



Project Identification Form (PIF) entry – Full Sized Project – GEF - 7

## Resilient, productive and sustainable landscapes in Mali's Kayes Region

### Part I: Project Information

**GEF ID**

10362

**Project Type**

FSP

**Type of Trust Fund**

MTF

**CBIT/NGI**☐ CBIT☐ NGI**Project Title**

Resilient, productive and sustainable landscapes in Mali's Kayes Region

**Countries**

Mali

**Agency(ies)**

FAO

**Other Executing Partner(s)**

Ministry of Agriculture; Ministry of Environment, Sanitation and Sustainable Development

**Executing Partner Type**

Government

**GEF Focal Area**

Multi Focal Area

**Taxonomy**

Focal Areas, Climate Change Adaptation, Climate Change, Livelihoods, Innovation, Mainstreaming adaptation, Least Developed Countries, Biodiversity, Mainstreaming, Agriculture and agrobiodiversity, Sustainable Development Goals, Land Degradation, Sustainable Land Management, Ecosystem Approach, Improved Soil and Water Management Techniques, Drought Mitigation, Sustainable Agriculture, Food Security, Influencing models, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Stakeholders, Type of Engagement, Partnership, Private Sector, SMEs, Individuals/Entrepreneurs, Local Communities, Beneficiaries, Civil Society, Community Based Organization, Communications, Behavior change, Gender Equality, Gender results areas, Access to benefits and services, Awareness Raising, Capacity Development, Participation and leadership, Gender Mainstreaming, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Capacity, Knowledge and Research, Knowledge Generation, Professional Development, Workshop, Knowledge Exchange, Peer-to-Peer

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 1

**Duration**

60 In Months

**Agency Fee(\$)**

649,036

**Submission Date**

9/30/2019

## A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
LD-1-1	GET	1,200,000	5,800,000
LD-1-4	GET	1,586,022	9,970,000
BD-1-1	GET	1,774,536	5,800,000
CCA-1	LDCF	2,271,406	9,370,000
Total Project Cost (\$)		6,831,964	30,940,000

**B. Indicative Project description summary****Project Objective**

Project Objective: Promote innovations in governance, production and finance in order to reduce the vulnerability of the small-holder agro-sylvo-pastoral food systems and livelihoods, reversing land degradation and halting the loss of globally significant biodiversity in fragile landscapes of the Kayes region Indicators: 1. Area of production land under improved and climate-resilient management, Target: 30,500 ha 2. Number of direct beneficiaries dis-aggregated by gender, Target : 33,000 (50% women) 3. Number of vulnerable agro-sylvo-pastoralists (men, women and youth) with strengthened livelihoods and diversified sources of income (TBC during PPG)

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
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Component 1. Strengthened GOVERNANCE for climate-adapted agro-sylvo-pastoral food systems and sustainably managed productive landscapes	Technical Assistance	<p>Outcome 1: Strengthened governance structures more effectively implement and monitor climate change adaptation in sustainable landscape management plans, resulting in sustainable production intensification, resilient livelihoods and improved use and conservation of land and biodiversity</p> <p>Indicator: number of innovative mechanisms for multi-stakeholder planning and investment into climate change adaptation and sustainable management of land and biodiversity at the landscape level</p> <p>Target: at least one regional multistakeholder platform and 20 COFOs</p>	<p>1.1 Capacity of at least 20 local landscape committees (COFO) strengthened to effectively integrate climate change adaptation and vulnerability considerations, and land and biodiversity resources use into sustainable landscape management plans</p> <p>1.2 A regional platform for Kayes established, in order to effectively engage multiple stakeholders (private sector, CSOs, local administration, ...) in agro-sylvo-pastoral food systems resilience and sustainable land and biodiversity use planning and investment</p> <p>1.3 At least 100 people from national and regional institutions trained to conduct climate change vulnerability and environmental impact assessments at the landscape level, providing the evidence for planning and investment</p> <p>1.4 At least 100 people from national and regional institutions trained to conduct efficient monitoring of climate change resilience, land and biodiversity use and conservation, resulting from integrated sustainable landscape management interventions</p>	GET	200,000	1,000,000
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Component 1. Strengthened GOVERNANCE for climate-adapted agro-sylvo-pastoral food systems and sustainably managed productive landscapes	Technical Assistance	<p>Outcome 1: Strengthened governance structures more effectively implement and monitor climate change adaptation in sustainable landscape management plans, resulting in sustainable production intensification, resilient livelihoods and improved use and conservation of land and biodiversity</p> <p>Indicator: number of innovative mechanisms for multi-stakeholder planning and investment into climate change adaptation and sustainable management of land and biodiversity at the landscape level</p> <p>Target: at least one regional multistakeholder platform and 20 COFOs</p>	<p>1.1 Capacity of at least 20 local landscape committees (COFO) strengthened to effectively integrate climate change adaptation and vulnerability considerations, and land and biodiversity resources use into sustainable landscape management plans</p> <p>1.2 A regional platform for Kayes established, in order to effectively engage multiple stakeholders (private sector, CSOs, local administration, ...) in agro-sylvo-pastoral food systems resilience and sustainable land and biodiversity use planning and investment</p> <p>1.3 At least 100 people from national and regional institutions trained to conduct climate change vulnerability and environmental impact assessments at the landscape level, providing the evidence for planning and investment</p> <p>1.4 At least 100 people from national and regional institutions trained to conduct efficient monitoring of climate change resilience, land and biodiversity use and conservation, resulting from integrated sustainable landscape management interventions</p>	LDC F	100,000
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Component 2. Integrated sustainable landscape management plans developed and implemented and innovative PRODUCTION practices and approaches demonstrated	Investment	<p>Outcome 2: In selected demonstration sites, integrated sustainable landscape management plans are implemented, contributing to climate change resilient agro-sylvo-pastoral food systems, sustainably intensified production and sustainable use and conservation of land and biodiversity</p> <p>Indicator: number of sustainable landscape management plans integrate climate change adaptation and vulnerability considerations, and land and biodiversity use and conservation</p> <p>Target: at least 20 plans developed, implemented and monitored by COFOs</p> <p>Indicator: Number of hectares of land under improved management</p> <p>Target: 30,500 ha of production land, of which 10,000 ha under climate-resilient management,</p>	<p>2.1 At least 20 integrated sustainable landscape management plans (SLA) developed by COFOs for demonstration sites, addressing agro-sylvo-pastoral food system adaptation priorities, and facilitating sustainable production intensification, and sustainable use and conservation of land and biodiversity</p> <p>2.2 In coordination with COFOs and supporting active engagement of multiple (and sometimes conflicting) resource users in planning and management, at least 30 Community Listening Groups (Dimitra Clubs) established and animated</p> <p>2.3 At least 12,000 agro-sylvo-pastoral producers participate in Agro- Pastoral Field Schools (APFS) organized to prioritise, demonstrate, co-create and disseminate innovative production practices, including:</p> <p>-Priority and scalable agro-sylvo-pastoral production practices (e.g. reduced tillage, crop selection, intercropping, crop rotation, biological pest control) introduced on agriculture land to restore degraded land, adapt to climate change and sustainably intensify productivity (avoiding</p>	GET	2,602,388	13,470,000
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5,000 ha directly benefiting biodiversity (avoiding encroachment into KBAs) and 15,500ha under SLM

Indicator: number of agro-sylvo-pastoral producers trained on innovative climate change adaptation and SLM practices

Target: 12,000 (50% women)

further expansion of agriculture land into KBAs)

- Priority and scalable climate change adaptation practices (e.g. zai, Delfino plow and Vallerani system, assisted regeneration of indigenous trees through pruning) introduced on grassland in order to restore land and biodiversity (avoiding further expansion into KBAs)

- Priority and scalable restoration (e.g. reforestation, afforestation, forest fire and pest outbreak prevention planning) and sustainable use (e.g. selected harvest of fuelwood species, forest fire management, controlled access) practices introduced on biodiversity-rich forest ecosystems for ecosystem service and habitat conservation of globally significant biological diversity

Component 2. Integrated sustainable landscape management plans developed and implemented and innovative PRODUCTION practices and approaches demonstrated	Investment	Outcome 2: In selected demonstration sites, integrated sustainable landscape management plans are implemented, contributing to climate change resilient agro-sylvo-pastoral food systems, sustainably intensified production and sustainable use and conservation of land and biodiversity	2.1 At least 20 integrated sustainable landscape management plans (SLA) developed by COFOs for demonstration sites, addressing agro-sylvo-pastoral food system adaptation priorities, and facilitating sustainable production intensification, and sustainable use and conservation of land and biodiversity	LDC F	959,756	2,285,000
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Indicator: number of sustainable landscape management plans integrate climate change adaptation and vulnerability considerations, and land and biodiversity use and conservation	2.2 In coordination with COFOs and supporting active engagement of multiple (and sometimes conflicting) resource users in planning and management, at least 30 Community Listening Groups (Dimitra Clubs) established and animated
Target: at least 20 plans developed, implemented and monitored by COFOs	2.3 At least 12,000 agro-sylvo-pastoral producers participate in Agro- Pastoral Field Schools (APFS) organized to prioritise, demonstrate, co-create and disseminate innovative production practices, including:
Indicator: Number of hectares of land under improved management	-Priority and scalable agro-sylvo-pastoral production practices (e.g. reduced tillage, crop selection, intercropping, crop rotation, biological pest control) introduced on agriculture land to restore degraded land, adapt to climate change and sustainably intensify productivity (avoiding further expansion of agriculture land into KBAs)
Target: 30,500 ha of production land, of which 10,000 ha under climate-resilient management, 5,000 ha directly benefiting biodiversity (avoiding encroachment into KBAs) and 15,500 ha under SLM	
Indicator: number of agro-sylvo-pastoral producers trained on innovative climate change adaptation and SLM practices	- Priority and scalable climate change adaptation practices (e.g. zai, Delfino plow and Vallerani system, assisted regeneration of indigenous trees through pruning) introduced on grassland in order to restore land and biodiversity (avoiding further expansion into KBAs)
Target: 12,000 (50% women)	

