papers, training material, manuals, etc.;
- Monitor technical implementation as established in the project results framework;

- Review and clear the Project Progress Reports (PPRs) and prepare the annual Project Implementation Review (PIR);
- Review TORs for the Mid-Term Review, participate in review mission including the mid-term workshop with all key project stakeholders, development of an eventual agreed adjustment plan in project execution approach, and supervise its implementation supported by the FAO-GEF;
- Review TORs for the final evaluation, participate in the final project closure workshop with all key project stakeholders and the development of and follow up on recommendations on how to insure sustainability of project outputs and results after the end of the project;
- Provide technical advice to the nodal agency and PSC;
- Review and clear final technical products delivered by consultants and contract holders financed by GEF resources before the final payment can be processed;
- Provide technical support to the PMU in preparing the AWP/B, with support from the Budget Holder and clearing it prior to submission to the PSC;

256. **Funding Liaison Officer (FLO)** will be responsible for maintaining corporate relations with resource partners throughout the project cycle in GCU. The FLO will ensure an overall “help desk” function to the BH and other PTF members for resource partner matters, and ensure that visibility is given to resource partners in communication material. Especially, the FLO will ensure project documents, funding agreements, and progress reports to comply with the resource partner requirements, and assist BH and other PTF members in interpretation and implementation of terms and conditions as well as relevant FAO and GEF Rules and Regulations. FLO will monitor work plan and budget implementation as well as review PIR, GEF Tracking Tools, Mid-Term Review and the Final Evaluation.

257. **The FAO Finance Division** will submit annual Financial Reports to GEF and, in collaboration with the GEF Coordination Unit, call for project funds on a six-monthly basis from the GEF.

258. **The GEF Coordination Unit** in the Investment Centre Division (TCI) will review and clear PPRs, annual PIRs and financial reports and budget revisions. The GCU will undertake supervision missions, if considered necessary in consultation with the LTO and the BH. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the GCU. The GCU will also participate in the Mid-Term Review and Final Evaluation and the development of corrective actions in the project implementation strategy in the case needed to mitigate eventual risks affecting the timely and effective implementation of the project. The GCU will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six monthly projections of funds needed.

259. **FAO Office of Evaluation** will be responsible for ensuring the management and quality of the overall process for the project’s final evaluation. The evaluation will be conducted by a team of independent external consultants with appropriate evaluation experience and/or relevant technical skills. The independent team leader and evaluation team will be responsible for the final analysis, findings, conclusions and recommendations. FAO Office of Evaluation (OED) staff is the evaluation managers and, when appropriate, may also act as an evaluation team member or leader in the case of project/programme evaluations. Draft TORs will be sent to the OED for finalization, in accordance with FAO evaluation procedures and taking into consideration evolving guidance from the GEF Evaluation Office.

4.3 FINANCIAL PLANNING AND MANAGEMENT

4.3.1 Financial plan (by component and co-financier)

260. The total cost of the project will be USD 11,498,617 to be financed as outlined in Table 27 below:

Table 26: Project cost per component

Contributor	Component1 USD	Componen2 USD	Project management USD	Total USD
KFS	300,000	200,000		500,000
KEFRI	150,000	300,000	50,000	500,000
Samburu County Government	2,000,000	500,000	15,000	2,515,000
Kenya Wildlife Service	450,000	50,000		500,000
Community Forest Association	400,000	14,000		414,000
KFWG	500,000	200,000	100,000	800,000
FAO	2,700,000	536,000	210,178	3,446,178
Total Co finance	6,500,000	1,800,000	375,178	8,675,178
GEF	2,329,214	359,775	134,450	2,823,439
Total Project	8,829,214	2,160,225	509,178	11,498,617

4.3.2. GEF inputs

261. GEF resources (USD 2,823,439) will be provided to Kenya as a grant and the majority will go towards technical assistance.

4.3.3. Government inputs

262. The Government of Kenya through Kenya Forest Service (KFS), Kenya Forestry Research Institute (KEFRI) and Kenya Wildlife Service will provide in-kind co-financing in the form of technical and operational support. In addition, KFS will provide in-kind co-financing to support project management including office space for the Project Management Unit.

4.3.4. FAO inputs

263. FAO will provide in-kind co-financing comprising staff time to support capacity building/training under each technical component. The FAO Land Tenure and Governance Project (*Support to responsible governance of land and natural resources in communal lands of Kenya*) will be called upon to mainstream voluntary guidelines for responsible governance of tenure to alleviate land and natural resource conflicts amongst those communities who hold traditional tenure rights to Leroghi Forest.

4.4. FINANCIAL MANAGEMENT AND REPORTING

264. FAO will maintain a separate account in USD for the Project GEF resources showing all income and expenditures. Expenditures incurred in a currency other than USD will be converted into USD at the United Nations operational rate of exchange on the date of the transaction. FAO shall administer the GEF resources in accordance with its regulations, rules and directives.

4.4.1 Financial reports

265. FAO Kenya as the BH, supported by an Operations and Administrative Officer, will prepare six-monthly Project expenditure accounts and final accounts for the Project GEF resources, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the unliquidated obligations

as follows:

- Details of Project expenditures on an output-by-output basis, reported in line with Project budget codes as set out in the Project Document, as at 30 June and 31 December each year.
- Final accounts on completion of the Project on an output-by-output cumulative basis, reported in line with Project budget codes as set out in the Project Document.
- A final statement of account in line with FAO Oracle Project budget codes, reflecting actual final expenditures under the GEF component of the Project, when all obligations have been liquidated.
- An annual budget revision will be prepared by the BH in consultation with the LTO and submitted for approval to the FAO GEF Coordination Unit.
- The BH will submit the financial reports for review and monitoring by the FAO GEF Coordination Unit. Financial reports for submission to the GEF will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

4.4.2. Responsibility for cost overruns

266. The BH is authorized to enter into commitments or incur expenditures up to a maximum of 20% over and above the annual amount foreseen in the GEF component of the Project budget under any budget line provided the total cost of the annual budget is not exceeded.
267. Any cost overrun (expenditure in excess of the budgeted amount) on a specific budget line over and above the 20% flexibility should be discussed with the FAO GEF Coordination Unit with a view to ascertaining whether it will involve a major change in Project scope or design. If it is deemed to be a minor change, the budget holder shall prepare a budget revision in accordance with FAO standard procedures. If it involves a major change in the Project's objectives or scope, a budget revision and justification should be prepared by the BH for discussion with the GEF Coordination Unit and eventually with the GEF Secretariat.
268. Savings in one budget line may not be applied to overruns of 20 percent in other lines even if the total cost remains unchanged, unless this is specifically authorized by the FAO GEF Coordination Unit upon presentation of the request. In such a case, a revision to the budget will be prepared by the BH.
269. Under no circumstances can expenditures exceed the approved total Project budget for the GEF resources or be approved beyond the completion (NTE) date of the Project. Any over-expenditure is the responsibility of the BH.

4.4.3 Audit

270. Project GEF resources will be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.
271. The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the governing bodies of the Organization and reporting directly to them, and an internal audit function headed by the Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO, which establish a framework for the TOR of each. Internal audits of imprest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

4.5 PROCUREMENT

272. Goods and services will be procured in accordance with FAO's regulations, rules, procedures, and administrative instructions for procurement and finance. A procurement plan shall be prepared following the approval of the project (inception phase).

4.6 MONITORING AND EVALUATION

4.6.1. Oversight and reviews

Project Oversight

273. Project oversight will be carried out by the PSC and FAO. Project oversight will be facilitated by: (i) documenting project transactions and results through traceability of related documents throughout the implementation of the project; (ii) ensuring that the project is implemented within the planned activities applying established standards and guidelines; (iii) continuous identification and monitoring of project risks and risk mitigation strategies; and (iv) ensuring project outputs are produced in accordance with the project results framework. At any time during project execution, underperforming components may be required to undergo additional assessments, implementation changes to improve performance or be halted until remedies have been identified and implemented.

Project revisions

274. The following types of revisions may be made to this project document with no-objection from the PSC and the approval of FAO GEF Coordination Unit in consultation with the LTO and BH:

- Minor revisions that do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation. These minor amendments are changes in the project design or implementation that could include, *inter alia*, changes in the specification of project outputs that do not have significant impact on the project objectives or scope, changes in the work plan or specific implementation targets or dates, renaming of implementing entities.
- Revisions in, or addition of, any of the annexes of the project document.
- Mandatory annual revisions which, re-phase the delivery of agreed project outputs or take into account expenditure flexibility.
- All minor revisions shall be reported in the annual Project Implementation Reviews (PIRs) submitted by FAO to the GEF Secretariat and Evaluation Office.

4.6.2 Monitoring responsibilities

275. Monitoring and evaluation (M&E) of progress of project in achieving results and objectives will be based on the targets and indicators established in the project results framework (Annex 1). The M&E of the project activities will follow the applicable FAO and GEF policies and guidelines. The project results framework includes SMART indicators for each of the expected outputs and outcomes. The M&E related costs are integrated in the overall project budget.

276. Project oversight will be carried out by the Project Steering Committee (PSC), the FAO GEF Coordination Unit and relevant Technical Units in HQ. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits/adaptation benefits are being delivered.

277. The FAO GEF Unit and HQ Technical Units will provide oversight of GEF financed activities, outputs and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.

278. Project monitoring will be carried out by the Project Management Unit (PMU) and the FAO Budget Holder. The day-to-day project monitoring is the responsibility of the PMU but the other project partners will have responsibilities to collect specific information to track the indicators. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception the results matrix will be reviewed to finalize identification of: i) outputs ii) indicators; and iii) missing baseline information and targets. A detailed M&E plan, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc.) will also be developed during project inception by the M&E specialist. It

is the responsibility of the PSC to inform FAO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

279. M&E is to be driven by the preparation and implementation of an AWP/B to be followed up through six-monthly PPRs. The preparation of the AWP/B and semi-annual PPRs will represent the product of a unified planning process between main project partners. As tools for results-based-management, the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output targets.
280. The first PSC meeting will be held within two months of the inception workshop. The PSC will review the project periodic reports on progress and will make recommendations to FAO concerning any need to revise aspects of the project results framework. Project oversight to ensure that the project meets FAO and GEF policies and guidelines is the responsibility to the LTO/Project Task Force in FAO. The LTO will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.
281. During the three month inception phase, an Inception Workshop will be held wherein the specific M&E issues will be refined and subsequently discussed. This will (a) assist all stakeholders to fully understand and take ownership of the project; (b) review and confirm/finalize project indicators and results framework with stakeholders; (c) review the project's first AWP and budget; (d) discuss the roles, functions, and responsibilities within the project's implementation arrangements for decision-making; (e) review a detailed M&E work plan and budget based on the M&E plan summary presented in Table 28 in the next section.

4.6.3. Indicators and information sources

282. To monitor project outputs and outcomes including contributions to global environmental benefits, specific indicators have been developed in the Results Framework (see Annex 1). Output target indicators will be monitored on a six-monthly basis and outcome target indicators will be monitored on an annual basis if possible or as part of the mid-term review and final evaluation.

4.6.4. Reports and their schedule

283. The specific reports that will be prepared under the M&E program are the: project inception report; Annual Work Plan and Budget (AWP/B); Project Progress Reports (PPRs); annual project implementation review (PIR); technical reports; co-financing reports; and a terminal report. In addition, GEF tracking tools for Biodiversity, Climate Change and SFM/REDD+ will be completed by the project team at mid-term and final evaluation.
284. **Project Inception Report:** After FAO approval of the project and signature of the FAO/Government Cooperative Programme (GCP) Agreement, the project will initiate with a six-month inception period. An inception workshop will be held and immediately after the workshop, the National Project Coordinator will prepare a project inception report in consultation with the FAO BH and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed First Year Annual Work Plan and Budget (AWP/B) and supervision plan with all monitoring and supervision requirements. The draft report will be circulated to FAO and the Project Steering Committee for review and comments before its finalization. The report should be cleared by the FAO BH (FAO Kenya) in consultation with the LTO and the FAO GEF Coordination Unit and uploaded in FPMIS by the BH.
285. **Annual Work Plan and Budget (AWP/B):** The National Project Coordinator will submit to the FAO Budget Holder an Annual Work Plan and Budget for clearance. The AWP/B, divided into monthly timeframes, should include detailed activities to be implemented and outputs (targets and milestones for output indicators) to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The draft AWP/B is circulated to and reviewed by the FAO Project Task Force (LTO, GEF Coordination Unit and others), the Project Coordinator incorporates eventual comments and the final AWP/B is sent to the PSC for approval. The FAO Budget Holder will upload the final AWP/B in FPMIS.
286. **Project Progress Reports:** One month before the mid-point of each project year, the National Project

Coordinator will prepare a semi-annual Project Progress Report (PPR). The report will contain the following: (i) an account of actual implementation of project activities compared to those scheduled in the AWP/B; (ii) an account of the achievement of outputs and progress towards achieving project objectives and outcomes (based on the indicators contained in the results framework); (iii) identification of any problems and constraints (technical, human, financial, etc.) encountered in project implementation and the reasons for these constraints; (iv) clear recommendations for corrective actions in addressing key problems resulting in lack of progress in achieving results; (iv) lessons learned; and (v) a revised work plan for the final six months of the project year. The report will also include an estimate of co-financing received from all co-financing partners.

