

## PROJECT DOCUMENT

### SECTION 1: PROJECT IDENTIFICATION

- 1.1 Project title:** Scaling up sustainable land management and agro-biodiversity conservation to reduce environmental degradation in small scale agriculture in Western Kenya
- 1.2 Project number:** GFL/ 5272  
PMS: 0926
- 1.3 Project type:** FSP
- 1.4 Trust Fund:** GEF
- 1.5 Strategic objectives:**  
GEF strategic long-term objective:  
Strategic programme for GEF IV: **LD-3:** Integrated Landscapes: Reduce pressures on natural resources from competing land uses in the wider landscape  
**BD-2** Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors  
**SFM-1:** Reduce pressures on forest resources and Generate Sustainable flows of forest ecosystem services
- 1.6 UNEP priority:** Ecosystem Management (EA (a): Use of the ecosystem approach in countries to maintain ecosystem services and sustainable productivity of terrestrial and aquatic systems is increased)
- 1.7 Geographical scope:** National: Kenya (Kakamega, Nandi & Vihiga Counties)
- 1.8 Mode of execution:** External
- 1.9 Project executing organization:** Alliance for Green Revolution in Africa (AGRA)  
Others partners: Kenya Agricultural and Livestock Research Organization (KALRO)  
World Agroforestry Centre (ICRAF)  
Ministry of Agriculture, Livestock and Fisheries
- 1.10 Duration of project:** 60 months  
Commencing: June 2016  
Completion: June 2021

<b>1.11 Cost of project</b>	<b>US\$</b>	<b>%</b>
Cost to the GEF Trust Fund	<b>\$3,583,800</b>	<b>27</b>
Co-financing		
Cash		
Alliance for Green Revolution in Africa (AGRA)	2,094,097	
Local Government (Kakamega County)	2,000,000	
<i>Sub-total</i>	<b>4,094,097</b>	<b>30</b>
In-kind		
Ministry of Agric. Livestock & Fisheries (ASDSP)	568,000	
Local Government (Vihiga & Nandi Counties)	3,910,000	
Angligan Church of Kenya (ACK)	382,308	
KALRO	750,000	
UNEP	200,000	
<i>Total co-finance</i>	<b>5,810,308</b>	<b>43</b>
<i>Sub-total</i>	<b>9,904,405</b>	
<b>Total</b>	<b>\$13,488,205</b>	<b>100</b>

## **1.1 Project summary**

*The goal* of the Project is to contribute to food security and incomes of smallholder farmers and secure sustainable land and forest ecosystems in Western Kenya. *The development objective* is to promote the adoption and adaption of sustainable land and forest ecosystem management (SLM/SFM) practices across the productive landscape of Kakamega-Nandi ecosystem while *the global environment objective* of the proposed project is to reduce land and ecosystem degradation, mainstream biodiversity (including

agro-biodiversity) conservation across the landscape and contribute to climate change adaptation and mitigation.

These project objectives are guided by the hypothesis that the increased productivity and profitability as well as access and benefit sharing mechanism from pilot SLM/SFM sites will create incentives for accelerated uptake of SLM/SFM technologies across the landscape. The existing barrier for which the proposed project seeks to address is how to scale-out from the successful but often fragmented and localized SLM/SFM initiatives to programmes that are fully integrated within the county development plans and budgets and hence are both institutionally and financially sustainable. The reasoning for the proposed intervention is to move the lessons learned in the piecemeal projects from the pilot sites to the wider productive landscapes and to strengthen the effective coordination, shifting towards a more programmatic approach to SLM/SFM in line with AGRA's initiative of "*Going beyond demos*".

The Project intervention strategy is to address the prevailing barriers through four pillars: (1) Capacity building of farmers and stakeholders in SLM/SFM and biodiversity conservation; (2) Strengthening farmer linkage to agricultural inputs and outputs markets; (3) Support to enabling policy and institutional framework at local level; and (4) Knowledge management and dissemination. The project will apply participatory and experiential learning, innovation platforms and value chain approaches in the implementation of the project components. The proposed project will be implemented in Kakamega, Nandi and Vihiga counties. These three counties in Western Kenya cover a total area of 6,466 km square with a total population of about 3 million. The region has diverse ecosystems and forms a critical part of Lake Victoria basin. The developmental challenge in the region is how to sustain the ever increasing demands for land and forest resources by a rapidly growing population.

The Project will work closely with a wide range of stakeholders and beneficiaries including farmers, youth and women groups, CBO, national and county government agencies across relevant sectors (including agriculture, forestry, water, wildlife and environment) NGOs, universities and research institutions, agro-dealers and other private sector actors along the agricultural productivity value chain. The Project will also bring together a strong platform of partners with extensive networks and outreach, which will contribute substantially to the cost-effectiveness and sustainability of the project results.

The Project results are expected to generate socio-economic benefits to the local communities as well as local and global environmental benefits through increased productivity and incomes, increased area under sustainable land and forest management and conservation of biodiversity and endangered species. The lessons learned from this project will be documented and disseminated for replication.

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## ACRONYMS AND ABBREVIATIONS

AGRA	Alliance for Green Revolution in Africa
ASDSP	Agricultural Sector Development Support Programme
CA	Conservation Agriculture
CBOs	Community Based Organizations
CFA	Community Forest Association
CIGs	Common Interest Groups
CIAT	Center for Tropical Agriculture
FFS	Farmer Field Schools
GEB	Global Environmental Benefits
GEF	Global Environmental Facility
ICIPE	International Centre for Insect Physiology and Ecology
ILRI	International Livestock Research Institute
ISFM	Integrated Soil Fertility Management
LADA	Land Degradation Assessment in Drylands
KALRO	Kenya Agricultural and Livestock Research Organization
KAPAP	Kenya Agricultural Productivity and Agri-business Project
KFS	Kenya Forest Service
KWS	Kenya Wildlife Service
KEFRI	Kenya Forestry Research Institute
MMUST	Masinde Muliro University of Science and Technology
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations'
PPG	Project Preparation Grant
REDD	Reducing Emissions from Deforestation and forest Degradation
RBM	Result Based Mangement
SFM	Sustainable Forest Management
SLM	Sustainable Land Management
SSFA	Small Scale Funding Agreement
TOR	Terms of Reference
UNEP	United Nations Environment Programme
VCA	Value Chain Analysis
WAC	World Agroforestry Centre (formerly ICRAF)
WKEIMP	Western Kenya Integrated Ecosystem Management Project
WRMA	Water Resource Management Authority
WRUAs	Water Resource Users Associations

## SECTION 2: BACKGROUND & SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

### 2.1 Background and context

#### Africa context

1. Sub-Saharan Africa (SSA) is home to more than 750 million people (Liniger, *et al.*, 2011<sup>1</sup>), which, for the large majority, depend on land and natural resources for their income and livelihood. Already, land degradation affects a large part of the resource base. The total SSA population is expected to pass one billion before 2020 (Liniger, *et al.*, 2011), and a growing food demand and concurrent pressures on the natural resource base are likely to become critical in the coming decades. To reverse this trend and meet the needs, the SSA countries will have to develop and adopt Sustainable Land Management (SLM) policies and practices.

2. Agriculture in Sub-Saharan Africa still provides a relatively large share of the gross domestic product (GDP), but productivity in the sector lags considerably behind that of other continents, as well as the region's potential. On average, about 65% (World Bank 2013<sup>2</sup>) of Africa's labor force is employed in agriculture, yet the sector accounts for about 32% (World Bank 2013) of GDP, reflecting relatively low productivity. Africa's rural population, therefore, has been unable to move out of poverty principally because of inability to transform their basic economic activity agriculture to high productivity levels.

3. In SSA, land degradation (LD) is estimated to affect, to varying degrees of severity, about 67 percent of the total land area, i.e. about 16.1 million km<sup>2</sup> (Liniger, *et al.*, 2011), The main direct drivers (pressures) contributing to LD in SSA are non-sustainable agriculture, overgrazing by livestock and overexploitation of forests and woodlands. In addition, there has been considerable pressure on many waterways in SSA, in particular in the sub-humid and semi-arid zones, where rivers tend to be overexploited and suffer from high eutrophication levels. Unsustainable land and water management practices are driven by population growth, an inappropriate incentive structure for local resource managers, climate change, and widespread poverty.

4. Productivity of Sub-Saharan Africa agriculture depends on climate; efficient and effective use of the factors of production (farmland, water, and labor); agricultural inputs (fertilizers, irrigation, seeds, and capital equipment); and farmers' skills. The region's agriculture involves diverse crops and livestock but productivity is particularly important for cereals and starchy roots, which provide two-thirds of the total energy intake for the population (three-quarters for the poor) (Diao, *et al.*, 2012<sup>3</sup>).

5. Climate change threatens production's stability and productivity. In many areas of the world where agricultural productivity is already low and the means of coping with adverse events are limited, climate change is expected to reduce productivity to even lower levels and make production more erratic (Edame, *et al.*, 2011<sup>4</sup>). Long term changes in the patterns of temperature and precipitation, that are part of climate change, are expected to shift production seasons, pest and disease patterns, and modify the set of feasible crops affecting production, prices, incomes and ultimately, livelihoods and lives.

6. Smallholder farmers are the principal investors in African agriculture. Many investments made by farmers are not primarily or exclusively through financial outlays but through labor allocation (e.g.,

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<sup>1</sup> Liniger, H.P. *et al.* (2011). Sustainable Land Management in Practice – Guidelines and Best Practices for Sub-Saharan Africa. TerrAfrica, WOCAT) and FAO

<sup>2</sup> World Bank (2013). Fact Sheet: The World Bank and Agriculture in Africa

<sup>3</sup> Diao, X. *et al.* (2012). Strategies and priorities for African Agriculture: Economy wide Perspective from County Studies.

<sup>4</sup> Edame, G.E *et al.* (2011). Climate Change, Food Security and Agricultural Productivity in Africa: Issues and Policy directions (International Journal of Humanities and Social Science Vol. 1 No. 21)

clearing or improving land or constructing farm buildings or irrigation channels). Capital by farmers often comprises both tangible and intangible assets and is often considered in terms of the following categories, all of which are important for agricultural productivity: physical capital; human capital; intellectual capital; natural capital; social capital, such as the institutions and networks that build trust and reduce risk; and financial capital, such as private savings, although income levels and savings are generally low in Africa. Recent data analysis reveals that of 23 countries in Sub-Saharan Africa, on-farm agricultural capital stock represents 84% of the total average annual investments in agriculture (Lowder Carisma, 2012<sup>5</sup>)

7. Access to finance is one of the major constraints facing millions of resource-constrained African smallholder farmers. Lack of access to finance prevents the farmers from investing in agricultural technologies that can help them achieve higher agricultural productivity and limits their participation in markets. Farmers also face significant levels of risks from uncertainties in weather conditions, which further reduce incentives to invest in agricultural production and commercialization.

7. The main direct drivers (pressures) contributing to land degradation in SSA are non-sustainable agriculture, overgrazing by livestock and overexploitation of forests and woodlands. In addition, there has been considerable pressure on many waterways in SSA, in particular in the sub-humid and semi-arid zones, where rivers tend to be overexploited and suffer from high eutrophication levels. Unsustainable land and water management practices are driven by rapid population growth, an inappropriate incentive structure for local resource managers, climate change, and widespread poverty.

8. A variety of responses to land degradation have been developed, centering on the SLM concept. SLM involves both the long-term maintenance of the productive capacity of agricultural lands and the sustainable use of natural and semi-natural ecosystems, such as semi-arid rangelands or forests. Past experiences with SLM show that the formulation and implementation of any programme aiming to reduce poverty through SLM requires consideration of: ecological; social-cultural; economic efficiency and institutional sustainability.

### **Kenya context**

9. Kenya's agricultural productivity relies largely on rainfall and proper management of land/soil and water resources. Kenya has a landmass of 582,000 km<sup>2</sup> out of which only 16% is suitable for rain-fed agriculture (KARI 2011<sup>6</sup>). Over 80% is classified as ASALs. The high rainfall areas receive over 1000 mm annual rainfall, carries about 50% (15 million) of the country's population but accounts for less than 20% of the agricultural land. The medium rainfall areas receive between 750 mm and 1000 mm rainfall per annum occupy 35% of the agricultural land and carry 30% (9 million) of the population (KARI 2011).

10. The country has a per capita endowment of 650 M<sup>3</sup> (KARI 2011) of fresh water annually which is gradually dwindling due to increasing population pressure, deforestation and the recurrent droughts mainly as a result of climate variation. This scenario adversely affects the performance of the agricultural sector, hindering expansion of rain-fed agricultural production and productivity. Rainwater is not efficiently used while water catchment areas have not been accorded the necessary protection. Kenyan soils, like others in sub-Saharan countries, have continued to suffer from depletion of soil nutrients even in formerly fertile areas.

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<sup>5</sup> Lowder S.K, Carisma, B. (2011). Financial Resource Flows to Agriculture: A Review of Data on Government Spending, Official Development Assistance and Foreign Direct Investment (FAO - ESA Working Paper No. 11-19)

<sup>6</sup> Kenya Agricultural Research Institute (2011), KARI Strategic Plan (2009-2014)

11. The Kenya's agricultural sector is the mainstay of the national economy and provides the basis for the development of the other sectors. Its direct contribution to gross domestic product (GDP) is 26% and indirectly contributes a further 27% through linkages with agro-based and associated industries (GoK 2011<sup>7</sup>). Overall, the agricultural sector employs over 80% of the total labour force, generates 60% of foreign exchange earnings and provides 75% of industrial raw materials (GoK 2011). About 80% of Kenya's population lives in the rural areas where three quarters of them are engaged in agricultural activities. The sector is dominated by smallholders who account for approximately 75% of the total output absorbing over 50% of the labour force. Growth in the agricultural sector is closely linked to the overall economic growth in Kenya. It is estimated that a 1% increase in the sector results in a corresponding 1.6% GDP growth in the overall economy (KARI 2011). Agriculture, therefore, remains the engine of the national economy and its performance impacts heavily on nearly all other sectors. By contributing raw materials to the manufacturing/industrial sector, the agricultural sector has a definite role in Kenya's progress towards becoming a newly industrialized country by 2030.

12. Although agriculture is critical to the economy, levels of production and productivity are very low and the vast potential of the sector has scarcely been tapped. For example, the average yield for maize is 1.3 tonnes per ha, and milk production stagnates at less than 5 litres per cow per day (KARI 2011). Some of the factors contributing to poor returns include low application of modern technologies as nearly 80 % of production is from smallholders with less than 2 ha, and gender inequalities that constrain resource access.

13. Like most sub Saharan African countries, Kenya faces an enormous challenge of meeting the ever increasing demands of a rapidly growing population from a diminishing resource base. Kenya has a population of 40 million people and a land area of 580,000 km<sup>2</sup>. The per capita income is about US\$ 480 and around half of the Kenyans live below the poverty line (GoK 2011). The economy is dominated by small-holder, low revenue agriculture and small-scale livestock management. Around 3 million farming families own less than 2 hectares of land. Poverty is most prevalent among the rural population, of which the large majority depends on the Kenyan natural resource base for their livelihoods (GoK 2011).

14. In the last decades, population growth and the resulting expansion in agriculture and livestock production have increased pressures on land and natural resources. This pressure has particularly been exerted on arable land leading to spill over into marginal areas, pasture and forest lands. This pressure on the fragile ecosystems coupled with inappropriate farming practices has resulted in accelerated degradation. Among the main land degradation processes currently taking place are water erosion, soil nutrient depletion, loss of agro-biodiversity and deforestation. Around 30% of Kenya is affected by severe land degradation. The impacts of land and ecosystem health degradation are self-evident with climatic variability and decreased productivity in agriculture and provision of other essential ecosystem goods and services.

15. Kenya is a mega bio-diverse country with over 35,000 species of flora and fauna (Institute of Economic Affairs 2011<sup>8</sup>). The species diversity is dominated by insects. This diversity is served by the variable ecosystems ranging from marine, mountains, tropical, dry lands, forests and arid lands. Kenyan forests are endowed with a rich array of plant and animal life. Some of the species endemic to the forest habitats are found nowhere else in the world. Since species richness tends to correlate with the annual amount of rainfall, wetter forests are richer in species. Consequently Kakamega Forest has the richest plant diversity in Kenya.

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<sup>7</sup> Government of Kenya (2011). Agricultural Sector Development Support Programme

<sup>8</sup> Institute of Economic Affairs (2011). Biodiversity Conservation in Kenya

16. Rapid human population growth and the subsequent forest degradation threaten biodiversity and may cause habitat fragmentation or in extreme cases, species extinction. The forest ecosystems in Kenya have been subjected to fragmentation where large continuous forest areas have been reduced into small patches. This fragmentation alters habitats from a previous state of greater continuity, stability and harmony. The resultant patches or populations are eventually isolated from one another by highly modified or degraded landscape, thus disrupting populations.

17. It is estimated that Africa lost 3.4 million hectares of forest annually between 2000 and 2010 (FAO 2010<sup>9</sup>). In 1975, the estimated forest area in SSA as about 710 million hectares, but this reduced to 595.6 million hectares in 2010 (FAO 2010). In Kenya, the forest cover reduced from 3.7 million to 3.4 million hectares between 1990 and 2010 (FAO 2010). Besides a reduction in the area covered by forests, many remaining forests show degradation in terms of crown cover and species diversity. Deforestation has major implications for biodiversity, production of wood and non-wood forest Products and River discharge patterns. Fragmentation and habitat loss are causing local overcrowding of wildlife in restricted areas, leading to increasing human-wildlife conflicts.

### **Western Kenya Context**

18. Western Kenya has one of the densest and poorest populations, with up to over 1,000 persons per KM<sup>2</sup> in Vihiga County (according to the Kenya National Population Census 2009). The region is characterized by low agricultural productivity, high population pressure and lack of off-farm income opportunities. Over 58 percent of households live in absolute poverty. Traditional land management in Western Kenya has in the past relied on fallowing of unproductive fields to restore fertility. However, high rural population growth and land fragmentation has made this practice untenable; more people are searching for new agricultural land encroaching into steep slopes, wetlands and adjacent forests. These has led to degradation of agricultural land through water erosion, landslides, soil nutrient depletion, soil acidification and physical degradation resulting to low crop production and loss of plant cover on pasture land and encroachment on adjacent forest reserves especially Kakamega.

19. Nutrient mining is rampant on many smallholder farms in western Kenya and is characterised by continuous cropping, inadequate nutrient replenishment in relation to plant demand, and high rates of soil erosion, leaching and removal of crop residues from the fields (Lal, 2001<sup>10</sup>). Originally fertile lands that yielded 2 – 4 t ha<sup>-1</sup> of cereal grains have been degraded with cereal crop yields of less than 1 t ha<sup>-1</sup> becoming common (Sanchez, 2002 and Bashir<sup>11</sup>). As a result, soil fertility has continued to decline to levels that are currently prohibitive to profitable agriculture. Socioeconomic conditions on the smallholder farms are also often difficult and risky, characterized by poor infrastructure, limited access to information, markets and credit (Sanchez and Bashir 2002).

20. While the introduction of commercial sugarcane farming in western Kenya over the last four decades may have generated significant incomes and employment to the local communities, it has also contributed to the loss of agro-biodiversity. This monocultural land use practice is associated with loss of natural vegetation and cropland, biological and physiochemical soil degradation thus undermining food security status in the first place. There has been a decrease in land under indigenous crops and vegetables since the introduction of sugarcane in western Kenya. According to recent studies, the cultivation of both indigenous crops and vegetables has shown a declining trend. Some of the affected

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<sup>9</sup> FAO (2010). Global Forest Resources Assessment (GFRA) Main Report

<sup>10</sup> Lal, R. (2001). Soil degradation by erosion. *Land Degradation and Development* 12: 519-539

<sup>11</sup> Sanchez, P.A., Jama, B.A (2002). Soil fertility replenishment takes off in East and Southern Africa. In *Integrated Plant Nutrient Management in sub-Saharan Africa: From Concept to Practice*, Vanlauwe B., Diels J., Sanginga N. and Merckx R., (Eds.), CABI, Int., Wallingford UK.

indigenous crop and vegetable species include sorghum, finger millet, Bambara groundnuts and Simsim, African kale, African nightshade, amaranths and spider plant among others (Netondo et al., 2010<sup>12</sup>).

21. In agricultural systems biodiversity performs ecosystem services beyond production of food, fiber, fuel and income. Biodiversity is necessary in the recycling of nutrients, control of local microclimate, regulating of local hydrological process, regulation of abundance of undesirable organisms and detoxification of noxious chemicals. The formal definition of agrobiodiversity is the variety and variability of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries (FAO, 1999<sup>13</sup>). It comprises the diversity of genetic resources and species used for food, feed, fibre, fuel and pharmaceuticals. It also includes the diversity of non-harvested species that support production and those in the wider environment that support agro-ecosystems.

22. While a number of cash crops are grown in the Western region, sugarcane can be considered as the single most important cash crop extensively grown. Sugarcane is commercially grown in Western and Nyanza provinces, primarily by small scale farmers followed by large-scale farmers and company/factory nucleus estates. While setting up infrastructure for sugarcane farming and processing, minimal input is considered in terms of their impact on biodiversity. Land availability for subsistence farming and agricultural diversification as well as biodiversity conservation is not considered. This biodiversity, especially biological resources form a basis for global as well as national economic and ecological security. It is an open fact therefore that sugar production has led to long term effect on indigenous food crops and vegetables.

23. Experience and research have shown that agro-biodiversity can increase productivity, food security and economic returns; reduce the pressure of agriculture on fragile areas, forests and endangered species; make farming systems more stable, robust and sustainable; contribute to sound pest and disease management; conserve soil and increase natural soil fertility and health; contribute to sustainable intensification; diversify products and income opportunities; reduce the spread of risks to individuals and nations; help maximize the effective use of resources and the environment; reduce dependence on external inputs; improve human nutrition (Ekesa *et al.*, 2008<sup>14</sup>); provide sources of medicines and vitamins; and conserve ecosystem structure and the stability of species diversity. Furthermore, agrobiodiversity serves as a source for biotechnological applications.

24. The Kenyan government fully recognizes the challenges of land and ecosystem degradation in especially in relation to food and water security and has put in place several strategies to address the problem and its underlying drivers. Most of development partners have also come in support of government and local communities to secure the flow of ecosystem goods and services that are critical to the rural livelihoods and economic development of the country. However, there are still a number of barriers hindering the scaling up of best SLEM practices in the wider landscape which the proposed project seeks to address.

25. AGRA through the Soil Health Program (SHP) has supported a number of SLM related projects in Western Kenya. The projects include the integrated soil fertility project, the lime project to reduce soil acidity and the maize legume intercrop. Some of the key results from these projects include increased soil fertility, increased productivity and incomes. The proposed project will focus on up-scaling the best practices learned from the AGRA initiative.

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<sup>12</sup> Masayi, N and Netondo, G.W (2012). Effects of sugarcane farming on diversity of vegetable crops in Mumias Division, Western Kenya International Journal of Biodiversity and Conservation Vol. 4(13), pp.515-524,

<sup>13</sup> FAO (1999) <http://www.fao.org/docrep/007/y5609e/y5609e01.htm#bml>

<sup>14</sup> Ekesa B.N (2008). Influence of agricultural biodiversity on dietary diversity of preschool children in Matungu division, western Kenya African Journal of Food, Agriculture, Nutrition and Development Vol.8 No.4 2008.

## Project site

26. The proposed project will be implemented in Kakamega, Nandi and Vihiga counties. The three counties cover a total area of 6,466 km square with a total population of 2,968,238 (GoK 2010<sup>15</sup>). Vihiga County has the highest population density at 1045 persons per km square.

27. Kakamega County is located in Western Kenya bordering Bungoma to the North, Trans Nzoia to the North East, Uasin Gishu and Nandi Counties to the East, Vihiga to the South, Siaya to the South West and Busia to the West. It covers an area of 3,224.9 Km<sup>2</sup>. Temperatures range from a minimum of 10.3°C to a maximum of 30.8°C with an average of 20.5°C. The rainfall ranges between 1,250 – 1,750 mm per annum. The main economic activities include; large-scale sugarcane farming and mixed farming. Agricultural products include maize, beans, millet, sugarcane, tea, dairy products, sunflower and soyabeans. The Kakamega County general information is summarized in Table 1.