- Priority and scalable restoration (e.g. reforestation, afforestation, forest fire and pest outbreak prevention planning) and sustainable use (e.g. selected harvest of fuelwood species, forest fire management, controlled access) practices introduced on biodiversity-rich forest ecosystems for ecosystem service and habitat conservation of globally significant biological diversity

Component 3. Improved FINANCE for and investment into climate change adapted livelihoods and sources of income of vulnerable agro-sylvo-pastoral communities	Investment	Outcome 3: Selected mixed value chains are strengthened for improved and climate-resilient rural livelihoods of agro-sylvo-pastoral women and youth	3.1 At least 3 commercial plans for mixed value chains based on territorial approach and circular economy developed and implemented	GET	1,451,000	7,000,000
		Indicator: Number of value chains strengthened through the implementation of commercial plans	3.2 Improved structure of at least three gender-sensitive value chains through the establishment of cooperatives and connection between producers, transformers and marketers			
		Target: At least three value chains	3.3 In connection with the Centre d'Appui à la Microfinance et au Développement (CAMIDE), innovative financial mechanisms set up to leverage funding and facilitate investment in the agro-sylvo-pastoral sector (incl. use of remittances)			
		Indicator: Number of incubators established to catalyze innovation and mobilize local private actors and MSMEs to				

contribute to climate adaptation and land and biodiversity conservation

Target: 2 incubators

3.4 Certification processes elaborated in partnership with the private sector and international sustainability certification bodies to facilitate access to markets

3.5 Two Agricultural Youth Incubators (one in the northern landscapes and one in the southern landscapes) established to catalyze innovation and restore the attractiveness of the agricultural sector

3.6 Local champion cooperatives / eco-enterprises accompanied to demonstrate the profitability of sustainable production for at least three products (incl. demonstration of improved storage & transformation practices)

Component 3. Improved FINANCE for and investment into climate change adapted livelihoods and sources of income of vulnerable agro-	Investment	Outcome 3: Selected mixed value chains are strengthened for improved and climate-resilient rural livelihoods of agro-sylvo-pastoral women and youth	3.1 At least 3 commercial plans for mixed value chains based on territorial approach and circular economy developed and implemented  3.2 Improved structure of at least three gender-sensitive value chains through the establishment	LDC F	1,049,000	7,000,000
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sylvo-pastoral  
communities

Indicator: Number of value  
chains strengthened  
through the  
implementation of  
commercial plans

of cooperatives and connection  
between producers, transformers  
and marketers

Target: At least three  
value chains

3.3 In connection with the Centre  
d'Appui à la Microfinance et au  
Développement (CAMIDE),  
innovative financial mechanisms  
set up to leverage funding and  
facilitate investment in the agro-  
sylvo-pastoral sector (incl. use of  
remittances)

Indicator: Number of  
incubators established to  
catalyze innovation and  
mobilize local private  
actors and MSMEs to  
contribute to climate  
adaptation and land and  
biodiversity conservation

3.4 Certification processes  
elaborated in partnership with  
the private sector and  
international sustainability  
certification bodies to facilitate  
access to markets

Target: 2 incubators

3.5 Two Agricultural Youth  
Incubators (one in the northern  
landscapes and one in the  
southern landscapes)  
established to catalyze  
innovation and restore the  
attractivity of the agricultural  
sector

3.6 Local champion cooperatives  
/ eco-enterprises accompanied  
to demonstrate the profitability of  
sustainable production for at  
least three products (incl.



demonstration of improved  
storage & transformation  
practices)

Component 4: Knowledge management and outscaling	Technical Assistance	Outcome 4: Project monitored, results captured and lessons learned widely disseminated.  Indicator: An M&E plan and a communication strategy developed and implemented  Target: 1 M&E Plan, 1 communication strategy	4.1 Project Monitoring & Evaluation plan developed and implemented  4.2 An Outreach & Communication Strategy developed and implemented, including coordination and awareness-raising meetings with co-financing partners  4.3 Project Mid-term and Final Evaluations undertaken	GET	90,000	60,000
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Component 4: Knowledge management and outscaling	Technical Assistance	Outcome 4: Project monitored, results captured and lessons learned widely disseminated.	4.1 Project Monitoring & Evaluation plan developed and implemented	LDC F	54,488	45,000
		Indicator: An M&E plan and a communication strategy developed and implemented	4.2 An Outreach & Communication Strategy developed and implemented, including coordination and awareness-raising meetings with co-financing partners			
		Target: 1 M&E Plan, 1 communication strategy	4.3 Project Mid-term and Final Evaluations undertaken			
Sub Total (\$)					6,506,632	30,860,000
Project Management Cost (PMC)						
GET					217,170	40,000
LDCF					108,162	40,000
Sub Total(\$)					325,332	80,000
Total Project Cost(\$)					6,831,964	30,940,000

**C. Indicative sources of Co-financing for the Project by name and by type**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Donor Agency	Islamic Development Bank	Grant	Investment mobilized	8,525,000
Donor Agency	CPEAP	Grant	Investment mobilized	4,200,000
Government	ATI	Grant	Investment mobilized	18,000,000
GEF Agency	FAO	Grant	Investment mobilized	215,000
<b>Total Project Cost(\$)</b>				<b>30,940,000</b>

**Describe how any "Investment Mobilized" was identified**

Aligned with the Cofinancing guidelines, the investment mobilised comprises all relevant investments by project partners in the Kayes Region that are not operating or operational costs. Details are provided below on the nature of the investments.

**D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds**

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Mali	Land Degradation	LD STAR Allocation	2,786,022	264,671	3,050,693
FAO	GET	Mali	Biodiversity	BD STAR Allocation	1,774,536	168,581	1,943,117
FAO	LDCF	Mali	Climate Change	NA	2,271,406	215,784	2,487,190
<b>Total GEF Resources(\$)</b>					<b>6,831,964</b>	<b>649,036</b>	<b>7,481,000</b>

**E. Project Preparation Grant (PPG)****PPG Amount (\$)**

200,000

**PPG Agency Fee (\$)**

19,000

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>	<b>Total(\$)</b>
FAO	GET	Mali	Land Degradation	LD STAR Allocation	81,558	7,748	<b>89,306</b>
FAO	GET	Mali	Biodiversity	BD STAR Allocation	51,948	4,935	<b>56,883</b>
FAO	LDCF	Mali	Climate Change	NA	66,494	6,317	<b>72,811</b>
<b>Total Project Costs(\$)</b>					<b>200,000</b>	<b>19,000</b>	<b>219,000</b>

## Core Indicators

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
20500.00	0.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
5,000.00			

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

## Type/Name of Third Party Certification

## Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
15,500.00			

## Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

## Documents (Please upload document(s) that justifies the HCVF)

Title

Submitted

## Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	10,000			
Male	10,000			
Total	20000	0	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

N.B. Please, see LDCF core indicators and metadata worksheet. TOTAL number of direct beneficiaries has been estimated at 20,000 from GEFTF and an additional 13,000 from LDCF, reported in the 2 separate worksheets to avoid double-counting. Likewise, the area under improved practices, a total 25,500 ha, is the sum of 15,500 ha under SLM in core indicator 4.3 of the GEFTF and another 10,000 ha captured in the LDCF core indicators worksheet. Estimates of core indicator targets have been calculated based on available field data, as reported below: Northern landscapes Southern landscapes TOTALS Kayes Yelimane Nioro Diema Kita Bafoulabe # hectares of cropland 70,000 37,500 10,000 30,000 52,500 50,000 250,000 # hectares of pastures 500 400 100 100 250 150 1,500 # hectares of forest 2,500 50 50 50 13,000 9,350 25,000 # vulnerable agro-pastoralists 35,000 25,000 10,000 20,000 15,000 20,000 125,000 # hectares per HH 2,5 1,5 1 1,5 3,5 2,5 2,1(Average)



## Part II. Project Justification

### 1a. Project Description

#### 1. Global environmental and adaptation problems, root causes and barriers that need to be addressed

##### **a) A country dominated by the agro-sylvo-pastoral sector, highly dependant on climate and natural resources**

Landlocked Mali ranks among the 25 poorest countries in the world[1] and qualifies as a Least Developed Country. Its population of 19.6 million[2] (growing at an average rate of 3% per annum) is highly dependent on natural resource-based sectors, namely agriculture, livestock, fisheries and mining.