287. The National Project Coordinator will submit the PPR to FAO no later than one month after the end of each six-monthly reporting period (30 June and 31 December). The draft PPR will be reviewed and cleared by FAO (BH and LTO). The LTO will submit the PPR to the GEF Coordination Unit for final clearance. The BH will circulate the final cleared PPR to the PSC.

288. **Project Implementation Review:** The LTO with inputs from the Project Coordinator will prepare an annual Project Implementation Review (PIR) covering the period July (the previous year) through June (current year). The PIR will be submitted to the GEF Coordination in TCI for review and approval no later than 15 July. The GEF Coordination Unit will submit the final report to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio.

289. Key milestones for the PIR process:

- **Early July:** the LTOs submit the draft PIRs (after consultations with BHs, project teams) to the GEF Coordination Unit (faogef@fao.org, copying respective GEF Unit officer) for initial review;
- **Mid July:** GEF Unit responsible officers review main elements of PIR and discuss with LTO as required;
- **Early/mid-August:** GEF Coordination Unit prepares and finalizes the FAO Summary Tables and sends to the GEF Secretariat by (date is communicated each year by the GEF Secretariat through the FAO GEF Unit);
- **September/October:** PIRs are finalized. PIRs carefully and thoroughly reviewed by the GEF Coordination Unit and discussed with the LTOs for final review and clearance;
- **Mid November 17:** (date to be confirmed by the GEF): the GEF Coordination Unit submits the final PIR reports -cleared by the LTO and approved by the GEF Unit- to the GEF Secretariat and the GEF Independent Evaluation Office.

290. **Technical Reports:** Technical reports will be prepared to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by the National Project Coordinator to the FAO Budget Holder in Kenya who will share it with the LTO for review and clearance, prior to finalization and publication. Copies of the technical reports will be distributed to the Project Steering Committee and other project partners as appropriate. These will be posted on the FAO FPMIS by the LTO.

291. **Co-financing Reports:** The National Project Coordinator will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all co-financing partners. The National Project Coordinator will provide the information in a timely manner and will transmit such information to FAO. The co-financing reports should be completed as part of the semi-annual PPRs and annual PIRs.

292. **GEF-5 Tracking Tools:** Following the GEF policies and procedures, the tracking tools for Biodiversity, Climate Change and SFM/REDD+ will be submitted at three moments: (i) with the project document at CEO endorsement; (ii) at project mid-term review; and (iii) at final evaluation. The Project Coordinator is responsible for completing these reports with support from the LTO at mid-term review and final evaluation.

293. **Terminal Report:** Within two months before project completion, the National Project Coordinator will submit to FAO a draft Terminal Report, including a list of outputs detailing the activities taken under the Project, “lessons learned” and any recommendations to improve the efficiency of similar activities in the future. This report will specifically include the findings of the final evaluation as described above.

4.6.5. Monitoring and evaluation plan summary

294. Monitoring of project progress will be against indicators identified in the project results framework. These indicators will be further refined, as necessary, in consultation with project stakeholders during the project inception phase. This process of further collaborative refinement of project indicators will facilitate greater stakeholder engagement with the project and support broader monitoring and reporting of project achievements and challenges.

295. The monitoring and evaluation plan is summarized below.

Table 27: Monitoring and Evaluation Plan

Type of monitoring and evaluation activity	Responsible parties	Time frame	Budget (USD)
Inception Workshop	National Project Coordinator leads the organization, in close consultation with KFS and FAO.	Within first two months of project inception	5,000
Inception report	National Project Coordinator with inputs from project partners. Cleared by FAO and the Project Steering Committee.	Immediately after the project inception workshop	-
Design and implementation of monitoring and evaluation system	National Project Coordinator with support from the Chief Technical Adviser (CTA) and the FAO Lead Technical Officer	Within the first six months after the project inception	24,000
Field-based impact monitoring	National Project Coordinator with support from other project partners	Continually	36,000
Supervision missions	FAO LTO and FAO Kenya	Annual or as required.	Paid by GEF Agency fee
Project progress reports (PPRs)	National Project Coordinator. Submitted to FAO Kenya (Budget Holder). Finalized reports submitted to the FAO GEF Unit by the LTO, and to the PSC by the National Project Coordinator.	Six- monthly	-
Project Implementation Review (PIR)	FAO LTO with inputs from the National Project Coordinator and FAO Budget Holder. Submitted by the FAO GEF Coordination Unit to the GEF Secretariat. Final report also submitted to the PSC and the GEF Operational Focal Point by the National Project Coordinator.	Annually	Paid by GEF Agency fee
Reports on co-financing	National Project Coordinator with information from all co-financing partners.	Six monthly and annually as part of PPR and PIR.	-
PSC meetings	National Project Coordinator, PSC Chair, FAO Budget Holder	At least once a year	10,000
Technical reports	National Project Coordinator, Consultants, FAO	As appropriate	Component budgets
Mid- term Review	External Consultant, FAO independent evaluation unit in consultation with the project team and other partners	At mid-point of project implementation	35,000

Type of monitoring and evaluation activity	Responsible parties	Time frame	Budget (USD)
Final Evaluation	External Consultant, FAO independent evaluation unit in consultation with the project team and other partners	At the end of project implementation	50,000
Terminal report	Project Coordinator	At least one month before end of project	-
NPC, CTA and project admin assistance estimate total cost for all M&E activities			53,750
TOTAL			213,750

4.7. PROVISIONS FOR EVALUATIONS

296. Half way through the project implementation period, an independent Mid-Term Review (MTR) will be undertaken to evaluate progress and the effectiveness of implementation in terms of achieving the project objectives, outcomes and outputs. Findings and recommendations of this evaluation will be instrumental for bringing improvement in the overall project design and execution strategy for the remaining period of the project's term. FAO will arrange for the MTR in consultation with the project partners. The evaluation will, *inter alia*:

- review the effectiveness, efficiency and timeliness of project implementation;
- analyse effectiveness of partnership arrangements;
- identify issues requiring decisions and remedial actions;
- propose any mid-course corrections and/or adjustments to the implementation strategy as necessary; and
- highlight technical achievements and lessons learned derived from project design, implementation and management.

297. An independent Final Evaluation (FE) will be carried out three months prior to the terminal review meeting of the project partners. The FE will aim to identify the project impacts and sustainability of project results and the degree of achievement of long-term results. This evaluation will also have the purpose of indicating future actions needed to sustain project results and disseminate products and best practices within the country and to neighbouring countries.

4.8. COMMUNICATIONS AND VISIBILITY

298. The project will develop a communication strategy that will provide framework for information flow and feedback to all key stakeholders. Communication activities will focus on outputs, outcomes and good practices from the project. Various communication, awareness raising, dissemination and visibility tools (press releases, seminars and workshops, newsletters, videos presenting success stories, publications, and production of visibility items) will efficiently be used. The communication/visibility plan and activities will be aligned with the GEF communication and visibility policy (www.thegef.org/gef/policies_guidelines/communication_visibility), and FAO's corporate communication strategy with input from the KFS and other partner institutions implementing the project. All publications will bear the logos of the Government of Kenya/KFS, FAO and GEF. All information generated by the project will be uploaded in open source platforms in accordance with FAO and the Government of Kenya policy of right to information.

5 SUSTAINABILITY OF RESULTS

299. The sustainability of the project will be in the ability of the institutions and communities continuing to the initiatives delivered by the project; in particular: i) to maintain the natural forest free of settlements; ii) to continue the carbon sequestration via maintenance of forest regeneration, SFM and reforestation; iii) continuing to monitor carbon sequestration (with adaptive management); iv) protection of the wildlife migratory corridors; v) various income generation activities, including development of tourism facilities; vi) using lessons learnt to replicate best practices across other ecosystems, eventually extending from the areas surrounding the Kirisia forest towards the other critical National parks and wildlife dispersal areas in the Samburu Heartlands. The application of best practices and lessons learnt from similar projects and the adaptation of these models to suit the local conditions will improve the prospects for institutional sustainability post project. The project strategy will lead to more effective planning and management of the landscape outside the gazetted forest block and the development of new legal instruments will also help to enhance effective protection and governance mechanisms.
300. Sustaining all the above will require sustaining the capacities and institutions developed during the project.

5.4. SUSTAINABILITY OF CAPACITIES DEVELOPED

301. The project aims to build institutional capacity and empower institutions that incorporate the stakeholders and biodiversity, carbon and sustainable ecosystem management priorities. Institutional sustainability will be attained in the following ways: i) by building professionalism in the CFA; ii) by developing a strategy for sustaining the operations of the CFA and raising funds for its implementation; iii) by empowering community members through training, at the community resource centre to be established (co-finance), as well as through the holistic natural resources management approach; by supporting the County government and CFA to take lead in the long-term tourist development strategy; iv) By recruiting and training community members to work alongside government appointed Forest and KWS Rangers; v) By improving the professionalism of managing conservancies.
302. Sustaining the institutional capacities developed via the project is integral in the project design, as demonstrated by several strategies: i) the County Government will be an integral part of project implementation and formulation of strategies for maintaining the project-generated capacities post the project. The County Government has identified Tourism development, improved livestock and NWFPs marketing as critical pillars of its economic development plan. Discussions during PPG showed that while the government can raise resources for sustaining capacity developed by the project, it lacks the initial investments required to capitalize SFM/PFM, which will be provided by the project. In addition; i) empowering the CFA to take centre stage in PFM and championing the increase of benefits to communities from PFM will sustain capacities developed for community participation in improved practices. Communities will have more sustainable access to NWFPs through sustainable harvesting practices and will gain improved knowledge on the use and marketing of these products through value chains. The project will deliver an empowered CFA as well as a strategy for sustaining further capacities; ii) Empowering communities to play the role of regular government-led extension services will sustain the capacities and skills developed for improved rangelands and forest resources management. Extension officers of the Ministry of agriculture and Livestock Development are often from other communities and posting to drylands such as Samburu is often interpreted as “punishment/banishment”. The project will train teams to support improved rangelands management through the holistic natural resources management, which will be from Samburu County; they will therefore have far stronger vested interest in successfully delivering extension service that is relevant to the needs of their communities; iii) empowering the CFA and local government to take leadership in the tourism development, rather than leaving it to the private sector, which will be motivated by different, albeit very valid considerations. The project will also deliver a strategy for implementing the tourism development plan, which will contribute to sustaining economic benefits; iv) providing policy and legal harmonisation of roles and responsibilities of the many players in forest, PFM, wildlife and natural resources management between the national government, County government, CFA and communities in the context of devolution; v) Documenting the Samburu traditional rules regulations and norms governing forest, rangelands and natural resource management, thereby addressing the current loss of the important IK, which has effectively guided sustainable resource utilization and conservation for hundreds of years.

5.1. SOCIAL SUSTAINABILITY AND GENDER MAINSTREAMING

303. Social sustainability is addressed through the development of a collaborative management strategy, which incorporates stakeholder interests, participation capacity and potential conflicts and their mitigation measures. This ensures community ownership and participation in the implementation of the project as well as ensuring their continued involvement in the established activities after the completion of the project. An integrated multiple-use management plan will provide guidelines on responsibilities and rights, reducing the risk of conflicts on utilisation and benefit sharing.
304. The project's social sustainability is also addressed through its emphasis on the role of women in conservation and development. Gender considerations will be considered upfront in all issues where gender relations might affect the way the program is implemented or delivers benefits. Benefit sharing considerations will inform many of the key components, and will be addressed upfront; for example in the recruitment drive for joining the resource user groups and eventually the CFA; in establishing professional management unit for the CFA; in selecting committee members and focal points for the holistic natural resources management approach; in designing and implementing the honey production activities; and in developing and implementing the tourism development strategy. The empowerment of women will be through the utilisation of women's self-help groups to provide training, access to resources and forums for women's participation. FAO's extensive work and research on gender mainstreaming will be incorporated into the project, such as the use of the best practices from the Gender and Land Rights database and FAO's extensive work on Gender and Forestry issues.
305. Furthermore, the project will undertake a more thorough gender analysis during inception period, which will more closely examine the roles of men, women, youth, disabled and children in natural resources management, and how these roles affect access to resources and the relationships between resources and these various gender groups, and how the prevailing relationships might affect (negatively or positively) the targeting of activities and the consequent effectiveness, or lack thereof. The findings from this assessment will be used to ensure that the project adopts the most effective strategies to implementation that distributes costs and benefits to all community gender groups equitably.