**Table 1: Kakamega county data (KPHC 2009)**

<b>General Information</b>	
Population	1, 660, 651
Surface area (km <sup>2</sup> )	3, 051
Density (km <sup>2</sup> )	544
Poverty rate, based on KIHBS (%)	53.0
Share of urban population (%)	15.2
Urban population in largest towns:	
Mumias	99, 987
Kakamega	91, 768
Butere	12, 780
Lumakanda	10, 580
Malava	4, 070

Kenya Population and Housing Census 2009

28. Vihiga County borders four counties: Kakamega to the North, Nandi to the East, Kisumu to the South, and Siaya to the West. It has an area of 530.9 Km<sup>2</sup> with an annual average rainfall of between 1,800mm and 2,000 mm and an average temperature of 24. 0°C. It has less poverty rate and high share of its population living in urban area compared to Kakamega and Nandi counties respectively.

29. The average farm size in the county is 0.4 hectares for small scale farming and 3 ha for large scale. The fertile land in Sabatia, Hamisi and Emuhaya Constituencies coupled with abundant rains has influenced the dense settlement. The high concentration of population is witnessed even in the rocky areas such as Maragoli hills and the flat swampy parts of Luanda.

30. In terms of land use, 98.7per cent of the land is under farming, mostly subsistence, while 1.3% is under housing. The main land use types include livestock, crop farming, tree planting fish farming and settlements. Other land use activities are soil mining for brick making and pot making as well as house construction. Sand and stone harvesting are other activities for which land is put to use. The increase in settlement areas reduces available arable land for livelihood activities. Most of these activities are undertaken in rural areas where the majority live. The Vihiga County general information is summarized in Table 2.

<sup>15</sup> GoK (2010) Kenya Population and Housing Census

**Table 2: Vihiga county data (KNPC 2009)**

<b>General Information</b>	
Population	554, 622
Surface area (km <sup>2</sup> )	531
Density (km <sup>2</sup> )	1045
Poverty rate, based on KIHBS (%)	41.8
Share of urban population (%)	31.4
Urban population in largest towns	
Vihiga	118,696
Luanda	49, 346

Kenya Population and Housing Census 2009

**31. Nandi County** is located in the Rift Valley, it borders the following counties; Uasin Gishu to the North and East, Kericho to the South East, Kisumu to the South, Vihiga to the South West, and Kakamega to the West. It covers an area of 2,884 Km <sup>2</sup>. Temperatures range from a mean annual minimum of 12°C to a mean maximum of 23°C, with rainfall amounts of between 1,200mm and 2,000mm per annum. The county population of 752, 965 are made of 50% Male and Female respectively. The density is estimated at 261 people per km <sup>2</sup>. The main economic activities include growing of Tea, Coffee, Sugarcane, Pyrethrum, and Dairy Farming. Agricultural products from the county include; Maize, Beans, Sorghum, Millet, Irish Potatoes and Dairy Products. The general county information is summarized in Table 3:

**Table 3: Nandi County data (KNPC 2009)**

<b>General Information</b>	
Population	752, 965
Surface area (km <sup>2</sup> )	2, 884
Density (km <sup>2</sup> )	261
Poverty rate, based on KIHBS (%)	47.4
Share of urban population (%)	13.6
Urban population in largest towns	
Kapsabet	86, 803
Nandi Hills	10, 120

Kenya Population and Housing Census 2009



## 2.2 Global significance

### Biodiversity

32. In the next 50 years, tropical forests are among the biomes projected to lose habitat and species most rapidly (Millennium Ecosystem Assessment 2005). Yet tropical forests host numerous ecosystem services that provide regional, national, and global benefits. Forests, particularly natural and semi-natural forests, contain diverse flora and fauna species, some of them endemic to particular areas. Furthermore, forests store large amounts of carbon and play an essential role in the global carbon cycle and the mitigation of climate change. On local to regional scales, forests regulate local water cycles, are important to the microclimate, and provide vegetative cover that protects the soil from erosion and retains nutrients in the subsoil. At the local level, rural populations often directly depend on the utilization of biodiversity connected to forests and on the benefits derived from forest ecosystem services for their livelihoods (OECD, 2002, MA, 2005).

The project area traverses Kakamega-Nandi forests and the surrounding agroecosystems and wetlands. The region is characterized by diverse ecosystems and landscapes with rich biological diversity and supporting livelihoods of about 3 million people. The forest cover has declined from 24,798 ha in 1933 during its gazettement, to 11,848 ha in 2010 (GoK 2012<sup>16</sup>), mainly due to illegal activities such as logging and charcoal burning as well as pressure from the surrounding communities who depend on it for their livelihood.

33. Kakamega forest is known to be the eastern-most fragment of the Guinea – Congolean lowland rainforest belt, which once stretched from Kenya across Uganda, East and Central Africa to the West African coast. The forest therefore harbours many species that are related to the Central and West African flora. More than 120 species of trees have been recorded in the forest (GoK 2012). The forest is also home to threatened tree species including the Elgon teak and *Prunus africana* which are species of special conservation concern (locally threatened and rare). These species are prone to over exploitation due to their high quality timber and medicinal value.

34. The forest also has high diversity of primates, with monkeys being the most conspicuous group of mammals in the forest, amongst which the Blue Monkey (*Cercopithecus mitis stuhlmanni*), the Redtail Monkey (*Cercopithecus ascanius schmidtii*), and the Black-and-white Colobus Monkey (*Colobus guereza*) are the most common (GoK 2012).

35. Kakamega forest is an important bird area (IBA) with almost over 500 different species recorded including globally threatened Turner's Eremomela (*Eremomela turneri*) and Chapin's Flycatcher (*Muscicapa lendu*); a further 15 species regionally threatened, and 46 endemic species. Most of these species are found in plantations of mixed indigenous tree species. Many bird species are crucial for the forest ecosystem, because most tree species depend on birds for seed dispersal (GoK 2012).

36. Kenya has 5<sup>th</sup> largest number of IUCN threatened species in Sub-Saharan Africa at 311 (IUCN 2008<sup>17</sup>). Very little is known about most of the fauna and flora of Kakamega Forest. Below is a list of threatened and endangered species.

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<sup>16</sup> GoK (2012) Kakamega Forest Ecosystem Management Plan 2012 -2022

<sup>17</sup> IUCN (2009). The 2009 IUCN Red List of Threatened Species. The World Conservation Union (IUCN), Switzerland.

Table 4: List of endangered species in Kakamega Forest (IUCN 2008)

Species	Latin Name	Status	Source
Ayes' hawk eagle	<i>Hieraetus dubius</i>	EN	CITES III
Red chested owl	<i>Glaucidium tephronotum</i>	EN	CITES III
Shikra	<i>Accipiter badius</i>	EN	CITES III
Great Sparrowhawk	<i>Accipiter melanoleucus</i>	EN	CITES III
Little Sparrowhawk	<i>Accipiter minullus</i>	EN	CITES III
African Goshawk	<i>Accipiter tachiru</i>	EN	CITES III
Steppe Eagle	<i>Aquilani palensis</i>	EN	CITES III
Common Buzzard	<i>Buteo buteo</i>	EN	CITES III
Black-crested Snake Eagle	<i>Circaetus pectoralis</i>	EN	CITES III
Augur Buzzard	<i>Buteo angur</i>	EN	CITES III
Banded snake eagle	<i>Circaetus cineransesus</i>	EN	CITES III
Brown snake eagle	<i>Circaetus cinereus</i>	EN	CITES III
Marsh Harrier	<i>Circus aeruginosus</i>	EN	CITES III
Black shouldered kite	<i>Elanus caeruleus</i>	NT	CITES III
Long crested eagle	<i>Lophaetus occipitalis</i>	NT	CITES III
Bat Hawk	<i>Macheirampus alcinus</i>	NT	CITES III
Black kite	<i>Milvus migrans</i>	NT	CITES III
Crowned Eagle	<i>Stephanoatus coronatus</i>	NT	CITES III
Grey Kestral	<i>Falco ardosiacus</i>	NT	CITES III
African Hobby	<i>Falco curieri</i>	NT	CITES III
Common Kestral	<i>Falco tinnunculus</i>	NT	CITES III
Vereaux Eagle owl	<i>Bubo lacteus</i>	NT	CITES III
African Scoops owl	<i>Otus senegalensis</i>	NT	CITES III
Blackbilled Turaco	<i>Tauraco schuetti emini</i>	NT	CITES III
Fine-banded woodpecker	<i>Campethera tullbergi</i>	NT	IUCN 1995
Uganda woodland warbler	<i>Phylloscopus budongoensis</i>	NT	IUCN 1995
Turner's Eremomela	<i>Eremomela turneri</i>	EN	IUCN 2008
Chapin's Flycatcher	<i>Muscicapa lendu</i>	T	IUCN 1995
Grey parrot	<i>Psittacus erithacus</i>	EN	IUCN 2008
Great Blue Turaco	<i>Corythaecola cristata</i>	Regionally rare	IUCN 2008
<b>Threatened/Endangered Mammals (EN = endangered; NT = near threatened; T=threatened)</b>			
Species	Latin Name	Status	Source
Leopard	<i>Panthera pardus</i>	NT Locally endangered	IUCN 2008 KIFCON 1994
Hippopotamus	<i>Hippopotamus amphibius</i>	VU Locally endangered	IUCN 2008 KIFCON 1994
De Brazza's Monkey	<i>Cercopithecus neglectus</i>	Locally vulnerable	IUCN 1995

IUCN (2009). The 2009 IUCN Red List of Threatened Species. The World Conservation Union (IUCN), Switzerland.

The loss and the threat to species are attributed to habitat degradation especially the natural forest. Overall, Kakamega forest lost 23% of their natural forest cover in last 12 years. A considerable decrease of natural forest is visible inside the protected National Reserve. Additional clusters of forest decline are visible in eastern Kisere (part of the National Reserve), around the Yala Natural Reserve, and along the eastern park boundaries and the western portion of Buyangu National Reserve. While the National Reserve lost a lower percentage of their natural forest cover than the Natural Reserve fragments, the decline is still considerable for biodiversity conservation. These observed clearing patterns often go along with increasing forest fragmentation and a reduction in the average size of forest fragments<sup>18</sup>

The hotspot map in Figure. 2 below shows ten hotspots that cover 57 km<sup>2</sup>, of which 33 km<sup>2</sup> were natural forest in 2001, equivalent to 34% of the remaining natural forest inside the Kakamega Forest. These 33 km<sup>2</sup> may require particularly intensive monitoring and protection interventions<sup>19</sup>.

<sup>18</sup> Lung, T. & G. Schaab (2006): Assessing fragmentation and disturbance of West Kenyan rainforests by means of remotely-sensed imagery time series data and landscape metrics. In: African Journal of Ecology 44(4), 491-506.

<sup>19</sup> Muller and Mburu (2008) Forecasting hotspots of forest clearing in Kakamega Forest, Western Kenya (Forest Ecology and Management 257 (2009) 968-977 )

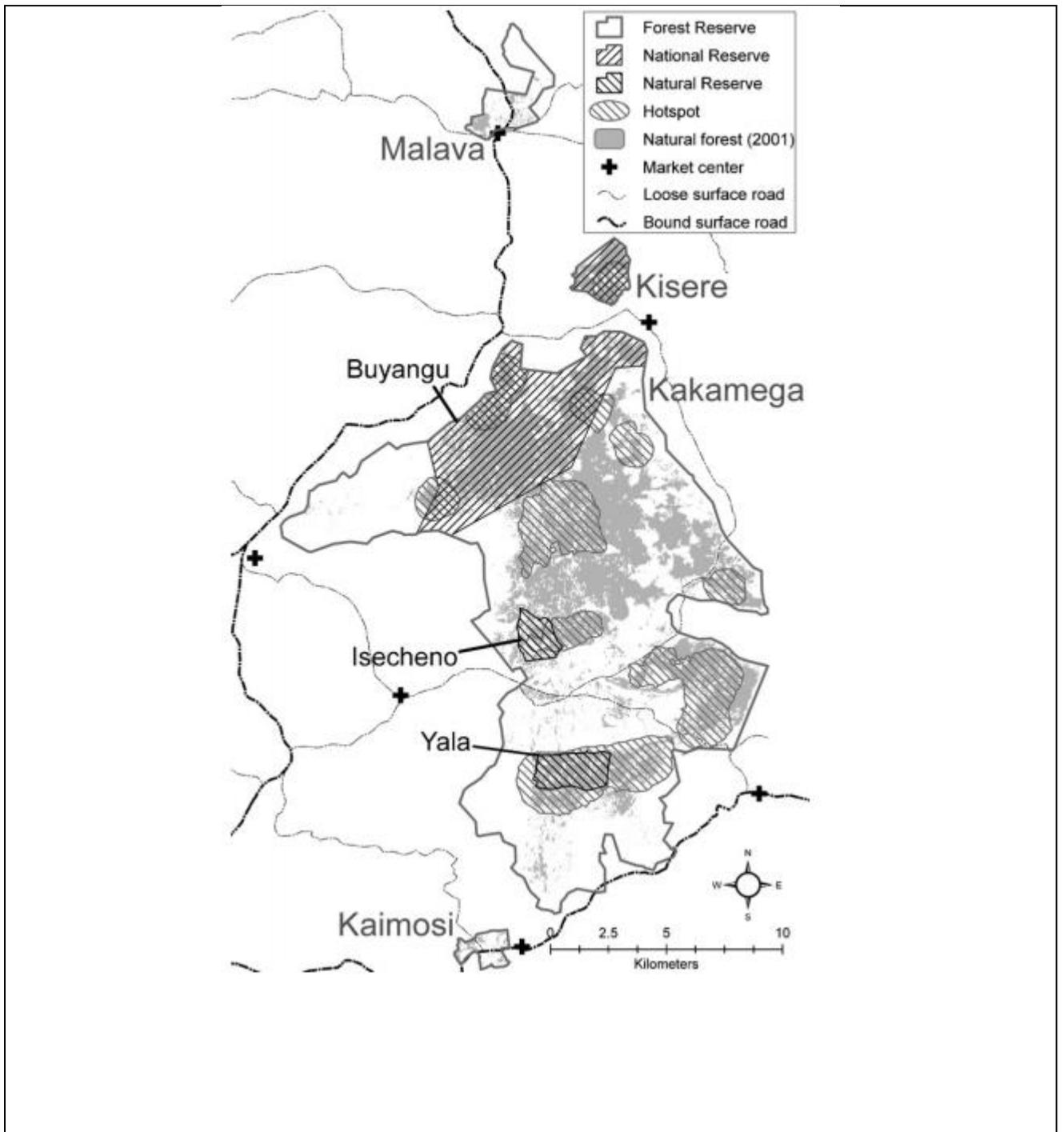


Figure 2: Biodiversity hot spots within Kakamega Forest Ecosystem (Muller and Mburu (2008))

### 2.3 Threats, root causes and barrier analysis

#### *Land Degradation*

44. Land in western Kenya region is considered to be at high risk of degradation due to the high population pressure and intensity of land use. The districts have some of the highest poverty levels in the country. Land degradation remains a major threat to the provision of environmental services and the

ability of smallholder farmers to meet the growing demand for food. The region continues to experience increased fragmentation and deforestation due to increasing pressure for new cultivation and grazing lands as well as for settlement. Understanding patterns of land degradation is therefore a central starting point for designing any sustainable land management strategies. However, land degradation is a complex process both in time and space making its quantification difficult. There is no adequate monitoring of many of the land degradation issues both at national and local scale in Kenya.

Mechanisms that initiate land degradation include physical processes such as decline in soil structure leading to soil compaction, erosion and desertification); chemical processes such as acidification, leaching, salinization and fertility depletion; and biological processes such as reduction in total and biomass carbon, and decline in land biodiversity. Causes of land degradation are the agents that determine the rate of degradation and include biophysical (land use and land management, including deforestation and tillage methods), socio-economic (land tenure, marketing, institutional support, income and human health) and political (incentives, political stability) (Eswaran et al., 2001<sup>20</sup>).

45. Land degradation is a major threat to ecosystem functioning in the areas classified as having both high and low agricultural potential in Kenya. More recent studies extrapolating on local findings of spatial and temporal patterns estimate that land degradation is increasing in severity and extent in many areas of the country and that over 20% of all cultivated areas, 30% of forests, and 10% of grasslands are subject to degradation (Muchena 2008<sup>21</sup>).

47. According to a recent study, over 55% of the farms sampled in western Kenya lacked any form of soil and water conservation technologies (Waswa 2012<sup>22</sup>). Sheet erosion was the most dominant form of soil loss observed in over 70% of the farms. There was a wide variability in soil chemical properties across the study area with values of most major properties being below the critical thresholds needed to support meaningful crop production. Notable was the high proportion (90%) of farms with slightly acidic to strongly acidic (pH <5.5) soils. Over 55% of the farms had less than 2% soil organic carbon (Waswa 2012).

49. The Kakamega forest is threatened by rapid population growth, high incidence of poverty and dwindling land sizes in the face of weak enforcement of existing legislation. As a result, encroachment of forests for timber, charcoal, firewood and grazing persist. Local people are estimated to derive products worth Ksh. 100 million (approximately USD 1.7 million) from the forest each year (GoK 2012).

50. Agricultural encroachment has led to large-scale degradation in recent years, and illegal tree-felling and charcoal burning are considerable threats. Forest and glade grazing of livestock, allowed by Presidential decree in 1994, prevents tree regeneration and causes policing problems. Hunting for bushmeat, debarking of certain trees for traditional medicine, and firewood collection are also serious problems. Continuing forest fragmentation and destruction in Kakamega threatens the status of avifauna. Some forest species, such as Yellow-mantled Weaver, have not been recorded for many years. A number of montane forest birds that formerly occurred in the area, such as Hartlaub's Turaco and Fine-banded Woodpecker, appear to have disappeared since the severing of forest connections with the nearby, higher altitude, North Nandi Forest.

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<sup>20</sup> Eswaran, H. et al (2001). Land degradation. An overview conference on land degradation and desertification. khon kaen, Thailand: Oxford Press, New Dehli, India

<sup>21</sup> Muchena, F. N. (2008). "Indicators for Sustainable Land Management in Kenya's Context". GEF Land Degradation Focal Area Indicators, ETC-East Africa. Nairobi, Kenya

<sup>22</sup> Waswa B.S (2008). Assessment of Land Degradation Patterns in Western Kenya: Implications for Restoration and Rehabilitation (PhD dissertation – Rheinischen Friedrich-Wilhelms-Universität zu Bonn)

51. North Nandi forest is threatened by anthropogenic pressures driven by rapid population growth, increasing incidence of poverty and dwindling farmlands. These anthropogenic pressures have led to encroachment and alienation of forest land for settlements, farming, timber, charcoal, firewood and grazing. Population increase has resulted in people encroaching on river banks and on wetlands causing soil erosion, siltation and river pollution. In some places landslides have been reported. These activities have endangered the wetland wildlife such as the *Sitatunga*, Crowned Crane among others which have been subjected to poaching.

52. South Nandi forest faces a number of conservation challenges. In addition to weak enforcement of existing policies and legislation, the forest is under anthropogenic pressures emanating from the surrounding settlements. The forest is situated within an agriculturally rich area characterized by fertile soil and high rainfall. These factors have exposed the forest to increasing threat of alienation and encroachment for settlements, farming, grazing, timber, charcoal and firewood. Increasing demand for forestry resources has exposed the forests to unsustainable exploitation.

53. South Nandi has been heavily logged in the past, which has severely affected the vegetation structure – some parts have reverted to a thicket formation. Many of the other problems faced by Nandi South are common to indigenous forests all over Kenya. Tree-poaching and platform sawing are rampant in the Kaimosi area, and near other major settlements. Forest antelope are hunted heavily in the eastern sector where the surrounding human population is lowest; the lack of hunting elsewhere may reflect a lack of wildlife to hunt (Waiyaki 1998<sup>23</sup>).

54. Birds are also trapped seasonally, particularly Harlequin Quail in the grasslands. Honey gathering, seemingly a sustainable activity, also constitutes a conservation threat. Honey collectors here frequently fell an entire tree in order to reach one bee nest. These trees are often large and old, with natural cavities that provide essential nesting sites for a large array of hole-nesting forest birds. Livestock grazing inside the forest occurs, and some areas cleared for the development of tea plantations but not planted with tea are heavily grazed, preventing forest regeneration.

43. Kakamega –Nandi forest ecosystem are critical water catchment for river Yala and Nyando that drain to lake Victoria and thus part of the greater Nile basin. Better farming methods and water catchment conservation practices and reforestation will secure sustained flow of water and sediment and agrochemical loads on Lake Victoria.

### *Threats to Biodiversity*

One of the major challenges facing Kenya is the loss of biological diversity. Land use changes favouring agriculture and rural and urban development have led to the reduction and modification of wild areas, resulting in the extinction of or threat of extinction to wildlife species and natural areas which serve as its habitat. Consequently, opportunities are being lost for it to positively contribute to socio-economic growth and global environmental benefits.

Some of the major threats to biodiversity in Kakamega-Nandi forest ecosystem include:

*Land use conversion* – the high population growth rate in western Kenya has led to remarkable land use changes over the years. These land use changes particularly agriculture, urban and infrastructural developments have led to fragmentation and disruption of traditional wildlife movements and migrations.

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<sup>23</sup> Waiyaki E.M, (1998). The Avifauna and Conservation Status of South Nandi Forest, Kenya, National Museums of Kenya, 1998

*Destruction of wildlife habitats* – wildlife habitats also provide an important resource base for rural people's livelihoods. High, demand for fuel wood, charcoal burning, grazing and other complex socio-economic factors have put enormous pressure causing severe wildlife habitat degradation.

*Human-Wildlife conflicts* – In many instances the wildlife in the protected areas seasonally disperse into adjacent lands. There are inadequate incentives to motivate communities and land owners to adopt land use practices that are compatible with wildlife conservation and management

*Invasive alien species:* Invasive alien species are a major threat to native biodiversity. In Kakamega forest, invasive species especially *S. mauritium* is widely spread. The forest glades, wetlands and along roads are most vulnerable to invasion.

*Climate change* – Globally, the climate is changing resulting in direct physiological impacts on individual species, changes in abiotic factors, changed opportunities for reproduction and recruitment and altered interactions among species. Climate change may also produce more conducive conditions for the establishment and spread of invasive species, as well as change the suitability of microclimates for native species and the nature of interactions among native communities.

## **Barrier analysis**

61. The continuing rate and extent of land degradation is an important indicator of the existence of barriers for up scaling SLM practices despite the successful stories from the pilot sites. The limited landscape-level impact of SLM innovations is a cause of major concern among government agencies, research and development partners. The fundamental question is why many farmers continue to use unsustainable land use practices and why many do not adopt or adapt the already available technologies' (Barrett et al.<sup>24</sup>). Existing evidence suggests that there are no simple and unique answers to these questions as various, complex and interlinked factors seem to lead to the deplorable situation of resource degradation (especially land degradation) that jeopardizes development efforts.

62. The main gaps, bottlenecks and barriers that hinder the successful mainstreaming of SLM by small scale farmers can be categorized into three components: (i) technological and knowledge; (ii) policy and institutional (iii) socio-economic and financial.

## **Technological and knowledge barriers**

63. *Knowledge gaps on land degradation* - There is sufficient knowledge base and technology available, in particular regarding the bio-physical processes involved and their impacts on production. Understanding patterns and trends of land degradation is the starting point for designing any sustainable land management strategy. However, land degradation is a complex process both in time and space making its quantification difficult. In addition, the total economic valuation of critical ecosystems has not been undertaken nor the economic losses associated with land and ecosystem degradation. In the absence of this vital information both at national and local level, it's difficult for decision makers to appreciate the enormity of the problem in order to secure the much needed political will for SLFM.

64. *Limited institutional capacities* - There have been a number of SLFM best-bet practices that have been developed through research and past interventions. However, some of these practices have not moved from the pilot sites to the wider landscape. It is very important to understand what influences farmers' values and attributes in their decisions to adopt new sustainable land management practices.

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<sup>24</sup> Barrett, C. B. et al (2002). Natural Resources Management in African Agriculture: Understanding and Improving Current Practices. CAB International Publishing

The farmers' current enterprise focus is vital in determining receptivity to new farming techniques and incentive programs. There has been a limited capacity to develop and disseminate SLM technologies. The linkage between farmers, extension system and agricultural research is weak and in most cases not addressing the specific challenges of smallholder farmers.