Across the country, average rainfall is low, at only 280 mm per year, although there is a strong North-South gradient, ranging from ~1,200 mm in the South to less than 200 mm in the North of the country. This gradient defines the four agro-climatic zones found in Mali: Guinean savanna, Sudanese savanna, Sahelian and Saharan. Average monthly temperatures range from 33°C in June to 21°C in January[3]. The thermal equator, defined by the set of locations having the highest mean daily annual temperature on the globe, crosses the country. Although the land suitable for agriculture represents only 14% of the total area, agriculture is the main activity, both in terms of employment and contribution to the economy of Mali. Indeed, about 75% of the Malian population live in rural areas and agriculture accounts for about 50% of the GDP. The Malian economy is therefore highly dependent on the performance of the agricultural sector, which is – according to the 2007 NAPA - particularly sensitive to climate variations, periods of long drought, and the southward expansion of the desert. In sum, the production and productivity of the agricultural sector (mostly rain-fed, small-scale family farming) is extremely vulnerable to climate conditions.

##### **b) Fragility, conflict and migration exacerbated by climate change, push agro-sylvo-pastoral production systems beyond their carrying capacity**

Climate observations and predictions show several trends that already affect the agricultural and agro-sylvo-pastoral sector[4]: i) an increase in mean annual temperatures; ii) a decrease in total precipitation[5]; iii) an increase in the number of days per year of prolonged heat[6] as well as dry days[7]; and iv) since 1992, an increase in the number of days per year of intense rainfall[8], with considerable interannual variability. As a result of these changes, the isohyetal line (a line joining points of equal rainfall) has shifted 200 km southward in a few decades. This dynamic tends to foster Mali's structural demographic and economic geographic polarization, with the majority of economic activity, food production and human settlement concentrated in the more hospitable riverine areas in the South of the country.

This demographic phenomenon has seen conflicts over land and natural resource use increase, in a context where the natural resource base has become highly vulnerable due to climate change. Furthermore, agricultural pressure on land resources has gradually increased. According to the DNSI, the area of cultivated land increased from 1,967,000 ha in 1970/71 to 3,472,000 ha in 1994/95, which represents an increase of 15% in terms of clearing. The increase in cultivated area was not accompanied by an increase in food production. Crop production remained low, averaging 750kg/ha.

Lacking the adaptive capacity to withstand actual and future climate stimuli and their negative impacts - with increased demographic pressure from a poor and vulnerable growing rural population, and increasing conflicts over scarcer natural resources - the agriculture sector has reduced the fallow period, rapidly decreasing soil health and accelerating soil and land degradation, and has expanded into marginal land and/or forest land. This latter, an uncontrolled forest encroachment of the agricultural sectors, further impacts the habitat of plant and animal species, rapidly eroding the rich biodiversity.

Consequently, climate change adaptation of the agro-sylvo-pastoral food systems has been identified as a priority in the country's NAPA and the adoption of innovations in governance (component 1), production (component 2), and finance (component 3), is key in order to reverse land degradation, halt habitat loss and conserve globally significant biodiversity, and lift rural agro-sylvo-pastoral populations out of poverty (avoiding migrations towards cities and other countries) thanks to profitable and resilient livelihood options and diversified sources of income.

### c) Focusing on vulnerable productive landscapes in northern and southern Kayes

What can be observed (and has been described above) at the national level, is particularly true for the Kayes region, the area prioritized for GEFTF-LDCF project intervention.

The western region of Kayes is about 12 million hectares big, has a population of approx. 2 million (9.7% of the population of Mali), and the primary sector – rain-fed agriculture, forestry, cattle breeding and fisheries – employs 80% of the population. As a whole, the economy of the Kayes region is thus extremely dependent on climatic conditions. The northern landscapes of the Kayes region (target circles of Kayes, Yélimané, Nioro du Sahel and Diéma) are characterized by low-altitude plateaus, surrounded by hilly areas. The Sahelian steppe vegetation is dominated by acacias, *Balanites aegyptiaca* (desert date tree) and jujube. Annual rainfall<sup>[9]</sup> range between 350 mm and 800 mm. The southern landscapes (target circles of Kita and Bafoulabé) benefit from a Sudanese climate with slightly higher annual rainfall (560 mm in Kita per annum on average since 2000; 753 mm in Bafoulabé). The vegetation is characterized by a diversity of shrubs and trees (including Borassus and raffia palms, baobab, shea tree, duguto and néré trees). The Senegal river flows across the Bafoulabé and Kayes circles, and the Manantali dam over the Bafing river provides irrigation water to approx. 76,000 hectares in the region, as well as 13% of the Malian electricity consumption<sup>[10]</sup>. Various ethnic groups live in the area (fishers, sedentary and transhumant farmers), while others come from neighboring countries to graze their livestock during the dry season. Ethnic groups include Sarakolé, Khassonkés and Peulhs in the northern landscapes, and Malinkés in the southern landscapes.

Households rely on farming (livestock, millet, sorghum, rice, cotton, sesame, fonio, Arabic gum) and on remittances sent by the diaspora (60% of which are directed to women). Rural households remain poorer, with 53% of rural households under the poverty line (against 47% on average in Mali<sup>[11]</sup>). Women are particularly involved in rice cultivation and market gardening. Rain-fed agriculture is largely extensive, and relies on the expansion of arable land through deforestation to increase production – in particular cereals. Combined with the impacts of climate change, this type of agriculture, increases the risk of soil erosion (both wind and runoff-induced) and desertification, with associated consequences such as a decline in land productivity, a decline in the CO<sub>2</sub> sequestration potential, a loss in biological diversity etc.

As a result of degraded environmental and climatic conditions, population from the northern, drier areas have been migrating to the southern, more humid parts of the region. This has amplified the pressure on already-degraded natural resources, multiplying the risks of conflicts between competing uses of such resources (e.g. between herders and growers, and between agro-sylvo-pastoralists and gold seekers, loggers and harvesters of Non-Wood Forest Products – NWFP – such as Arabic gum).

The table below summarizes additional information on the northern and southern landscapes of the Kayes region.

	Northern landscapes	Southern landscapes
Circles	Kayes, Yélimané, Nioro du Sahel and Diéma (population of 1,97 million)	Kita and Bafoulabé (population of 841,000)
Climate	Sahelian (annual rainfall between 350 mm and 800 mm)	Sudanese (560 mm in Kita per annum on average since 2000; 753 mm in Bafoulabé)
Agriculture	<p>Mostly short- and ultra-short-cycle crops, dry cultures</p> <p>Average to medium agricultural potential</p> <p>Relative importance of flood-recession crops but erratic productivity</p> <p>Limited use of farm inputs compared with Southern landscapes</p> <p>Low to very low forage potential</p> <p>Length of the agricultural season: 45 to 90 days</p> <p>High cattle pressure (transhumance area)</p>	<p>Longer-cycle crops such as cotton, rice</p> <p>Medium to high agricultural potential</p> <p>High to very high forage potential</p> <p>Length of the agricultural season: 90 to 120 days</p>
Land degradation	<p>Strongly-degraded land, requiring more important resources for land rehabilitation</p> <p>Overgrazing, slash-and-burn agriculture, overharvesting of wood, bushfires</p>	Degraded land with fragmented natural habitats
Biological diversity	Relatively limited biological diversity because of strong land degradation and destruction of natural habitats. The fauna is particularly threatened in northern landscapes.	Higher biological diversity, but decrease in forest species (e.g. guenou, lingué, siri, tamarind, néré, sana). Some animal species have disappeared or are highly threatened (e.g. lions, elephants, giraffes, panthers, antelopes).
Migration influence and international cooperation	<p>High dependence on remittances from diaspora, with very active diaspora associations</p> <p>Important role of projects, NGOs, technical committees etc.</p> <p>Limited international cooperation because of the difficulty to achieve significant results</p>	<p>Important role of projects, NGOs, technical committees etc.</p> <p>Relatively strong presence of international cooperation, because of more favorable context to achieve significant results</p>
Safety situation	Potential insecurity (isolated attacks, cattle thefts) but no sign of terrorist activity. The risk remains significant because of the proximity with the Mauritanian border though.	Potential insecurity (isolated attacks, cattle thefts) but no sign of terrorist activity.

The Kayes region is home to considerable biodiversity, with 21 forest reserves<sup>[12]</sup> for a total of 260,545 ha. Two IUCN<sup>[13]</sup> category II national parks (Kouroufing and Wango) are located in the region, as well as the Bafing sanctuary for endangered chimpanzees, a UNESCO Biosphere Reserve (Boucle du Baoulé) and a Ramsar site (Lake Magui). The Bafing catchment is characterized by the presence of numerous mammal species (31 species recorded in 2002), including rare and endangered species of global significance, such as chimpanzees (*Pan troglodytes verus*), roan antelopes (*Hippotragus equinus*), giant elands (*Tragelaphus derbianus derbianus*), hippopotamuses and lions. Other mammals found in the Kayes region include jackals (*Canis aureus*), wild cats (*Felis silvestris lybica*), African civets (*Civettictis civetta*), bushbuck (*Tragelaphus scriptus*), porcupines (*Hystrix cristata*), dwarf forest buffaloes (*Syncerus Caffer Nanus*) and African wild dogs (*Lycaon pictus*). The region also hosts a significant diversity of bird species. In particular, Lake Magui constitutes a source of food and resting ground for several migrating birds with over 95 species identified, including garganey (*Anas querquedula*), northern pintail (*Anas acuta*), glossy ibis (*Plegadis falcinellus*) and the purple heron (*Ardea purpurea*). Significant flora in the Kayes region includes Borassus and raffia palms, baobab (*Adansonia digitata*), shea trees, duguto and néré trees. Endemic flora species include *Euphorbia sudanica*, *Vepris heterophylla* also called Kita quinquéliba and *Gilletiodendron glandulosum*.