5.2. ENVIRONMENTAL SUSTAINABILITY

306. The focus of this project on establishment of PFM, forest regeneration and a landscape approach to wildlife conservation places importance on restoring ecological integrity of the gazetted forest and the Kirisia ecosystem at large, while simultaneously improving the returns on investments in rangelands management. The Kirisia forest is critical for the continued functioning of the Samburu Heartlands as an integral ecosystem. Biodiversity will therefore be protected in key areas and sustainably managed throughout the Kirisia landscape. Integrated management at a landscape level will take into account ecological processes such as water flow and the ecological processes affecting the entire ecosystem. This leads to the development of protocols to manage forest blocks, to rehabilitate them through enrichment planting and protection to promote rehabilitation as well as to monitor the use of ecosystem goods and services to reduce over-utilisation and degradation resulting in environmental sustainability.
307. Protecting wildlife migratory corridors and dispersal areas will enhance connectivity, thereby expanding the coverage of wildlife refugia while also reducing pressure on resources within the gazetted forest and protected areas in the broader Samburu Heartlands landscape, offering greater opportunity through extended ranges to smaller (antelope species) and larger game (elephants) thus increasing chances of population success and increase in numbers and a wider sustainably exploitable asset base from which to derive economic benefits. In particular these activities will lead to a decrease in human wildlife conflicts which are known to be critical in the Kirisia area.
308. The establishment of conservancies promotes the expansion of safe areas for wildlife and biodiversity conservation and the restoration and enhancement of the productivity of land so that animal and plant wildlife can flourish as well as promoting the harmonious existence of wildlife with other sustainable economic activities. This reduces pressure on ecosystem resources while also enhancing biodiversity conservation.

5.3. FINANCIAL AND ECONOMIC SUSTAINABILITY

309. The financial sustainability of this project rests in part on the improvement of economic and financial incentives forest conservation and improved natural resources management; in particular, the improvement into the honey production, marketing and future strategy of processing in situ, the long-term strategy for

development of tourism and increased support to rangelands extension services to increase returns on investments into livestock production. The establishment of conservancies will not only lead to the expansion of wildlife-safe areas but will secure land rights that will allow local communities to reforest outside of the gazetted forest and establish tourism infrastructure; which will therefore set them up to exploit the tourism industry when the tourism business picks up.

310. Further, the project will develop fund raising strategies and assist in fundraising for running important activities post the project; in particular the CFA, the KFS policing program, the honey processing plant and the tourism development strategy. These measures will ensure financial sustainability post the project.

5.5. APPROPRIATENESS OF TECHNOLOGY INTRODUCED

311. All the technology introduced by the project meets two important criteria – it is appropriate for nomadic pastoral production systems, and it is low key in maintenance. Various technologies and their appropriateness are described below:

- Equipment to improve forest management and wildlife monitoring by KFS and KWS: this will include a fire tower, firefighting equipment, tractors, lorries, motor cycles, night goggles, GPS, computers and GPS, etc. There is resident capacity in the national offices of KFS and KWS to run the simple equipment. The project will not purchase any equipment without the guarantee of the National Headquarters of both KFS and KWS that they will post, and pay for staff experienced in maintenance, and that they will provide annual allocations to maintenance of the equipment;
- Modern equipment for running CFA professionally – this will include simple computers, scanner/printers and telephones; the project will formulate a strategy for sustaining the CFA's professional running and raise funds for its implementation post project. The long-term plan is that the CFA will raise money through membership recruitment, enough to meet the operational costs. The technology provided is very low key and easy to maintain at low budgets.
- PFM and Conservancies – are low key and suitable under pastoral production systems

5.6. REPLICATION STRATEGY

312. The overall replication strategy will involve the implementation of the PFM in neighbouring forest (Nyiro, Mount Kulal, Mathews Range), Holistic Natural Resources model in the rest of the Samburu landscape, the tourist development strategy for the whole of the Samburu County, and perhaps to neighbouring Counties in Northern Kenya, up scaling of honey production to the rest of the County and may be in neighbouring Counties, professionalizing CFA in neighbouring CFAs (to be formed) and the protection of migratory corridors in the rest of the sub-ecosystems of the Samburu Heartlands landscape.
313. The project will use the knowledge management and M&E component to collate lessons and share them widely through the platforms of the GEF, FAO, National (KWS/KFS) and County government – in order to promote replication.
314. It will be particularly important to promote the concept of documenting the Samburu traditional rangelands and natural resources management systems and to teach them to the youth. This needs to be replicated throughout the pastoralist communities because these important IK is being lost to the detriment of livelihoods and conservation. Similarly, if the tourism strategy is successful, it needs to be replicated in all areas that have not already been over-developed for private sector led tourism development that does not deliver significant benefits to the communities who still have to make sacrifices living with the wildlife.
315. Through the replication strategy, the project will indirectly contribute to mainstream biodiversity conservation practices together with SFM to about 80,000 ha of landscape in the greater Samburu and neighbouring Counties (Marsabit and Likipia Counties), additionally to the direct contribution of project area in the Samburu Country (141,452 ha).
- 316.
- 317.

ANNEXES

ANNEX 1: RESULTS MATRIX

Results Chain	Indicators	Baseline ¹	Mid-term milestone	Target	Means of Verification (MOV)	Assumptions
<u>Global Environmental Objective:</u> Strengthened biodiversity conservation and enhance carbon sequestration through participatory sustainable forest management systems in dryland public and communal lands	Amount of GHG emission avoided;	At current 1.4% deforestation	Reduced rate of deforestation to 0.84% for the 45,000ha intact forest, and 17,000 ha under Sustainable Forest Management and 10,000 ha restoration/ regeneration	Direct emission avoided of 2,935,701 tCO ₂ e from 72,000 ha and indirect emission avoided of 3,807,701 tCO ₂ e from 80,000 ha (covering the greater Samburu, Marsabit and Likipia forest ecosystems);	Kirisia ecosystem management plan; project M&E reports; Independent mid-term review and final evaluation; GEF5- SFM and CCM Tracking Tools; EX-ACT results;	<u>Assumption:</u> Community co-managers find the incentives/benefits for co-management to be clearly superior to the costs. <u>Assumption:</u> Communities are able to develop the governance capacities to enforce the new rules necessary for PFM and conservancy management;
	Extent of wildlife dispersal areas connected by wildlife migratory corridors	50% of the Kirisia landscape	60% of the Kirisia landscape	75% of the Kirisia landscape	Kirisia ecosystem management plan with zonations; Conservancies management reports; KWS and project annual reports	<u>Risk:</u> - Lack of cohesion amongst stakeholders <u>Risks:</u> -Complexity in stakeholder collaboration due to differing interests and wide range of stakeholders.
	Percentage change in total revenues earned by CFA, Local Forest Management Groups, and community members from forest-based activities, products and services.	To be confirmed at inception	10% increase over baseline	25% increase over baseline (Approx. \$2,000,000 in total revenues generated)	Project monitoring reports; Independent mid-term review and final evaluation	- Slow operationalization of legislation legalising conservancies as the vehicle for co-management. - Delays caused by the complexities in increasing membership to the CFA

¹When a baseline is not available and may require additional resources to determine, a preliminary activity could be created in the work plan.

Component 1: Implementation of Participatory Forest Management (PFM) and Holistic Natural Resources Management (HNRM) over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO2eq (direct)/ 3,807,701 tCO2eq (indirect), secure wildlife migratory corridors and increase financial returns from Non-Wood Forest Products (NWFPs) by 25%;						
Outcome 1: Strengthened capacities of KFS and CFA put PFM and HNRM	KFS and CFA Institutional Capacity as measured by the UNDP standard capacity scorecard for CFA, KFS, KWS, and HNRM	Less than 50 points (to be confirmed at inception)	25% increase in capacity from baseline	50% increase in capacity scores over baseline measured by UNDP capacity scorecard	<ul style="list-style-type: none"> - Project monitoring reports; Independent mid-term review and final evaluation; - GEF5- SFM and CCM Tracking Tools; - EX-ACT results; - Productivity assessment report for rangeland; 	<ul style="list-style-type: none"> - Climate change could lead to both changed distributions of BD components, and changes in demands on biodiversity-based resources. - Conservancies are slow to join the project for fear of loss of autonomy. - Climate change affects ecosystem resilience. <p><u>Assumptions:</u> landscape approach understood and bought into by stakeholders</p> <p><u>Risk:</u> Explosion of poaching activities driven by forces external to the Samburu community;</p> <p><u>Assumption:</u> Recovery of the Kenyan tourism industry</p> <p><u>Risk:</u> Continued insecurity on the Maralal road (which the County Government has committed to tackle);</p> <p><u>Risks:</u> - Threat of continued subdivision of the Group Ranches accompanied by fencing, overgrazing, extension of agriculture and unplanned human development.</p> <p><u>Assumption:</u> Community cohesion around HNRM can be achieved, and that communities buy-into the potential benefits of the approach;</p>
	Area of degraded forest habitats undergoing reforestation/restoration and their GHG emissions avoided	0 ha	5,000 ha	10,000 ha with 1,324,441 tCO2eq (direct) avoided;		
	Areas of forest under protection management regime and their GHG emissions avoided	0 ha	15,000 ha	45,000 ha with 630,912 tCO2eq (direct) avoided		
	Area under SFM and their GHG emissions avoided	0 ha	5,000 ha	17,000 ha with 980,348 tCO2eq (direct) avoided		
	Rangelands being managed by HNRM plans	0 ha (productivity baseline to be established at inception)	25,000 ha ha rangelands under HNRM plans with 10% increase in productivity of degradation over baseline.	50,000 ha rangelands under HNRM plans with 25% increase in productivity of degradation over baseline.		
Output 1.1: Kirisia CFA empowered to provide community leadership PFM of 91,452 ha of Kirisia forest in strong and widely representative partnership with KFS	- Coverage of CFA membership for the target area;	- CFA needs to operate efficiently to expand the current membership coverage of the community (36%) in order to ensure that the Samburu community derives substantive benefits from SFM;	- 60% of community coverage;	- Over 70% of community coverage;	- Number of community members;	
Output 1.2: KFS provided with operational capacity to implement forest management, protect	- Number of Rangers/ Scouts at Kirisia Forest Station increased and trained;	- The current capacity deficits in the Kirisia office of KFS make it impossible for the national government to be a strong partner to the CFA in	- 6 Rangers/ scouts trained for forest monitoring and protection;	- At least 6 Rangers/ scouts supporting CFA in implementing the	- Statistical record of fire occurrences versus controlled by KFS;	
					- Operational logbook;	

forests from fire, put 45,000 ha under Forest Protection:	- Areas of coverage under protection by the rangers and scouts;	implementing the Kirisia Forest Management Plan; - Frequency of fire occurrence is increasing in the dry season;	- 15,000 ha;	Kirisia Forest Management Plan; - 45,000 ha;	- Feedback from CFA;	<u>Risk</u> : Continued insecurity in the North (with the Turkana and Rendille) over cattle raids continues, undermining HNRM planning and execution of plans
Output 1.3: Forest Management Plan upgraded to Kirisia Ecosystem Management Plan, with a biodiversity monitoring program;	- Number of management plan upgraded; - Number of forest management plans with incentives for communities and partnership;	- Forest Management Plan exists but there is a lack of landscape approach to integrate different land use types in the area; - There are about 20 participatory forest management plans (as of 2013). However, participatory forest management plans are not followed and the management of the forests has not changed significantly (to be updated at inception);	- A draft Ecosystem Management Plan with a carbon and biodiversity monitoring program prepared; - 20 draft forest management plans upgraded for participation of target groups and incentive mechanism; - A data collection mechanism for MRV of carbon accounting and biodiversity in place;	- An Ecosystem Management Plan in place with a carbon and biodiversity monitoring program; - Over 20 forest management plans operational with participation of target groups and incentive mechanism; - Data for MRV, BD and program monitoring available;	- Final Kirisia Ecosystem Zonation plan; - Ecosystem Management Plan document; - Document of a carbon and biodiversity monitoring program; - Management structure of datasets for MRV of carbon accounting and biodiversity; - Lessons from PFM available and informing adaptive management;	<u>Risk</u> : Participation by women in the project is limited by lack of awareness and cultural norms <u>Assumptions</u> : clear and defined interest in economic engagement by appropriate stakeholders including women <u>Risk</u> : National government may refuse to allow CFA to benefit from harvesting of live and dead trees from the gazetted forest
Output 1.4: Design and implement a forest rehabilitation/ reforestation program which puts 10,000 ha under regeneration and 17,000 under SFM;	- Area of land under the program developed;	- Tree cover is very low and carbon pools are at the lowest levels;	- 5000 ha under a mix of forest regeneration and enrichment planting; - 5000 ha under SFM/ rehabilitation;	- 10,000 ha improved tree and forest cover with 1,324,441 tCO ₂ eq (direct) avoided; - 17,000 ha of forest resources under SFM including outside the forest with 980,348 tCO ₂ eq (direct) avoided;	- Document of forest a forest rehabilitation/ reforestation program; - Program progress report; - Community enterprise development plans; - EX-ACT results;	
Output 1.5: Design and implement HNRM plans for 50,000 ha of rangelands.	- Number of HNRM plans implemented; - Area of rangelands under the HNRM plan developed;	- There is no HNRM plan; - Lack of sustainable rangeland management skills (Baseline points to be confirmed at inception);	- 3 draft HNRM plans tested; - 25,000 ha under HNRM plan;	- 1 or more HNRM plan(s) implemented by communities living within 5 km radius of the Kirisia forest;	- Document of HNRM Plans; - Dataset for rangeland productivity;	