67. *Compartmental approach of SLM and biodiversity programmes* - . Often a narrow sectoral and silo-approach e interpretation of land degradation and biodiversity has prevailed against a more holistic ecosystem approach. Conventionally, land degradation is associated with agroecosystems while biodiversity conservation is associated with protected areas. Yet, SLM and biodiversity conservation are connected and cuts across ecosystems, thus need for more integration..

68. *Inadequate monitoring and evaluation of land and ecosystem degradation and its impacts* - There is currently no adequate, long-term, local or national monitoring of many land and ecosystem degradation issues. The national statistics have no updated information of the extent and impacts of land degradation and biodiversity loss.

### **Policy and institutional barriers**

69. *Lack of policy harmonization* – The agricultural sector is subjected to a wide array of legislation and regulations. No less than 131 pieces of legislation directly govern the agricultural sector. There are 34 parastatals with different mandates (e.g. financial, commercial, service and regulatory corporations, and statutory boards) operating in the sector (ASDSP 2011). Some of these laws contradict each other, while others are unenforceable or redundant. The fragmentation and overlap of policies and institutional mandates brings about duplication of efforts and conflicts.

70. *Inadequate coordination and collaboration between stakeholders* – SLM and biodiversity conservation are being implemented by various institutions at national and county levels as well as by non-state actors. In a number of countries, national and county coordinating bodies have not yet been harmonized, and in some other countries the established national coordinating bodies do not have adequate representation and authority, or lack operational capacity. In addition, there are still large numbers of ministries involved in land and natural resource management, often in an uncoordinated manner leading to overlapping responsibilities.

71. *Inappropriate incentive structure, in particular land tenure arrangements* - The failure of land management system to provide security of tenure so as to make SLM practices privately profitable to land users leading to a shortened time horizon and underinvestment in land improvements for fear that the benefits may be appropriated to others. Land resource users do often not have enough long-term security over the resource they depend upon, nor do they have sufficient consultative mechanisms. This is restricting their feeling of ownership over the resource, and limiting their interest in investing in SLM measures that would result in production increases in the medium or long-term. SLM practices and biodiversity conservation involve long-term investments that require greater tenure security for widespread adoption.

### **Socio-economic and financial barriers**

72. *Poverty and general lack of resources and investment opportunities* - Poverty is forcing many resource users to embark on short-term coping strategies rather than long-term investment in land and resources. In addition, rapid population growth is forcing land and ecosystem users to continuously increase pressure on local resources, at the expense of the regenerative capacities of vegetation and land

resources. Because of poverty, many resource users have no means of investing in enhancing their natural resource base and increasing their income in a sustainable manner.

73. *Subsistence nature of production* –Transforming small scale agriculture into a business case has been the vision for the country. However, there are challenges that small scale holders face to achieve this. Improving profitability of sustainable production requires incentives to undertake investments and to use management practices that will sustain land productivity rather than mining resources (for short-term profit) or neglecting management if returns to land management are no making business sense.

74. *Limited credit facilities* - Small scale farmers are limited largely to informal financial mechanisms and simple tools, such as local savings and loan groups, to meet their relatively basic financial service needs. Credit facilities to support up-front investment by small scale farmers are scarce and where available, not applied efficiently to attract private sector involvement or to further sustainable practices by local resource users. In addition, credit will normally not be provided for the management of common resources, as it is much more difficult for communities rather than individuals to obtain a loan.

75. *Lack of value chain approach in production* – Most smallholder households are not connected to a structured value chain of any kind. The productivity of the agricultural sector is constrained by inefficiencies in the supply chain resulting from limited storage capacity, lack of post-harvest services, and poor access to input markets. The limited ability to add value to agricultural produce, fluctuations in volumes and quality, makes agricultural produce by small scale farmers less competitive in local markets.

76. *Gender inequalities:* In Kenya, as in most of the African continent, women provide approximately 70 percent of the agricultural labour, 90 percent of the hoeing and weeding work, 60 percent of harvesting and marketing activities, 80 percent of food storage and transport from farm to village, as well as 90 percent of household water and fuel wood and nearly 100 percent of household food preparation, (ASARECA, 2009). Nevertheless they have little control over farm decision-making bodies. Specific gender-based constraints to increased productivity of women farmers include insecurity of tenure and access to resources, low levels of literacy, limited resources to purchase inputs, and social restrictions on meeting with extension agents and accessing other sources of information. Women traders and other businesswomen face difficulties obtaining permits, financing and services, (Rubin et al., 2009<sup>25</sup>). Without direct benefits of their labour and with no say in decision making means the women and the youth and have no incentives for SLM and most are engaged in off-farm casual labour that earns them direct benefit.

77. In terms of priorities for overcoming barriers and future investments, it is clear that barriers and bottlenecks need to be overcome in a comprehensive and integrated manner in order to have the largest on-the-ground impact on arresting land and ecosystem degradation and scaling up SLM.

## **2.4 Institutional, sectoral and policy context**

78. The policy environment in Kenya has been constantly evolving since independence and this has been captured through the periodic development planning cycles. The, macro-and micro-economic policies interact at different scales, influencing governance of natural resources. The policy formulation approach is multi-sectoral, but is often centralized, with devolved structures provided only for local implementation. Agricultural policy and ongoing reforms take place in the context of the government's overriding socio-economic development strategies. Ongoing natural resource and agricultural related policy reviews are been undertaken as an integral component of the broader policy reforms in

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<sup>25</sup> Rubin et al. (2009). Promoting Gender Equitable Opportunities in Agricultural Value Chains. Washington, D.C.: USAID

conformity with the new constitution. These policy reviews provide an excellent opportunity to harmonize a plethora of constitutional, policy, legal, and institutional frameworks for improved governance of natural resources. However, the process can only be valuable if knowledge and information are used to inform sound decisions.

79. *Convention on Biological Diversity (CBD)* – In terms of multilateral environmental agreements, Kenya has ratified both the United Nations Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification in 1994 and 1997 respectively. In addition, the country has also developed both the National Biodiversity Strategy Action Plan (NBSAP) and National Action Plan (NAP) and is committed to implement these strategies at the national level. The project is aligned to these strategies and will support priority actions including mainstreaming SLEM into major national development initiatives and frameworks; strengthening coordination by putting in place relevant policy, legal and institutional frameworks; facilitating active participation of all stakeholders, particularly the local communities in the SLEM processes, establishing a spirit of partnership among cooperating institutions; and, ensuring sufficient and sustainable financial resources and mechanisms. Further, the country has developed a number of policies and strategies that support mainstreaming of SLEM in national development including:

80. *The Constitution of Kenya 2010* – Chapter Five of the Constitution of Kenya lays down the principles for land and environmental management in Kenya. Article 60 (1) stipulate that land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable. Article 69 (1) further affirms that the state shall— (a) ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits; (b) work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya; (c) protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities; (d) encourage public participation in the management, protection and conservation of the environment; (e) protect genetic resources and biological diversity; (f) establish systems of environmental impact assessment, environmental audit and monitoring of the environment; (g) eliminate processes and activities that are likely to endanger the environment; and (h) utilize the environment and natural resources for the benefit of the people of Kenya.

81. *The Environmental Management and Coordination Act, 1999 (EMCA)* – is Kenya’s overarching act on environmental management strategies. The Act provides for the establishment of an appropriate legal and institutional framework for the management of the environment in Kenya and introduces elements of stakeholder participation in environmental management. It recognizes that improved legal and administrative co-ordination of the diverse sectoral initiatives is necessary in order to improve national capacity for the management of the environment.

82. *The National Land Policy (2009)* – provides for sustainable growth, investment and the reduction of poverty in line with Government’s overall development objectives. The specific objective is to address problems of unsustainable production, inadequate land use planning, poor environmental management, inappropriate ecosystem protection and management. Through this policy the Government shall ensure that all land is put into productive use on a sustainable basis by facilitating the implementation of key land policy principles on sectoral land use, productivity targets and guidelines as well as conservation of land quality.

83. *The Forest Policy (2005)* – envisage a radical change in the way forests are managed. The Forest law provides for increase in the participation of private sector and communities in the management of state forests. Under the Act, the Government will promote new forest legislation for implementation of aspects such as farm forestry, intensification of dryland forest management, involvement of the private sector in the management of industrial plantations and promoting community participation in forest

management and conservation. A Forest Act is currently being reviewed to align it with the new Constitution especially sharing of responsibilities with the devolved county governments and making provisions for more participation and sharing of benefits with local communities.

*Wildlife Policy (2013)* – The Policy provides a framework for conserving, in perpetuity, Kenya’s rich diversity of species, habitats and ecosystems for the well-being and benefit of its people and the global community. This Policy proposes a broad range of measures and actions responding to the wildlife conservation challenges. It seeks to balance the needs of the people of Kenya with opportunities for sustainable wildlife conservation and management countrywide. One of the key objectives of the policy is to promote partnerships, incentives and benefit sharing to enhance wildlife conservation and management which has been the main barrier for communities to engage in wildlife conservation.

84. *The Water Act (2002)* – provides a framework for water resources management, pollution control, conservation of water catchments and regulated water allocation. It also provides for water resources assessment through the continuous measurement and recording of water resources data, including quality and quantity, and the various human and other factors affecting the resource. Reforms are aimed at shifting the role of the government from direct service provision to regulatory support and provision of an enabling environment for integrated approaches that support private sector and community participation in water resource management.

85. *The National Agricultural Sector Extension Policy (NASEP 2012)* – NASEP was developed to guide and harmonize management and delivery of agricultural extension under the ASDS. It recognizes the need to diversify, decentralize and strengthen the provision of extension services with a view to increased sustainability and relevance to producers. The objectives of agricultural sector extension policy are to: facilitate the development of pluralism in service delivery; improve the efficiency and effectiveness of extension service provision from public and private sectors; put in place a regulatory system to guide service providers and modalities of setting operational standards, quality and norms.

86. *National Gender Policy for Development and Equality (2003)* – the National Commission on Gender and Development Act (2003) and establishment of the Commission in 2004, and Sessional Paper No. 2 of 2006 on Gender Equality and Development that provides a framework for implementing the Gender Policy. Further measures include the creation of the Ministry of Gender, Children and Social Development (2005) and the incorporation of Gender reporting in Performance Contracting guidelines for all public sector employees. The Constitution has developed a range of instruments, currently in the process of being rolled out, for gender equity.

87. *National Climate Change Response Strategy (NCCRS 2010)* – As a response to the challenges posed by climate change, the Kenya government developed the NCCRS. The NCCRS’s primary focus is ensuring adaptation and mitigation measures are integrated in all government planning, budgeting and development objectives. It has called for collaborative and joint action with all stakeholders (private sector, civil society, NGOs, faith-based organizations, etc.) in tackling the impacts of climate change. The most vulnerable sectors of the economy namely agriculture, water, energy, forestry, rangelands, health, social and physical infrastructure are prioritized for quick and immediate action. The *vision* of the NCCRS is for a prosperous and climate change resilient Kenya, whereas the *mission* of the Strategy is to strengthen nationwide focused actions by ensuring commitment and engagement of all stakeholders towards adapting to and mitigating against climate change.

88. *Draft National Environment Policy (2012)* – The goal of this policy is: A better quality of life for all people without compromising the quality of life of future generations through sustainable management of the environment and natural resources. The main objectives of the policy are mainly to: (a) Provide a framework for an integrated approach to planning and sustainable management of Kenya’s environment

and its natural resources. (b) Strengthen the legal and institutional framework for effective coordination and management of the environment and natural resources.

## **2.5 Stakeholder mapping and analysis.**

89. During the PPG phase, a number of stakeholders were identified that would be involved in way or another in the final project implementation. However, these stakeholders have varying capacities and interests and in some cases competitive. While most of them are engaged in sustainable land and ecosystem management (SLEM) related activities their approach is piecemeal and uncoordinated. The proposed projects will endeavour to bring these stakeholders together to secure a common vision and approach in the implementation and up scaling of SLEM. The stakeholders and institutions identified could be broadly classified into the following categories:

90. *Local communities:* This group representing the smallholder farmers and other small scale producer groups with particular focus on women and youths groups. The project will work through organized community based groups like the Community Forest Associations (CFAs), Farmer Field Schools (FFS), Farmer cooperatives, Water Resource Users Associations (WRUAs) etc. This group is the critical constituency of the project and shall be involved in full project cycle and also represented in all the key decision making process. The main interest of this group is to secure food security and increase income of their households but are constrain by technological and resource constraints. .

91. *The county governments of Kakamega, Nandi and Vihiga:* In the new constitutional dispensation, the agricultural sector has been fully devolved to the county governments and thus all interventions in the sector have to be endorsed by the respective county governments. The county governments have also constituted the County Environmental Committees (CEMs) that will oversee all issues related to environmental conservation in the county. The county governments have the mandate to legislate and enforce by-laws in support of SLEM. The county governments are also a primary source for co-funding through their ongoing programmes in the agricultural and natural resource sectors and thus a very important stakeholder for the project. The interest of the county governments is to secure livelihoods of their constituents and spur sustainable economic growth. However, the county governments are constrained by inadequate human and intuitional capacities to execute their mandate.

92. *The National government institutions:* The national government through the statutory and regulatory authorities especially Kenya Forest Service (KFS), Kenya Wildlife Service (KWS), National Environmental Management Authority (NEMA) and the Water Resource Management Authority (WRMA) will be the key stakeholders from the national government based on their mandates in management of environment and natural resources. The Ministry of Environment, Water and Natural Resources is the GEF operational and political focal point and shall be represented at decision making level. .

93. *National research institutions:* Kenya Agricultural and Livestock Research Organization (KALRO) is the principal executing partner on the ground with long term experience in agricultural related research and development in the region. Other important national research institutions with stake in the project include Kenya Forestry Research Institute (KEFRI), Maseno University and National Museums of Kenya (NMK). These research institutions have generated a lot of information but the challenge has been dissemination of the new technologies to local small scale farmers.

94. *International development partners:* A number of international development partners including World Agro-forestry Centre (ICRAF), Vi-Agroforestry, the International Center for Tropical Agriculture (CIAT), Biovision International and International Centre for Insect Physiology and Ecology (ICIPE) have worked in the region and there are valuable lessons to be learned from their investment.

The main interest of these institutions is to share the best SLEM practices from their global network and to create partnerships with national and local institutions to promote their innovations.

95. *Non-governmental organizations:* There are a number of local NGOS operating in the project area focusing on a wide range of issues. The active local NGOs operating in the region shall be identified and involved in project implementation based on their technical capacities and proven track record in community mobilization, training and advocacy.

96. *Private sector:* The project will support Public Private Partnership (PPP) initiatives to support small producer groups to process and market their products. This will enable small scale producers to acquire entrepreneurship skills and will contribute to enhance sustainability of the project initiatives. The private sector will also be part of level 3 group that will be informed of the process as appropriate and given opportunity to participate in supporting the project activities through Public private Partnerships (PPPs). The stakeholder analysis is presented in Table 5.

**Table 5: Stakeholder analysis**

No.	Stakeholder	Interest	Capacities	
			Strengths	Limitation
1	Local farmers	secure livelihoods Increased income Security of tenure	land owners local knowledge labour force Existing Community based organizations	High poverty levels Limited technical knowledge Limited incentives for SLM/SFM
2	Women and Youth	Food security Gainful income from labour	Labour force Experience Existing Organized groups	Empowerment to make decisions Lack of direct income Suppressive traditions
3	County government	Food security Economic growth Sustainable development	County government Devolution of agricultural sector Financial resources Political will	Limited human resource Policy and institutional gaps Limited knowledge management Lack of comprehensive land use plan
4	KALRO	To contribute to increased productivity, commercialization and competitiveness of the agricultural sector through generation and promotion of knowledge, information and technologies that respond to client's demands and opportunities.	Human resource Research infrastructure Knowledge management	limited capacity to research on modern technologies Weak linkages between research and extension
5	KFS	To enhance conservation and sustainable management of forests and allied resources for environmental stability and social-economic development.	Constitutional mandate on forest management	Capacity to implement PFMPs Managing community demands on forest resources
6	KWS	To sustainably conserve, manage, and enhance Kenya's wildlife, its habitats, and provide a wide range of public uses in collaboration with	Constitutional mandate on wildlife management	Limited human resource coordination challenges with sister institutions limited incentives for community engagement

		stakeholders for posterity		
7	WRMA	To effectively regulate and manage water resources in collaboration with stakeholders for sustainable development	Constitutional mandate on water resource management	Conflicting and overlapping roles and responsibilities with regulatory bodies Poor or lack of hydrological data quality for effective water resources planning and protection
8	KEFRI	To conduct research and provide information and technologies for sustainable development of forest and allied natural resources.	Human resource Research infrastructure Knowledge management	Weak linkages between research and extension Limited awareness about KEFRI mandate
9	Local NGOs	Support to rural development Advocacy of community rights Resource mobilization	Community mobilization Project management Lobby and advocacy	Limited resources Many NGOS with no coordination mechanism
10	Private sector	Increased business opportunities in SLM/SFM initiative Public private partnerships	Business oriented Financial resources Market linkages	Limited information of SLEM practices that could generate business

## 2.6 Baseline analysis and gaps

97. Several sustainable land and ecosystem management (SLEM) initiatives have been implemented in the region and others are ongoing. There are valuable lessons to be learned from the past projects which should inform future interventions. Some examples of successful SLM approaches include; the National Agricultural and Livestock Extension Programme (NALEP) that has promoted soil and water conservation technologies among over 100,000 small scale farmers, ICRAFs integrated soil nutrient management program, which has assisted over 8,000 small holders' to improve soil fertility and the Farmer Field Schools (FFS) approach for experiential learning. The recent support from AGRA on Soil Health Program and the long term experience of KALRO in the region are valuable information sources for sustainable small scale agriculture. However, there still exist gaps that hinder the adoption and scaling up of sustainable land management practices at landscape level.

98. Despite the baseline investment by government and development partners, there are still gaps that hinder the uptake of sustainable land and ecosystem management practices. The key gaps include:

### *Gaps in policy and institutional framework*

99. Under the new constitution, agricultural sector has been devolved to county governments and this has brought a new dimension in the management of agriculture and natural resources. The county governments are in the process of developing administrative and technical structures and most lack capacity to manage the agricultural sector. Some counties have had conflicts with national institutions due to misunderstanding of mandates and roles of county and national institutions.

100. In the forest sector, KFS maintains the overall mandate and ownership of the forest resources. The new forest regulations favour the big timber companies in concessional agreements, while the community groups are only allowed limited access of non-wood forest products. The current

institutional set-up does not provide substantive incentives for communities even under the CFAs to adopt SLEM practices

*Gaps in capacities for sustainable land and ecosystem management (SLEM)*

101. There have been a number of SLEM best practices that have been developed through research and past interventions. However, some of these practices have not moved from the pilot sites to the wider landscape due to a number of barriers. First, it is very important to understand what influences farmers' values and attributes in their decisions to adopt new sustainable land management practices. The farmers' current enterprise focus is vital in determining receptivity to new farming techniques and incentive programs. There has been a limited capacity to develop and disseminate SLM technologies. The linkage between farmers, extension system and agricultural research needs to be strengthened in order to facilitate development and dissemination of technologies that respond to farmer needs. Some of the options of addressing these barriers that this proposed project will bring on board include

*Gaps in value chain approach in production*

102. Improving profitability of sustainable production is necessary for land users to have an incentive to undertake investments and to use management practices that will sustain land productivity rather than mining resources (for short-term profit) or neglecting management if returns to land management are low. Most smallholder households are not connected to a structured value chain of any kind. The productivity of the agricultural sector is constrained by inefficiencies in the supply chain resulting from limited storage capacity, lack of post-harvest services, and poor access to input and output markets.

*Gaps in adaptive research, outreach and partnerships*

103. The effectiveness of agricultural research is dependent on adequate uptake and up-scaling of the research products and innovations. However, the level of uptake of available products and innovations has remained low. Various challenges have been identified in the area of technology adaptation, promotion and uptake. They include inadequate/ inappropriate policies which are an obstacle to uptake of the research products. Furthermore the high cost of some technologies relative to the low resource endowment users and insufficient maintenance/ multiplication and marketing of research products are challenges to technology uptake. It is further recognized that the potential of current research capacity is not fully exploited due to lack of comprehensive approach for dissemination of research findings, coupled with weak research-extension linkages. Other challenges include inappropriateness of testing and up-scaling of suitable methodologies and modalities for forging and maintaining partnerships and collaborative research arrangements.

*Gaps in knowledge management*

104. The lessons learned in the numerous projects on SLEM are scattered in various projects reports and not easily available. There is need to document and map out all the SLEM best practices in the region and creation of a central repository for storage and dissemination. There is very limited knowledge about agro-biodiversity and the significance of pollinators in agricultural production even among the extension workers. While a number of researches have been done in western region the information generated from these research findings is not easily accessible.

105. Kakamega and Nandi forests are rich sources of non-wood forest products and services (NWFPS) that support community livelihoods. However, there exist information gap about the types and total economic value of the NWFPS stock. The proposed project will undertake baseline survey to identify, characterise and value the NWFPS stock. This will enable sustainable utilisation and commercialisation of NWFPS.

## 2.7 Linkages with other GEF and non-GEF interventions

106. The proposed project focus is on up scaling SLEM practices across the landscape and will thus build on the lessons learned and best practices of past and on-going programmes. The project will also apply information generated from research institutions and traditional knowledge systems of the local communities to support SLEM agenda. Linkages will be established with following on-going projects to create synergies and information sharing:

### GEF Projects:

*107. UNEP/FAO/GEF - Mainstreaming Biodiversity Conservation and Sustainable Use for Improved Human Nutrition and Well-being:* The Development Goal of the Project is to contribute to the improvement of global knowledge of biodiversity for food and nutrition and thereby enhance the well-being, livelihoods and food security of target beneficiaries in Brazil, Kenya, Sri Lanka and Turkey through the conservation and sustainable use of this biodiversity and the identification of best practices for up-scaling. The Project Objective is to strengthen the conservation and sustainable management of agricultural biodiversity through mainstreaming into national and global nutrition, food and livelihood security strategies and programmes. The Project will seek to achieve these goals and objectives through implementation of three components which designed to improve: the knowledge base (Component 1); the policy and regulatory framework (Component 2); and awareness and out scaling (Component 3). Global knowledge will encompass globally relevant tools, lessons and best practices.

108. The Kenyan component of the project is being piloted in Busia County adjacent to Kakamega County, KALRO is the local implementing partner same as the proposed project and thus it will be easy to share information and create synergies especially in agro-biodiversity conservation.

*109. UNDP/GEF - Strengthening the Protected Area Network within the Eastern Montane Forest Hotspot of Kenya:* The project goal is to ensure that the montane forest biodiversity and ecosystem values are conserved and provide sustainable benefit flows at local, national and global levels. The project envisage to bring 65,000 ha of forests in the three target landscapes of Kakamega, Nandi and Cherangani gazetted or reclassified to higher status and with improved governance systems and financial scoring allowing for effective management. The project focus is on protected areas while the proposed project is focusing on the wider landscape in and out of the protected areas. There exist good prospects for creating synergies of the two projects through an integrated ecosystem approach.

*110. WB/GEF - Lake Victoria Environmental Management Project (LVEMP II):* – The LVEMP II project is a comprehensive programme aimed at rehabilitation of the lake ecosystem for the benefit of the people who live in the catchment, the national economies of which they are a part, and the global community. The project will contribute towards the achievement of the EAC's Lake Victoria Basin Development Vision and Strategy “*a prosperous population living in a healthy and sustainably managed environment providing equitable opportunities and benefits*”. The Project development/global environmental objectives are to: (i) improve collaborative management of the trans-boundary natural resources of LVB for the shared benefits of the EAC Partner States; and (ii) reduce environmental stress in targeted pollution hotspots and selected degraded sub-catchments to improve the livelihoods of communities dependent on the natural resources of the Lake Victoria Basin. This will be achieved by supporting: (i) Institutional capacity development and harmonization of policy, legislation and regulatory frameworks; (ii) Point source pollution control and prevention; and (iii) Participatory watershed management. The proposed project will collaborate with this project especially in watershed conservation in Kakamega and Nandi forests.