#### d) Climate change accelerates and exacerbates threats to Kayes' biodiversity and land resources

The target region is characterized by low levels of agricultural productivity, which is further challenged by climate-induced challenges including increased incidence and intensity of crop pest infestations, increased intensity of heat stress on crops, and loss of water quality and quantity. Additionally, a high population growth rate, and the increasing need for food, livelihoods and natural resources, has resulted in vast land conversions. Over the past three decades, there has been an expansion of agriculture through the cultivation of marginal lands, shortened fallow periods and the clearing of natural habitats for crops, including woodlands and wetlands. Such trends have contributed to declining soil fertility and the expansion of degraded areas. The degradation of soil – acidification, salinization – is caused by both natural processes (such as wind and water erosion) and inappropriate agricultural practices, including misuse of chemical fertilizers, monoculture and overgrazing. The result of this process is a vicious circle between lack of income-generating options, degradation of natural resources and low agricultural productivity. Consequences include a threat to biodiversity, conflicts over the use of natural resources, poverty and strong rural emigration.

Biodiversity in the Kayes region is threatened by several factors: i) climate change; ii) natural habitat degradation and fragmentation; iii) bushfires; iv) the introduction of exotic species; v) the erosion of genetic resources; and vi) a lack of institutional capacity. Climate change, especially changes in rainfall patterns and prolonged dry spells, affects some animal and plant species, such as specific rice cultivars<sup>[14]</sup>. Habitat fragmentation is mostly due to land-use practices, such as slash-and-burn agriculture. This practice, which is largely responsible for the fragmentation of fauna habitat, is practiced in shallows as well as on steep hillslopes. Another trend fostering habitat fragmentation is the growing importance of the cotton culture, which leads to increasing forest clearing. Forests are also under pressure from unsustainable fuelwood harvesting. Some species are particularly targeted because of the high calorific potential of their wood. Such species include *Combretum glutinosum*, *Pterocarpus erinaceus*, *Pterocarpus lucens* and *Acacia nilotica*. Other tree species – *Prosopis africana* (Guélé) and *Burkea africana* (Siri) – are particularly sought after for their wood used in local craftsmanship.

Bushfires are a main factor affecting biological diversity as well as soil quality. The density and diversity of woody species has been shown to be lower in areas more often affected by fires[15]. Soil organic matter is generally lower in fire-prone areas. Some species – such as *Gilletiodendron glandulosum*, *Guibourtia copallifera* and *Vepris heterophylla* – have seen their population decrease as a result of fires, and their ranges limited to areas with lower fire occurrence.

Overgrazing is a phenomenon affecting both biological diversity and soil quality. Besides its impact on the herbaceous cover, overgrazing affects the natural regeneration of trees and shrubs. Delimbing by cattle of species such as *Acacia seyal*, *Acacia senegal* and *Balanites aegyptiaca* increases the exposure of tree populations to bushfires and termites. As a result of overgrazing, soil erosion tends to intensify, contributing to the siltation of streams and ultimately degrading water quality and the habitat of aquatic fauna.

Although the erosion of genetic diversity is not consistently monitored in Mali, several studies have shown such a phenomenon in agricultural species, mostly cereals. For example, the number of sorgho cultivars found in the Sudano-Guinean zone of Mali has decreased by 60% in ten years[16] under the combined effect of the expansion of cotton culture, the development of maize and the saturation of the agricultural space. Species such as glaberrima rice, voandzou, melon and pennisetum are also threatened[17]. In addition to the factors above, the emigration of local population is sometimes said to contribute to a loss of traditional knowledge on the use of local species.

#### **e) An institutional, legal and strategic context providing a solid basis to build climate resilient, productive and sustainable small-holder food systems at the landscape level**

Mali benefits from an enabling institutional and legal environment that will maximize the realization of the proposed project's outcomes. Some of the key national policies and strategies in place are described below.

- The National Policy for Food and Nutrition Security ensures an effective institutional/policy coordination among entities working towards sustainable food systems and restoration of degraded landscapes. Institutions involved include the Food Security Commission of the Ministry of Agriculture, Ministry of Livestock and Fisheries, Ministry of Environment, Sanitation and Sustainable Development, and regional/local authorities.
- Mali's will to address LD, CCA and BD-related challenges is reflected in policy frameworks such as the Sustainable Land Management Strategic Investment Framework (CSI-GDT) and the National Climate Change Strategy (SNCC). Both create a favorable context for farmers to earn a living while restoring the environment.
- The proposed project will complement sectoral policies, such as the National Environment Protection Policy and the National Environment Action Plan, which support sustainable intensification of food systems, while restoring degraded ecosystems. The Agricultural Development Plan, the National Adaptation Program of Action, the National Agricultural Sector Investment Program, the national strategy for reforestation, the national gender policy and the decentralization law (n°2012-007) further create an opportune environment for the project.

In addition, Mali is a signatory of several international conventions and mechanisms relevant to LD, CCA and BD action and has produced a number of national strategic plans and reports. These include:

- the National Bio Strategy Action Plan (NBSAP);
- the CBD National Report;
- the United Nations Framework Convention on Climate Change National Communications (NC);
- the UNFCCC National Determined Contribution;
- the UNFCCC Technology Needs Assessment (TNA) for adaptation and mitigation;
- the United Nations Convention to Combat Desertification (UNCCD) National Action Program; and
- the National Adaptation Programme of Action (NAPA).

Relevant national priorities set forth in these strategies are further described in Section II.7.

Mali's continuous commitments towards the sustainable management of productive landscapes over the past decades shows a strong will to advance its Land Degradation (LD), Climate Change Adaptation (CCA) and Biological Diversity (BD) agendas. The scope and ambition of these agendas are challenged by a number of persistent barriers.

#### **f) Barriers to the management of resilient, productive and sustainable landscapes**

- Barriers related to governance

Several gaps remain in the institutional capacity to implement national strategies. At the national level, there is a lack of capacity to conduct environmental and social impact assessments (EIAs) that take biodiversity and land conservation into account in the feasibility study phase for rural infrastructure projects. Similarly, there is need to have information and data on climate change vulnerability of agro-sylvo-pastoral small-holder food systems in order to address urgent and long-term adaptation needs. Such vulnerability assessments should fully address poverty, conflict and resource degradation. Also, the capacity to effectively follow standard monitoring processes for resilient, productive and sustainable landscape management interventions is impeding the ability to document lessons learned from these initiatives, and ultimately inform new initiatives by drawing on past experiences. Key national institutions to be targeted by capacity-building interventions on these topics include the Ministry of Agriculture (MA), Ministry of Environment, Sanitation and Sustainable Development (MESSD) and Ministry of Livestock and Fisheries. At the regional level, there is a lack of regional, multi-stakeholder platform to facilitate the coordination across sectors and from diverse organizations, including: i) regional and circle-level authorities; ii) farmers' associations; iii) private companies; iv) international sustainability bodies (e.g. IFOAM<sup>[18]</sup> Organics International, Fairtrade International); v) retailers; vi) Non-Governmental Organizations (NGO); vii) Civil Society Organizations (CSO); and viii) research institutions (e.g. Agricultural Economics Institute - IER, Katibougou Polytechnic Institute for Rural Training and Applied Research - IPR/IFRA). At the local level, while Local Land Management Plans (SLAs) are still under development in some communes, difficulties to effectively implement them have already been experienced in the communes where they have been adopted. In particular, COFO members report two

obstacles to fulfill their mandate: i) a difficulty to meet between members living in different villages to coordinate their action; and ii) a difficulty to exert an efficient control over land use without appropriate means of transportation. The latter obstacle is particularly relevant for the surveillance of protected areas – including forests – for which patrolling with motorbikes would be necessary.

Under Component 1, the proposed project will address the main barriers for the governance of sustainable landscape management and strengthened food systems, at the national, regional and local level.

- Barriers related to sustainable landscape management planning

SLAs have been developed for some communes of the Kayes region since the early 2000s. However, not all communes are covered. Furthermore, climate change adaptation and vulnerability considerations, biodiversity and land conservation are not adequately mainstreamed into some of the older SLAs. As a result of inadequate adaptive capacity and inappropriate landscape management, climate change stimuli and impacts, land degradation and biodiversity erosion threaten the livelihoods of rural communities as well as food security in the region. For example, it was estimated that wind erosion on degraded land generates the formation of sand dunes, leading to a reduction of agricultural productivity in over 20,000 ha in the Kayes region[19].

Under Component 2, the proposed project will adopt a participatory approach to audit and update existing SLAs and develop new, comprehensive SLAs in the target communes of the northern and southern landscapes of the Kayes region. Following this and in accordance with the collectively-elaborated SLAs, an agro-ecological approach as well as, climate change adaptation, sustainable land management and biodiversity conservation measures (practices and approaches) will be implemented in the target landscapes.