		- Low productivity of rangelands (to be established at inception);		- 50,000 ha implemented under HNRM plans;		
Outcome 2: Integrity of the Kirisia ecosystem as a wildlife refuge improved to continue playing the critical role of maintaining the Samburu Heartland as a functioning ecosystem, and habitat for wildlife	Percentage of landscape being managed under conservancies with agreements for protecting migratory corridors	3 conservancies active, 6 in initial stages, none of them have migratory corridor protection agreements	6 conservancies operational and have high scores on the UNDP capacity assessment scorecard (for institutional capacity)	12 conservancies with agreements being honoured that protect wildlife	Project monitoring reports; Independent mid-term review and final evaluation	
	Incidents of poaching for various species	Kirisia currently leads in incidents of poaching of elephants in the Northern Landscape	No further increase in poaching incidents from baseline	At least 40% decrease in incidents of poaching related deaths of wildlife species	Project monitoring reports; Independent mid-term review and final evaluation	
Output 2.1: Important dispersal areas and migratory corridors mapped and protection negotiated with land users/owners;	<ul style="list-style-type: none"> - Information material on dispersal areas and wildlife migratory corridors for negotiation; - Number of agreements / MoUs; 	<ul style="list-style-type: none"> - Kirisia forest and animal dispersal areas in the greater Samburu ecosystem are not integrated. Information for negotiation and regulatory mechanism is limited; - New settlements and an increase in the number of fenced properties in the wildlife dispersal areas have started blocking the wildlife migratory corridors that connect Kirisia, Milimani, Poro, Lapurtuk, Ngari naro, and Losuk in Laikipia; 	<ul style="list-style-type: none"> - 1 map of high value biodiversity areas and forest fragments outside of the gazetted blocks available; - 1 map of important wildlife corridors in the Samburu Heartlands available; - Draft agreements/ MoUs ready for signature; 	- At least 1 regulatory framework established with agreements/ MoUs among CFA, KFS, AWF, County and land users/owners for the greater Samburu ecosystem;	<ul style="list-style-type: none"> - Final Kirisia Ecosystem Zonation plan; - Maps; - Agreements/ MoUs; - Document for regulatory framework; 	
Output 2.2: Support to 3 existing and establishment of 6 new conservancies proposed by the County Government (government co-finance);	<ul style="list-style-type: none"> - Number of conservancies supported and newly proposed; - Percentage of landscape being managed under conservancies with agreements for protecting migratory corridors; 	- Samburu County has a total of 12 conservancies at various stages of development, 6 conservancies existing, 6 in initial stages. None of them have migratory corridor protection agreements;	<ul style="list-style-type: none"> - 6 conservancies operational and trained for participatory biodiversity monitoring system for enhanced institutional capacity; - 60% of Kirisia ecosystem under management; 	<ul style="list-style-type: none"> - 3 existing and establishment of 6 new conservancies proposed by the County Government; - More than 80% of Kirisia ecosystem under management; 	<ul style="list-style-type: none"> - Operational logbook of conservancies; - Assessment report by KWS; 	

Output 2.3: Equipment and materials for wildlife monitoring and protection within and outside the Forest to cover the Kirisia ecosystem	Number of Incidents of poaching for various species in the dispersal areas;	- Equipment and infrastructure are inadequate to undertake any meaningful management operations for wildlife monitoring and protection;	- No further increase in poaching incidents from baseline;	- At least 35% decrease in incidents of poaching related deaths of wildlife species in the dispersal areas;	- Operational logbook; - Statistical record of wildlife refuges and saved;	
Outcome 3: Income from honey, and other NWFPs providing financial incentives for PFM and conservation and increase household income by more than 25% for participating households	- %age increase in household incomes from NWFPs	- Established at inception	- 15% income increase from NWFPs over baseline for participating households	- 25% income increase from NWFPs over baseline for participating households	Project monitoring reports; Independent mid-term and final evaluations	
Output 3.1: Promoting high volume buying market linkages for honey and smoothening supply chains;	- Increase in production of honey; - Increase in quantity of honey reaching market; - Business plans for a honey processing factory in place (if feasibility study finds it feasible);	- 11 kg per bee hive (average value of various beehive types); - 100 tons (based on crude honey production as of 2013, to be re-confirmed during inception); - There is no established workshop for provision of modern bee hives; - There are still major difficulties with accessing skills for improved honey production, processing and marketing;	- 10% increase over baseline; - 10% increase over baseline; - A feasibility study completed; - A business plan ready;	- Increased honey production by 25% of current baseline; - Smoothened supply chains with 25% increase in higher value markets; - A business strategy completed and fundraising in progress;	- Production and sales record at the market; - Amount of investment for modern bee hive production and processing;	
Output 3.2; Tourism development model developed, to deliver benefits to the local communities;	- Tourism development strategy in place with a clear plan for mobilizing resources;	- Tourism in the Maralal Kirisia area dropped drastically in the last 20 years; - The Maasai have not benefitted much from the	- A feasibility study completed; - A draft tourism model available;	- A final tourism strategy available in tandem with improved forest and natural resources	- Amount of fund available in tourism to deliver benefits to the local communities;	

		proceeds, due to limited tourism infrastructure outside the core PAs, poor financial endowment limiting their opportunities for participation and investment, and low levels of expertise in tourism enterprises;		management and equitable sharing of benefits from future returns on tourism;		
Output 3.3: Other NWFPs with potential identified and strategy for commercial exploitation designed and implementation started	- Income generation strategy for identified NWFPs (using the Market Analysis and Development Approach);	- There is need to promote low impact harvesting technologies through production instead of harvesting them in the wild to protect threatened medicinal plants; - Most people look upon the forest as the source of saleable products during periods of financial needs;	- Several identified NWFPs tested for income generation; - A income generation strategy for commercial harvesting, processing and marketing in place;	- Identified NWFPs are commercially available for income generation;	- Production and sales record;	
Outcome 4: Knowledge systems inform adaptive management in PFM	Lessons available from PFM inform policy implementation	National PFM policy was informed by lessons but more needed to expand beneficitation from PFM by communities	Lessons on CFAs available	County Government has adopted lessons in local level PFM	Project monitoring reports; Independent mid-term review and final evaluation;	
Output 4.1: A carbon, biodiversity and livelihoods monitoring plan designed, implemented, lessons being used to inform adaptive management and Carbon accounting	- Number of monitoring plans implemented; - Number of database;	- No monitoring plan for carbon, biodiversity and livelihoods in the project area;	- 1 integrated monitoring plan in place for carbon, biodiversity and livelihoods; - 3 monitoring datasets for carbon, biodiversity and livelihoods stored in a database;	- 1 integrated monitoring plan implemented; - 3 monitoring datasets for carbon, biodiversity and livelihoods stored in a database;	- Plan document; - Database;	
Output 4.2: Knowledge management system set up, informed by project review and evaluations (Project M&E formulated, MTR and FE undertaken)	-	-	- Mid-term Review (MTR)	- Final Evaluation (FE)	- Project evaluation reports;	

Output 4.3: Resource centre established and operationalized, local traditional knowledge documented (Co-finance)	- Number of documentation collected in the resource center operational;	- There is no system in place for capturing and expanding upon the best practices and lessons learned from operational field sites in Kenya; - There is inadequate documentation of indigenous knowledge since it is passed on verbally through socialization;	- At least 10 documentations describing best practices, lessons, indigenous knowledge at the resource center;	- At least 30 documentations describing best practices, lessons, indigenous knowledge at the resource center operational;	- Resource documents collected;	
Component 2: Policy and legal framework strengthened						
Outcome 5: Subsidiary legislation and guidelines for County level implementation of the PFM National Policy of 2005 emplaced, informed by Community Bio-cultural community protocols	Number of County level strategies and plans supporting participatory PFM developed	2005 Forestry Bill allows PFM but not harmonized with County policies	Policy and legal gap analysis completed, gaps identified and recommendations for addressing them available	80% of community management structures have legal documents that empower them with control of access and with management, harvesting and marketing rights	Policy gap analysis report Guidelines M&E reports	<u>Assumptions:</u> - governance systems will enable the necessary cohesion and pace of implementation; <u>Risk:</u> slow operationalization of policy and legal review processes due to complexity of devolved and national governments
Output 5.1: Subsidiary legislation and guidelines for participatory forest management submitted to government for approval;	- Number of policies, guidelines and protocols developed for approval;	- There is no legislative base for the creation of the community-controlled forest management funds. The existing subsidiary legislation and guidelines for PFM have not led to robust, effective partnerships for forest co-management and restoration as shown by the 2013 review of 20 PFMP; - KFS is yet to formulate the policies and guidelines for SFM of dryland forests in private/communal lands; - Communities and community managers must develop self-enforcement mechanisms for their own members;	- At least 2 draft bio-cultural community protocols (BCPs) related to CBD and REDD+ available; - A strategy of self-enforcement mechanism for community and community managers; - A draft legislation for the PFM policy implementation;	- At least 2 final bio-cultural community protocols available; - At least 10 self-enforcement mechanisms in place; - A county-specific legislation to guide the implementation of the PFM policy of 2005 developed for approval;	- Protocol document; - Participatory review report on the PFM policy implementation and the County Government legislations - Legislation document;	

<p>Output 5.2 Advocacy: County and National government lobbied to adopt proposed policy reforms</p>	<ul style="list-style-type: none"> - Number of local groups involved in advocacy; 	<ul style="list-style-type: none"> - Inadequate representation of the interests and needs of local groups in the nationalization process of international law on natural resources management; 	<ul style="list-style-type: none"> - 50% of local groups in the project site involved (baseline to be confirmed at inception); 	<ul style="list-style-type: none"> - 80% of local groups in the project site involved; 	<ul style="list-style-type: none"> - List of signatures; - Proposal document; 	
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ANNEX 2: WORK PLAN

Component/Outcome/Output/Proposed activities	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4																
COMPONENT 1: Implementation of PFM and Holistic Natural Resources Management (HNRM) over 91,452 ha and 50,000 ha respectively mitigate 2,935,701 tCO2eq (direct)/ 3,807,701 tCO2eq (indirect), secure wildlife migratory corridors and increase financial returns from NWFPs by 25%;																				
Outcome 1: Strengthened capacities of KFS and CFA puts PFM and HNRM _																				
Output 1.1: Kirisia CFA empowered to provide community leadership PFM of 91,452 ha of Kirisia forest in strong and widely representative partnership with KFS																				
Capacity and support needs assessment of the key institutions involved in PFM																				
Awareness raising about the project approach and proposed rights and obligations of each partner (LFMG, CFA, KFS and County Gov)																				
Participatory forest delineation of the geographic limits for each future LFMG in Leroghi. Communities with traditional tenure will be asked to validate their boundaries with their neighbours																				
Conflict analysis and mapping; dispute resolution mechanisms proposed																				
Develop constitutional by-laws for the CFA																				
Organizational development support to the CFA (KFWG LoA)																				
Develop and adopt a CFA sustainability strategy and 5 year plan (KFFG LoA)																				
Prepare a financing strategy to maintain CFA capacity and implement it for raising funds and resources to run the CFA from the 3rd year of the project onwards																				
Output 1.2: KFS provided with operational capacity to implement forest management, protect forests from fire, put 45,000 ha under Forest Protection																				
Support the establishment of at least 6 Forest Ranger and Scout outposts/camps																				
Support the Rehabilitation of 50 Km of Murram Road																				
Undertake a skills and other capacity needs assessment for PFM and sustainable harvesting of NWFPs																				
Procurement of light vehicle, tractor, motor cycles, computer and other office equipment																				