## Alliance for a Green Revolution in Africa (AGRA) Programs

111. AGRA has four interlinked programs: Program for Africa's Seed Systems (PASS); Soil Health Program (SHP); Market Access Program (MAP) and Policy and Partnerships Program (PPP). Together these programmes allow AGRA to focus on smallholder farmers while working across the value chain to achieve its three organizational goals that it plans to achieve:

- Reduce food insecurity by 50% in at least 20 countries
- Double the incomes of 20 million smallholder families
- Put at least 15 countries on track for attaining and sustaining an African Green Revolution

Under the SHP, AGRA supports SLM practices in Western Kenya. The SHP theory of change is that in order for farmers to adopt and use ISFM practices to increase soil productivity and achieve sustainable yield increases in ways that are economically viable for smallholder farmers, inefficiencies in the value chain must be addressed. Farmers require access to inputs and finance to purchase them, access to knowledge and, at the same time, incentives must be in place that drives farmers to invest in new seed, fertilizer, land and labor. Stable markets provide a source of income and are a key incentive where cost-benefit ratios are favorable and risk is low. However, farmers are also driven to adopt new practices where there are large benefits in terms of increased food production to improve food security and reduce reliance on purchased food (AGRA 2011). The SHP in partnership with KALRO has undertaken a number of SL&EM related projects in Western Kenya including:

*112. Improving Smallholder Maize Productivity in Western Kenya through Integrated Soil Fertility Management (ISFM)* – The overall goal of the project is to contribute to food security, income generation and poverty alleviation through scaling up and out the uptake of Integrated Soil Fertility Management (ISFM). The 3 year project (2010-2012) directly targeted 30,000 smallholders in Siaya, Kakamega and Vihiga counties using Agricultural Value Chain (APVC) approach. In total about 20,000 farmers were reached. The key recommendations from the project were:

- Application of ISFM significantly improves maize and legumes productivity
- Farmer preferred technologies, varieties and management practices of legumes and maize needs to be identified for scaling out to other farmers
- Smallholders prefer technologies with returns in the short term
- Scaling out of innovations requires strong farmer organizations and strong linkages with other partners

*113. Up scaling grain legumes for replenishing soil fertility and enhancing incomes and livelihoods of smallholder farmers* – Under this project, AGRA supported KALRO to undertake a project on ISFM which included integration of organic and inorganic fertilizers into maize-legume rotations/intercrop. About 20,000 farmers were trained through field days and field demonstrations and exchange visits. This helped improve yield of maize from 0.5 to 2.5 MT ha<sup>-1</sup>. Yields of beans and soybeans increased from 0.2MT ha<sup>-1</sup> to 0.50 MT ha<sup>-1</sup> and 0.3 to 1.6 MT ha<sup>-1</sup>, respectively. Cost benefit conducted by the project showed that for each dollar invested in maize beans intercropping, 3-4 more dollars were gained as accrual benefits to the farmers, which shows the viability of the project's model.

*114. Up scaling the use of agricultural lime to enhance soil health and for increased crop production in acid soils* – The overall goal of the project was to contribute to food security, nutrition and incomes of the rural small-scale resource-poor farmers while enhancing ecosystem and health of small scale farmers in Western Kenya. The project tested the effects of agricultural lime in maize productivity using different treatments. The results indicate that maize yields from fertilizer based treatments with or without lime, were always more than 3 folds higher than those from the lime only and/or control. It also indicates that with improvement in soil characteristics through application of agricultural lime and fertilizers, *Striga* population reduced by 54.6% and that fertilizer and liming technology has the best potential for optimizing maize yields and reduced *Striga* population.

115. The SHP ISFM programs have provided practical evidence and created the platform for up scaling of the SLM practices across the landscapes through the ‘going beyond demonstrations’ approach. In total, the SHP was able to reach over 30,000 framers. The proposed UNEP GEF SLM Kenya project will adopt and adapt the same approach in reaching out to more smallholder farmers across the 3 target counties of Kakamega, Nandi and Vihiga building on the baseline and achievements of AGRA .

### **Other SLM related projects**

*116. Strategic Investment Programme for Sustainable Land Management in Sub-Saharan Africa.* Several SLM initiatives are ongoing and planned by the Kenya Government and her development partners. The Kenya Government has put in place the necessary national development frameworks that are expected to address the land degradation and its underlying drivers. Sustainable Land Management Approach (SLM) in Kenya can take advantage of the experiences and lessons learnt from a wide range of past land management programs.

Successful approaches to SLM include conservation agriculture, integrated soil fertility management, agro-forestry and sustainable dryland management practices. Some examples of successful SLM approaches are the National Agricultural and Livestock Extension Programme (NALEP) that has promoted soil and water conservation technologies among over 100,000 small scale farmers, and ICRAFs integrated soil nutrient management program, which has assisted over 8000 small holders’ farmers in adopting the use organic manure to improve soil fertility. In addition, some 2500 Farmer Field Schools (FFS) have been conducted in about 25 districts, which imply that there is an ample supply of field-level trainers and facilitators. The proposed project will be linked to the Kenya Strategic Investment Programme for Sustainable Land Management the framework will provide a platform for information sharing and coordination of investment SLM investment in the country.

*WB - Vi Agroforestry Agricultural Carbon Project* – This project involves the adoption of sustainable agricultural land management practices by small-holder farmer groups which result in increased crop yields, farm productivity and soil carbon sequestration (as well as above-ground carbon sequestration) on approximately 45,000 ha of land in Western Kenya. The expected outcomes from this project include; that small-holder farmers in Kenya will be able to access the carbon market and receive an additional stream of carbon revenues through the adoption of productivity-enhancing practices and technologies that also contribute to the mitigation of greenhouse gases. The SLM practices promoted under the project include; cropland management (cover crops, crops rotation, mulching, improved fallows, compost management, green manure, agroforestry, organic fertilizer, residue management) and rehabilitation of degraded land. The project will be expected to generate socio-economic and environmental benefits through increased productivity and enhanced resilience to climate variability and change. The project is financed by the World Bank’s BioCarbon Fund

*117. Strengthening capacity for climate change adaptation in Kenya through sustainable land and water management* – The main objective of the project is to reduce the impact of climate change and variability on smallholder agriculture through sustainable land and water management technologies and contributes to improvement of food security and ecosystem resilience in the selected watersheds in western Kenya. The activities to be undertaken by the project include on-the-ground climate-smart sustainable land and water management practices (focusing on conservation agriculture, crop-livestock integration, it will also include technological and management packages and practices to adapt land and water management options to climate change are tested and disseminated to benefit land users, policy makers and relevant stakeholders. The project is funded under the SIDA/FAO programme on climate change. The baseline projects and other past initiative have provided a solid base to upscale the successful SLM based on lessons learned and best practices.

***UNEP Medium Term Strategy (MTS) and Programme of Work (POW)***

The project is aligned with UNEP's mandate, functions and Medium Term Strategy and its biennial Programme of Work (2015- 2016). The proposed project is consistent with the Ecosystem Management thematic priorities. Specifically, it will contribute to the achievement of Expected Accomplishment EA (a): Use of the ecosystem approach in countries to maintain ecosystem services and sustainable productivity of terrestrial and aquatic systems is increased by (2): Tools, technical support and partnerships to improve food security and sustainable productivity in agricultural landscapes through the integration of the ecosystem approach.

**United Nations Development Assistance Framework (UNDAF) for Kenya: 2014 - 2018**

The project is also aligned to UNDAF (2014 – 2018) in particular Strategic Result area 4 that addresses the Environmental Sustainability, Land Management and Human Security. Under this framework the project will support counties in domesticating national policies and strategies at the county level and supporting communities to adopt sustainable land management practices.

Under the UNDAF adage of *Delivering as One*, UN agencies will coordinate efforts to strengthen capacities at county level within the land, natural resource and agricultural sectors for the smooth implementation of the devolution process under the new Constitution of Kenya (2010). This will include support to land, natural resources and agricultural sector state and non-state actors to improve harmonization and coordination of efforts and technical support to national and county authorities. UNEP is the lead agency that will coordinate other UN agencies in delivering on this result area.

## SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

### 3.1 Project rationale, policy conformity and expected global environmental benefits

#### Project rationale

118. From the baseline analysis, it's evident that the government and communities have recognized the problem of land and ecosystem degradation and a number of interventions have been put in place to reverse the trends. While gains have been made through these interventions, there are still barriers for up scaling the success stories to the wider landscape. The main rationale for the project is to address the critical barriers and gaps identified in Section 2.6 (Baseline analysis and gaps) to facilitate the up scaling of SLM/SFM practices.

119. Although the selected SLM technologies have shown promising results, most of them are limited to participating farmers within project sites. Less effort has been invested in catalysing other stakeholders such as agro-dealers, seed producers, processors, county staff working on value chains, interested NGOs and extension workers to up-scale these successes. This proposed project extension phase, therefore, aims at strengthening capacity of farmers' organizations and other key stakeholders to be able to develop and scale up and out ISFM innovations to improve soil productive capacity through enhanced soil health, which will lead to improved livelihoods as well as alleviate poverty in farming communities of western Kenya

120. In the agro-ecosystems, the awareness and recognition of agro-biodiversity is limited. Indigenous food crops are still being viewed as a poor man's crop and still undertaken at subsistence level. There are good prospects of commercializing the indigenous crops as a major enterprise in the region. The challenge has been the availability of certified planting seeds or materials from the commercial market. The critical role of pollinators in agricultural production has not been understood by farmers while the habitats continue to be destroyed. The project will support awareness creation and importance of agrobiodiversity through training and demonstrations at field level.

121. In the forest ecosystems, efforts have been made to involve communities through participatory forest management (PFM) and more recently support to Community Forest Associations (CFAs). The past and ongoing projects have recognized the role of local communities in the management of the forest ecosystem and a number of CFAs have been trained on the importance of the forest and its biodiversity. However, the incentives for local communities are basically subsistence in nature and economically negligible to support livelihoods. The local communities are allowed limited access to collect firewood, wild vegetables, grass and herbs while big companies and connected individuals are licensed to harvest and sale timber.

122. A sound sustainable forest management system needs to generate economic benefits to the local communities at least more than the subsistence level in order to address the root cause of deforestation. The new draft forest policy has provisions for forest concessions for private companies or CFAs. The proposed project seeks to fill in this gap by pursuing provision of the new law to facilitate the CFAs to apply for co-management of a forest block through a concessional agreement with KFS.

#### Intervention strategy

123. Integrated Landscape Management (ILM) is increasingly becoming an important framework for addressing complex and interlinked agricultural and environmental issues. It brings together diverse stakeholders sharing one landscape but often with conflicting interests and offers innovative strategies to promote agricultural, improve rural livelihoods and inter-sectoral planning through a shared vision.

124. The existing challenge which the proposed project seeks to address is how to scale up from successful but often fragmented and localized SLM/SFM initiatives to programmes that are fully

integrated within sectoral and county development plans and budgets and hence are both institutionally and financially sustainable. The reasoning for the proposed intervention is to move the lessons learned in the piecemeal projects from pilot sites to the wider productive landscapes and to strengthen the effective coordination, shifting towards a more programmatic approach to SLM/SFM in line with AGRA's initiative of "Going beyond demos".

125. The overall strategy to solve the prevailing problem will be supported by four pillars: (1) Capacity building of farmers and stakeholders in SLM/SFM; (2) Strengthening farmer linkage to agricultural inputs and outputs markets; (3) Support to enabling policy and institutional framework at local level; and (4) Knowledge management and dissemination.

#### *Capacity building of farmer groups in Sustainable Land Management (SLM)*

126. The project will undertake capacity needs assessment (CNA) of farmer groups, extension service providers and input suppliers in order to identify the critical capacity gaps that need to be bridged to facilitate the successful implementation of the project. The project will apply tested training and extension approaches including; demonstrations, field days, agricultural fairs, farmer to farmer extension to reach out farmers in the wider landscape. In particular, the project will undertake training of trainers (TOTs) for the frontline extension staff and lead farmers. The project targets to train 200 ToTs, each of which will train at least 2 farmer organisations on various aspects of SLM practices. The SLM practices to be disseminated will focus on integrated soil fertility management (ISFM) including; maize-legume intercropping, agroforestry, conservation agriculture, soil and water conservation measures, and crop-livestock integration.

127. ISFM is a holistic approach to soil fertility research that embraces the full range of driving factors and consequences; biological, physical, chemical, social, economic and political, of soil degradation (Barrios *et al.*, 2006). Strategically targeted fertilizer use together with organic nutrient resources to ensure fertilizer use efficiency and crop productivity at farm scale are basic principles of ISFM (Vanlauwe and Giller, 2006). Beneficial effects of ISFM on soil fertility have been shown to increase nutrient use efficiency associated with combined nutritional and non-nutritional effects of organic and inorganic inputs compared to inorganic fertilizer applied alone (Fofana *et al.*, 2005; Wopereis *et al.*, 2005). ISFM as a market-led technology builds on the hypothesis that better market opportunities provide incentives for farmers to invest in the technologies (Sanginga *et al.*, 2007). This market-led hypothesis is increasingly becoming a key pillar not only in ISFM research (TSBF, 2005) but also other areas of integrated agricultural research for development (Sanginga *et al.*, 2007).

128. The project will adopt participatory methods of learning including the Participatory Action Plan Development (PAPD), Innovation Platforms for Technology Adoption (IPTA) and Farmer Field schools where applicable. These participatory approaches incorporate experiential learning to assist farmers to learn about topical issues in an informal setting within their own environment. The learning will focus on organized farmer groups and will be facilitated by trained lead farmers and frontline extension staff. Participatory methods of learning, technology development, and disseminations have been applied in Western Kenya since 2005 to disseminate different innovations with encouraging results.

**129. The project will also support research and extension service providers in capacity building to better serve the farmers. In particular, the project will train 200 frontline extension staff that will include lead farmers and equip them with training manuals for SLM and other related training materials. The project will support KALRO to revamp its soil lab with field soil testing equipment and supplies. The project will in addition facilitate the documentation of SLM best practices that could easily be replicated in other other areas across the region.**

Figure 3 depicts the multi-stakeholder players.

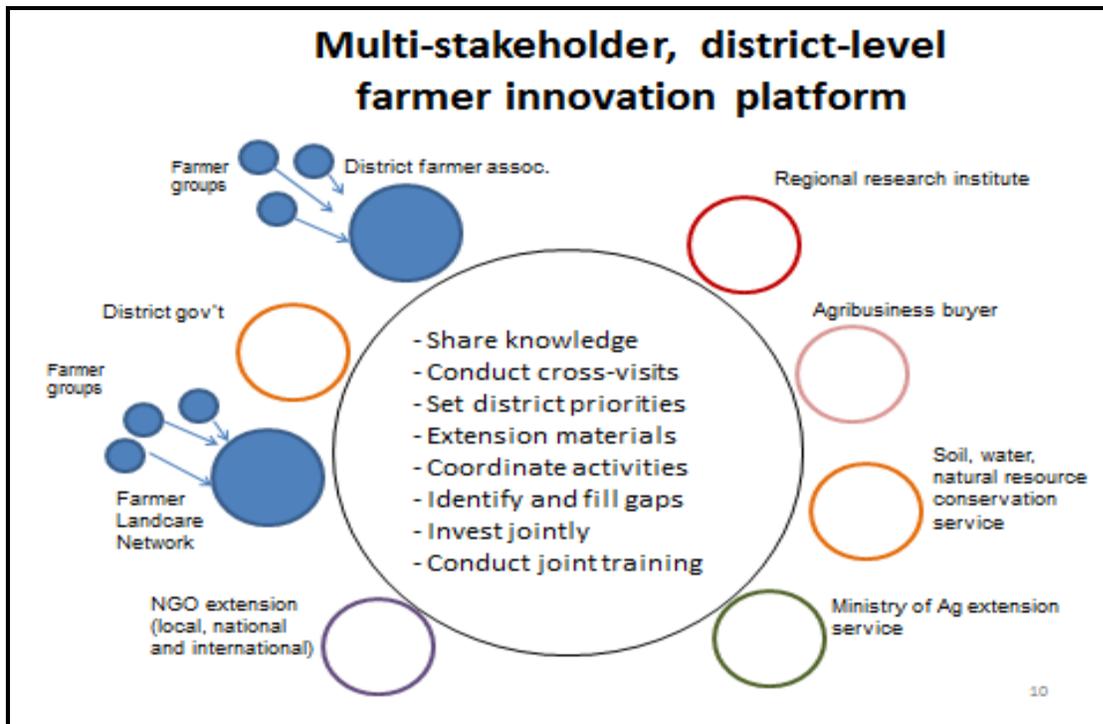


Figure 3: Multi-stakeholder Farmer Innovations Platform (adapted from TerrAfrica 2008)

*Capacity building for Community Forest Associations in SFM*

130. Kenya has embraced Participatory Forest Management (PFM) as an approach towards achieving sustainable forest management (SFM). This is out of realization that involvement of the wider stakeholders would significantly contribute towards sustainable management of forests. In this approach, local communities through Community Forest Associations (CFAs) and other stakeholders participate in management of forest resources as provided for by the Forest Act 2005. The main objectives of PFM are to preserve biodiversity while at the same time enhancing people’s livelihoods and ensure the sustainable use of forests resources.

131. A recent survey undertaken by Kenya Forests Working Group in 2013 identified a number of challenges facing CFAs which include limited information on policies and regulations governing the forest management, low operational and technical capacity to implement PFM plans and lack of communication structure with stakeholders. The project will undertake a capacity needs assessment of the CFAs to identify the critical gaps that the project will focus on. The region has 7 CFAs across the 3 counties and a capacity development strategy in line with the KFS PFM guidelines provided below (Figure 44) will be developed. The capacity building will mainly cover training, development and review of forest management plans and facilitation to enter into contractual agreements with KFS for co-management of forest resources.

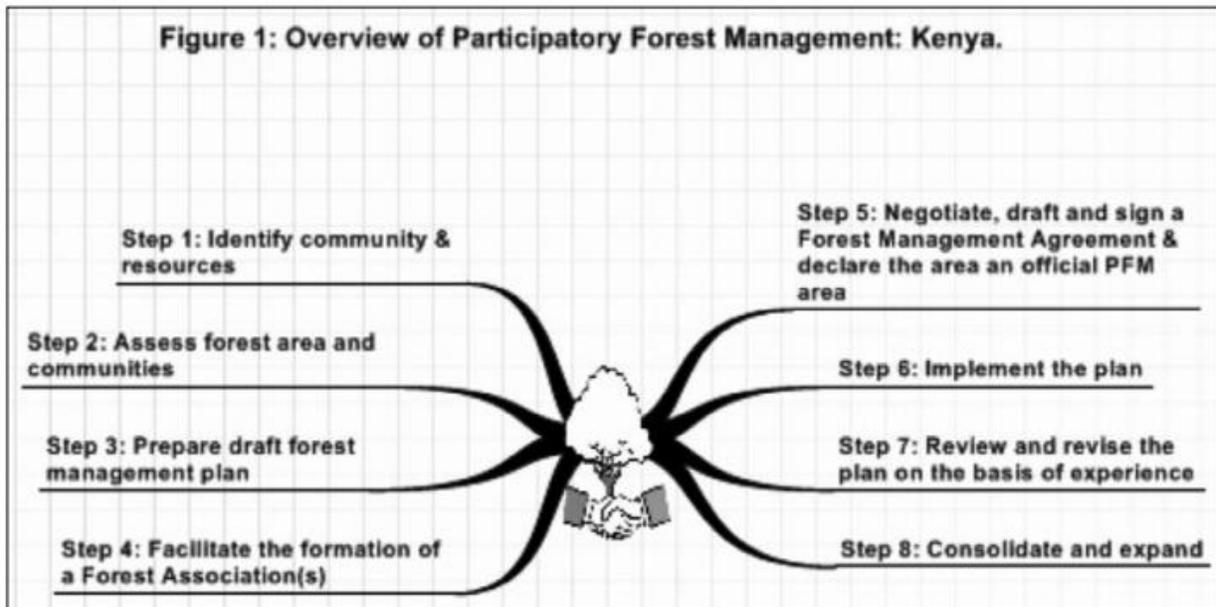


Figure 4: Guidelines for the implementation of Participatory Forest Management in Kenya

*Strengthening farmer linkage to agricultural inputs and outputs markets*

132. The access by small producer groups to better input and outputs markets will depend on how they are organised and informed about the value chain dynamics. Towards this end, the project will strengthen the producer groups through continuous capacity building in group dynamics, governance, and organizational/leadership skills. The project will also create strong linkages and partnerships with the buyers and streamlining bulking at the collection centres with the groups. In addition, a forum of stakeholders involving buyers, farmers, agro-dealers, local entrepreneurs and other value chain actors will be established to facilitate sharing of information on markets and integration of production and marketing. In particular the farmer will be linked to Kenya National Federation of Agricultural Producers (KENFAP) that represents the interests of small holder farmers in market access.

133. For the input markets, the project will link the trained farmer groups to agro dealers through AgMARK, which has been working with agro dealers for a while in western Kenya. The project will engage AgMARK, Equity Bank, and other agro-dealers through consultative meetings to chart an effective strategy to enable Equity Bank provide credit to agro-dealers so that they can stock adequate ISFM related inputs. Moreover, consultative meetings involving farmer groups will be held in each County to gauge the demand of the inputs at least two months before onset of planting season, while extension agents will be engaged to provide statistics of quantities of each input required prior to the planting season. Negotiated agreements will be signed between the project and other partners.

134. The project will also link the trained farmer groups to Program for Rural Outreach of Financial Innovations and Technologies (PROFIT) program through MFIs who will provide credit. PROFIT program will help farmers access farm input credit in two ways: (1) Linkages with MFIs-PROFIT has provided credit finance to four MFIs in Kenya totaling 600 million Kenya Shillings to be lent to qualifying farmers, and (2) Linkages with commercial banks such as Equity Bank: PROFIT has provided a risk sharing facility or a credit guarantee scheme 10 million Kenya Shillings which can also be accessed by qualifying smallholder farmers. To qualify the farmers to access the credit, the project will provide training in credit and loan management to farmer groups.

135. In addition, the project will promote use of appropriate ICT tools such as mobile phones, which will be adapted to facilitate farmers and traders access to information and market in real-time and able

to get reasonable compensation for their efforts as the buyer gets fresh produce without having to go to a physical market. Working with the department of extension, partnerships and contract agreements will be forged with the leading mobile telephony service providers (Safaricom and Airtel) to enhance efficiency and enforcement of contracts.

**136. The project will adopt the Agricultural Product Value Chain (APVC) Approach (KARI 2009) to strengthen farmer linkages to agricultural inputs and outputs markets. The project will support APVC for 3 major crops specifically; maize, legumes and indigenous vegetables. The adoption of this approach requires shift of focus from commodities to differentiated agricultural products including increased value-value-addition of the targeted commodities and promotion of new products that fit the demands of the target market. The APCV approach (**

Figure 5) is expected to create incentives for small scale farmers to:

- shift from their traditional farm products to better quality products the market demands thereby earning increased income;
- get organized around common interest and gain advantages from economies of scale to be created as the result;
- create synergy among different actors to control traditional markets and entering new markets and increase sales volume, reduce transaction cost (search for information, travel to market, time to sell, etc.) and increase margin of profit;
- help attain increased quality control and standardization due to the fact that food is becoming a more complex product and public health concerns are increasing
- become more efficient, market-oriented & profitable so they can be credit worthy.