- Barriers related to climate change adaptation

Several barriers constrain the capacity of local populations in the Kayes region to adapt to the adverse impacts of climate change. These barriers pertain to: i) land-use planning, with a lack of mainstreaming of climate change adaptation into existing land-use plans; ii) governance, with inadequate institutional structures in place especially at the local level to solve an increasing number of resource-based conflicts[20], a situation that has been aggravated by climatic pressure; iii) limited dissemination of climate-adapted agricultural techniques; and iv) insufficient availability and adoption of climate-resilient crops.

While some of the institutional barriers to climate change adaptation planning will be addressed as part of the National Adaptation Plan (NAP) process, support received from the GCF under the Readiness programme[21] mostly focuses on strengthening national-level institutions and accessing multilateral funding. There are therefore still barriers to access adaptation funding at the local level and set up adequate local governance structures to address climate-related conflicts and land-use planning issues.

- Barriers related to sustainable financing and value chain development



In the Kayes region, promising commodity-based value chains are not developed to their full potential. Coordination between actors involved in value chains (VC) is limited, agri-business skills are scarce and certification opportunities have not been explored. In addition, access to credit is constrained by difficulties to abide by repaying schedules and a lack of credit counterparties (e.g. valuables, cattle).

As a result of above-mentioned barriers, market opportunities are not seized, the value-added of commodity-based VCs is not leveraged and agriculture-based livelihoods are threatened. This is all the more regrettable as there is a growing global demand for fonio, sesame or Arabic gum, and this represents market-driven opportunities to work beyond borders for supply chain needs.

Under Component 3, the proposed project will implement an integrated, territorial and gender-sensitive approach to strengthen mixed value chains in the Kayes region.

## 2.a Baseline scenario

### · Baseline scenario related to climate change adaptation

As mentioned above, degrading environmental and climate conditions have caused people to migrate from the northern, drier areas to the southern, more humid parts in the country. This has amplified the pressure on already degraded natural resources, multiplying the risks of conflicts between competing NR uses (e.g. between herders and growers, and between agro-sylvo-pastoralists and gold seekers, loggers and harvesters of Non-Wood Forest Products – NWFP – such as Arabic gum).

Changing climate conditions have been affecting agricultural productivity in the Kayes region, both directly through a decrease in mean annual rainfall and prolonged dry spells, and indirectly by compounding land degradation dynamics induced by non-climate drivers (such as inadequate land management practices). For example, a drier climate tends to foster desertification processes, which are themselves fostered by deforestation practices. Furthermore, changes in rainfall patterns and prolonged dry spells affect some animal and plant species, such as specific rice cultivars[22].

The result is a complex socio-economic context in which fragility, conflict and migration are intertwined with climate change and environmental degradation. These interlinkages are poorly understood and have not been addressed holistically. Past and current investments in climate change adaptation of the rural sectors have focused on climate change adapted production practices (e.g. introduction of climate-resilient varieties in agriculture) and infrastructure development, mostly to manage water shortages and excess (drought and floods). Though these investments are fundamental in order to transition towards climate resilient, productive and sustainable agro-pastoral food systems, they are insufficient. The LDCF financing will catalyse the baseline investments with targeted support for governance, practices and finance innovations.

### · Baseline scenario related to governance for sustainable landscape management and strengthened food systems

At the national level, policies and strategies in place generally create favorable conditions for rural development and sustainable landscape management. This body of policies and strategies include the Charte Pastorale<sup>[23]</sup> (Pastoral Charter), Agricultural Development Plan, the National Adaptation Program of Action (NAPA), the National Agricultural Sector Investment Program, the National Reforestation Strategy, the land tenure law<sup>[24]</sup>, the Sustainable Land Management Strategic Investment Framework (CSI-GDT) and the National Climate Change Strategy (SNCC). At the regional level, strategies and policies are also generally adequate to support sustainable landscape management. In particular, a Regional Scheme for Land Use (Schéma Régional pour l'Aménagement des Terres, SRAT) was adopted for the Kayes region. This platform will facilitate the development and the implementation of landscape-related policies, by providing a structured forum for the participatory elaboration and discussion of relevant decisions. Locally, relevant bodies for the implementation and discussion of matters pertaining to landscape management are the Comités Fonciers (Landscape Committees, COFO) at the commune level and the Club d'Ecoute Communautaire (Clubs for Community Discussion, CEC) at the village level<sup>[25]</sup>. COFOs are the bodies responsible for the implementation and surveillance of the Schémas Locaux d'Aménagement (Local Land Management Plans, SLA).

As described in the barriers analysis above, existing governance structures and practices are preventing to fully implement sustainable landscape management and strengthen food systems in the Kayes region. This is evident at the national, regional and local levels.

- Baseline scenario related to sustainable landscape management planning, land degradation and biodiversity conservation

The baseline scenario for land degradation and biological diversity is analyzed above. SLAs have only been developed for some communes of the Kayes region, and the implementation of these is impeded by a number of barriers. As a result, land degradation, increased exposure and vulnerability to climate change and threats to biological biodiversity cannot be halted efficiently. Agricultural systems are characterized by the use of unsustainable practices such as slash-and-burn agriculture, overgrazing and the replacement of locally-adapted and genetically-diverse cultivars and species at the benefit of cultures such as maize and cotton. Not only do such practices contribute to the degradation of soils and threaten biological diversity, but they do not fully harness the full agricultural production of the target landscapes. In addition, forest resources are at risk because of the unsustainable harvesting of fuelwood.

- Baseline scenario related to value chains

Agricultural systems in Kayes are closely inter-related. The project will thus support an integrated value chain (VC) approach seeking to sustain entire food systems as opposed to promoting specific unrelated commodities. Indeed, a territorial approach will be put in place to ensure a strong anchoring between sustainable land management and the creation of multiple interdependent and territorialized value chains that will provide employment to young agribusiness entrepreneurs. Emphasis will be placed on developing skills in agri-business, increasing value-added activities, strengthening market linkages and establishing a supportive environment at the community level, involving producers, private sectors, consumers, NGOs and associations, local authorities and other political parties. Market and feasibility studies will be carried out for the targeted production systems in order to identify market opportunities for certified markets. Collaboration with individual certification schemes will be sought to integrate specific training into the FFS programs. The proposed project will support the use of participatory guarantee systems that can be used by small-scale farmers as a low-cost means of certifying the production of crops for local markets.

Cropping systems are currently made of subsistence and cash crops. The table below summarizes an early assessment of VCs currently integrated into the target landscapes, as well as their strengthening potential.

Value chain	Potential for strengthening / comment
Sorghum and millet	Food security crops, VCs' marketing and sales need to be structured
Maize	VC organization needs to be reinforced, strong production potential, increasing regional demand
Rice	National and regional strategic crop, with high potential for GHG emission reduction
Garden products	Specific regional and global market-oriented burgeoning VC initiatives exist for sweet potatoes, mangoes, onions; access to global markets needs to be facilitated; strategic importance for smallholder food security and nutrition diversity
Cowpeas, groundnuts and sesame	Need to support VC organization, nitrogen-fixing crops
Fonio	VC needs research & development and organization, increasing global demand
Sesame	VC needs post-harvest and processing support, resilience to climate
Arabic gum	VC needs stakeholders' organization, integrated crop-livestock and agroforestry potentials, increasing global demand
Cotton	National and global strategic importance
Livestock	VC needs organization, potential to tackle landscapes and habitats degradation

There is currently a number of mechanisms through which local communities can access loan finance to acquire equipment and invest to increase their productivity and production. Such mechanisms include: i) micro-finance structures; ii) banks; and iii) the Associations Villageoises d'Épargne et de Crédit (Village Associations for Savings and Credits, AVEC). However, access to credit is constrained by difficulties to abide by repaying schedules and a lack of credit counterparties (e.g. valuables, cattle). The proposed project will investigate the feasibility of innovative funding mechanisms, harness remittances sent from Kayes' diaspora and seek synergies with local financing bodies (Kafo Jiginew, Banque Nationale de Développement Agricole) in order to help secure beneficiaries' financial solvency.

The baseline scenario described above is further synthesized in the Problem tree presented in Annex.

## 2.b Associated baseline projects

In addition, the following baseline projects, identified as mobilized investment complementing the GEF investment, are considered.

### **Integrated Rural Development Project of the District of Kita (IRDPK, Phase-II)**

This project, funded by the Islamic Development Bank (approx. USD 20 million) and implemented by the Agence de Développement Rural de la Vallée du Fleuve Sénégal (Agency for the Rural Development of the Senegal River Valley, ADRS), aims at improving the income and livelihoods of the people in the district of Kita through the enhancement of agriculture production, construction of access roads and provision of drinking water to the rural population. The project was extended until June 2021; synergies with the proposed project will be sought in particular with Components 1 & 3 (dissemination of improved irrigation techniques and water uses for the agricultural sector) as well as Component 2 (construction of infrastructure to improve the access to rural, remote areas). Improved irrigation techniques are part of the climate-smart agricultural practices that will be promoted under the proposed project. In addition, the construction of transportation infrastructure will facilitate the development of profitable value chains, for which transportation logistics are a crucial cost factor.