Construction of two fire towers (one financed by GOK) and provision of machinery																				
Training Rangers and CFA members on forest management and protect the forest from fires enhanced by construction of two fire towers																				
Training of CFA resource groups on sustainable harvesting of NWFPs																				
Training of CFA on facilitation and participatory methods																				
Output 1.3: Forest Management Plan upgraded to Kirisia Ecosystem Management Plan, with a biodiversity monitoring program																				
Inventory , mapping and zoning of the Kirisia ecosystem resources and zones (including GIS mapping, ground truthing and participatory zoning)																				
Review and upgrade Forest Management Plans to Kirisia Ecosystem Management Plan																				
Design a carbon monitoring plan in a participatory process involving all the key partners (KWS, KFS, CFA, and County Government) and research institutions (building on best practices)																				
Design a biodiversity monitoring plan in a participatory process involving all the key partners (KWS, KFS, CFA, and County Government) and research institutions (building on best practices)																				
Linkage to relevant research institution																				
Establishment and equipping of a Community Resource Centre (with Output 1.5)																				
Develop the Kirisia Ecosystem Management Plan, Kirisia Ecosystem Zonation plan etc. with a carbon and biodiversity monitoring program																				
Output 1.4: Design and implement a forest rehabilitation/ reforestation program which puts 10,000 ha under regeneration and 17,000 under SFM;																				
Conduct a baseline survey for the program including capacity needs assessment and identify priority/hotspot sites and current land use for regeneration and SFM to start operation																				
Review the most effective rehabilitation/reforestation methods including nursery technique and design of a rehabilitation/reforestation programme (might include protection plus enrichment planting)																				

Implement the rehabilitation programme for 17,000 ha under SFM with data collection																				
Implement the reforestation programme for 10,000 ha under regeneration enrichment and planting with data collection																				
Test and adapt rehabilitation/reforestation methods and SFM practices in the program																				
Prepare enterprise development plans including profit making strategy and incentive mechanism for community-based enterprises																				
Output 1.5: Design and implement HNRM plans for 50,000 ha of rangelands																				
Identification and training of field resource teams																				
Training of county technical/extension staff and community involved on NHRM approach																				
Delineate HNRM blocks based on a baseline survey including capacity needs of communities involved, collection and assessment of traditional management practices, ownership structure, etc																				
Rangeland assessment and resource mapping and development of HNRM plans for 50,000 ha in a participatory process																				
Community mobilization including awareness raising and implementation of HNRM approach/ plans (pasture management, reseeded, planned grazing, seed bulking, conflict resolution, water management)																				
Outcome 2: Integrity of the Kirisia ecosystem as a wildlife refuge improved to continue playing the critical role of maintaining the Samburu Heartland as a functioning ecosystem, and habitat for wildlife																				
Output 2.1: Important dispersal areas and migratory corridors mapped and protection negotiated with land users/owners																				
Mapping of critical wildlife migratory corridors in the Samburu Heartlands and identification of human/wildlife hotspots																				
Identify and map high value biodiversity areas (HVBA) and forest fragments outside of the gazetted blocks																				
Negotiation with land users/ owners and awareness raising with communities (County Government with technical support from KWS)																				
Improved operational support for the KWS in anti-poaching activities through provision of equipment such as communications and monitoring equipment and uniforms for rangers and other staff																				

ANNEX 3: INDICATIVE RESULTS-BASED BUDGET



RBM_budget_KEN_5083_20062016.xls

Indicative Budget in USD (\$)											Total	Expenditures by year					
Oracle code and description	unit	number of unit	Unit cost	COMPONENT 1					COMPONENT 2		PMC	GEF	Year 1	Year 2	Year 3	Year4	Year5
				Outcome 1	Outcome 2	Outcome 3	Outcome 4	sub-total	Outcome 5	sub-total							
5300 Salaries Professionals																	
Administration and Finance Officer	month	45	2,000	0	0	0	0	0	0	0	90,000	90,000	18,000	18,000	18,000	18,000	18,000
Programme/M&E Assistant	month	35	1,270	0	0	0	0	0	0	0	44,450	44,450	8,890	8,890	8,890	8,890	8,890
5300 Total professionals								0		0	134,450	134,450	26,890	26,890	26,890	26,890	26,890
5570 Consultants																	
5542 International Consultants																	
International Legal/policy expert (international policy guidance, protocol, MoUs, Agreements)	month	6	3,000	0	0	0	0	0	18,000	18,000	0	18,000	0	0	0	18,000	0
International SFM/REDD+/PFM specialist	month	6	2,000	0	0	0	12,000	12,000	0	0	0	12,000	6,000	6,000	0	0	0
International Enterprise Development Expert	month	4	3,000	12,000	0	0	0	12,000	0	0	0	12,000	12,000	0	0	0	0
International MRV system development expert	month	6	2,000	0	0	0	12,000	12,000	0	0	0	12,000	0	6,000	6,000	0	0
International Holistic Natural Resources/Rangeland Management expert	month	6	3,000	18,000	0	0	0	18,000	0	0	0	18,000	0	9,000	9,000	0	0
Sub-total international Consultants								54,000		18,000	0	72,000	18,000	21,000	15,000	18,000	0
5543 National consultants																	
Institutional development expert	month	2	2,000	4,000	0	0	0	4,000	0	0	0	4,000	2,000	2,000	0	0	0
Conflict resolution and stakeholder management expert	month	5	2,000	2,000	4,000	0	0	6,000	4,000	4,000	0	10,000	5,000	0	0	5,000	0
GIS/forest inventory Expert (Ground Truthing)	month	6	5,000	30,000	0	0	0	30,000	0	0	0	30,000	0	30,000	0	0	0
Legal Expert (legislation, policy guidance, protocol, MoUs, Agreements)	Day	10	2,000	10,000	0	0	0	10,000	10,000	10,000	0	20,000	0	10,000	10,000	0	0
Expert for analysis of wildfire risk and develop a forest fire management strategy	month	1	3,000	3,000	0	0	0	3,000	0	0	0	3,000	0	3,000	0	0	0

Expert to customise curricula for agro-pastoral field schools (wildlife/human conflicts, tenure rights, participatory SFM, nursery and reforestation techniques)	Day	2	2,000	4,000	0	0	0	4,000	0	0	0	4,000	0	4,000	0	0	0
Bio-diversity development expert	Day	45	250	11,250	0	0	0	11,250	0	0	0	11,250	0	11,250	0	0	0
Land Use and rangeland management Expert	Day	2	2,000	4,000	0	0	0	4,000	0	0	0	4,000	0	4,000	0	0	0
Expert for mapping of wildlife corridors and critical wildlife habitats, and identification of human/wildlife hotspots	month	2	3,000	6,000	0	0	0	6,000	0	0	0	6,000	0	6,000	0	0	0
SFM/REDD+ /PFM specialist	Day	200	100	20,000	0	0	0	20,000	0	0	0	20,000	0	20,000	0	0	0
Expert for Status update of biodiversity for Leroghi ecosystem and identification of critical threatened/ endangered species and the underlying drivers of biodiversity loss in Leroghi	month	2	3,000	6,000	0	0	0	6,000	0	0	0	6,000	0	6,000	0	0	0
Forest Management Expert (Development of Forest rehabilitation /reforestation strategy)	Day	45	250	11,250	0	0	0	11,250	0	0	0	11,250	0	11,250	0	0	0
Enterprise Development Expert	month	4	3,000	12,000	0	0	0	12,000	0	0	0	12,000	0	12,000	0	0	0
GIS/remote sensing Expert Mapping of critical wildlife migratory corridors in the Samburu Heartlands and identification of human/wildlife hotspots/ Identify and map high value biodiversity areas (HVBAs) and forest fragments outside of the gazetted blocks	month	6	5,000	0	30,000	0	0	30,000	0	0	0	30,000	0	30,000	0	0	0
Expert for support of a participatory study to identify other NWFP and their value chains	month	2	2,500	0	0	5,000	0	5,000	0	0	0	5,000	0	0	2,500	2,500	0
Expert to undertake a gender assessment/gender analysis, develop strategy and action plan	Day	20	400	0	0	0	8,000	8,000	0	0	0	8,000	8,000	0	0	0	0
Expert for design and implementation of an M&E system	month	80	200	0	0	0	8,000	8,000	8,000	0	0	16,000	4,000	4,000	4,000	4,000	0
Expert for implementation of strategy/action plan	month	4	4,000	0	0	0	8,000	8,000	8,000	0	0	16,000	0	8,000	8,000	0	0
Natural Resources Management Officer	month	30	3,000	24,000	18,000	18,000	18,000	78,000	12,000	12,000	0	90,000	18,000	18,000	18,000	18,000	18,000

Gender officer	month	12	4,000	15,000	9,000	9,000	9,000	42,000	6,000	6,000	0	48,000	9,600	9,600	9,600	9,600	9,600
Policy officer (including policy gap analysis)	Day	100	350	0	0	0	0	0	35,000	35,000	0	35,000	0	0	0	35,000	0
National Project Manager/coordinator	month	45	3,000	42,188	25,313	25,313	25,313	118,125	16,875	16,875	0	135,000	27,000	27,000	27,000	27,000	27,000
Project Officer at project management unit	month	45	1,000	12,000	9,000	9,000	9,000	39,000	6,000	6,000	0	45,000	9,000	9,000	9,000	9,000	9,000
M&E officer at project management unit	month	10	4,000	5,000	5,000	5,000	5,000	20,000	20,000	20,000	0	40,000	8,000	8,000	8,000	8,000	8,000
Operations Assistant at project management unit	month	30	2,000	10,000	10,000	10,000	10,000	40,000	20,000	20,000	0	60,000	12,000	12,000	12,000	12,000	12,000
Samburu Office Assistant	month	60	500	9,375	5,625	5,625	5,625	26,250	3,750	3,750	0	30,000	6,000	6,000	6,000	6,000	6,000
Driver	month	60	1,000	18,750	11,250	11,250	11,250	52,500	7,500	7,500	0	60,000	12,000	12,000	12,000	12,000	12,000
Sub-total national Consultants								602,375		157,125	0	759,500	120,600	263,100	126,100	148,100	101,600
5570 total Consultants								656,375		175,125	0	831,500	138,600	284,100	141,100	166,100	101,600
5650 contracts																	
LoA for development of forest management funds at the CFA, LFMG and the group ranches	lumpsum	1	60,000	60,000	0	0	0	60,000	0	0	0	60,000	0	0	60,000	0	0
LoA for support the operational development of the SSU (procedures, guidelines and reporting) for CFAs (KFWG)	lumpsum	1	60,000	60,000	0	0	0	60,000	0	0	0	60,000	0	0	60,000	0	0
Service contract for construction of services for a fire towers and provision of machinery and fencing	lumpsum	1	120,000	120,000	0	0	0	120,000	0	0	0	120,000	0	120,000	0	0	0
LoA for a Knowledge platform for MRV of carbon accounting, biodiversity, socioeconomic data	lumpsum	1	60,000	0	0	0	60,000	60,000	0	0	0	60,000	60,000	0	0	0	0
LoA for Forest inventory of permanent sample plots (PSP) for MRV for calculation of avoided deforestation and Training of CFA Forest User Groups in NWFPs (KEFRI)	lumpsum	1	70,000	70,000	0	0	0	70,000	0	0	0	70,000	0	70,000	0	0	0
Lo A for Review and upgrading of PFM to Kirisia Ecosystem Management Plan (KFS)	lumpsum	1	70,000	35,000	0	0	0	35,000	35,000	35,000	0	70,000	0	0	70,000	0	0
LoA for the training of CFAs in nursery establishment and management	lumpsum	1	50,000	50,000	0	0	0	50,000	0	0	0	50,000	0	50,000	0	0	0
LoA for establishment of anti-poaching activities in the conservancies (KWS)	lumpsum	1	30,000	0	30,000	0	0	30,000	0	0	0	30,000	30,000	0	0	0	0
LoA for support of establishment and capacity building of Community	lumpsum	1	56,000	0	28,000	0	0	28,000	28,000	28,000	0	56,000	0	56,000	0	0	0