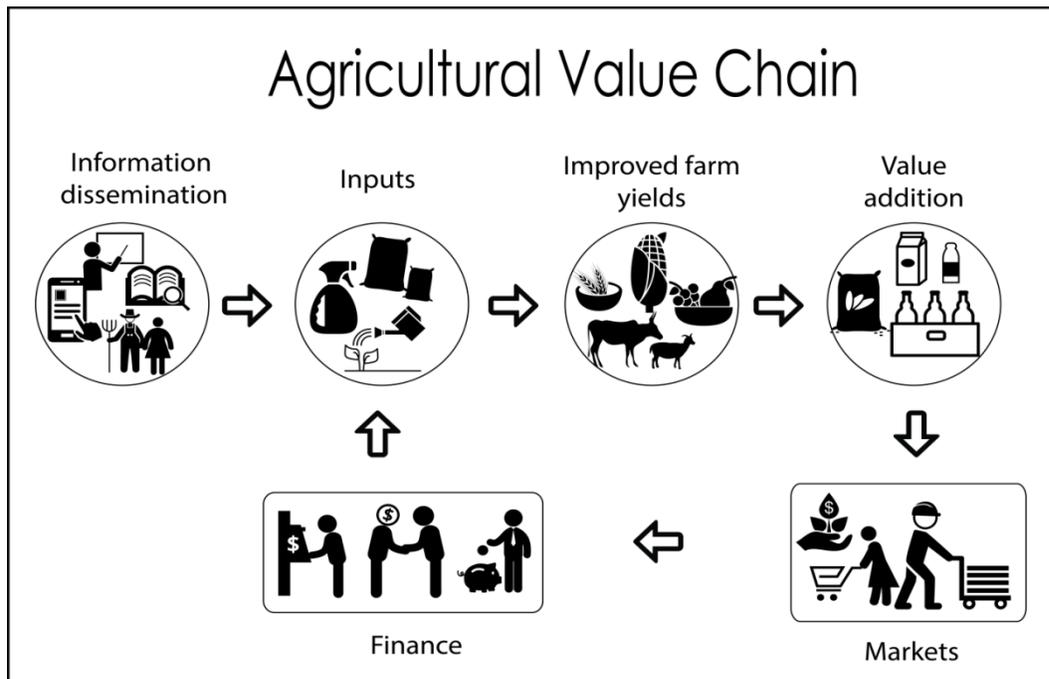


Figure 5: Agricultural value chain for small scale farmers

*Engagement of youth in agriculture*

137. According to the 2009 Kenya population and housing census, 34% of the population is aged between 15 and 34 (UNDP 2014). This is a substantial workforce that could contribute significantly to

national economic growth. However, much of this labour force is unutilized. Agriculture has the potential to not only to grow the economy but also create an exponentially large number of jobs for the youth. With more young people participating in the agricultural sector, the country can produce more food for domestic and export market.

138. There are emerging opportunities that can help accelerate the transformation of agricultural activities into viable businesses. The adoption of new agricultural technologies and intensification of some of the agricultural sub-sectors such as horticulture, aqua-culture, dairy, poultry, beekeeping, and other farming enterprises requiring less land, but more intensive labour and management skills can be of interest to the youth. There is a growing market for fresh, high quality, agricultural products both in cities and international markets. The youth can also find business opportunities along the value chain as input or service providers. These rural based business opportunities can stem the tide of rural-urban migration of school leavers.

139. The project intends to support 10 youth groups in agricultural enterprise development. The groups will be identified through a competitive process one for each of the 10 targeted landscapes. The support will entail training in modern agricultural technologies, value chain approach and agricultural entrepreneurship in general. The youth groups will be linked to agro-dealers and financial institutions both public and private to facilitate the youth grouped realize their objectives.

*Support to enabling policy and institutional framework at local level*

140. The barrier analysis as discussed in Section 2.3 identified a number of policy and institutional barriers which hinder the up scaling of SLM practices. These policy barriers include fragmentation and overlaps of institutional mandates and limited incentives for small scale farmers to invest in SLM practices. The policy context has been further complicated by the new constitutional dispensation in which the Ministry of Agriculture, Livestock and Fisheries has been fully devolved to county level. While the new constitutional order may turn around agricultural productivity with more investment in the long run, the counties at the current transitional phase lack both technical and institutional capacity to implement an SLM programme across the county.

141. To address these barriers, the project intends review of SLM/SFM related policies and how the county governments could create a framework for harmonization. The findings and recommendations from the policy review will be used to sensitize the county government both the executive and the legislative assembly with a view of developing a county level framework for the implementation of SLM/SFM practices. The project will engage a policy consultant to train the county government officials on formulation of county level framework and strategies that would create incentives to promote implementation of SLM/SFM practices and other environmental related programmes.

142. The forest and agroecosystems cut across the 3 counties and any disturbance of the natural environment in one county will have effects on the others and beyond. To address this issue, the project will support inter-county dialogue between the various arms of the county governments both executive and legislative with an objective of developing an inter-county agreement or framework for the management of not only the trans boundary natural resources but also socio-economic development of the region. This initiative will also ensure sustainability of the project investments and leverage of additional resources.

*Knowledge management and communication*

143. While there is a fairly adequate knowledge and technological base on SLM/SFM practices, the information is scattered in various institutions and in different formats that cannot be easily accessed or shared. The various success stories of SLM/SFM practices tested in various demonstration sites by different actors even in the same region have not been fully documented or shared. The baseline

scenario would see a continuation of this approach with less synergy and complementarities and thus leading to duplication of efforts.

144. Knowledge management is a process that does not just involve the generation and exchange of data or information; it also requires mechanisms that promote a change in understanding of the individuals involved and the cogeneration of new knowledge through the participation of a wide range of individuals and organisations. Knowledge management involves maintaining stocks or “reservoirs” of knowledge both technical and indigenous. Knowledge management requires sustainable and efficient means of access and/or knowledge brokerage.

145. The project will support knowledge management for SLM/SFM through a number of strategies. First the project will engage a consultant to document the past and on-going SLM/SFM best practices and related research work undertaken in the region with the objective of harnessing knowledge into one “reservoir” or repository. The information will be stored both manually and electronically in formats that can easily be retrieved and shared. KALRO Kakamega centre will house the repository and shall be capturing and updating new knowledge from time to time. From this repository, the project will develop awareness creation materials including posters, brochures and policy briefs related to SLM/SFM at county level. The project will also support the development of a participatory monitoring (PME) and evaluation tool that will enable farmers to participate in data collection of environmental indicators in their own fields. The knowledge generated from the PME tool will form the basis of decision making and action.

146. In addition, the project will develop a communication strategy that would ensure project information and progress reports are disseminated to key stakeholders. The project will be working with multiple stakeholders both at the county and national level and hence a good communication strategy is needed to ensure all the stakeholders are updated on project progress in real time. The communication strategy will be a two way channel for posting and receiving feedback from the stakeholders. The communication strategy will involve use of multimedia including local radios and audio visual documentaries. A project website link will be created and placed at AGRA’s and KALRO’s main websites for ease of reference. Social media platforms including Facebook and Twitter accounts for the project will be opened to cater for the youth audience. The implementation strategy is presented in Table 6.

**Table 6: Implementation strategies**

<i>Intervention outcome</i>	<i>Strategy to be applied</i>	<i>Strategy Description</i>
Increased adoption of sustainable land and forest management practices by smallholder farmers	Participatory Action Plan Development	Participatory Action Plan Development is a tool for building consensus amongst local communities on how to manage and improve their livelihood options. The approach is a structured and repeated set of sensitization meetings that helps local people identify key problems and constraints together with realistic opportunities to address them.
	Innovation Platforms for Technology Adoption (IPTA)	Innovation platforms for technology adoption (IPTA) aim to promote problem solving by a wide range of stakeholders, including researchers, farmers, extension workers and NGOs, policymakers, equipment manufacturers, traders and processors. The intention is for the platform to agree on and work towards a common goal that, typically, will lead to greater

		productivity and income for smallholder farmers
	Farmer Field Schools	The Farmer Field School is a form of adult education forum where a groups of farmers get together to study a particular agricultural topic. It is a forum where farmers and trainers debate observations, experiences. FFS provide opportunities for experiential learning with focus in addressing farmer's constraints.
Increased farmers' access to profitable input and output markets for key crops and forest products	Agricultural productivity value chain approach	A value chain is a sequence of steps involved in the process of production to market delivery of a product. It provides a means of understanding relationships between businesses, methods for increasing efficiency, and ways to businesses to increase productivity and add value. Value chain approach is a vehicle for linking small businesses to markets. The adoption of this approach requires shift of focus from commodities to differentiated agricultural products and value-addition of the targeted commodities that fit the demands of the target market
Promotion of Non-Wood Forest Products development	Market Analysis and Development (MAED)	MAED is a participatory tool especially suitable for Community-based forest enterprise development since it links participatory natural resources management and conservation activities to income generating opportunities. Besides environmental sustainability, the methodology also takes into consideration social, technological, legal and commercial aspects, providing a wide scope for understanding relevant market systems. The approach encourages planning and development of business strategies it also contributes to local communities' investment preparedness, making it easier for them to access external capital and investments such as those related to Carbon Finance
Enabling policy and institutional framework for up scaling sustainable land and forests management	Policy dialogue	Policy dialogues are carefully constructed, deliberative meetings that address both politically controversial and technically complex aspects of an issue in a dispute. Generally speaking, policy dialogues seek to exchange information and build consensus recommendations between the public, private, and civic sectors through leaders who are in a position to forge alliances, make decisions, or strongly influence the trajectory of a possible solution to a challenging issue. Policy dialogues go by many names. Some call them "Roundtables" or "Issue Workshops."

### Alignment with GEF focal areas

148. The proposed project is consistent and responsive to the GEF-5 Focal area (FA) strategies on Land Degradation (LD), Biodiversity (BD) and also on Sustainable Forest Management (SFM/REDD+).

In particular, the project will contribute to achievement of LD Outcome 1.2 Improved agricultural management, Outcome 1.3 Sustained flow of services in agro-ecosystem and Outcome 3.2 Integrated landscape management practices adopted by local communities. The proposed project will also

contribute to achievement of BD Outcome 1.1. Improved management effectiveness of existing protected area and Outcome 2.1: Increase in sustainably managed landscapes that integrate biodiversity conservation. In addition, the project is in alignment with SFM/REDD+ Outcome 1.2. Good management practices applied in existing forests. The project has relevance to realisation of Aichi Nagoya Targets especially Target 1: People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably, Target 7: Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity and Target 15: Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration.

149. The CBD recognizes the need for integrating agro-biodiversity in NBSAPs and stipulates the provisions to support the implementation of activities on conservation and sustainable utilization of plant and animal genetic resources for food and sustainable agriculture. The SBSTTA (UNEP/CBD/COP/10/3) report further recommends among other things, potential actions to promote agro-biodiversity conservation that contribute to biodiversity as well as ecosystem based carbon sequestration of soils and to conserve and restore organic carbon in soil and biomass. Expected global environmental benefits. The proposed project is expected to deliver global environmental benefits through putting over 100,000 ha of vulnerable productive landscapes under sustainable land and ecosystem management. This will result to increased productivity of ecosystem goods and services that are so vital to sustain the high population in the region. The project will also address the threats to biodiversity especially of endangered species and pollinators by securing their habitats.

150. In addition, the project will also make significant contribution to sequestering carbon through improved management of existing forests. Total potential carbon benefit as a result of successful restoration, forest carbon stock enhancement and conservation is estimated at 339,240 of CO<sub>2</sub>/yr (based on PPG estimation). In addition, better farming practices and reforestation help to reduce soil loss and sediment loads on rivers with substantial benefits on water quality, international waterways, riverine and marine ecosystems.

151. The project will also generate socio-economic benefits to the local communities in a way that will lead to behavioral change and more support for sustainable land and ecosystem management. Some of the socio-economic benefits include:

- a) Improved farm production for household food security and higher incomes as SLM practices yield benefits for soil fertility and crop productivity. Kenya's current staple food production is not able to meet the demand in growing urban markets and additional production from farmers in Western Kenya should find ready outlets, thereby boosting farm incomes.
- b) Improved nutrition and incomes through and expanded legume and cereals inter-cropping. In addition, legumes are a source of high quality protein while cereals are sources of carbohydrates and fats and will contribute significantly to household nutrition;
- c) The promotion of indigenous crops will enhance conservation of agrobiodiversity and the plant genetic resources that have been neglected and yet could offer the solution to food security and adaptation to climate change.
- d) Women farmers and youths who are the majority in the target area will benefit from increased awareness, knowledge and skills as well as enhanced access to farm inputs that will improve their production. The legumes promoted as part of ISFM and CA are often considered a woman's crop and, with improved productivity, are expected to be an important income source for women.

- e) Putting more land under sustainable land and ecosystem management will increase productivity of ecosystem goods and services to cope with the increasing demand from an expanding population.
- f) The project will facilitate Private-Public-Partnerships (PPPs) through capacity building of producer groups in agribusiness and bio-enterprise development in order to ensure that SLEM practices are market driven and sustainable. Table 7 shows the alignment to GEF focal area objectives, while Table 8 gives the alignment of the project with Aichi targets.

**Table 7: Alingment to GEF focal area objectives**

<i>GEF Focal Area Objective</i>	<i>FA Outcome targets</i>	<i>Project contribution</i>
<b>LD-3:</b> integrated Landscapes: Reduce pressures on natural resources from competing land uses in the wider landscape	Policies support integration of agriculture, rangeland, forest, and other land uses	Integrated landscape management plans developed and implemented Support to county policy framework or integrated lancape for mainstreaming SLM/SFM
<b>BD-2</b> Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors	Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation.	Increase in area put under SLM/SFM incorporating biodiversity conservation Promotoion of agrobiodiversity conservation
<b>SFM/REDD-1</b> Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services	Enhanced enabling environment within the forest sector and across sectors.	Support for SFM across lanscape through Participatory forest mangement

**Table 8: Alingment with Aichi targets**

<i>Aichi Strategic Goal</i>	<i>Aichi indicatrors</i>	<i>Project contribution to Aichi targets</i>
<b>Strategic Goal A:</b> Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	<b>Target No.7</b> By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring con- servation of biodiversity	Area put under SLM/SFM
Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services	<b>Target No.15</b> By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	Support to restoration of degraded forests

### 3.2 Project Goal and Objective

152. *The goal* of the project is to contribute to food security and incomes of smallholder farmers and secure sustainable land and forest ecosystems in Western Kenya. *The development objective* is to promote the adoption and adaption of sustainable land and forest ecosystem management (SLEM) practices across the productive landscape of Kakamega-Nandi ecosystem. *The global environment objective* of the proposed project is to reduce land and ecosystem degradation, conserve agrobiodiversity and contribute to climate change adaptation and mitigation

153. Specifically, the project will support capacity building of small scale holders and local institutions to create an enabling environment for SLM uptake. This will be achieved through the following project components:

- Component 1 – Capacity Building of Stakeholders on SLM, SFM and Biodiversity conservation
- Component 2 – Mainstreaming Value Chain Approach to Smallholder Producers
- Component 3 – Enabling Policy and Institutional Framework

### 3.3 Project components and expected results

#### **COMPONENT 1: Capacity Building of Stakeholders on SLM, SFM and Biodiversity Conservation**

**Outcome 1.0:** Enhanced capacity of smallholder farmers to implement and upscale sustainable land and forest management practices

154. Based on the barrier analysis and capacity needs assessment, the project will support capacity building of the key stakeholders to enhance their technical and institutional capacity for up-scaling SLM/SFM. The expected outcome under this component is increased stakeholder capacity that would result in scaling up and productivity of agro and forest ecosystems. This outcome will be achieved through the following activities:

**Output 1.1:** *Conduct baseline mapping and assesment of land use activities in targeted landscapes*

155. The project will undertake spatial mapping of 10 landscapes identified for project implementation across the 3 counties. The mapping will entail spatial analysis of the land use activities, critical ecosystems and hot spots. The mapping exercise will be augmented with analysis of secondary information and landscape rapid assesment to identify the critical livelihood issues in each landscape. The map and assesment report will form the basis for participatory development of landscape land use plans and establishing baselines for the project activities. The mapping and landscape rapid assesment will be executed through a contractual arrangement and a strategic partner. The baseline studies will also include social assesment and gender analysis to identify gaps in gender mainstreaming.

**Output 1.2:** *Capacity needs assesment of farmer groups and other key stakeholder undertaken*

156. While the broad barriers for upscaling SLM/SFM and biodiversity conservation practices have been identified in the barrier analysis, a capacity needs assesment still needs to be undertaken to identify specific capacity gaps of the newly created county governments, Community Forest Associations (CFAs) and farmer groups especially youth and women groups that have been marginalised in the

agricultural sector. A national consultant will be engaged to undertake the exercise. The findings from the capacity needs assessment will be used to develop capacity needs strategy to fill in the critical gaps especially as relate to SLM/SFM and biodiversity conservation.

**Output 1.3:** *Development of Integrated Land Use Plans for SLM, SFM and Biodiversity conservation at Landscape Level*

Landscape planning for sustainable local community development is needed, now more than ever before as the population increases and land fragmentation intensifies. Due to its cross-sectional orientation and spatial planning approach, landscape planning requires inputs from the key land owners and users to secure a common vision and negotiate trade-offs that would ensure interests of various sectors including forestry, agriculture, water, wildlife, infrastructural development are factored in. Securing the provision of ecosystem goods and services across the landscape is key for sustainable development planning. Under this output, the project will facilitate the development of 10 land use plans at landscape level that incorporate biodiversity conservation. The planning process will adopt the Land use planning principles provided in the Kenya Land Use Policy of 2010.

**Output 1.4:** *Support to conservation of biodiversity hot spots*

Kakamega forest ecosystem management plan (2012-2022), identified 10 biodiversity hot spots that need to be restored. The management plan has outlined a number of activities that needs to be undertaken to secure the critical biodiversity hotspots. The project will support key stakeholders in implementation the management plan that would ensure ecosystem integrity.

**Output 1.5:** *Conduct training of trainers (ToT) for Farmer Field Schools (FFS)*

157. The project will undertake training of trainers that will be involved in training of the participating farmer groups. Within the 10 landscape sites, the selection of trainers will be undertaken through a participatory process. Each farmer group will nominate their lead farmer for the training. The selection of the trainers will ensure that at least half comprise the women and youth. A total of 200 lead farmers and frontline extension staff will be trained on various aspects of SLM/SFM practices and value chain approach for smallholder producers. Each trainer will be equipped with training manuals and mobile smart phone for communication and access to agricultural information. Each trainer will be expected to cover at least 2 farmer groups and thus reaching out to about 12,000 farmers directly.

**Output 1.6:** *Facilitation of Farmer Field Schools (FFS)*

158. Based on the capacity needs assessment and secondary information, the project will develop a training strategy for the groups in line with their needs. The training curriculum for the farmer groups will include a wide range of topics along the agricultural value chain from production to marketing. The first phase of the training will focus on agronomic practices of SLM/SFM. The training will be undertaken in the real farmer fields and using the resources available. Each farmer group will develop a SLM action plan and a monitoring and evaluation tool with set targets and indicators to track performance of the group members in adoption of SLM technologies in their farms.

**Output 1.7:** *Establishment of SLM/SFM and Biodiversity conservation learning sites for farmer groups*

159. Demo sites will be established in the farmers' fields with at least one for each farmer group to serve as learning sites for the SLM technologies and agronomic management of the 3 target crops; maize, legumes and indigenous vegetables. The project targets 50 learning sites that will demonstrate various aspects of SLM including integrated soil fertility management, agroforestry, farm forestry, climate smart agriculture, crop-livestock integration and other appropriate technologies. The project will provide the inputs and other necessary support for the demonstrations so as to be able to generate input-

output data for socio-economic analysis. Considerations for selecting farms where the demos will be established will be based on an objective criterion that will be undertaken with the group members and will include willingness of the farmers to participate, the area of land allocated, gender, and accessibility among others. Each group member will be expected to replicate at least one SLM practice from the demo sites.

***Output 1.8: Facilitation of farmer open and field-days***

160. Farmer open days will be regularly organized in the established learning sites bringing together farmers, extension staff, researchers, agro-dealers, micro-finance institutions, media and the general public to share lessons on the performance of the different SLM technologies. The field days will also provide an opportunity for stakeholders to show case new products and also get feedback from the general public. The project will facility at least 2 field days per landscape and one major sub-county field day per year to showcase innovative farming practices, share on-farm research results and build relationships between producers, service providers, buyers and consumers.

***Output 1.9 Support to implementation Participatory Forest Mangement Plans***

162. The Kenya Forest Service (KFS) and partners have developed a number of Participatory Forest Mangement Plans (PFMPs) in Kakamega ,Nandi South and North forests. However, there are gaps between planning and implementation of the PFMPs due to technical and financial limitations. The time lag renders some of the PFMPs outdated and reviews are needed to capture new developments and threats. The project will support the review and implemnattion of 5 PFMPs (2 in Nandi, 2 in Kakamega and 1 in Vihiga). The PFMP reviews will generally follow guidelines provided in Figure 4 and basicaly focusing on updating existing information.

***Output 1.10: Capcity building of Community Forest Associations (CFAs) and other forest stakeholders***

163. The CFAs are the critical stakeholders for the success of any PFMP but most of them are yet to realize significant benefits from the forest resources apart from the traditional grazing, fuelwood collection, and *Plantation Establishment for Livelihood Improvement Scheme* (PELIS) meaning that the much anticipated shift from traditional benefits has not materialized. The absence of benefit sharing framework has been cited as a major barrier in PFM. The project area has 7 CFAs at different developmental stages covering Kakamega, Nandi South and Norh forests. The project will support the CFAs through training on various aspects of forest mangement, establishment of tree nurseries, product development from various Non-Wood Forest Products (NWFPS), facilitation for contactual agreements with KFS and group dymamics and governance. The capcity building exercise will not only cover the CFAs but also other organised groups with stake in the forest resources.

***Output 1.11: Documentation of SLM/SFM and biodiversity conservation knowledge and technologies***

164. Poor access to agricultural information and knowledge by extensionists and farmers in general is one of the barriers for adoption of new technologies. Public agricultural extension service plays a key role in disseminating knowledge, technologies and agricultural information, and in linking farmers with other actors in the economy and thus need to be equipped with knowledge and new technologies. The project will engage a consultant to collate and document the lessons learned and best practices of SLM in the region that could be easily replicated across the landscape. The training of ToTs will cover SLM success stories in the region and the new technologies from research. The knowledge generated by the project will also be documented and shared with other stakeholders.

## **COMPONENT 2: Mainstreaming Value Chain Approach to Smallholder Producers.**

*Outcome 2.0: Increased farmers' access to profitable input and output markets of targeted crops and forest products*

164. The baseline analysis identifies lack of value chain approach as one of the main barriers to sustainable production and marketing. Most smallholders are not connected to a structured value chain of any kind and this has been a challenge of transforming small scale agriculture into an agribusiness. Under this component the project will support the linkage of small holder farmers to input and output markets. The expected outcome is to see value-chain approach being mainstreamed in smallholder production system.

### ***Output 2.1 Value chain analysis of target crops undertaken***

165. The project targets maize, legumes and indigenous vegetables which are the 3 major crops in the region for the value chain analysis. Value chains of the targeted crops will be mapped and analyzed using value chain analysis (VCA) tool or market map. The market map is a conceptual and practical tool that helps to identify policy issues that may be hindering or enhancing the functioning of the chain and also the institutions and organizations providing the services (e.g. market information, quality standards) that the different chain actors need in order to make better informed decisions. The market map is made up of three inter-linked components:

- Value chain actors
- Enabling environment (infrastructure and policies, institutions and processes that shape the market environment)
- Service providers (the business or extension services that support the value chains' operations)

166. The enabling environment consists of the critical factors and trends that are shaping the value chain structure and operating conditions, but may be amenable to change. These “enabling environment” factors are generated by structures (national and local authorities, research agencies etc.), and institutions (policies, regulations and practices) that are beyond the direct control of economic actors in the value chain.

167. In most effective value chains the actors who actually form the chain (i.e. transact the main product) are supported by business and extension services from other enterprises and support organizations (e.g. seed suppliers and intermediaries). There is an on-going need for chain actors to access services of different types both market and technical. The third component of the Market Map framework is concerned with mapping these services that support, or could potentially support, the value chain's overall efficiency.

168. The value chain study will entail secondary market research through literature review of all relevant documents; field interviews through direct contact with key actors (persons, institutions etc.) in the respective value chains. The study will also involve sampling representative producer organizations, milling companies to collect data, interview officers, and to develop a “feel” for the industry at the various points of the chain. The main output of the value chain analysis is to identify the weak points and potential linkages that could add value and reduce transactions costs and thus securing better prices for small scale farmers.

***Output 2.2: Establishment and strengthening of inputs and outputs market linkages***

169. Markets are of fundamental importance in the livelihood strategy of most rural households. Markets are where, as producers, they buy their inputs and sell their products; and where, as consumers, they spend their income from the sale of crops or from their non-agricultural activities, to buy their food requirements and other consumption goods. However, access to markets has been one of the major constraints especially for small scale farmers.

170. Improved market access to smallholders is well recognised as route to improving agricultural production and reducing poverty. The main interest of smallholders is to access; inputs markets; product markets and services (market information, technical production information, and finance). Characteristically, small holder farmers tend to produce and to sell commodities (hardly value added) individually and group action is not well developed. In this regard, the smallholders are not attractive suppliers to deliver sufficient quantity and quality of commodities and thus less competitive.