### **Contrat Plan Etat-ADRS-Producteurs (CPEAP)**

The second Plan-Contract State-ADRS-Producers runs from 2019 to 2021. It defines a common programme for the State, ADRS and regional producers in terms of: i) the promotion of water infrastructure for agriculture; ii) the increase of agricultural production; iii) the maintenance of infrastructure; iv) environmental conservation and natural resources management; v) capacity building for local professional organizations; and vi) the strengthening of ADRS's operational capacity. The proposed project will contribute to several objectives of the second CPEAP, including: i) the facilitation of agricultural investments; ii) the enhancement of the quantity, quality and diversity of the agricultural production; iii) the professional organization of the agricultural sector; and iv) the improvement of land management practices, especially through better governance. The overall budget of the second CPEAP is approx. USD 4,2 million (FCFA 2.47 billion).

### **Investment from the Land Development and Irrigation Water Supply Agency (Agence d'aménagement des Terres et de fourniture de l'eau d'Irrigation, ATI)**

The ATI is a national public agency in charge of land development and irrigation water supply. Its missions are to:

- conduct land and water management operations, including the establishment of water irrigation and control infrastructure;
- facilitate the establishment and operation of agricultural farms and businesses;
- facilitate the management of land tenure, especially in irrigated agricultural areas;
- support technical authorities in the implementation of national programmes pertaining to land management in irrigated areas; and
- support rural producers in the management and maintenance of rural infrastructure and equipment.

In the Kayes region, the ATI has a detailed, budgeted work programme amounting to FCFA 13.101 billion (approx. USD 22.19 million) over the next five years. This programme includes the management of 600 ha of lowlands, 18 ha of market gardening plots, procurement of agricultural equipment and construction and maintenance of water irrigation infrastructure.

## Strengthen the resilience of family farmers and vulnerable rural households to the effects of climate change in the Kayes region

This project, funded by the FAO (USD 215,000), intervenes in the Yélimané circle of the Kayes region, where the combined effects of socio-political turmoil and climate change impacts have contributed to rural impoverishment and food insecurity. The project aims at supporting local agriculture by providing equipment, seeds and inputs to intensify cereal and vegetable production, and supply live cattle (poultry and small ruminants) to herders. Throughout the project, beneficiaries receive technical training. The overall objective is to fight food insecurity in the Yélimané circle and improve the income of local communities. Over 700 households are benefitting from the project's support, which started in December 2018 and is due for completion by December 2020.

### 3.a Proposed alternative scenario with a brief description of expected outcomes and components of the project

The **problem** that the proposed project seeks to address is the vicious circle between lack of income-generating options, degradation of natural resources due to the lack of adaptive capacity of rural productive sectors, and low agricultural productivity in the Kayes region of Mali, more specifically in the northern landscapes (circles of Kayes, Yélimané, Nioro du Sahel and Diéma) and the southern landscapes (circles of Bafoulabé and Kita). A situation map, as well as land cover and land use change maps are provided in Annex A.

The **objective** of the proposed project is to promote innovations in governance, production and finance in order to reduce the vulnerability of the small-holder agro-sylvo-pastoral food systems and livelihoods, reversing land degradation and halting the loss of globally significant biodiversity in fragile landscapes of the Kayes region.

The integrated **project approach** embeds productive lands within landscapes that (i) are able to withstand actual and predicted climate stimuli and their impacts on agro-sylvo-pastoral small-holder food systems, and (ii) provide ecosystem services fundamental to the survival of fragile agro-sylvo-pastoral food systems, and globally significant biodiversity. It supports a transformational shift to resilient, productive and sustainable food and land-use systems in fragile dryland agro-ecosystems affected by the adverse impacts of climate change. To break the vicious circle described above, the development of value chains will accompany sustainable intensification practices for agriculture and landscape restoration interventions, thereby helping rural livelihoods adapt to climate change and meeting a growing global demand for locally-produced commodities while protecting natural resources and biodiversity. In particular, the Kouroufing and Wongo National Parks (557 km<sup>2</sup> and 534 km<sup>2</sup>), and the Bafing chimpanzee's sanctuary (672 km<sup>2</sup>) are located in and around the Manantali watershed, and their protection will benefit from project interventions in their buffer zones. The target landscapes are representative of a large number of landscapes across Sahelian drylands, which will facilitate the replication of best practices and lessons learned through the proposed project.

The four components of the proposed project are articulated with the five objectives of Land Degradation Neutrality as laid out in its Scientific Conceptual Framework[26], namely:

- maintain or improve ecosystem services;

- maintain or improve productivity, in order to enhance food security;
- increase resilience of the land and populations dependent on the land;
- seek synergies with other environmental objectives; and
- reinforce responsible governance of land tenure.

-

The proposed project embraces an agroecology approach, a concrete expression of FAO's Sustainable Food and Agriculture vision for transitioning food systems to more productive and sustainable systems. It applies ecological concepts and principles to optimize interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system. By building synergies, agroecology can support food production and food security and nutrition while restoring the ecosystem services and biodiversity that are essential for sustainable agriculture. Agroecology can play an important role in building resilience and adapting to climate change.

This agroecological approach is adopted in all components of the project, from enhancing governance at the landscape level (Component 1), to demonstrating packages of innovative production, restoration and management practices (Component 2), to developing and diversifying mixed value chains and livelihoods (Component 3), and co-creation of knowledge and knowledge management (Component 4). Target landscapes will be assessed for their multidimensional agroecological performances using a newly FAO-developed analytical framework, indicating areas that need to be further improved in order to catalyze the transformational change towards productive, sustainable and resilient landscapes in the Kayes region. Therefore, the project is supporting the achievement of a number of SDGs, as its intervention logic is rooted in a number of complementary principles, including:

- adopting holistic approaches, such as agroecology explained prior (contributing to SDG 2);
- strengthening the climate resilience of rural communities, including through the adoption of climate-adapted agricultural and landscape management practices (contributing to SDG 13);
- diversifying rural employment targeting youth and women to slow their exodus (SDGs 1 & 2);
- developing pro-growth strategies in rural areas, focusing on women, family farmers and the people left furthest behind (SDGs 1, 2 & 8);
- adopting an ecosystem approach, considering the carrying capacity of the ecosystem and restoring and sustainably managing its multiple services (SDGs 6, 12, 13 and 15);
- strengthening the climate resilience of vulnerable communities and securing rural livelihoods (SDGs 1, 8 & 13).

A number of tools and approaches will be used in all four components in order to facilitate the transition towards agroecological food systems, including:

- Governance:
  - o OpenForis - CollectEarth for mapping;

- o SHARP + for resilience assessments;
- o Ex-ACT for carbon benefit estimates;
- o DATAR for agro-BD assessments; and
- o Dimitra Listening Groups for community dialogue and conflict resolution etc.
- Demonstration and diversification:
  - o Farmer Field and Agro-sylvo-pastoral Field Schools for capacity building and dissemination;
  - o Gender-sensitive value chain approach for enhanced empowerment of women in target communities; and
  - o Youth centre/incubator for micro, small and medium enterprises (MSME) targeting youth etc.

To increase production efficiently and sustainably in a context of climate change, farmers need to understand how agricultural inputs, such as seeds, fertilizers and pesticides can either complement, or disrupt, the ecological processes on which farming relies. These include processes such as pollination and the natural pest control services provided by predatory and parasitic insects. Safeguard of biodiversity and ecosystem services is also critical to ensure environmental sustainability. In addition, climate change brings many complex and unpredictable changes that affect the viability and management of farming systems. Not only are there trends in the change of temperature and rainfall, but also increased climate variability especially in the duration and intensity of seasons. This affects a whole range of conditions relating to the performance and management of different farming systems, from planting time, to flowering, to the prevalence of different pests and diseases. To cope with these complex relationships increased variability at different levels, farmers need a greater understanding of the processes that affect the performance of the different production systems they manage and undergo constant experimentation and adaptation of production systems. A main avenue of the proposed project to foster the management of resilient, productive and sustainable landscapes, the agro-ecological approach pays careful attention to keep together all different dimensions and interactions mentioned above, including relationships between plants, animals, soils, water, humans and the environment within agricultural systems. This will be implemented through a diversity of tools, such as Agro-sylvo-pastoral Field Schools, Dimitra Clubs and a territorial approach to value chains.

A Theory of Change diagram for the proposed project is presented in Annex E.

### 3.b Expected outcomes and components

#### **Component 1. Strengthened GOVERNANCE for climate-adapted agro-sylvo-pastoral food systems and sustainably managed productive landscapes**

Outcome 1: Strengthened governance structures more effectively implement and monitor climate change adaptation in sustainable landscape management plans, resulting in sustainable production intensification, resilient livelihoods and improved use and conservation of land and biodiversity

The Kayes region suffers from a lack of adequate institutional capacity to plan for, implement and monitor climate change adaptation and sustainable land management at the landscape level. In accordance with the Guidelines for the application of the “Scientific Conceptual Framework for Land Degradation Neutrality”[32], there is a need to create (at the regional level; Output 1.2) and capacitate (at the local level; Output 1.1) governance bodies to facilitate the design and implementation of landscape management plans, strengthen conflict resolution mechanisms and organize the cooperation of stakeholders in the agricultural sector. This approach follows best practices documented in the literature, whereby integrating diverse stakeholder perspectives, beginning with the design of SLM plans all the way to implementation and monitoring[33], thereby ensuring that their knowledge is fully integrated throughout the process[34], will increase the likelihood for their acceptance and implementation of SLM[35].