wildlife Conservancies (KWS)																		
LoA to Develop County Tourism Strategy (AWF)	lumpsum	1	30,000	0	0	30,000	0	30,000	0	0	0	30,000	0	0	30,000	0	0	
External Project Mid-Term Review	lumpsum	1	35,000	0	0	0	35,000	35,000	0	0	0	35,000	0	0	35,000	0	0	
External Project Evaluation, Final	lumpsum	1	50,000	0	0	0	50,000	50,000	0	0	0	50,000	0	0	0	0	50,000	
5650 total contract								628,000		63,000	0	691,000	90,000	296,000	255,000	0	50,000	
5900 travel																		
DSA for county team (drivers, Engineer & surveyor)	Day	100	150	15,000	0	0	0	15,000	0	0	0	15,000	0	15,000	0	0	0	
Baseline survey travel	lumpsum	1	20,000	0	0	0	20,000	20,000	0	0	0	20,000	20,000	0	0	0	0	
Travel FAO project personnel	lumpsum	8	10,000	25,000	15,000	15,000	15,000	70,000	10,000	10,000	0	80,000	16,000	16,000	16,000	16,000	16,000	
Travel Government/Partners	lumpsum	8	9,000	22,500	13,500	13,500	13,500	63,000	9,000	9,000	0	72,000	14,400	14,400	14,400	14,400	14,400	
5900 total travel								168,000		19,000	0	187,000	50,400	45,400	30,400	30,400	30,400	
5023 training and workshops																		
Awareness raising-Stakeholder consultation/baseline survey/ scoping mission/meeting with stakeholders (CFA etc.) for capacity and support needs assessment of the key institutions involved in PFM	meeting	12	3,000	18,000	0	0	6,000	24,000	12,000	12,000	0	36,000	27,000	9,000	0	0	0	
Workshops for i) participatory land delineation of the geographic limits for each local forest management groups (LFMG) in Leroghi; ii) the development of constitutional by-laws for the CFA; iii) conflict resolution between the boundaries of Leroghi state forest and the surrounding ranches;	workshop	6	4,000	24,000	0	0	0	24,000	0	0	0	24,000	20,000	4,000	0	0	0	
Training for forest protection and fire management (wildlife conservancies, Community Forest Rangers)	training	6	7,000	42,000	0	0	0	42,000	0	0	0	42,000	0	28,000	14,000	0	0	
Training workshops for participatory inventory, mapping and zoning of the Kirisia ecosystem resources and zones, bio-diversity monitoring plan (including GIS mapping, ground	training	6	6,000	36,000	0	0	0	36,000	0	0	0	36,000	0	18,000	9,000	9,000	0	

truthing and participatory zoning)																		
Workshop for participatory development of LFMG plans, zoning and definition of the forest management objectives at the LFMG level	worksh op	4	5,000	20,000	0	0	0	20,000	0	0	0	20,000	0	5,000	10,000	5,000	0	
Awareness raising and support to the development of SME for timber products and forest restoration services	worksh op	6	2,000	12,000	0	0	0	12,000	0	0	0	12,000	0	0	0	12,000	0	
Training on Farmer Managed Natural Regeneration, Forest User Groups in Market Analysis and Enterprise Development, SFM technical skills (county, community)	training	6	8,000	48,000	0	0	0	48,000	0	0	0	48,000	9,600	12,000	16,000	10,400	0	
Training for participatory analysis of the impacts of overgrazing and Holistic Natural Resource Management (Enrichment planting, Natural regeneration) (county extension staff, pastoral Farmer Field School Facilitators)	worksh op	6	5,000	30,000	0	0	0	30,000	0	0	0	30,000	0	15,000	15,000	0	0	
Community awareness and sensitization with land users/ owners, consultative meetings for formalisation of the new conservancies with appropriate governance and management structures	worksh op	5	4,000	0	20,000	0	0	20,000	0	0	0	20,000	0	10,000	5,000	5,000	0	
Training to local communities as anti-poaching rangers for the conservancies	training	6	4,000	0	24,000	0	0	24,000	0	0	0	24,000	0	12,000	12,000	0	0	
Business Skill Training/workshops for Proper honey handling techniques, establishment of honey collection points , support the County Government to mobilize funding for a honey processing plant (PPP), Producer Organisations and market players	training	6	6,000	0	0	36,000	0	36,000	0	0	0	36,000	0	12,000	24,000	0	0	
Training for producer organizations on Village Community Banking (VICOBA)	training	4	5,000	0	0	20,000	0	20,000	0	0	0	20,000	0	0	10,000	10,000	0	

Workshop for identification and support of SME based on wildlife (ecotourism), medicinal plants, wood and Non-wood forest products, business/enterprise development plans, implementation of the business enterprise plans, consultations between producer associations and market players	worksh op	6	5,000	0	0	30,000	0	30,000	0	0	0	30,000	0	0	30,000	0	0	
Training of CPA members in sustainable NWFPs production	training	5	3,000	0	0	15,000	0	15,000	0	0	0	15,000	0	0	7,500	7,500	0	
Awareness raising and workshop on drafting bio-cultural community protocols (BCPs)	worksh op	6	5,000	0	0	0	0	0	30,000	30,000	0	30,000	0	30,000	0	0	0	
workshops for the participatory review by high-level decision makers and support , Support advocacy and policy dialogue activities on gender	worksh op	3	8,000	0	0	0	0	0	24,000	24,000	0	24,000	0	0	12,000	12,000	0	
Project Advisory events to establish a knowledge management structure for collection and MRV of carbon accounting, biodiversity, livelihood, community resources information, gender	worksh op	4	3,000	0	0	0	3,000	3,000	9,000	9,000	0	12,000	2,400	2,400	2,400	2,400	2,400	
Inception workshop	worksh op	1	5,000	0	0	0	5,000	5,000	0	0	0	5,000	5,000	0	0	0	0	
Closing workshop	worksh op	1	6,104	0	0	0	6,104	6,104	0	0	0	6,104	0	0	0	0	6,104	
5023 total training								395,104		75,000	0	470,104	64,000	157,400	166,900	73,300	8,504	
6000 expendable procurement																		
Printed material, brochure, outreach etc.	lumpsu m	1	4,535	0	0	0	0	0	4,535	4,535	0	4,535	4,535	0	0	0	0	
Satellite Images	lumpsu m	1	10,000	10,000	0	0	0	10,000	0	0	0	10,000	0	10,000	0	0	0	
Tree seedlings (1,000,000@US\$ 0.1)	lumpsu m	1	100,000	100,000	0	0	0	100,000	0	0	0	100,000	0	50,000	25,000	25,000	0	
Topographic Maps for Leroghi forest (printed)	whole item	1	5,000	5,000	0	0	0	5,000	0	0	0	5,000	0	5,000	0	0	0	
6000 total expendable procurement								115,000		4,535	0	119,535	4,535	65,000	25,000	25,000	0	
6100 non-expendable procurement																		
Android tablets for data entry	number	10	400	4,000	0	0	0	4,000	0	0	0	4,000	0	4,000	0	0	0	
Mobile Phones	number	12	200	2,400	0	0	0	2,400	0	0	0	2,400	0	2,400	0	0	0	
Motor cycles	number	6	3,000	18,000	0	0	0	18,000	0	0	0	18,000	18,000	0	0	0	0	

Office vehicle (landcruisers)	number	1	56,000	17,500	10,500	10,500	10,500	49,000	7,000	7,000	0	56,000	56,000	0	0	0	0
Pre-fabricated units	number	12	2,000	24,000	0	0	0	24,000	0	0	0	24,000	0	24,000	0	0	0
Tractor/trailer	number	1	40,000	40,000	0	0	0	40,000	0	0	0	40,000	40,000	0	0	0	0
Equipment and materials for wildlife monitoring and protection	lumpsu m	1	50,000	0	50,000	0	0	50,000	0	0	0	50,000	0	50,000	0	0	0
Office Furniture and equipment	lumpsu m	1	10,000	10,000	0	0	0	10,000	0	0	0	10,000	10,000	0	0	0	0
ICT equipment (computers, Power Back ups, printers, photocopier, scanner and projector)	lumpsu m	1	20,000	20,000	0	0	0	20,000	0	0	0	20,000	20,000	0	0	0	0
Processing machinery for agro-products	lumpsu m	1	20,000	0	0	20,000	0	20,000	0	0	0	20,000	0	0	20,000	0	0
Laptop computer	Laptop	6	2,000	3,750	2,250	2,250	2,250	10,500	1,500	1,500	0	12,000	12,000	0	0	0	0
6100 total Non-expendable procurement								247,900		8,500	0	256,400	156,000	80,400	20,000	0	0
6300 General Operating Expenses (GOE) budget																	
miscellaneous cost including stationary and consumables, security escort)	lumpsu m	1	30,950	6,190	6,190	9,285	3,095	24,760	6,190	6,190	0	30,950	6,190	6,190	6,190	6,190	6,190
Office space	lumpsu m	3	8,000	7,500	4,500	4,500	4,500	21,000	3,000	3,000	0	24,000	4,800	4,800	4,800	4,800	4,800
Internet and telephone connection (including field)	year	5	4,000	20,000	0	0	0	20,000	0	0	0	20,000	20,000	0	0	0	0
Fuel (for the road grader)	Litre	1	8,000	8,000	0	0	0	8,000	0	0	0	8,000	0	8,000	0	0	0
Vehicle fuel cost	lumpsu m	3	5,000	4,688	2,813	2,813	2,813	13,125	1,875	1,875	0	15,000	3,000	3,000	3,000	3,000	3,000
Vehicle maintenance cost	year	5	7,100	3,550	10,650	10,650	7,100	31,950	3,550	3,550	0	35,500	7,100	7,100	7,100	7,100	7,100
6300 total GOE budget								118,835		14,615	0	133,450	41,090	29,090	21,090	21,090	21,090
LINE TOTAL								2,329,214		359,775	134,450	2,688,989	544,625	957,390	659,490	315,890	211,594
Total Project Costs												2,823,439					

ANNEX 4: QUANTIFYING CARBON BENEFITS

Three forest management regimes are considered to generate carbon benefits through the project. The narrative of these regimes and intervention scenarios is as follows:

- 1) **Forest protection:** this mitigation activity will be carried out for the 45,000 ha of healthy, intact forests deserving maximum conservation given their high environmental value. No exploitation of wood stocks is to be allowed under this management activity, and the collection of non-timber forest products and use by livestock should be subject to strict rules. The main monitoring activity to be implemented in the forest area under forest protection is forest surveillance to avoid illegal exploitation. The annual deforestation rate of the project site is estimated as 1.4% (see the reference in the table below). The project expects to reduce the annual deforestation rate to 60% (from 1.4% to 0.84%) – with the efficiency factor of 40% - compared to the baseline rate through the forest protection activities.
- 2) **Restoration/regeneration:** carbon stocks will be enhanced by means of regeneration of grassland areas. This mitigation activity will be considered for project areas, where tree cover is now very low. These areas have carbon stocks in carbon pools at their lowest level. Therefore in these areas, the aim is to increase carbon stock through natural regeneration. The project will support forest regeneration instead of planting due to the nature of the dry land forests, where survival rates could be very low. In the project, a total of 10,000 ha will be under enhancement of carbon stocks by means of regeneration.
- 3) **Sustainable forest management:** the remaining degraded forests including group ranch forests will be under sustainable management to fulfil relevant environmental, social and productive objectives (17,000 ha). The project will work with the Community Forestry Association (CFA) and the owners of ranches to ensure that exploitation of forest resources happens at a pace that does not reduce the productivity of the forest and does not harm other relevant socio-economic and environmental functions. The project expects to reduce the degradation level of the grassland from 20% to 10% of biomass lost. The occurrence of fire is not considered in the GHG emissions calculation.

The carbon benefits from the project are estimated in terms of lifetime direct as well as indirect GHG emission avoided over the default time horizon of 20 years under the IPCC guideline and the guidance of the GEF Tracking Tool for LULUCF. For this project, the durations of implementation phase and the capitalization phase are defined as 5 years and 15 years, respectively. The carbon benefits are calculated using EX-Ante Carbon balance Tool (EX-ACT).

Direct lifetime GHG emission avoided

In the GEF Tracking Tool for Climate Change Mitigation projects, direct lifetime GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totalled over the respective lifetime of the investments. The following variables and assumptions are used for the calculation. The EX-ACT results file is available:

Variable	Value	Unit	Note
Lifetime length for direct GHG emission avoided	20	years	5-year implementation phase plus 15-year capitalization phase
Climate, and Moisture regime	Tropical Montane, Dry	-	EX-ACT data based on the project area (altitude: 2000 - 2200 m, mean annual rainfall: 600 – 750 mm, mean annual temperature 24-33 °C)
Dominant Regional Soil Type	High activity clay Soils	-	EX-ACT data
Total coverage area for direct GHG emission calculation	72,000	ha	Project target
Target benefit area via forest protection	45,000	ha	Project target

Target benefit area via assisted regeneration and reforestation in degraded forests	10,000	ha	Project target
Target benefit area of existing degraded ranches and forests via SFM practice	17,000	ha	Project target
Estimated historic average of annual deforestation rate (baseline)	1.4	%/year	Based on Global Forest Change data (Published by Hansen, Potapov, Moore, Hancher et al.). Corresponds to a deforestation rate of 1.4%*
Target annual deforestation rate with project through forest protection activity	0.84	%	Project target assumption. Assumed avoided deforestation per year by 40% of efficiency through project intervention compared to baseline.
Remained forest of the target benefit area after 5 years without project (baseline)	41,850	ha	$45000-45000*0.014*5=41,850$.
Forest area remained with project via forest protection activity (5 years)	43,110	ha	$45000-45000*0.0084*5=43,110$.
Tier 2 values for above- and below-ground carbon stock (stem, branches, leaves, roots) for unmanaged forest including degraded montane moist forest	137	tC/ha	Mid-point between intact and degraded forest in CAMCO (2010)**. Above ground assumed as 100 tC/ha and below-ground as 37 tC/ha based on re-allocating 73% - 27% ratio as per Exact default for deforestation and degradation.