171. Under this output the project will support capacity building of small producer groups in the following activities:

- Value addition of products
- Diversification (products and services)
- Better group organization to secure economies of scale
- Development of contractual arrangements
- Response to markets demands (quantities, quality, timing of deliveries)
- Mobile phone market information system

***Output 2.3: Facilitation of farmer groups linkage to affordable finance markets***

172. Financing smallholder farming has been one of the major concerns of Kenya's development efforts. Many farmers cite lack of financial capital as a major reason for not adopting new technologies. Research has indicated that farmer with less access to credit plant fewer high yielding crop varieties. In most rural areas in Kenya, access to financial services including credit and formal saving mechanism is limited. Even where financial services are available, they are often unaffordable and not tailored for small scale farmers.

Small holder farmers often face high interest rates and unfavorable borrowing conditions because small scale agriculture is still being viewed as a high risk venture.

173. Unlocking access to affordable credit and other financial products for smallholder farmers and agricultural value chains is key profitable and sustainable agribusiness. A big challenge facing smallholder farmers' access to credit is the fact that most of them are not financially literate, meaning that they are likely to make poor financial decisions that could harm their businesses and families. Financial literacy training for smallholder farmers and SME owners is critical in unlocking access to credit. In addition, many banks and other financial institutions lack the requisite knowledge on how to lend to smallholder farmers and agricultural value chains that support smallholder farmers. There is need to enhance financial institutions' level of comfort and experience with rural and agricultural clients by facilitating them gain experience of rural and agricultural lending along value chains, and in understanding the characteristics and risk profile of rural and agricultural clients.

174. In recognition of this fact, the government of Kenya in partnership with development partners has been supporting a number of initiatives to facilitate small scale farmers to access financial and input credits. A recent initiative is the government's partnership with IFAD and AGRA on Program for Rural Outreach of Financial Innovations and Technologies (PROFIT). The core objectives of PROFIT were to

increase incomes of the target groups as a result of improved productivity and marketing in the various rural enterprise sectors. This is achieved through sustained access to a broad range of financial services and capacity building for poor rural households.

175. Based on the lessons learned from various financial schemes to support small-scale farmers by different actors, the project intends to build on the innovative credit facilities. Under this output the project intends to identify and promote linkages between rural financial institutions and producer groups through the following activities:

- Financial literacy training for small producer groups
- Technical assistance rural micro finance institutions and other actors along the agricultural value chains
- Support of input credit schemes (ICS) for smallholder farmers

***Output 2.4: Support to establishment and strengthening of Community Based Seed Systems for indigenous crops***

176. The majority of farmers in Kenya get their seeds from the informal channels which include farm retained seeds, seed exchanges among farmers and/or local grain/seed market. These channels contribute up to 80-100% of seed supply depending on the crop (Wekundah 2012). Despite the importance of these systems, unlike the formal, informal sector systems are rarely supported by governments. Subsequently, its improvement has been limited or non-existent. In Kenya, the seed industry has developed into a vibrant regional leader with 67 seed enterprises currently operating and yet the informal seed sector still accounts for 80% of the total seeds produced (Wekundah 2012). In this regard, there is need to support both the informal and formal seed sectors with emphasis on integrated seed systems to address the issue of seed quality, quantity and accessibility.

177. Community-based seed systems or seed banks usually “store” seeds from a wide range of individuals, informal groups, and CBOs who share seeds among themselves, sometimes only occasionally; or engage in systematic exchanges and market linkages. Farmers through traditional knowledge and experiential learning have developed seed varieties especially of indigenous crops. In this regard, efforts should be undertaken to secure seed knowledge base through capacity building of farmers on better seed health management and proper storage and other technologies to ensure good quality of seeds.

178. Under this output the project will build the capacity of farmer groups to strengthen the community based seed systems. The targeted crops are 3 indigenous vegetables (*Black night shade, Amaranth, Spider plant*) and root crops (*Cassava, Sweet potatoes and Groundnuts*). In particular, the project will undertake the following activities:

- Assessment of existing community based seed systems
- Training farmers on better selection, treatment and storage of seed from their own farmers
- Promoting exchange of seeds through seed fairs
- Linkage of community based systems to research and formal seed industry

***Output 2.5 Support to post-harvest management at household level***

179. Post-harvest losses in Kenya have previously been estimated at 30% of all stored produce. However, with the invasion of the Lager Grain Borer and Aflatoxin, the loss can be 100% (Government of Kenya 2010) depending on the severity of the outbreak. Therefore, for improved food security, appropriate mitigating measures against these losses need to be instituted early enough before attack

take place for enhanced food security. Options to reduce post-harvest losses are available, but their adoption remains low. There are many examples of promising practices ranging from training in improved handling and storage hygiene to the use of sealed bags and household metallic silos

180. However, the adoption of improved post-harvest practices and technologies needs to be better understood from the economic, technical, and social perspectives. Recognizing the challenges of the previous initiatives on post-harvest, recent interventions increasingly follow the value chain approach. Demand for better-quality grain has not been a priority, and in most cases, the market has not rewarded the efforts made by farmers and other actors to improve quality and reduce losses. However, several key trends are reversing this situation. The emergence of urbanization, changing consumer preferences in the grain sector and more proactive regulatory authorities provided an important market opportunity for farmers who can meet the required standards of quality, quantity, and consistency.

181. Under this output, the proposed project intends to build on experiences and best practices for post-harvest handling focusing on small scale farmers. In particular the project will support the following activities:

- Training of farmers in crop management cycle “from seed to seed”
- Demonstration of appropriate post-harvest technologies tailored for smallholders
- Promoting value addition at farm level to transform the produce to products with a longer shelf life.
- Linking farmers to National Cereals and Produce Board (NCPB) Ware House Receipt System.

***Output 2.6 Support to women and youth groups in small scale agricultural enterprises (SMAEs)***

182. The project will support 10 youth groups drawn from the targeted 10 landscape sites. The project will engage a strategic partner to manage the capacity building of the youth groups in agricultural entrepreneurship. The capacity building of the youth groups will cover the entire crop production cycle using the value chain approach. The youth groups will be linked to Youth Enterprise Development Fund (YEDF) and other potential microfinance sources including the Constituency Development Fund (CDF) and banks. The Youth Enterprise Development Fund is already offering the *Agri-Vijana* loan targeting young people keen on undertaking agri-business and more specifically, Green house farming. Each group will be expected to focus on one agricultural product for a niche market.

183. The project will borrow from lessons learned from UNDP Youth Entrepreneurship Development Training Programme which has been able to train 556 youth in 19 districts across Kenya in business skills acquisition and entrepreneurship development, as well as elevating these youth trainees to be enterprise development agents.

***Output 2.7 Support to development and commercialization of Non-wood forest products and services (NWFPS)***

184. Non-wood forest products (NWFPs) have long been used for subsistence by communities living near forests. Many people living in and near forests are unaware of the potential of that resource for income generation because they lack access to information on processing possibilities. Sustainable exploitation of these resources could improve their livelihood through supplemental income and employment. Tropical rain forests are particularly abundant with plants yielding essential oils, gums, medicines, tannins, and resins.

185. In Kakamega and Nandi forests, the NWFPS demand from the local communities include firewood, grazing, herbal medicine, wild fruits, wild vegetables, bush meat, honey, charcoal, thatch grass and ecotourism. These NWFPs play vital role in the livelihoods of local community in meeting

their basic needs for energy, food, health care, shelter and recreation. So far the utilization of these products has been at subsistence and yet there has been a growing demand of natural products that could transform the NWFPS into a commercial enterprise. However, no detail economic evaluation of the NWFPS has been undertaken and in addition, the current illegal, unregulated and unreported exploitation of the NWFPS may led to overexploitation and loss of biodiversity.

186. Under this output, the project will identify forest user groups and train them using the FAO Marketing Analysis and Enterprise Development (MAED). MAED tool is a participatory tool especially suitable for Community-based forest enterprise development since it links participatory natural resources management and conservation activities to income generating opportunities the project intends to support development and commercialization of viable NWFPS through the following activities:

- Total economic evaluation of the NWFPS in Nandi and Kakamega forests
- Value chain analysis of selected NWFPS
- Support to user groups in product development and market linkages
- Development of safeguards for sustainable management and utilization of NWFPS

### **COMPONENT 3. Enabling policy and institutional framework**

***Outcome 3.0:** Enabling policy and institutional framework for up scaling sustainable land, forests and biodiversity management at county level*

187. The fragmentation and overlap of policies and institutional mandates relating to land and natural resource management has been identified as a key barrier to sustainable land management. The project proposes under this component to support creation of an enabling policy and institutional environment to facilitate uptake of SLM practices at landscape level. The expected outcome is to create an improved enabling environment for sustainable land and forest management

***Output: 3.1:** Assessment of SLM/SFM and biodiversity related policies and strategies at county level*

188. Following the new constitutional dispensation, agricultural sector and some part of natural resource sector has been fully devolved. The county governments are now expected to manage these sectors and while this new development would create increased sense of ownership and attract more investment, the newly created county governments have limited knowledge of national policies and international obligations governing these resources. The project will engage a policy analyst to review the relevant SLM related policies. In particular, the policy review will include Agricultural Act, Environmental Management and Coordination Act (EMCA 199), Land Use Policy (2009), Draft Land Registration Bill (2011), Water Act (2005), Wildlife Act and Draft Forest Policy and Draft Environmental Policy. The project will also review the Agricultural Sector Development Strategy (ASDS), the National Biodiversity Strategy Action Plan (NBSAP), and National Climate Change Strategy (NCCRS) and recommend how these national policies and strategies will be domesticated at county level.

***Output: 3.2:** Support to development of county level SLM/SFM and biodiversity management frameworks*

189. The project will facilitate a policy consultative dialogue with respective county governments and stakeholders where the recommendations from the policy review exercise will be presented. The project will engage a policy analyst to create awareness and train both the county executive, respective committees of the legislative assembly and civil society on the formulation of county level SLM/SFM related bills and strategies including Access and Benefit Sharing (ABS) of forest resources (2015). The project intends to facilitate 3 CFAs one in each of the project counties to enter into concessional agreement with KFS. The project will also support the county governments to domesticate multilateral

agreements through the national frameworks and will be facilitated to contribute to the national reporting communication.

***Output: 3.3: Support to Ecosystem valuation in Kakamega-Nandi forest complex***

190. The forests traversing the 3 counties provide ecosystem goods and services that are valuable to livelihoods within and beyond the region. The project intends to undertake economic valuation of the ecosystem services in order to create awareness and to explore opportunities for access and benefit sharing

***Output: 3.4: Support establishment of inter-county ecosystem forum***

191. The project will also support the inter-county forum between Kakamega, Nandi and Vihiga counties to discuss the management of trans-boundary ecosystems and natural resources for mutual benefit. The forum could also explore opportunities for creating an economic zone for agricultural commodity trading that could create a huge market of about 3 million people.

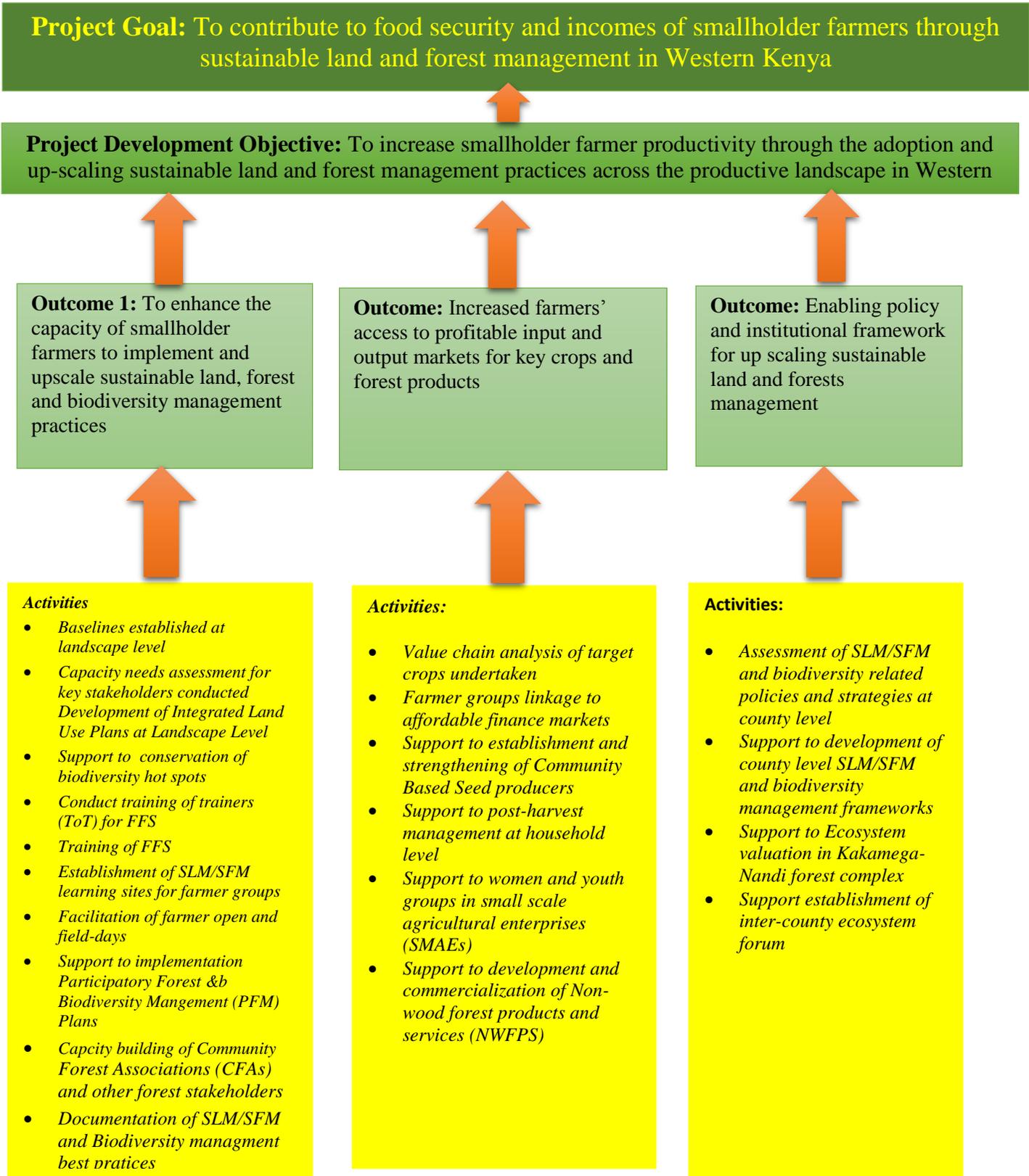


Figure 6: Project Result Framework

### *Expected Global Environmental Benefits*

The project will directly contribute to the following GEF Focal Area Objectives; LD-3 Integrated Landscapes to reduce pressures on natural resources from competing land uses in the wider landscape; BD-2 Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors; SFM/REDD-1 Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services. The project will also contribute to the attainment of Aichi Biodiversity 2020 targets specifically; Target No.7 Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity; Target No.15 ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

In particular, the project will generate global environmental benefits by securing Kakamega forest ecosystems with its rich biodiversity (Table 4) and surrounding agroecosystems. A recovery of ecosystem integrity will conserve biological diversity of global importance by providing critical habitat, especially in the event of loss of natural habitats. In general, the project will contribute to the following; (i) land/forest degradation trends arrested in targeted areas, (ii) critical biodiversity habitats secured, (iii) reduction sediments in freshwater bodies, and (iv) restoration and maintenance of ecosystem function and services including increased sequestration of carbon within both soils and vegetative material.

**Table 9. Global Environmental Benefits**

<i>Global Environmental Benefits</i>	<i>Target</i>	<i>Monitoring system</i>
Increased land under SLM/SFM	70,000 ha	LADA (FAO/UNEP) tool
Conservation of endangered biodiversity	Species stability	Biodiversity surveys
Increased Carbon sequestration Under SFM (50,000 ha)	1,003,801 tCO <sub>2</sub> e over project duration	Forest Resource Assessment (FRA, 2015)
Increase in productivity and profitability of agro-ecosystems	30% increase	House Hold surveys

### *Social- economic benefits*

The project will directly work with 30 farmer groups in the 3 counties with the aim of building their technical and organisational capacity to enable them address their livelihoods challenges. The project will target about 1,500 households in training and capacity building. The households will be expected to benefit from improved food security and income of up to 30% of the baseline. The entry point for the project will be through Farmer Field Schools. Even though the FFS approach is not intended for creating long-term organisations, it has become apparent that after the season-long FFS process, most of the groups continue working together to address problems within their community including HIV/AIDS issues, basic financial management, simple credit management skills or others. This responsiveness to immediate community concerns has facilitated a transformation of the FFS to a popular community forum in which farmers discuss problems within their own local context and seek solutions with minimal external support. This development has been a fundamental factor in building farmers' confidence to determine their own destiny.

The FFS groups will be expected to form networks within the district and across the basin; this could provide a platform for them to lobby and advocate for better service provision, access to markets and better enabling policy environment that would secure their livelihoods. The project will also promote value chain approach in production that will not only secure food security but will also promote with the private sector through public private partnerships. The expected increase in productivity and profitability would provide additional resources for farmers to reinvestment in SLM practices.

### 3.4 Intervention logic and key assumptions

197. The main thrust of the project is to increase agricultural productivity of smallholder producer groups through up scaling of sustainable land and forest management practices and adoption of value chain approach. These objectives are guided by the hypothesis that the increased productivity and profitability as well as access and benefit sharing mechanism from pilot SLM/SFM sites will create incentives for accelerated uptake of SLM/SFM technologies across the landscape. The intervention logic is based on the following assumptions:

*198. Community based approach* – Local actors are the chief stewards of the landscapes and they make the vast majority of daily environmental management decisions with their land use and investment choices. Over generations, they have used their traditional ecological knowledge to manage natural resources, conserve and maintain ecosystems, and adapt to environmental changes. Community based initiatives deliver a wide range of development benefits when empowered to manage their ecosystems and natural resources. These benefits extend well beyond poverty reduction and livelihood gains and encompass the social, economic, and environmental dividends that underpin sustainable development.

*199. Evidence based decision support* – Agricultural production and land management are based on decisions made by individuals at farm household level and collective decisions made by groups of farmers and communities based on experience and current state of knowledge. Farm households make decisions about land use, the crop types to plant, the amount of labor to use, and the types and amounts of inputs, investments, and agronomic practices to conserve soil and water, improve soil fertility, reduce pest losses, etc. Communities also can influence land management through their collective decisions or indecisions. The assumption is that the evidence from project demonstration sites, knowledge empowerment and experiential group learning will enable farm households to make positive decisions on SLM/SFM uptake.

*201. Incentive mechanism* – The AGRA’s theory of change (AGRA 2011) is that in order for farmers to adopt and use ISFM practices to increase soil productivity and achieve sustainable yield increases in ways that are economically viable for smallholder farmers, inefficiencies in the value chain must be addressed. Farmers require access to inputs and finance to purchase them, access to knowledge and, at the same time, incentives must be in place that drives farmers to invest in new seed, fertilizer, land and labor. Stable markets provide a source of income and are a key incentive where cost-benefit ratios are favorable and risk is low. For the proposed project, the assumption is that, farmers will be driven to adopt new practices where there are large benefits in terms of increased crop productivity to improve food security and incomes.

*202. Climatic variability* – Small scale agriculture is fully dependent on rain-fed agriculture and thus agricultural productivity will very much depend on the climatic conditions. While the project will promote Climate Smart Agricultural practices, the assumption is that there will be no climatic extremes that would undermine the SLM /SFM investments.

*203. An enabling business environment* – Enabling business environment is necessary for up scaling SLM practices across landscapes. Price volatility of essential agricultural inputs and outputs could adversely affect the projected productivity from SLM investments. Stability of input and output markets would enable small scale farmers access affordable inputs and better markets of their produce and thus able to service their credits. Political and social stability is needed to secure political will and support of county and local level institutions.

### 3.5 Risk analysis and risk management measures

204. The development goal of the proposed project is to promote the adoption of sustainable land and forest ecosystem management (SLEM) practices across the productive landscape of Kakamega-Nandi ecosystem. While the threats and barriers to achieve this goal have been articulated in Section 2.3 (Threats, root causes and barrier analysis), there are other externalities and risks that may affect the project performance in one way or other. The potential risk factors include:

205. *Policy and institutional conflicts* – There are a number of policy and institutional overlaps regarding the management of natural resources in Kenya. The regulatory authorities especially KFS, KWS, WRMA and NEMA all have mandates that tend to overlap in regard to the management of natural resources and yet there is no structured framework for harmonization of programmes. The devolution under the new constitutional dispensation has completed matters since the new county governments are also interested in the management of natural resources. These policy and institutional overlaps are potential source of conflicts among the key project implementing partners and may slow down the project implementation. The project proposes to mitigate this risk factor through consultative process and defining roles and responsibilities of each implementing partner equitably.

206. *Externally driven demand of land and forest resources* – The demand of land and forest resources from an expanding population still remains a major threat to the attainment of the project goal. The political and social instability within or outside the target counties may create movement of people who may encroach on the forest and wetlands. The market demand of some forest products from Kakamega –Nandi forest ecosystem may also led to overexploitation. Capacity building of county and local institutions especially CFAs and also facilitating access and benefit sharing of forest resources could mitigate this risk.

207. *Price volatility* – Price instability of essential agricultural inputs and outputs could adversely affect the projected productivity from SLM investments. The high cost of agricultural inputs has led to adulteration and counterfeits of agricultural inputs especially seeds, fertilizers and agrochemicals by unscrupulous traders. The spread of these illegal products has led to huge losses to farmers. The project will work very closely with regulatory authorities and agro-dealers to manage this problem. The will also build the capacity of farmer groups to source their inputs at subsidized rates from the source. On the other hand, the project will support small scale farmers on post-harvest management and bulking of agricultural produce to attract better prices at the right time.

208. *Climate change* – The agriculture sector is the most sensitive to climate change, meaning that agricultural systems will need to adapt to the changing environment. At the same time, the sector is a large and growing GHG emitter. The project will support climate smart technologies for mitigation ( Table 1010) and adaption including conservation agriculture and use, drip irrigation systems and appropriate crop varieties.

**Table 10: Risk Matrix**

<i>Risk</i>	<i>Rating</i>	<i>Mitigation measures</i>
Weak governance structure at county level	High	Support in institutional capacity development Promotion of public participation and advocacy for transparency and accountability
Policy and institutional conflicts among key implementing partners	Medium	Clearly defined, roles, responsibilities of each entity Open communication channel and feedback Synergy built for county and national institutions Recognizing community structures and leadership

Significant increases in externally driven pressure on forest protected areas leading to increased forest loss and fragmentation	Low	Creation of more incentives that could offer more direct benefits to farmers CFAs facilitated for to apply for concessions of forest blocks
Price volatility of inputs and outputs	Medium	Post-harvest management and bulking of produce Strengthening of value chains Collaboration with regulatory authorities
Land tenure and related resource use conflicts	Medium	Support to county level land use planning Recognition of traditional land rights and land dispute arbitration through county of by-laws.
Climate change risk: shifting weather patterns may adversely affect the cultivation activities.	High	Adoption of Climate Smart Agriculture to build resilience capacity of smallholder farmers.

### 3.6 Consistency with national priorities or plans

209. Further to the conformity to the national policy context described in Section 2.4 (Institutional, sectoral and policy context), the proposed project is aligned to the following national strategies:

210. *Kenya Vision 2030* - Kenya launched Vision 2030 in 2008 as the country's long-term economic blueprint to guide its development. Vision 2030's objective is to transform Kenya into a newly industrialized, middle-income country providing a high quality of life to all its citizens by 2030. To support Vision 2030, the agricultural sector has developed the ASDS and in 2010 signed a Comprehensive Africa Agriculture Development Programme (CAADP) Compact. The overall objective of the ASDS is to achieve an agricultural growth rate of 7 per cent per year over the next five years (ASDS 2010). The Kenya's Medium-Term Investment Plan 2010–2015 (MTIP) operationalizes the ASDS in the short term. It identifies and lists specific investment interventions proposed for implementation to achieve Vision 2030 and CAADP goals as follows:

- Increasing productivity, commercialization and competitiveness
- Promoting private sector investment and participation in all aspects of agricultural development including research
- Promoting sustainable land and natural resources management
- Reforming and improving delivery of agricultural services and research

211. *Agricultural Sector Development Support Programme (ASDSP 2012)* – The overall goal of the ASDSP is to support the transformation of Kenya's agricultural sector into an innovative, commercially oriented, competitive and modern industry that will contribute to poverty reduction and improved food security in rural and urban Kenya. The purpose is: 'increased and equitable incomes, employment and improved food security of the target groups as a result of improved production and productivity in the rural smallholder farm and off-farm sectors'. The thrust of the programme is value chain development.