Most scholars agree that Mali is witnessing a growing number of conflicts over land use[36], with approximately 42% of land use conflicts are between herders and farmers. In most cases, these conflicts stem from disputed access to and control over land and water resources, a situation that is becoming more frequent as these resources are degrading under climate and non-climate drivers[37]. In this context, fora that promote dialogue and agreement among farmers and herders, and more generally among natural resources users about rules governing access and control over land and water resources have the potential to increase transparency and diminish tensions

Component 1 will be complemented by interventions at the national level, with a view to address some of the key governance barriers identified for the design, implementation and monitoring of SLM and adaptation strategies. Firstly, there is limited capacity to mainstream climate change adaptation and vulnerability considerations, as well as land and biodiversity management into environmental impact assessments. Secondly, landscape management is seldom monitored in a satisfactory fashion, thereby impeding the ability to adapt practices depending on documented successes and challenges – a crucial step for the adaptive enforcement of complex land management strategies[38]. Outputs 1.3 and 1.4 will thus focus on building the capacity of relevant stakeholders at the national and regional levels to address these barriers.

This outcome will be delivered through four outputs:

1.1 Capacity of at least 20 local landscape committees (COFO) strengthened to effectively integrate climate change adaptation and vulnerability considerations, and land and biodiversity resources use into sustainable landscape management plans

1.2 A regional platform for Kayes established, in order to effectively engage multiple stakeholders (private sector, CSOs, local administration, ...) in agro-sylvo-pastoral food systems resilience and sustainable land and biodiversity use planning and investment

1.3 At least 100 people from national and regional institutions trained to conduct climate change vulnerability and environmental impact assessments at the landscape level, providing the evidence for planning and investment

1.4 At least 100 people from national and regional institutions trained to conduct efficient monitoring of climate change resilience, land and biodiversity use and conservation, resulting from integrated sustainable landscape management interventions

## **Component 2. Integrated sustainable landscape management plans developed and implemented and innovative PRODUCTION practices and approaches demonstrated**

Outcome 2: In selected demonstration sites, integrated sustainable landscape management plans are implemented, contributing to climate change resilient agro-sylvo-pastoral food systems, sustainably intensified production and sustainable use and conservation of land and biodiversity



Under Component 2, the proposed project will develop and update SLAs in the target northern and southern landscapes. The project will accompany the implementation of these SLAs by disseminating agro-ecological best practices to local communities, restoring grasslands and implementing conservation measures for biodiversity-rich forests.

Promoted landscape management measures will be tailored to the biophysical and socio-economic specificities of each local context, and have been primarily selected among those identified in the scientific literature for their land restoration, adaptation and biodiversity conservation co-benefits[39]. Measures will indicatively include: i) the promotion of fodder culture; ii) erosion control techniques (e.g. stone barriers); iii) pasture enrichment; iv) reforestation (esp. in the southern landscapes); v) protection of forested areas; and vi) afforestation for fuelwood production and distribution of improved cooking stoves.

Agro-ecological practices will be disseminated, such as: i) the use of climate-adapted crop varieties; ii) reduced tillage; iii) alternatives to chemical fertilizers (use of compost) and pesticides (biological control, intercropping); iv) fascines; v) zai; vi) the use of leguminous plants; and vii) crop rotation. These techniques will help reduce rural communities' vulnerability to the impacts of climate change, while improving and intensifying agricultural productivity and fighting land degradation.

The Agro-Pastoral Field School (APFS) approach has been used in Mali since 1998. It consists in informal education for adults to showcase and disseminate improved farming practices through field observation and hands-on training. Participatory methods are used to create an environment conducive to learning, in which participants can exchange knowledge and experience in a risk-free setting. Practical field exercises using direct observation, discussion and decision making encourage learning-by-doing. Technical topics that can be addressed through APFS include soil, crop and water management, seeds multiplication and varietal testing, agropastoralism, aquaculture, agroforestry and nutrition. The APFS process enhances individual, household and community empowerment and cohesion. Indeed, APFS have proved to strengthen not only technical skills and decision-making capacities of farmers, but also to significantly influence the community as well as intra-household dynamics. APFS strengthen community relations and the capacity of listening to others' opinion, to formulate and express personal points of view and to find together a common solution through the process of communication and learning. It will thus be a useful stepping stone towards the reduction of conflicts over natural resources.

The APFS approach will contribute to reduce the risk of conflicts over natural resources. To further increase the capacity of local communities to mediate these conflicts should they nevertheless occur, existing CECs will be strengthened. CECs are established at each village, and work as the main discussion and conflict-resolution fora at the decentralized, grassroots level. They are self-organized fora, where women and youth have a significant role (some sessions can be women-only). Decisions are taken and publicized through local radios. The proposed project will train CECs in target areas to improve the efficiency of the resolution of conflicts over natural resources, especially by referring to approved SLAs as well as local conventions produced through the Diagnostic Territorial Participatif et Négocié (Participatory and Negotiated Territorial Diagnostics, DTPN). These collectively-elaborated conventions form the legal basis that rule the access to and use of natural resources at the decentralized level.

This outcome will be delivered through the following outputs:

- 2.1 At least 20 integrated sustainable landscape management plans (SLA) developed by COFOs for demonstration sites, addressing agro-sylvo-pastoral food system adaptation priorities, and facilitating sustainable production intensification, and sustainable use and conservation of land and biodiversity
- 2.2 In coordination with COFOs and supporting active engagement of multiple (and sometimes conflicting) resource users in planning and management, at least 30 Community Listening Groups (Dimitra Clubs) established and animated
- 2.3 At least 12,000 agro-sylvo-pastoral producers participate in Agro- Pastoral Field Schools (APFS) organized to prioritise, demonstrate, co-create and disseminate innovative production practices, including:

- Priority and scalable agro-sylvo-pastoral production practices (e.g. reduced tillage, crop selection, intercropping, crop rotation, biological pest control) introduced on agriculture land to restore degraded land, adapt to climate change and sustainably intensify productivity (avoiding further expansion of agriculture land into KBAs)
- Priority and scalable climate change adaptation practices (e.g. zai, Delfino plow and Vallerani system, assisted regeneration of indigenous trees through pruning) introduced on grassland in order to restore land and biodiversity (avoiding further expansion into KBAs)
- Priority and scalable restoration (e.g. reforestation, afforestation, forest fire and pest outbreak prevention planning) and sustainable use (e.g. selected harvest of fuelwood species, forest fire management, controlled access) practices introduced on biodiversity-rich forest ecosystems for ecosystem service and habitat conservation of globally significant biological diversity

### **Component 3. Improved FINANCE for and investment into climate change adapted livelihoods and sources of income of vulnerable agro-sylvo-pastoral communities**

Outcome 3: Selected mixed value chains are strengthened for improved and climate-resilient rural livelihoods of agro-sylvo-pastoral women and youth

Under Component 3, the proposed project will strengthen the sustainability of target value chains through synergies with the private sector (certification, access to markets), leveraging of innovative financing mechanisms (local banks and remittances), and support Micro, Small and Medium Enterprises (MSME) in reaching cross-border, market-driven opportunities.

To break the vicious circle between land degradation, poverty and loss of biological diversity, Component 3 will focus on the development of value chains to accompany the sustainable intensification practices for agriculture and landscape restoration interventions, thereby helping rural livelihoods adapt to climate change and meeting a growing global demand for locally-produced commodities while protecting natural resources and biodiversity. In accordance with global best practices<sup>[40]</sup>, an integrated, territorial approach will be used for the development of three commodity-based value chains (Outputs 3.1 & 3.2). This will be achieved through the development of commercial plans and assistance to better structure these selected value chains, with a focus on the participation and empowerment of women. In practice, such support will materialize through technical and commercial assistance provided to existing cooperatives (audit and updating of existing strategies; elaboration of new strategies) and, if needs be, support for the creation of new cooperatives. As required, seed funding may be provided for the acquisition of transformation facilities<sup>[41]</sup>. Downstream of these value chains, certification processes will be collectively elaborated to facilitate the market access of locally-produced commodities, including on international markets where relevant (e.g. for Arabic gum; Output 3.4)

As described in the baseline situation, access to credit is constrained by difficulties to abide by repaying schedules and a lack of credit counterparties. This is hampering the capacity of local farmers and businesses to invest and develop their activities. During the PPG phase, a detailed study will be conducted to analyze the successes and difficulties faced by existing programmes (e.g. the AFD-supported Programme d'Appui à la mise en place d'un Système d'Épargne et de Crédit Autogéré<sup>[42]</sup> – PASECA) in order to design specific interventions to facilitate access to credit, especially through the use of remittances from the diaspora. This will be done in close coordination with CAMIDE (Centre d'Appui à la Microfinance et au Développement – Support Center for Microfinance and Development), the historical institution in charge of the implementation and monitoring of micro-credit initiatives in Mali.