* Global Forest Watch (GFW) Change Assessment Data for Rift Valley (Tree Cover in 2000: 863,000 ha; Assessment Period: 2000-2014; GFW Deforested Area for Rift Valley Province: 168,010 ha under canopy cover at 15%; Deforested area per year: 12,001 ha; Annual rate of deforestation: 1.4%).

** CAMCO (2010) Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya.

The estimated values of direct lifetime GHG emission avoided during 20 years (5 years of implementation phase and 15 years of capitalization phase) are as follows:

Management regime	Target benefit area (ha)	Direct lifetime GHG emission avoided (tCO ₂ eq)
Forest Protection	45,000	630,912
Restoration/regeneration	10,000	1,324,441
Sustainable Forest Management	17,000	980,348
TOTAL	72,000	2,935,701

The direct lifetime GHG emission mitigation potential from the project is estimated as 2,935,701 tCO₂eq, which is equivalent to about 2.0 tCO₂eq per hectare per year in the considered biome and time frame.

Table below provides the details of the direct lifetime GHG fluxes as calculated with the EX-ACT during 20 years of project lifetime:

Project Name	Capacity, Policy and Finan.	Climate	Tropical Montane (Dry)	Duration of the Project (Years)	20							
Continent	Africa	Dominant Regional Soil Type	HAC Soils	Total area (ha)	72000							
Components of the project	Gross fluxes			Share per GHG of the Balance			Result per year					
	Without	With	Balance				Without	With	Balance			
	All GHG in tCO ₂ e			CO ₂			N ₂ O			CH ₄		
	Positive = source / negative = sink			Biomass			Soil			Other		
Land use changes												
Deforestation	1,577,280	946,368	-630,912	-630,912	0	0	0	0	78,864	47,318	-31,546	
Afforestation	0	-1,324,441	-1,324,441	-1,324,441	0	0	0	0	0	-66,222	-66,222	
Other LUC	0	0	0	0	0	0	0	0	0	0	0	
Agriculture												
Annual	0	0	0	0	0	0	0	0	0	0	0	
Perennial	0	0	0	0	0	0	0	0	0	0	0	
Rice	0	0	0	0	0	0	0	0	0	0	0	
Grassland & Livestocks												
Grassland	0	0	0	0	0	0	0	0	0	0	0	
Livestocks	0	0	0	0	0	0	0	0	0	0	0	
Degradation & Management	0	-980,348	-980,348	-876,718	-103,629	0	0	0	0	-49,017	-49,017	
Inputs & Investments	0	0	0	0	0	0	0	0	0	0	0	
Total	1,577,280	-1,358,421	-2,935,701	-2,832,071	-103,629	0	0	0	78,864	-67,921	-146,785	
Per hectare	22	-19	-41	-39.3	-1.4	0.0	0.0	0.0	1.1	-0.9	-2.0	
Per hectare per year	1.1	-0.9	-2.0	-2.0	-0.1	0.0	0.0	0.0	1.1	-0.9	-2.0	

Fluxes per component

Balance per component

Total without and with project and balance

Share of the balance per GHG (plus origin for CO2)

Evolutions of land use / category (hectares - ha)			
	Initial State	Without project	With project
Forest/Plantation	62,000	58,850	70,110
Annual	0	0	0
Agriculture	0	0	0
Perennial	0	0	0
Rice	0	0	0
Grassland	10,000	13,150	1,890
Other lands	Degraded	0	0
	Other	0	0
Wetlands	0	0	0
Total area (ha)	72,000	72,000	72,000

Other indicators			
	Initial State	Without project	With project
Area Irrigated - ha			
Irrigated rice	0	0	0
Annual Crops	0	0	0
Total	0	0	0
Cumulated areas burnt - ha			
From deforestation	0	0	0
From degradation	0	0	0
Afforestation	0	0	0
Other LUC	0	0	0
Annual	0	0	0
Perennial	0	0	0
Irrigated rice	0	0	0
Grassland	0	0	0
Total	0	0	0

Uncertainty level		
Gross fluxes		% of uncertain
Without	1,577,280	20.0
With	-1,358,421	26.9
Net balance	-2,935,701	27.5

Detailed matrices of changes

Indirect lifetime GHG emission avoided

In the GEF Tracking Tool for Climate Change Mitigation projects, indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, and catalytic action for replication.

The indirect potential is assumed to replicate in the greater Samburu ecosystem and in the neighbouring forest ecosystems in Marsabit and Likipia Counties. The direct target area for avoided deforestation is 50,000 ha. In addition, the scaling-up activity includes 10,000 ha of new restoration/regeneration, and 20,000 ha for SFM of degraded grassland area. The total coverage of indirect potential benefit area for the carbon calculation is 80,000 ha.

For the estimation of indirect lifetime GHG emission avoided during 20 years (5 years of implementation phase and 15 years of capitalization phase), the following variables and assumptions are used for the calculation. The EX-ACT results file is available:

Variable	Value	Unit	Note
Lifetime length for indirect GHG emission avoided	20	years	5-year implementation phase plus 15-year capitalization phase
Climate, and Moisture regime	Tropical Montane, Dry	-	EX-ACT data based on the project area (altitude: 2000 - 2200 m, mean annual rainfall: 600 – 750 mm, mean annual temperature 24-33 °C)
Dominant Regional Soil Type	High activity clay Soils	-	EX-ACT data
Indirect potential benefit area	80,000	ha	Project potential target covering the greater Samburu, Marsabit and Likipia forest ecosystems.
Indirect potential area via forest protection	50,000	ha	Project potential target
Indirect potential area via assisted regeneration and reforestation in degraded forests	10,000	ha	Project potential target
Indirect potential area of existing degraded ranches and forests via SFM practice	20,000	ha	Project potential target
Estimated historic average of annual deforestation rate (baseline)	1.4	%/year	Based on Global Forest Change data (Published by Hansen, Potapov, Moore, Hancher et al.). Corresponds to a deforestation rate of 1.4%*
Target annual deforestation rate with project through forest protection activity	0.84	%	Target assumption. Assumed avoided deforestation per year by 40% of efficiency through project intervention compared to baseline.
Remained forest of the target potential benefit area after 5 years without project (baseline)	46,500	ha	$50000 - 50000 * 0.014 * 5 = 46,500$
Forest area remained with project via forest protection activity (5 years)	47,900	ha	$50000 - 50000 * 0.0084 * 5 = 47,900$
Tier 2 values for above- and below-ground carbon stock (stem, branches, leaves, roots) for unmanaged forest including degraded montane moist forest	137	tC/ha	Mid-point between intact and degraded forest in CAMCO (2010)**. Above ground assumed as 100 tC/ha and below-ground as 37 tC/ha based on re-allocating 73% - 27% ratio as per Exact default for deforestation and degradation.

* Global Forest Watch (GFW) Change Assessment Data for Rift Valley (Tree Cover in 2000: 863,000 ha; Assessment Period: 2000-2014; GFW Deforested Area for Rift Valley Province: 168,010 ha under canopy cover at 15%; Deforested area per year: 12,001 ha; Annual rate of deforestation: 1.4%).

** CAMCO (2010) Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya.

The estimated values of lifetime indirect GHG emission avoided during 20 years (5 years of implementation phase and 15 years of capitalization phase) are as follows:

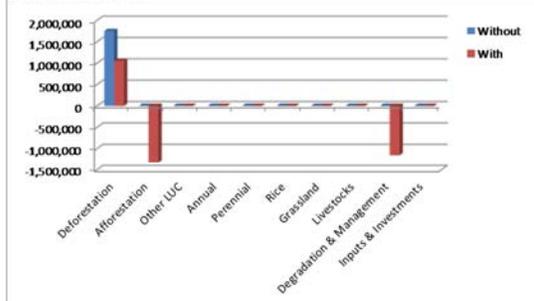
Management Regime	Target benefit area (ha)	Lifetime Indirect GHG emission avoided (tCO₂eq)
Forest Protection	50,000	701,013
Restoration/regeneration	10,000	1,324,441
Sustainable Forest Management	20,000	1,153,350
TOTAL	80,000	3,178,804

The indirect GHG emission mitigation potential from the project is estimated as 3,178,804tCO₂eq, which is equivalent to about 2.0 tCO₂-eq per hectare per year in the considered biome and time frame.

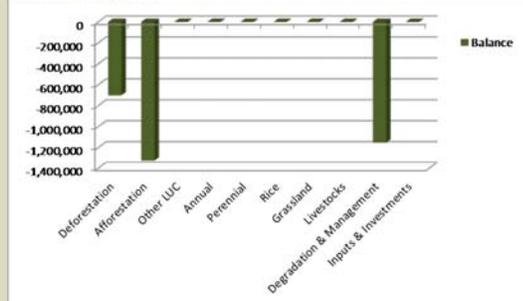
Table below provides the details of the indirect GHG fluxes as calculated with the EX-ACT during 20 years of project lifetime:

Project Name	Capacity, Policy and Finan.	Climate	Tropical Montane (Dry)	Duration of the Project (Years)	20						
Continent	Africa	Dominant Regional Soil Type	HAC Soils	Total area (ha)	80000						
Components of the project	Gross fluxes			Share per GHG of the Balance			Result per year				
	Without	With	Balance				Without	With	Balance		
All GHG in tCO ₂ e											
Positive = source / negative = sink											
Land use changes				CO ₂	N ₂ O		CH ₄				
				Biomass	Soil	Other					
Deforestation	1,752,533	1,051,520	-701,013	-701,013	0	0	0	87,627	52,576	-35,051	
Afforestation	0	-1,324,441	-1,324,441	-1,324,441	0	0	0	0	-66,222	-66,222	
Other LUC	0	0	0	0	0	0	0	0	0	0	
Agriculture											
	Annual	0	0	0	0	0	0	0	0	0	
	Perennial	0	0	0	0	0	0	0	0	0	
Rice	0	0	0	0	0	0	0	0	0	0	
Grassland & Livestocks											
	Grassland	0	0	0	0	0	0	0	0	0	
Livestocks	0	0	0	0	0	0	0	0	0	0	
Degradation & Management	0	-1,153,350	-1,153,350	-1,031,433	-121,917	0	0	0	-57,668	-57,668	
Inputs & Investments	0	0	0	0	0	0	0	0	0	0	
Total	1,752,533	-1,426,272	-3,178,804	-3,056,888	-121,917	0	0	87,627	-71,314	-158,940	
Per hectare	22	-18	-40	-38.2	-1.5	0.0	0.0	0.0	0.0	0.0	
Per hectare per year	1.1	-0.9	-2.0	-1.9	-0.1	0.0	0.0	1.1	-0.9	-2.0	

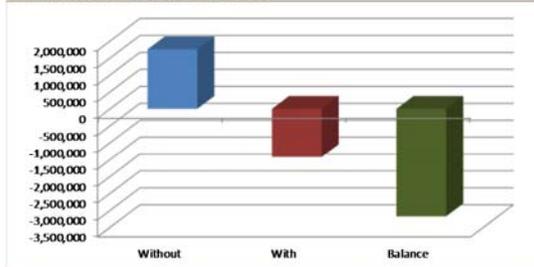
Fluxes per component



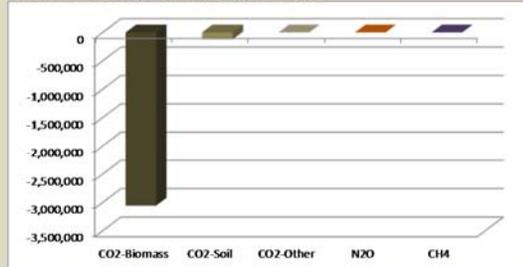
Balance per component



Total without and with project and balance



Share of the balance per GHG (plus origin for CO₂)



Evolutions of land use / category (hectares - ha)

Category	Initial State	Without project		With project	
		Without project	With project	Without project	With project
Forest/Plantation	70,000	66,500	77,900		
Agriculture	Annual	0	0	0	0
	Perennial	0	0	0	0
	Rice	0	0	0	0
Grassland	10,000	13,500	2,100		
Other lands	Degraded	0	0	0	0
	Other	0	0	0	0
Wetlands	0	0	0		
Total area (ha)	80,000	80,000	80,000		

Uncertainty level

		% of uncertain	
Gross fluxes	Without	1,752,533	20.0
	With	-1,426,272	26.5
Net balance		-3,178,804	27.0

Detailed matrices of changes

Other indicators

Indicator	Initial State	Without project		With project	
		Without project	With project	Without project	With project
Area Irrigated - ha	Irrigated rice	0	0	0	0
	Annual Crops	0	0	0	0
	Total	0	0	0	0
Cumulated areas burnt - ha	From deforestation	0	0	0	0
	From degradation	0	0	0	0
	Afforestation	0	0	0	0
	Other LUC	0	0	0	0
	Annual	0	0	0	0
	Perennial	0	0	0	0
	Irrigated rice	0	0	0	0
Grassland	0	0	0	0	
Total		0	0	0	0

Comparison of estimates for GHG emissions from avoided deforestation

To verify the estimated values of GHG emission reductions from the project, the EX-ACT result for the Forest Protection management regime has been compared with another study. No verification of other management regimes (i.e. Restoration/regeneration and Sustainable Forest Management) has been made due to the lack of comparable data. However, it could be reviewed when new study results became available.