212. The ASDSP embeds mechanisms to attract other financiers, including the private sector, to invest in the sector's development. The programme builds on the experiences and lessons learnt from other programmes in the sector. *The Agricultural Sector Development Strategy (ASDS)* – is intended to build further on the gains made by the SRA. It is intended to provide a guide for public and private sectors' efforts in overcoming the outstanding challenges facing the agricultural sector in Kenya. Besides ensuring food and nutritional security for all Kenyans, the strategy aims at generating higher incomes as well as employment, especially in the rural areas. Moreover, it is expected to position the agricultural

sector as a key driver in achieving the 10 per cent annual economic growth rate envisaged under the economic pillar of Vision 2030.

*213. National Action Plan to Combat Desertification (NAP)* – was prepared following Kenya’s signature and ratification in 1997 of UNCCD. The process brought together local communities, Government, UN agencies, research institutions, NGOs, the private sector and other stakeholders to develop the strategic action plan. The main objective is to combat desertification and mitigate the effects of drought through three broad priority areas: enabling environment, sectoral programmes and cross-sectoral programmes. The project will contribute to capacity building of local institutions and community groups to address land degradation at landscape level.

*214. National Biodiversity Action plan (NBSAP)* - The NBSAP is a national framework of action for the implementation of the Convention on Biological Diversity to ensure that the present rate of biodiversity loss is reversed, and that present levels of biological resources are maintained at sustainable levels for posterity. The national goals of the NBSAP include: To maintain a high quality environment for sustainable livelihoods for all Kenyans; To guarantee inter- and intra-generational sustainable use of natural resources and services; To maintain ecological and ecosystem processes; To preserve and benefit from genetic resources and biological diversity in the nation’s ecosystems and to preserve their cultural value. The proposed project will contribute in implementation of NBSAP strategies especially conservation of agrobiodiversity and forest ecosystems.

*215. Kenya SLM Investment Framework:* - Kenya is in the process of finalizing the formulating of the SLM investment framework. The formulation of an SLM Investment Framework is a process through which a country articulates and gradually operationalizes its vision for implementing SLM. The SLM Investment Framework will be used by the country as a flexible tool to support cross-sector efforts based on what already exists in the country. SLM Investment Frameworks can be used by stakeholders to reinforce or develop sector programs and national strategy.

216. The investment framework builds on a set of existing and new diagnostics (e.g. economic, technical, ecosystems, institutional, financial, etc.), that support the government in identifying priority investment needs. The formulation of SLM Investment Frameworks is an integral part of the NEPAD’s CAADP country roundtable process, and aims to bring substance to countries’ efforts to elaborate the CAADP pillar on land and water. The proposed project will be linked to the SLM investment framework process for synergies, resource mobilization and sustainability.

*217. Mainstreaming Gender* - Gender plays an important role in the management of the environment. For example, women interact with the environment on day to day basis as they farm, collect firewood and fetch water. Recognition of different roles played by men and women will assist in integrating both genders optimally in environmental conservation and management. The Government will endeavor to: 1. Mainstream gender issues into environment and natural resource conservation and management. 2. Develop and implement an Environment and Gender Strategy and Action Plan. 3. Provide incentives to attract the under-represented gender into environmental management careers and occupations (Draft Environmental Policy)

*218. Mainstreaming Youth* - High population growth is reflected in the country’s population structure. The youth account for close to 50% of the total country’s population. Under the draft Environmental policy the governments intends to: 1. Mainstream youth issues into environmental management. 2. Develop and implement a Youth and Environment Strategy and Action Plan.

### 3.7 Incremental cost reasoning

219. Business as usual scenario has delivered mixed results and a shift is required to make a difference. There are a number of key barriers and bottlenecks that has hindered creation of a critical mass of SLM adopters. Despite some SLM successes in the region, past efforts have not matched the scale of the problem driven by increased demand of land and forest resources by a rapidly growing population. The piece-meal approach of interventions by its very nature, does not allow coordination of cross-sectoral efforts, nor can it provide durable solutions for improving collaboration and partnerships among the key stakeholders.

220. The baseline scenario with no GEF intervention, would see SLM initiatives been undertaken by different actors using different approaches at project level with minimal coordination and information sharing. Despite several sustainable land management project implementations, lack of additional resources inhibits further up scaling of some of the successful projects and utilization of experiences and lessons learned. The project alternative with GEF support would first consolidate the lessons learned and develop a more holistic and programmatic approach to SLM. In particular the proposed project would facilitate participatory land use plans at landscape level and build the capacity of community groups and other key stakeholders especially the county government which under the new constitution has the oversight mandate on environment and land resources

221. The project aims to mainstream sustainable land management (SLM) practices across the productive landscapes around the Kakamega Forest ecosystem. The expected outcome of the project will be decreased land degradation and improved soil fertility that will lead to increased farm productivity and incomes. These results in turn will ease pressure on the forest, conserving the ecosystem and assuring the services it provides.

222. Currently AGRA projects in Western Kenya are in 6 districts (Busia, Kakamega, Mumias, Siaya, Teso and Vihiga) and target approximately 100,000 farmers. Half of these farmers are in projects promoting Integrated Soil Fertility Management (ISFM) while the other half focuses on promoting agricultural lime (to address the area's acidic soils).

223. Besides the above projects other successful approaches to SLM include the ASDSP which builds on the earlier gains of the National Agricultural and Livestock Extension Programme (NALEP) that promoted soil and water conservation technologies among over 100,000 small scale farmers in western Kenya and ICRAF's integrated soil nutrient management program, which has assisted over 8,000 small holders' farmers in adopting the use of organic manure to improve soil fertility.

224. The proposed additional GEF funding could reach 100,000 more farmers indirectly with SLM practices among surrounding communities bordering Kakamega and Nandi Forest. This additional GEF funding will enable scaling up of AGRA's current SLM interventions in areas around the forest to secure the global environmental benefits which include; increased carbon sequestration from SLM/SFM practices across agro and forest ecosystems; conservation of Lake Victoria catchment which is an international critical freshwater source for millions of people; and protection of remnant rainforest ecosystem of Kakamega and Nandi which has significant wide range of biodiversity.

225. In addition, the project will also make significant contribution to sequestering carbon through improved forest protection and sustainable management of forest (SFM) estimated at 1,003,801 tCO<sub>2</sub>e over project duration of 5 years (see Appendix 14 and 15).

**Table 11: Incremental reasoning framework**

<i>Business as usual scenario</i>	<i>GEF Alternative (Additional Interventions)</i>	<i>Global Environmental Benefits</i>
Project based approach on SLM with limited coordination of efforts	Capacity development of stakeholders on SLM and SFM Development of county level programmatic approach to strengthen institutional coordination and enabling environment for SLM upscaling	Synergies created for improved land management leading to increase of land under SLM/SFM, biodiversity conservation and increased carbon sinks
Lack of comprehensive land use plans at county and landscape level	Support to county level legislation on land tenure and land use Participatory development of SLM, SFM and biodiversity conservation plans at landscape / sub-catchment level	Increased productivity of ecosystem goods and services at landscape level
Limited knowledge on land degradation status and reversal opportunities while existing knowledge remains unapplied	Creation of agricultural information products sharing platforms Participatory development of a Monitoring and Evaluation system for SLM / SFM and biodiversity management	Knowledge generated will create awareness leading to adoption of SLM/practices for socio-economic and environmental benefits both at local and global scale.
Limited incentive for participatory and sustainable forest management	Mainstreaming of value chain approach for better markets, Linkage of producer groups to input and output markets Framework for Access and Benefit Sharing (ABS) and PES supported	Increased land under SLM/SFM and biodiversity conservation

### 3.8 Sustainability

226. Sustainability concept is complex and has to be analysed in different dimensions for better appreciation. For this project sustainability is analysed in terms of technological and knowledge, Social and institutional, economic and ecological perspectives:

227. *Technological and knowledge sustainability* - Knowledge management is the key for sustainability. The knowledge generated by the project will be documented, stored and dissemination platforms created. A repository and a web-based dissemination platform will be created within KALRO to continue providing information needs of stakeholders beyond the project phase.

*228 Institutional and social sustainability* - The project will use the existing institutions and structures in its project implementation and will not create new parallel structures that are purely project based and hence likely to cease functionality at the end with the project. The project will undertake a detailed stakeholder analysis to identify the key partners for the project. This will be followed by capacity needs assessment to identify the key capacity gaps of the key stakeholders. This will ensure that the project support is targeted and need-based. The project will focus on bringing knowledge and technical gaps of the community groups especially the women and the youth who remain marginalised and yet hold the potential to transform the agricultural sector. The capacity building of existing partners and enhancement of coordination structures of the key institutions at local, county and national levels will facilitate service provision beyond the project investment. The project will also be linked to regional, national and county policies, strategies and plans for continued support. The strengthened institutional framework for support of SLM will create an enabling environment for scaling up SLM practices.

*229. Economic/Financial Sustainability* - One of the major barriers to adoption of sustainable land management practices especially among smallholder farmers is the inadequate incentive for SLM investments and the cost of inputs. The lack of /or failure of markets is another barrier for the small scale farmers. The proposed project through the outlined components will promote cost effective and appropriate technologies tailored for small scale agriculture. The project will build on successful SLM practices and adapted to the local socio-cultural context. The proposed project will engage the communities through Farmer Field Schools approach that operates on the principal of participatory and experiential learning unlike conventional extension service that relies on ready-made packages from extension agents. The project will support value chain analysis of major crops, NWFPS and facilitate farmers in agribusiness and bio-enterprise development as well as the marketing strategies. The contractual arrangements for forest concession will not only provided substantial financial returns but will also raise the forest ownership value to the community and thus will reinforce the SLM/SFM adoption.

*2310 Ecological sustainability* - The overall goal for the project is to put more land under sustainable land and forest management. To achieve this, the key threats and barriers for SLM have to be addressed to halt and reverse land degradation and promoting ecosystem integrity. The project will adopt a landscape approach to increasing productivity across the forest and agro-ecosystem landscape, by promoting SLM practices suited for small scale farmers. The use of community based management systems; capacity building of community groups, increased financial returns through SLM and support from county and national institutions will secure the ecological sustainability for the project

### **3.9 Replication**

2321. The project focus is on up scaling tested SLM/SFM practices across the landscape and hence replication is embedded in the project design. The baseline analysis of past and ongoing initiatives, and lessons learned shows clear evidence that land degradation can be reversed through sustainable land and forest management. Lessons learnt from AGRA Soil Health Program, KARI and others will be applied in moving the best practices from the pilot sites to the wider landscape. The project will build on local capacity for replicating and adapting the new SLM/SFM technologies.

232. The use of community based institutions like the Farmer Field Schools and Community Forest Associations for continued learning will also ensure replication of best practices. The group dynamic aspects of the approach also create strong and cohesive groups that usually stay together also after the supported learning activities end. The formation of community based networks and community associations will ensures collective action and that is community driven in nature and not dependent on project support. The creation of an enabling policy environment and capacity building of key

institutions in support of SLM/SFM will ensure service provision and backstopping beyond the project phase.

### **3.10 Public awareness, communications and mainstreaming strategy**

233. The main challenge facing development partners in natural resources management is to turn knowledge generated into practice and achieve tangible results and outcomes to improve livelihoods of the local communities. The traditional approaches for dissemination of best practices have continued to use the same linear model of pilot-extension-farmers pathway. This has resulted in limited outreach to the wider stakeholders other than the target farmers.

234. The project will develop a communication strategy focused on reaching out to the wider stakeholders at various levels of decision making. The communication strategy will outline the products to be communicated to every group of identified stakeholder and the action needed to make a difference. For a product to be received, understood and utilized by a particular stakeholder it must be packaged and delivered in a manner appropriate for the target stakeholder. This packaging and delivery is done using specific communication. The strategy will also highlight the appropriate media platform to be used, timeframe for communicating the product and the responsible partner among the implementing partners.

235. There are a number of channels that been identified by various development partners in managing and sharing knowledge in project implementation. These channels have proven to be effective and they are proposed for use in this communication strategy: The channels include:

*Correspondence:* This type of communication is in general usage; it is a non-concurrent, remote communication between people, including letters, memos, phone and fax, email, newsgroups, intranet/Internet forums and blogs. The Project Coordinator will handle all the project correspondence through the Project Assistant.

*Meetings:* These may take the form of face-to-face interactions, staff, departmental or divisional meetings, workshops, and seminars, breakfast and luncheon briefings, focus groups specialized committees (e.g. County assembly committees, Landscape development committees), policy forums, symposia and debates. Meetings can be held at any time convenient and would normally target all types of stakeholders in the sector. The deliberations will be recorded as minutes.

*Training activities:* The stakeholder communication units including National, County, CSOs, Media and other interested parties will be trained and equipped with knowledge and skills for reporting on SLM development.

*Publication:* Publication is a major and common way of sharing knowledge and information. The project intends to produce brochures, calendar of events, information bulletins/folders, pamphlets, bibliographies, newsletters, quarterly or annual reports, and research and consultancy reports. These publications will highlight the best practices and success stories of SLM practices. The publications will be updated frequently as appropriate and will be distributed to the wider stakeholders at county and national level.

*Media:* Print and broadcast media are the most powerful modes of communication since they reach out to more people. Radio and Television have wider coverage and most accessible across the country. The project intends to use local vernacular radio stations to disseminate knowledge but will also develop video documentaries that could be aired on TVs or normal videos shows during trainings.

*Public events:* The project will use public events for educational and awareness raising purposes. The public events will include Field days, agricultural trade fairs; commemorative events (World Food Day,

World Water Day, World Day to combat desertification, International Day of Forests, Biodiversity and Environmental days etc) will be exploited by the project team and its stakeholders to disseminate information on the benefits and actualization of SLM and biodiversity conservation.

*Websites:* Websites are often used interactively and are very vital platforms for archiving and information sharing. The project partners have websites of their own and the project will not create a new website but rather build on the existing websites of partners to disseminate information. However, the project will support development of a harmonized content and updating of SLM information.

*Mobile Phone and Social Media for Agricultural Extension:* The social media has demonstrated extraordinary potential in social networking and information sharing among the increasingly connected global population. Similarly, mobile phones and social media applications in agricultural extension are evolving. At the same time, there is a global realization of “New Extension” with new capacities and changing roles to meet the challenges in agricultural development. A number of innovative mobile phone applications are emerging and being experimented to meet new and expanded roles of extension. Experiences indicate the mobile phone and social media can facilitate the agricultural extension to move beyond “information facilitation” to “enabling innovation” and empowerment among the stakeholders of agricultural innovation systems. The project will partner with service providers to design and provide mobile based agricultural information covering all information requirements along the value chain. The project will also have an interactive social media platform for information sharing.

*Socio-cultural events:* The three counties are well endowed and rich in culture and use of non-traditional forms of media such as traditional dances, drama, and community theatre involving poetry or song will also be used by the project as an avenue for disseminating information.

### **3.11 Environmental and social safeguards**

236. During the PPG phase of the project undertook an assessment of the safeguard standards in the project sites using a checklist. The assessment finds no major threats on the seven safeguards since the project is basically up scaling tested SLM/SFM and Biodiversity conservation practices.

237. However, the main environmental concern of this project relates to the promotion of increased productivity of agro and forest ecosystems and enhanced markets linkages in order to improve incomes. Firstly, this may put undue pressure on the agroecosystems leading to possible agricultural intensification and demand of more arable land. Secondly, with marketing and commercialization also comes the risk of increased use of inputs, especially harmful pesticides and fertilizers. This latter issue has the potential to introduce both environmental and social problems through leaching and build-up of chemicals in soils and waterways, as well as damage to human health. Thirdly, the commercialization of Non-Wood forest Products (NWFPS) could create more demand of the products leading to unsustainable exploitation and poaching. The project will work very closely with regulatory authorities to ensure compliance of environmental and social safeguards as provided in various statutory regulations. In addition, the project will promote use of Integrated Soil Fertility Management (ISFM) and Integrated Pest Management (IPM) to minimize use of chemicals. The community groups will also be trained to monitor environmental indicators including biodiversity and critical ecosystems to ensure that the ongoing project activities do not harm the environment or cause carbon leakages.

#### *Gender Mainstreaming*

238. According to the World Bank, women make up 80 percent of Kenya's farmers and contributing much of the labour force. Despite their majority, they still have many challenges to overcome, mainly

gaining ownership of the land resources and benefits of their labour. The Food and Agriculture Organization of the United Nations (FAO) estimates that if women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent. This increase could raise total agricultural output in developing countries by 2.5–4 percent and reduce the number of hungry people in the world by 12–17 percent, up to 150 million people<sup>26</sup>

Whereas men concentrate on the commercial aspects of farming and exploitation of natural resources such as timber, honey, grazing and fodder harvesting, women view the farming and natural resources as multifunctional providing both household needs and economic benefits. Women, whose role it is to provide food for the family, value farming as a supply source of food and forests as a source of fuelwood, vegetables, wild fruits and medicine. The women are mostly involved in collecting herbals and spices and marketing them in local markets. The specific issues which affect women relate to the fact that their rights to land resources are determined by cultural norms that are deeply embedded within a local perception of the role that women should play in society. Thus the management of land and natural resources are dominated by men.

However, in the new constitutional dispensation (Constitution of Kenya 2010), both men and women have equal access and control of land and its natural resources. The National Commission on Gender and Development Act (2003) and establishment of the Gender Commission in 2004 provide a framework for implementing the Gender mainstreaming in the public sector. Under the new Draft Environmental Policy, the Government will envisage to; 1. Mainstream gender issues into environment and natural resource conservation and management. 2. Develop and implement an Environment and Gender Strategy and Action Plan. 3. Provide incentives to attract the under-represented gender into environmental management careers and occupations. The present gender mainstreaming strategy and action plan for environment and natural resources in Kenya is grounded on the premise that the empowerment of women and men (gender equality) is at the core of the achievement of Kenya's Vision 2030 and promoting sustainable development. The empowerment of women and men would promote equality of access, use and benefit from the country's natural resources, thus reducing food insecurity, poverty, conflicts and other forms of gender-based violence across the country

In line with the government's strategies for gender mainstreaming, the project will ensure that the gender equity is complied with in the project cycle specifically targeting women and youth groups. The producer groups and other stakeholders will be trained on gender mainstreaming to appreciate the inclusion of gender in decision making. The project will also ensure the compliance of GEF's policy on gender including undertaking Social Assessment and Gender Analysis and use of gender disaggregated performance indicators and/or gender consideration in monitoring and evaluation exercises.

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<sup>26</sup> 5 FAO, 2011, op cit.

## SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

239. The GEF Implementing Agency (IA) for the project will be UNEP through the Regional Office for Africa and in particular the Kenya Country Programme . The project will be executed under the UNEP National Execution (NEX) procedures. AGRA will be the lead executing agency in partnership with KALRO, KFS, KEFRI, the county governments and other stakeholders. Through this partnership arrangements AGRA will coordinate the implementation of the entire project while UNEP will provide the technical backstopping and overall project oversight

The project will be implemented over a period of five years and will adopt a participatory approach bringing on board all the relevant stakeholders. The project will have an implementation framework (Figure 2: Project organogram) with defined levels of decision making for the smooth running of the project. The project entities will include the GEF Focal Point, UNEP (RoA), Project Management Unit, Project Steering Committee and the Landscape Level Committees

### *Ministry of Environment and Natural resources (GEF OFP, PFP)*

The Ministry of Environment and Natural Resources as the GEF Operational and Political Focal Point will provide policy guidance to the project to meet the country priorities. UNEP will be reporting project progress to the Ministry and will be involved in any major decision making process on the project

### *UNEP (RoA)*

As the GEF Implementing agency, UNEP through RoA (Kenya Programme) will facilitate the execution of the project through AGRA. UNEP (RoA) will provide technical backstopping and overall oversight of the project through periodic monitoring. The Project Coordinator will be based at RoA and will coordinate project implementation in consultation with AGRA (see TOR in Annex).

### AGRA

AGRA will be the lead executing agency for the project, through contractual arrangements with UNEP. AGRA will coordinate all the implementation arrangements as per the workplan in partnership with KALRO and other implementing entities on the ground. AGRA will provide periodic technical and financial reports to UNEP

240. *The Project Steering Committee (PSC)* will be chaired by Ministry of Environment and Natural Resources. The Project Steering Committee will be convened by AGRA who will also provide the secretariat. The main objective for the steering committee is to provide a forum to support the full implementation of the project. The work of the steering committee serves to promote ownership of the project by ensuring that the partners and stakeholders are involved and responsible for key decisions about the form and implementation of assistance. The PSC will enable AGRA and KALRO to obtain guidance on the project implementation. The PSC will also serve to provide common agreement among stakeholders on changes that are beneficial to implementation, and achievement of the objectives, of the project.

241. *Membership:* The PSC membership will be made up of MENR, UNEP (DEPI & RoA), AGRA, KALRO, KFS, KWS, KEFRI, WRMA, Ministry of Agriculture, Livestock and Fisheries, NEMA, Country government representative, Community group reps, University rep, Private sector representative and CSO representative.

242. *Working Arrangements: The Project Steering Committee* shall meet at least twice a year. The venue, date and time will be notified by the secretariat at least two weeks in advance of the meeting. In exceptional circumstances an extraordinary meeting shall be called by the chairperson. The duties of the PSC will include:

- Provide high level orientation and guidance for the project (institutional, political and operational);
- Ensure that the project is implemented in accordance within the agreed framework (Project Document, Annual Work plans) and achieves its targets (outputs, outcomes and objectives);
- Approve annual progress reports, work plans and budgets;
- Ensure collaboration between implementing institutions;
- Reassess the progress and ensure that the project process is on track Endorse quarterly and other technical reports;
- Review initial project outputs and project progress and address constraints;
- Ensure the integration and coordination of project activities with other related government and donor-funded initiatives;
- Explore opportunities for resource mobilization to ensure sustainability of project initiatives.

243. *Project Management Unit (PMU)* - The Project Management Unit (PMU) will report to the PSC and will be composed of AGRA (EA) and KALRO as the lead agency on the ground. The main responsibility of the PMU is the execution of the project implementation as per the agreed work plan and budget. The PMU will meet quarterly or as needed. The PMU duties will include:

- Coordination of day-to-day implementation of the project
- Facilitation of other implementing partners
- Review technical and administrative concerns during project implementation;
- Nominate consultants and institutions to undertake various contracts;
- Endorse procurement of goods and services;
- Provide oversight on financial expenditures.
- Monitoring and supervision of activities
- Technical and financial reporting

244. *Landscape level Committee* - The project will focus on sub-catchments in the larger Kakamega-Nandi forest ecosystem. The landscape committees shall be responsible for guiding and coordinating the delivery of site activities. They will meet at least once every quarter-year to review work plans, review progress, discuss implementation barriers, agree on ways of addressing conservation barriers, forge linkages, harmonizes activities, exchange information and experiences and provide guidance for implementation. The landscape level committee shall be community driven and made up of various interest groups in the landscape/location. Other members will include the county government rep, local extension workers, religious leaders, local NGOs and other special interest representatives.

245. The management arrangements shall incorporate the existing county level structures in order to create linkages and synergies for sustainability. In particular the project implementation shall be linked to the County Environmental Committee (CEC) and the ASDSP County Coordination Unit. At the national level, the project will be inked with the Kenya Strategic Investment Framework (KSIF) for SLM. The investment framework builds on a set of existing and new diagnostics (e.g. economic, technical, ecosystems, institutional, financial, etc.), that support the government in identifying SLM priority investment needs (**Error! Reference source not found.**).

## Project Management Organogram

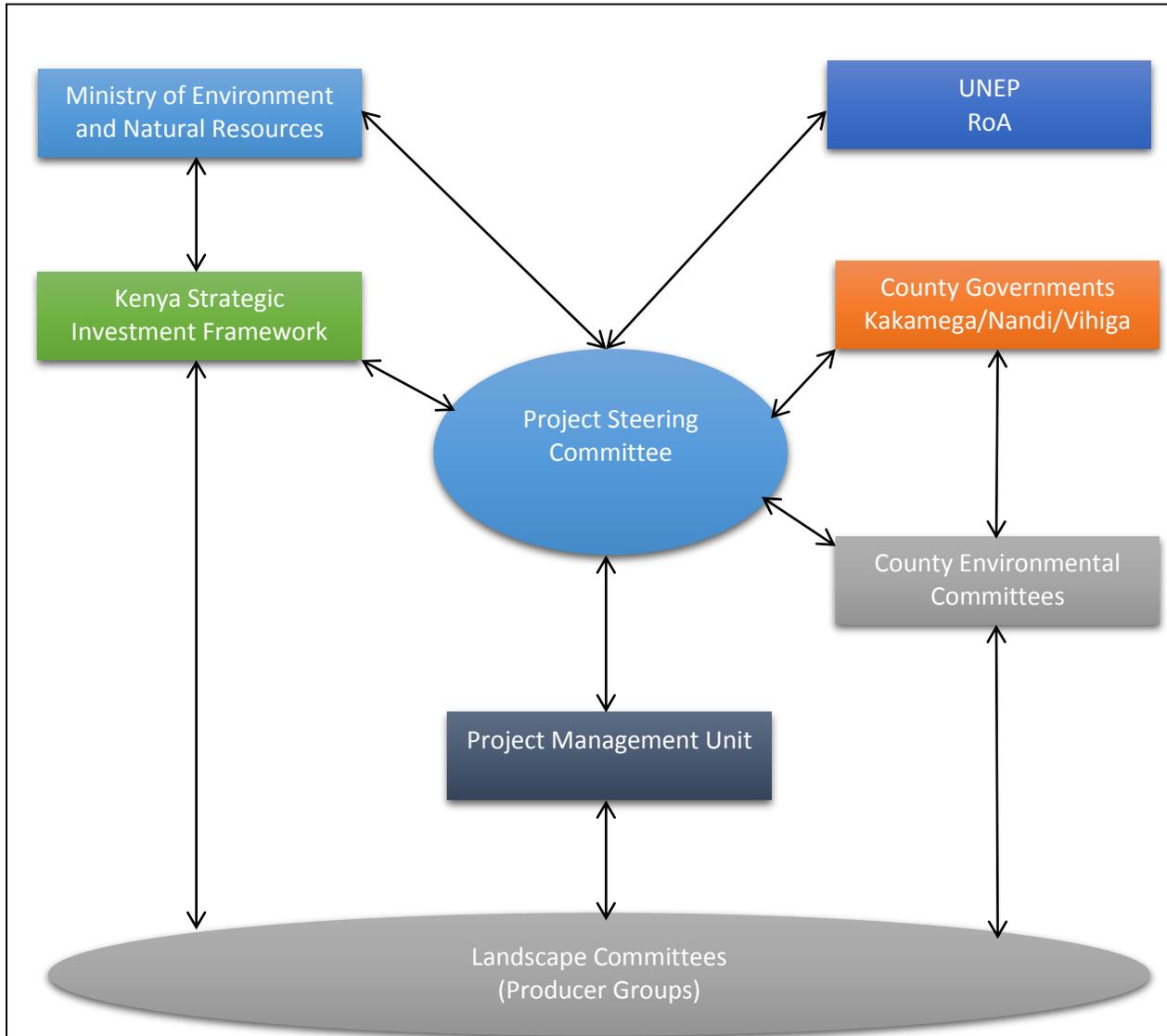


Figure 7: Project organogram

## SECTION 5: STAKEHOLDER PARTICIPATION

246. The success of the project will so much depend on the inclusive involvement of the stakeholders from a broad range of sectors, from grassroots to county and national level, from institutional to individual. Clear mechanisms for participation, partnership building and effective communication will be essential and will be considered at the outset of Project implementation to ensure full inclusion of all relevant stakeholders. It is essential that the project management arrangements provide space to enable partners to work together effectively and that all stakeholders are kept fully informed of Project progress.

247. The main beneficiaries of this Project will be individuals, households and communities in pilot sites, especially women and youth groups, who will be the target of interventions. The Project will work closely with individuals, farmers, households and groups at the community level in selected locations to achieve specific key results across in all the 4 project components. Farmers will benefit from improved linkages to markets and the contribution this will make to their livelihoods. Communities in general will benefit from the opportunities created by of up scaled SLM/SFM practices across the landscape.

248. The project implementation will adopt a participatory approach, engaging various stakeholders whose participation is central to the successful delivery of the project. The level of stakeholder involvement will depend on institutional or group stake in the project, the statutory mandate, technical and operational capacity as described in Section 2.5 (Stakeholder mapping and analysis). In this regard, the project will have three levels of stakeholder involvement. Level 1 is the core group that will execute and implement the project, Level 2 group that will be closely involved in the management or service provision of the project, followed by Level 3 group who will be informed of the project progress and consulted for their input where applicable. The role and responsibilities of the project implementing partners is summarized in Table 2.

**Table 9: Stakeholder participation**

<i>No.</i>	<i>Stakeholder</i>	<i>Role in project</i>
	<b>Level 1</b>	
1	UNEP	GEF implementing agency Oversight and technical backstopping
2	AGRA	Executing agency Overall delivery of project objectives Monitoring and evaluation
3	Kenya Agricultural and Livestock Research Organization (KALRO)	Lead implementing agency on the ground and secretariat to PMU Supervision of other implementing partners Technical and financial reporting
4	County Government (Kakamega, Nandi and Vihiga)	Project implementation Budgetary support Political will
5	Ministry of Agriculture, Livestock and Fisheries	Project implementation Linkage with ongoing programmes for up scaling SLM
6	ASDSP	Project implementation Linkage with ongoing programmes for up scaling SLM
7	Kenya Forest Service (KFS)	Development / review and implementation of Participatory Forest Management (PFM) plans Capacity building of CFAs
8	Community Groups (CFAs)	Implementation of SLEM practices in the field

	FFS, WRUAs, Farmer, Women and Youth groups)	Establishment of critical mass for SLEM
	Level 2	
	Kenya Wildlife Service (KWS)	Support to biodiversity conservation Support to eco-tourism activities
	Kenya Forestry Research Institute (KEFRI)	Assessment and product development of non-Wood Forest Products and services Dissemination of new SFM technologies
7	Water Resource Management Authority (WRMA)	Provision of water resource information Capacity building of WRUAs
9	National Environment Management Authority (NEMA)	Capacity building of landscape environmental committees Environmental awareness creation Enforcement of environmental regulations
7	Masinde Muliro University of Science and Technology (MMUST)	Provision of new knowledge on SLM/SFM Facilitating field attachments for interns and volunteers to work with community groups
8	World Agroforestry Centre (ICRAF)	Sharing of best SLM/SFM best practices
8	Anglican Development Services Western (ADS -W)	Community mobilization
9	Nature Kenya	in biodiversity conservation
10	International Centre for Tropical Agriculture (CIAT)	Sharing of best SLM best practices
11	Biovision Foundation	Sharing of best practices in agricultural information network
13	Private sector	Supply of inputs Linkage to markets
	Level 3	
14	Lake Victoria Basin Commission (LVBC)	Linkages with ongoing activities
15	Vi-Agroforestry Project	Linkages with ongoing activities
16	Lake Basin Development Authority (LBDA)	Linkages with ongoing activities
17	Local NGOs (Rural Outreach Programme)	Linkages with ongoing activities
18	General public	Awareness creation

## SECTION 6: MONITORING AND EVALUATION PLAN

249. UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process. The project will be reviewed or evaluated at mid-term. The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) will be to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools.

250. The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EO) of UNEP. The EO will determine whether an MTE is required or an MTR is sufficient.

251. An independent terminal evaluation (TE) will take place at the end of project implementation. The EO will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

- (i) to provide evidence of results to meet accountability requirements, and
- (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners.

While a TE should review use of project funds against budget, it would be the role of a financial audit to assess probity (i.e. correctness, integrity etc.) of expenditure and transactions.

252. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the EO in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the EO when the report is finalized. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.

253. The direct costs of reviews and evaluations will be charged against the project evaluation budget.

254. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in *Appendix 4* includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in *Appendix 6* will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in *Appendix 7*. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.

255. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP of any delays or difficulties faced during

implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

256. The Project Advisory Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager 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.

257. Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR.

258. The GEF tracking tools are attached as *Appendix 13*. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

## SECTION 7: PROJECT FINANCING AND BUDGET

### 7.1 Budget by Project component and UNEP budget lines

259. The total cost of the GEF alternative over the 5-year implementation period is estimated to be **US\$14,762,305**. The baseline/business-as-usual scenario, GEF Alternative and Incremental Costs are displayed in Table 13 below and the details are presented in the Incremental Cost Matrix (Appendix 3: Incremental Cost). The baseline is estimated to be **US\$1,585,300** and the GEF increment (the project cost) is **US\$ 13,177,005**

**Table 13: Incremental Costs**

Components	Baseline (US\$)	Alternative (US\$)	Incremental Cost (US\$)
1 Capacity Building of Stakeholders on SLM and SFM	900,800	7,977,783	<b>7,076,983</b>
2. Mainstreaming Value Chain Approach to Smallholder Producers	560,000	4,662,107	<b>4,102,107</b>
3. Enabling Policy and Institutional Framework	124,000	2,122,415	<b>1,997,915</b>
<b>Total</b>	<b>1,585,300</b>	<b>14,762,305</b>	<b>13,177,005</b>

### 7.2. Project co-financing

260. The total co-finance committed to the project is US **9,904,405** which represent 75% of the total cost of the project of US **13,177,005** (see table 14. The major sources and type of co-finance raised are indicated in the table 15.

**Table 14: Component financing including co-financing**

Components	GEF (US\$)	Co-financing (US\$)	Total (US\$)
1. Capacity Building of Stakeholders on SLM and SFM	1,572,200	5,504,783	7,076,983
2. Mainstreaming Value Chain Approach to Smallholder Producers	1,080,200	3,021,907	4,102,107
3. Enabling Policy and Institutional Framework	620,200	1,377,715	1,997,915
Project Management	311,200		
<b>Total</b>	<b>3,583,800</b>	<b>\$9,904,405</b>	<b>13,177,005</b>

**Table 15: Sources and type of confirmed co-finance**

<b>Co-financing classification</b>	<b>Cash (US\$)</b>	<b>In-kind (US\$)</b>	<b>Total</b>	<b>%</b>
Ministry of Agriculture, Livestock & Fisheries (ASDSP)		568,000	568,000	6
AGRA (Alliance for Green revolution in Africa)	2,094,097		2,094,097	21
Nandi County (Local Govt.)		2,210,000	2,210,000	22
Vihiga County (Local Govt.)		1,700,000	1,700,000	17
Kakamega County (Local Govt.)	2,000,000		2,000,000	20
Anglican Church of Kenya (ACK)		382,308	382,308	4
Kenya Agricultural Livestock Research Organization (KALRO)		750,000	750,000	8
UNEP		200,000	200,000	2
<b>Total co-financing</b>	<b>4,094,097</b>	<b>5,810,308</b>	<b>9,904,405</b>	<b>100</b>

261. The budget breakdown per component by source of co-financing is shown in table 16.

**Table 16: Budget Summary by source of co-financing (US\$)**

<b>Source</b>	<b>Comp1</b>	<b>Comp 2</b>	<b>Comp 3</b>	<b>Total</b>
Ministry of Agriculture, Livestock & Fisheries (ASDSP)	324,000	200,000	44,000	568,000
AGRA (Alliance for Green revolution in Africa)	1,461,688	555,479	76,930	2,094,097
Nandi County (Local Govt.)	1,160,000	670,000	380,000	2,210,000
Vihiga County (Local Govt.)	800,000	600,000	300,000	1,700,000
Kakamega County (Local Govt.)	1,000,000	600,000	400,000	2,000,000
Anglican Church of Kenya (ACK)	159,095	221,428	1,785	382,308
Kenya Agricultural Livestock Research Organization (KALRO)	450,000	175,000	125,000	750,000
UNEP	150,000	50,000	50,000	200,000
<b>Component total</b>	<b>5,504,783</b>	<b>3,021,907</b>	<b>1,377,715</b>	<b>9,904,405</b>

### 7.3 Project cost-effectiveness

257. The project will adopt cost saving strategies in the execution of the project implementation. The aim is to reduce operational costs so as to release more funds to the actual implementation of activities that would directly benefit the target groups. The strategies to be employed include:

258. *Use of existing institutions and structures* – The project will not create new structures nor employ new extension staff but as much as possible use the existing structures in the county. The Kenya Agricultural Research Institute (KARI) in Kakamega has been identified as the led implementing agency on the ground with well-established operational and technical capacity. The agricultural sector has been fully devolved at county level with appointment of County Director of Agriculture. The project will work closely with the County Department of Agriculture and will use their extension staff in training and dissemination of project activities. At the community level, the project will work with existing community institutions already established and will not directly support establishment of new CBOs for the sake of the project. This approach will reduce administrative costs.

259. *Targeted support* – The project will build the capacity of stakeholders based on capacity needs assessment. The project resources will thus be based on targeted support and will avoid duplication with on-going support from other development partners but rather complimenting and building synergies.

260. *Community Based Approach* – The communities are the key target for the project and the project will use the existing community groups as entry points for the project. This approach will reduce costs on community mobilisation and thus more funds will be used for training and capacity building. The strengthening of community groups will also ensure sustainability of the project activities at the end of the project.

*Strategic partnership with on-going SLM/SFM related programmes* – There are a number of on-going SLM/SFM related programmes in the focal counties which the project could benefit through linkages and synergies. These include Agricultural Sector Development Programme (ASDSP), *Strengthening the Protected Area Network within the Eastern Montane Forest Hotspot of Kenya*, *Vi Agroforestry Agricultural Carbon Project* and *AGRA's Integrated Soil Fertility Management (ISFM) programme*. These programmes are well established on the focal counties and the proposed project could use them as platforms for up scaling the SLM/SFM practices.

261. *Up scaling of evidence based SLM/SFM/Biodiversity management practices* – The project will invest more in up scaling tested and proven best SLM/SFM/biodiversity management practices in the region than developing new technologies. There are ready-made technologies that have developed through research and demonstrations and the project focus will be to scale out the proven practices across the landscape. *Co-financing* – The GEF investment is catalytic and it's envisaged to raise 4 times the principal amount through co-financing arrangements. The co-finance will both be in cash and in-kind and will support the project operations on a wider scale. The co-finance will come from partners and county governments including community groups.

## Appendix 4: Results Framework

Project Goal: To contribute to improved food security and incomes of smallholder farmers through sustainable land, forest and biodiversity (including agro-biodiversity) management in Western Kenya						
Project Objective	Objective level Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	UNEP MTS reference* & Expected Accomplishment (EA)
To increase smallholders' productivity through up-scaling of sustainable land management	The average yield (production per ha) of targeted crops (maize, legumes, indigenous vegetables)	Maize: 1 t/ha  Beans: 0.2 t/ha	Maize: 3 <sup>rd</sup> Yr: 1.5 t/ha End of Project: 2 t/ha  Beans: 3 <sup>rd</sup> Yr: 0.3 t/ha End of Project: 0.4 t/ha	Project reports County reports M&E reports	Stability of input and output markets  No major crop pests or diseases  Favorable weather conditions	ECOSYSTEM Management  EA (a): Use of the ecosystem approach in countries to maintain ecosystem services and sustainable productivity of terrestrial and aquatic systems is increased by (2): Tools, technical support and partnerships to improve food security and sustainable productivity in agricultural landscapes through the integration of the ecosystem approach.
	Proportion increase of income from the sale of 3 target crops	0	3 <sup>rd</sup> Yr: 20% increase in income  End of Project:30%	Project reports County reports M&E reports	Enabling political and socio-economic environment  Favorable markets	
	Area(ha) of forest land under Sustainable Forest Management (SFM) with biodiversity conservation	0	3 <sup>rd</sup> Yr: 25,000 ha End of Project:50,000ha	Project reports M&E reports	Weather conditions are favourable Good incentives for CFAs	
	Area (ha) of land put under SLM	0	3 <sup>rd</sup> Yr: 10,000 ha End of Project:20,000ha	Project reports M&E reports	Factors of production are favourable Good incentives for FFS	
<b>Component 1</b>	<b>Capacity Building of Stakeholders on SLM and SFM</b>					
Project Outcome	Outcome Indicators	Baseline	Targets and Monitoring Milestones	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
<b>Outcome 1: Enhanced</b>	Proportion of target farmers using	30%	3 <sup>rd</sup> Yr: 60% End of Project:	Project reports County reports	Enabling political and institutional	

<b>capacity of smallholder farmers to implement and upscale sustainable land, forest and biodiversity (including agro-biodiversity) management practices</b>	appropriate SLM practices		80%	M&E reports	framework to support SLM/SFM initiative  Favorable weather conditions  Local policies provide incentives for farmers to adopt the practices	
<b>Output 1.1:</b> Baselines for SLM, SFM and Biodiversity established at landscape level	Baseline scenario of initial project values established	TBD	3 <sup>rd</sup> Yr – Baseline reports and maps of projects sites in place	Baseline reports and maps  Project progress reports	Availability of secondary data	
<b>Output 1.2:</b> Capacity needs assessment for key stakeholders conducted	Capacity needs of key project partners established	TBD	1 <sup>st</sup> Yr : Capacity needs assessment report ready	Capacity Needs Assessment Report  Project Report	Accurate information provided by stakeholders	
<b>Output 1.3:</b> Development of Integrated Land Use Plans for SLM, SFM and Biodiversity conservation at Landscape Level	No. of landscape land use plans developed	10 land use plans developed	2 <sup>nd</sup> yr – 10 Land use plans developed	Land use plans reports  Project progress reports	No land use conflicts	
<b>Output 1.4:</b> Support to conservation of biodiversity hot spots	No of hot spots conserved	0	3 <sup>rd</sup> yr – 3 Biodiversity hotspots conserved End of project – 5 hot spots conserved	Biodiversity reports  Project progress reports	Mitigation of human and wildlife conflicts	
<b>Output 1.5:</b> Conduct training of trainers (ToT) for Farmer Field Schools (FFS)	No. of training of trainers (ToTs) trained by gender	40 trained by AGRA SHP	3 <sup>rd</sup> Yr: 100 ToTs trained	Project progress reports	There will are no transfers of ToTs during the project duration	
<b>Output 1.6:</b> Facilitation of FFS groups	No. of farmer groups trained by gender	30 groups trained by AGRA	3 <sup>rd</sup> Yr – 15 End of project – 30 farmers trained	Project progress reports  Training reports	The groups will take adopt learned practices in their own plots	
<b>Output 1.7:</b> Establishment of SLM/SFM biodiversity learning sites	No. of learning sites established	0 learning sites on best SLM practices	3 <sup>rd</sup> Yr – 30 End of project – 50	Project progress reports  Learning sites reports	The sites will address the agronomic challenges the farmers face	
<b>Output 1.8:</b> Facilitation of	No. of farmers	10,000 farmers	3 <sup>rd</sup> Yr – 15,000	Project progress reports	The field days will create wider	

farmer open and field-days	attending field days by gender		End of project – 30,000	Field day reports	awareness of SLM/SFM practices outside the focal project sites	
<b>Output 1.9</b> Support to implementation Participatory Forest Mangement (PFM) Plans	No. of Participatory Forest Management Plans developed and implemented	3 PFM developed	3 <sup>rd</sup> Yr – 3 End of project – 6	Project progress reports PFMP reports	The proposed amendment of the Forest Act is enacted and operationalized	
<b>Output 1.10:</b> Capacity building of Community Forest Associations (CFAs) and other forest stakeholders	No. of forest user groups trained (with gender disaggregated data)  Number of concessional agreements with KFS signed	10 user groups supported  3 Forest Management Agreements (FMA) signed	3 <sup>rd</sup> Yr – 5 End of project – 20  3 <sup>rd</sup> yr – 1FMA  End of Project – 3FMAs	Project progress reports  CFA training reports	The governance of CFAs is democratic, transparent and accountable to the members	
<b>Output 1.11</b> Documentation of SLM/SFM knowledge and technologies	No. of people with access to SLM information	TBD	End of project - SLM and agro-biodiversity best practices documented	Project progress reports  SLM and agro-biodiversity reports	Knowledge on SLM and agro-biodiversity will trigger interest for conservation	
<b>Component 2</b>	<b>Mainstreaming Value Chain Approach to Smallholder Producers</b>					
<b>Outcome 2.0:</b> <b>Increased farmers' access to profitable input and output markets of targeted crops and forest products</b>	Proportion of target farmers with access to inputs and output markets (with gender disaggregated data)	30% farmers with access with input/output markets	3 <sup>rd</sup> Yr - 60% End of project - 80%	Household farmer survey (mid-way and end of project)	Farmers willing to adopt improved seed	
	Increase in volume of produce (target crops) sold by households through structured markets	0	3 <sup>rd</sup> Yr - 30% End of project - 50%	Household farmer survey (mid-way and end of project)	Local policies provide incentives for farmers to adopt the practices  Market prices are favourable to farmers	
<b>Output 2.1:</b> Value chain analysis of target crops undertaken	Value-chain analysis of target crops undertaken	0	1 <sup>st</sup> Yr: 3 value chain analysis undertaken	Value-chain analysis report  Project Reports	business disclosure of value chain actors	
<b>Output 2.2</b> Farmer groups linkage to inputs and output markets	Proportion of farmers marketing their produce through structured markets Proportion of farmers accessing loans from micro-financing institutions	10% of t small scale farmers accessing loans and better markets	3 <sup>rd</sup> Yr; 20%  End of project - 30%	Project progress reports  County economic survey	stability in commodity prices  Government support for subsidised credits	

<b>Output 2.3:</b> Support to strengthening of Community Based Seed producers	No. of Community based seed producers supported	TBD  TBD	3 <sup>rd</sup> Yr - 1 groups supported End of project - 3 groups supported	Project progress reports  Community based seeds reports	Availability of quality indigenous seeds  Approvals from seed regulatory authority	
<b>Output 2.4:</b> Support to post-harvest management at household level	No. of farmers trained in post-harvest handling by gender	1,200 farmers trained	3 <sup>rd</sup> Yr: 4,000  End of project 10,000 farmers reached	Household farmer survey (mid-way and end of project)	The post -harvest technologies are affordable to smallholder farmers	
<b>Output 2.5:</b> Support to women and youth groups in small scale agricultural enterprises	No. of Women and youth groups supported	0	3 <sup>rd</sup> Yr – 10 groups  End of project - 30 groups	Project progress reports	Youths linked to affordable finance institutions	
<b>Output 2.6:</b> Support to development and commercialization of Non-wood forest products and services (NWFPS)	No. of NWFPS developed and marketed	2	3 <sup>rd</sup> Yr: 2  4 NWFPS developed by End of project	Project progress reports  NWFPS reports	CFAs are functional  Less conflicts over forest resources	
<b>Component 3</b>	<b>Enabling Policy and Institutional Framework</b>					
<b>Outcome 3:</b> <b>Enabling policy and institutional framework for up scaling sustainable land, forests and biodiversity management at county level</b>	No. of SLM related frameworks at county and landscape level	0	3 <sup>rd</sup> Yr: 1  End of project - 3 institutional frameworks established by end of project	County assembly reports and bills  Project Progress reports M&E report	Political will from county governments	
<b>Output 3.1</b> Assessment of SLM/SFM and biodiversity conservation related policies and strategies at county level	Policy analysis report	0	3 <sup>rd</sup> Yr - Policy analysis report with recommendations	Policy reports  Project Progress reports	Political will from county governments	

<b>Output 3.2</b> Support to development of county level SLM/SFM and biodiversity frameworks	No. of county level SLM/SFM related strategies	0	3 <sup>rd</sup> Yr – 3 policy dialogues undertaken  End of project – 2 SLM related strategies developed	Policy reports  Project Progress reports	Political will from county governments	
<b>Output 3.3</b> Support to Ecosystem valuation and assessment	Valuation of Kakamega-Nandi forest complex established	0	Ecosystem valuation established by end of project	Ecosystem Valuation Report Project progress reports	The Ecosystem valuation report would increase awareness of the forest value and increase investment by the county government.	
<b>Output: 3.4:</b> Support to inter-county ecosystem forum	Inter-county MoU	0	3 <sup>rd</sup> Yr – 3 inter-county dialogues undertaken  End of project - Inter-county MoU in place	Project Progress reports  Inter-county MoU	Political will from county governments	

## APPENDICES

- Appendix 1: Budget by project components and UNEP budget lines
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- Appendix 3: Incremental cost analysis
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- Appendix 13(a-c): Tracking Tools
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- Appendix 15: Carbon Calculation GEF SLM Western Kenya