The following table shows a summary of GHG emissions from avoided deforestation (tCO₂eq/year/ha) that have been estimated under various target reduction scenarios developed by CAMCO (2010) and the EX-ACT for the project. The comparison indicates that the EX-ACT estimates remains relatively conservative compared to the CAMCO (2010) assessment for the impact of GHG emission from avoided deforestation.

Reference	Deforestation rate	Target Deforestation rate	Lifetime (year)	Annual emissions avoided (tCO₂eq/year)	Area considered (ha)	Annual emissions avoided per unit area (tCO₂eq/year/ha)
CAMCO (2010)*	0.5%	0%	n/a	145,332	60,000	2.4
	1%	0%	n/a	290,664	60,000	4.8
	1.5%	0%	n/a	435,996	60,000	7.2
EX-ACT estimate for the project** (direct)	1.4%	0.84%	20	31,546	45,000	0.7
EX-ACT estimate for the project** (indirect)	1.4%	0.84%	20	35,051	50,000	0.7

* CAMCO (2010) Carbon Scoping Study of Kirisia Forest Reserve in Samburu District, Kenya. The analysis only includes the 60,000 hectares of intact forest. It assumes that the project interventions are 100% effective in preventing deforestation from the beginning of the project and continue to be 100% effective throughout the project lifetime.

** See EX-ACT tables for average annual emissions avoided (tCO₂eq/year).

ANNEX 5: MECHANISM TO MAINSTREAM BIODIVERSITY CONSERVATION IN THE KIRISIA ECOSYSTEM THROUGH THE PARTICIPATORY FOREST MANAGEMENT AND CONSERVANCIES

Mainstreaming biodiversity conservation will be done within the Community Forest Management Areas and the Conservancies, whose formulation will be negotiated during the project implementation between the County government, Kenya Forest Service and the Community Forest Association (for PFM) and group ranches owners (for Conservancies). However, both PFM and conservancy models will provide a set of guidelines for forest and wildlife resources management that will be binding to the communities, in line with the Forest/biodiversity Management Agreements (sample below) for a defined Forest/Biodiversity/wildlife management Area developed according to the principles spelt out below.

Participatory forest management (PFM) and Conservancy mode of wildlife management in Kirisia will be informed by Forest management plans and conservancy plans respectively, which:

- will define the external and internal forest/conservancy boundaries, identify resources communities need from the forests/areas, confirm the harvesting levels and frequencies allowed in order to ensure community livelihoods and sustainable forest/wildlife management;
- be backed by a conservancy/forest management contract, signed between the various CFA groups and the Kenya Forestry Service (KFS) and conservancy owners and Kenya Wildlife Service;
- contain an institutional capacity building program to ensure long term sustainability of the PFM/conservancies;

The **methodology** of establishing PFM/Conservancies in the Kirisia ecosystem will rely upon foresters and wildlife managers (KFS and KWS) as **facilitators** (encouraging, supporting, guiding). In the process the relationship of the forester, wildlife manager with the community will change from a policing role to:

- **Technical adviser** to the community – giving practical technical information or advice;
- **Liaison** between community and district or central Government in forestry and wildlife management matters
- **Mediator** (as needed) between communities or groups - e.g. between two villages.
- **Coordinator**: linking up different villagers and actors with each other, and
- **“Environmental watchdog”**: monitoring progress and problems, knowing when to support, when to step back, and when to intervene if the community is not meeting the forest/wildlife management commitments it has made. In the process, the main learning is not from training but from acting.
- **Learning by doing** is the key. Progress will be marked by practical **problem-solving**: each time a community faces and solves a problem, its capacity to recognise and deal with the next problem is enhanced.

Contents of a Participatory Resource Management Agreement (Forest Management Agreement/Wildlife Management under a conservancy)

- Name and description of the Forest/Wildlife Area;
- Statement of what is being agreed (that X Community will manage Y forest or N wildlife Area);
- Objectives of the agreement;
- Parties to the agreement (usually CFA / Local government / Kenya Forest Service) and local community / Kenya Wildlife Service;
- Rules that will apply (completely spelt out, which will be negotiated during project implementation);
- Management Responsibilities undertaken by community/ conservancy owners;

- Management Responsibilities undertaken by KFS / KWS/ Local Governments;
- Benefits that will be provided to communities, and how these benefits will be administered (timber, firewood, volumes, harvest levels, confiscated equipment, boundary planting etc.)
- How any funds received by the community (fees, licences, fines) will be managed and expended (including how they will be split between forest management responsibilities and general community development;
- Procedure for resolving disputes which may arise during the implementation of the agreement;
- Duration of the agreement;
- How the agreement will be revised.

ANNEX 6: SAMPLE TORS FOR KEY POSITIONS

Administration and Finance Officer (AFO)

The AFO will be a locally recruited national selected based on an open competitive process. He/she will be responsible for the operational and logistical aspects of the project. The AFO will be responsible for the day-to-day management of project operations and with financial and administrative reporting. The AFO's primary responsibility is to ensure that the project activities specified in the project document are facilitated to the required standard of quality and within the specified constraints of time and cost.

Duties and Responsibilities

- Support the day-to-day operation of the project activities;
- Establish and organize project task forces and ensure timely provision of suitable inputs (personnel, training, equipment and supplies) including preparing initial and regular budget revisions and providing overall administrative and operational support to the project;
- Liaise with donors and government authorities as required;
- Ensure timely submission of regular project progress and implementation reports including identification of project follow up requirements and project closure including reporting;
- Ensure timely and complete information data entry into the field programme management information system (FPMIS) throughout the whole project cycle;
- Monitor the project in close collaboration with the technical officers, the assistant FAO representations and other units at headquarters and at country level;
- Monitor delivery estimates and contribute to regular reports at the request of the budget holder and NPM;
- Supervise project consultants and support staff in relation to the assigned tasks;
- Carry out financial management and supervision of project budgets on behalf of the budget holder;
- Lead, in collaboration with the NPM, the preparation of the preparation of annual work plans and budget;
- Appraisal and operational clearance of project documents, preparation of budgets and active participation in project discussions;
- Prepare detailed budgets for cash transfer requests based on the AWP/B and project account cash balance;
- Maintain the project's disbursement ledger and journal;
- Keep the financial records and regular review of the project account;
- Review the receipts and financial reports submitted by field offices and sub-contractors;
- Prepare six-monthly financial statement of expenditures;
- Prepare the personnel and services contracting and procurement documents;
- Participate in contracting and procurement processes including of submission of documentation to FAO for clearances; and
- Prepare relevant documents for internal and external financial audits.

Experience and qualifications

- University degree in Economics, Finance Management or a related field;
- A minimum of 5 years' experience working in one of the above fields;
- Experience managing the administration and finances of large projects;
- Excellent communication skills;
- Excellent planning and organising skills; accurate with attention to detail;
- Able to work as part of a multi-national team;
- Working knowledge of English and local languages;
- Experience in the UN system.

Project Manager/Coordinator (Natural Resources/Forestry)

Duties and Responsibilities

The Project Manager will be a senior natural resources professional with over ten years of experience in SFM/PFM and institutional development. S/he will supervise a team of experts in various disciplines and closely work with local communities, line departments, NGOs and the private sector to deliver the project results in a timely manner. Under the direction of both the Project Steering Committee and FAO, the PM will have the following duties:

Technical:

Take overall responsibility for the technical quality of implementation and results delivered by the project. In this regard, the PM will work with the rest of the project staff, communities and the County Teams to ensure that any project activities are based on an analysis of best practices and informed by lessons generated, locally, in the country and abroad. S/he will also make sure that the project results are consistently captured, recorded and shared widely with appropriate audiences, and, as much as possible, as technical publications meeting internationally accepted standards. A list of potential technical publications will be generated early on, and pursued systematically.

Management and Coordination

- Lead and co-ordinate the activities of the project Specialists and ensure their effective deployment for dispensing the inputs and collection of results.
- Regularly organize the PSC and other coordination meetings.
- Facilitate the mobilization of resources and prepare / regularly update the work plan for the Program.
- Interact with other donors and stakeholders and develop joint work plans and mobilize resources for the project.
- Develop competence in the counterpart Government staff and others in producing the project outputs through a participatory process.
- Identify, together with the specialists the need for additional short-term consultancies or sub-contract inputs, prepare TORs and initiate their process.
- Prepare and timely submit all the reports required by FAO/GEF and the Government (particularly the PIR).
- Contribute to the procurement of equipment and ensure its full operation and maintenance;
- Liaise with FAO, other UN agencies, multi-lateral and bi-lateral funding agencies, GOK and NGOs operating in the project area for possible coordination in project implementation and mobilize resources for scaling up the project activities, consistent with the project's objectives.

Qualifications and Experience

- A minimum of an MSc in Natural resources management/Forest Management/Environment Management or Agriculture or Economics with post degree training on climate change and/or rural development.
- At least ten years' experience working with development projects, preferably in eastern Africa;
- Excellent interpersonal skills and cultural sensitivity.

NWFPs/TOURISM BUSINESS DEVELOPMENT EXPERT

Duties and Responsibilities

Under the overall guidance of the PM, the NWFP/Tourism Business Development expert will perform the following tasks:

- Assess the current level of business, entrepreneurship based on NWFPs and/or other income generating activities and identify strengths, challenges, weaknesses and opportunities, and draw lessons for future development of NWFPs/agriculture based income generating activities;

- Assess the current level of tourism based business and identify strengths, challenges, weaknesses and opportunities, and draw lessons for future development of tourism as a business;
- Identify potential NWFP-based and tourism income generating activities;
- Design a program for the implementation of income generating activities (explaining how to move from the current situation to a more successful, widespread adoption of high value NWFP trading/ other income generating activities – this includes identifying markets, market requirements, identifying people with high inclination for entrepreneurship, ensuring to target both men and women, the youth and people with disabilities, designing a criteria for deciding whether to use grant or credit route, designing a system of issuing credits or grants, designing a program of mentoring new business ventures to reduce chances of failure, designing a monitoring system for the programs, etc.
- Design the tourism development strategy and engage in fundraising activities to mobilize funding for its implementation.

Qualifications and Experience

The NWFP/Tourism Business Development expert will be an organization or individual with capacity, experience and expertise in entrepreneurship/agro-business/tourism development and management experience. The expert will work with local communities, line departments, private sector and NGOs and will spend 50% of time in the field. Special requirements of the position are as follows:

- M.Sc. degree in entrepreneurship or related fields (if an individual).
- 10 years of practical experience in business development.
- At least 5 years of work experience with any international agency or project of national significance.

REDD+ Expert

The project will hire the services of a REDD++ specialist (which could also be provided by an institution). The full ToR for this position will be elaborated during the inception period but will include the following:

Duties and responsibilities

The REDD+ will assess the feasibility of establishing a sub-national REDD+ pilot for the Kirisia Forest (Phase I), building on the draft feasibility assessment undertaken by CAMCO during the formulation of the Kirisia Forest Management Plan, and in line with the development of REDD+ National Plan for Kenya. Depending on the outcome of the assessment, the REDD+ expert will assist the CFA and KFS to set up the regional pilot (Phase 2) in line with the guidelines of the UN-REDD Program.

Qualifications

The expert will have an MSc or PhD in Forestry or Natural Resources/environment related studies, with at least 5 years' demonstrated experience and strong knowledge in REDD+ and related areas, such as general forest management, incentive and benefit sharing models; experience in the designing benefit sharing models in programmes and projects, preferably in the climate change/forestry area; broad knowledge of climate change mitigation and/or adaptation in Kenya; broad knowledge of political and economic development in Samburu and how REDD+ fits in with it.

Other experts will include Gender, GIS and organizational development. The ToRs for these experts will be refined during the inception phase.