The Kayes region suffers from significant rural emigration<sup>[43]</sup>, especially from the youth. This is largely because of a perceived lack of opportunity in the region, a perception that this exacerbated by the constrained development of rural areas. One avenue to alter this vision is to incentivize the youth to get involved in the modernization of the agricultural sector, from the production to the transformation of commodities. This will contribute to increase agricultural productivity, strengthen value chains and ultimately secure greater economic and development benefits. To achieve this, an Agricultural Youth Incubator (AYI) approach will be implemented (Output 3.5). This is an approach pioneered by the International Institute of Tropical Agriculture (IITA) in Nigeria in 2012,

then expanded to the Democratic Republic of Congo, Kenya, Uganda, Zambia and Tanzania. The overall approach is to stimulate innovation in the agricultural sector by setting up an incubator for young people interested in agri-entrepreneurship. Through AYIs, over 300 independent agribusinesses have been established across Africa, each of these employing another three to five youths. The agripreneurs have proven adept at “rescuing” rural development facilities and farms. Under Component 4, the proposed project will assess the feasibility of the AYI approach in the context of the Kayes region and launch at least one incubator.

In developing countries, there is an increasing number of examples enabling environments for SLM generated through the creation of sustainable business cases based on sustainable development, or rehabilitation or restoration projects across sectors initiated by MSMEs and through training of future business leaders[44]. In this perspective, the potential of VC strengthening in the Kayes region will be demonstrated by accompanying the development of at least three “champion” cooperatives or eco-enterprises active in the transformation and marketing of locally-produced commodities (Output 3.6). This approach will allow to: i) showcase the feasibility of setting up profitable commodity-based businesses, thereby incentivizing other regional stakeholders to invest in promising VCs; and ii) documenting the development of these businesses to disseminate lessons learned and best practices from these real-life case studies, in a knowledge-sharing perspective[45].

This outcome will be delivered through six outputs:

- 3.1 At least 3 commercial plans for mixed value chains based on territorial approach and circular economy developed and implemented
- 3.2 Improved structure of at least three gender-sensitive value chains through the establishment of cooperatives and connection between producers, transformers and marketers
- 3.3 In connection with the Centre d'Appui à la Microfinance et au Développement (CAMIDE), innovative financial mechanisms set up to leverage funding and facilitate investment in the agro-sylvo-pastoral sector (incl. use of remittances)
- 3.4 Certification processes elaborated in partnership with the private sector and international sustainability certification bodies to facilitate access to markets
- 3.5 Two Agricultural Youth Incubators (one in the northern landscapes and one in the southern landscapes) established to catalyze innovation and restore the attractiveness of the agricultural sector
- 3.6 Local champion cooperatives / eco-enterprises accompanied to demonstrate the profitability of sustainable production for at least three products (incl. demonstration of improved storage & transformation practices)

#### **Component 4. Knowledge management and outscaling**

Outcome 4: project monitored, results captured and lessons learned widely disseminated.

Under this component, the proposed project will identify and disseminate lessons learned and best practices. It will also effect active coordination with co-financing partners and relevant initiatives, with a view to disseminate and raise awareness on SLM best practices.

This outcome will be delivered through three outputs:

- 4.1 Project Monitoring & Evaluation plan developed and implemented
- 4.2 An Outreach & Communication Strategy developed and implemented, including coordination and awareness-raising meetings with co-financing partners

### 4.3 Project Mid-term and Final Evaluations undertaken

#### 4. Alignment with GEF focal area and LDCF programming strategies

The proposed project adopts a landscape approach to tackle biodiversity, land management and climate change adaptation and vulnerability issues with a focus on improved agricultural practices and the strengthening of selected value chains. It is fully aligned with the following GEF-7 Focal Areas programmes and LDCF/SCCF programming strategy:

- LD-1-1: Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM).

Land degradation processes will be fought through the enforcement of SLM processes, from planning (through SLAs and EIAs under Components 1 & 2), to implementation (under Component 2), to monitoring (under Components 1 & 4). This will set enabling conditions for the sustainable intensification of the agricultural production and the strengthening of commodity-based VCs (under Component 3), thereby fostering rural livelihoods.

- LD-1-4: Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape.

By developing and/or updating SLAs, the proposed project will improve land-use planning, with a special focus on the sustainable management of rare and degraded natural resources (namely forests, water, pastures and cropland). Competing uses will thus be regulated, while mechanisms for conflict resolution will be strengthened (under Component 1). The sustainable intensification of the agricultural production will also contribute to reduce pressures on natural resources in the northern and southern landscapes of the Kayes region.

- BD-1-1: Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors.

The proposed project will mainstream biodiversity conservation measures into the SLAs to be developed and/or updated. In addition, conservation measures will be implemented under Component 2 benefiting the conservation of about 5,000 ha of biodiversity-rich areas. The agro-ecological practices that will be disseminated under Component 2 will also benefit biological diversity by promoting the use of genetically-diverse crops as well as intercropping. Finally, under Component 1, the capacity of national institutions to conduct environmental impact assessments integrating biodiversity will be strengthened.

- CCA-1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.

The resilience of rural communities to the adverse impacts of climate change will be strengthened through the dissemination of innovations in governance, production and finance of agro-sylvo-pastoral small-holder food systems. All three combined are believed to ensure that agricultural livelihoods can sustain changes in climatic conditions thanks to increased value-added, diversification, sustainably-intensified production and climate-resilient ecosystem services.

#### 5. Additional and incremental cost reasoning and expected contributions from the baseline, the GEFTF, LDCF and co-financing

Indicative total co-financing mobilized for the proposed project amounts to USD 30,940,000. It stems from three sources:

- the Ministry of Agriculture, through the Agency for Rural Development of the Senegal River Valley (ADRS) investments including:
  - o the Islamic Development Bank-funded project Integrated Rural Development Project of the District of Kita (Phase-II; USD 8,525,000); and
  - o the Contrat Plan Etat-ADRS-Producteurs (CPEAP; USD 4,200,000);

- Land Development and Irrigation Water Supply Agency (ATI) investments for the development of private cropland and flood plains over the next five years (USD 18,000,000)
- the FAO, with grant contribution through the project “Strengthening the resilience of family farmers and vulnerable rural households to the effects of climate change in the Kayes region” (USD 215,000)

These projects are further described in the previous section. The following outlines the additional cost reasoning for each of the four components.

### Component 1.

Baseline and co-financing: the baseline consists mostly in support brought by IRDPK and CPEAP programmes to foster the coordination of stakeholders at the regional level, including the formal delimitation of plots. Total co-financing will be USD 1,000,000 structured as follows:

- IRDPK: USD 500,000; and
- CPEAP: USD 500,000.

GEF support and financing: GEF support (for a total of USD 300,000) will be sought under Component 1 to further strengthen the coordination and capacity of stakeholders at the national, regional and local levels to advance SLM in the northern and southern landscapes of the Kayes region. The LDCF support will support capacity development at the national and regional levels in order to incorporate conflict-sensitive climate change adaptation strategies in SLAs, tackling the existing NR conflict by multiple users based on a better understanding of the linkages between climate change, conflict, migration and other stressors faced by agro-sylvo-pastoral communities and which are not being addressed holistically. It helps support the introduction of innovations in governance structures (COFOs and regional platform), primarily ensuring the full engagement of relevant stakeholders in landscape management planning and monitoring, as this is believed to be fundamental for successful climate change adaptation action.

- Additional funding sought from the GEF LDCF under Component 1 of the proposed project is USD 200,000.
- Additional funding sought from the GEF TF under Component 1 of the proposed project is USD 100,000.

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### Component 2:

Baseline and co-financing: the baseline consists mostly of ongoing efforts to disseminate improved and resilient agricultural techniques, build and rehabilitate dirt roads to facilitate market access for local producers and strengthen irrigation infrastructure across the Kayes region. Total co-financing will be USD 15,755,000 structured as follows:

- IRDPK: USD 4,145,000;
- CPEAP: USD 1,640,000; and

- ATI: USD 9,970,000.

GEF support and financing: GEF and LDCF support (for a total of USD 3,562,143) will be sought under Component 2 to develop and implement integrated landscape management plans in a participatory manner, disseminate agro-ecology practices, i.e. production practices and approaches that help adapt and build resilience of agro-sylvo-pastoral food systems to withstand climate change stresses and sustainably intensify agricultural production, restore degraded landscapes and implement biological diversity conservation measures. LDCF therefore supports the demonstration and co-creation of climate change adaptation production practices in agro-sylvo-pastoral food systems in order to help build the resilience of the communities, livelihoods and the landscapes as a whole. Furthermore, it proposes concrete measures to tackle conflicts induced at least in part by climate change.

- Additional funding sought from the GEF LDCF under Component 2 of the proposed project is USD 959,756.
- Additional funding sought from the GEF TF under Component 2 of the proposed project is USD 2,602,387.

### **Component 3.**

Baseline and co-financing: the baseline consists mostly in ongoing efforts to provide equipment and training for the transformation, storage and transportation of commodities. Total co-financing will be USD 14,000,000 structured as follows:

- IRDPK: USD 3,800,000;
- CPEAP: USD 2,000,000;
- ATI: USD 8,000,000; and
- FAO: USD 200,000.

GEF support and financing: GEF and LDCF support (for a total of USD 2,500,000) will be sought under Component 3 to, inter alia, develop and implement commercial plans for mixed value chains, improve the structure of at least three gender-sensitive value chains through the establishment of cooperatives and connection between producers, transformers and marketers, implement innovative financial mechanisms, foster certification processes and create Agricultural Youth Incubators. The LDCF support in particular will help build capacity of local private actors to develop and test climate change adaptation innovations for the agro-sylvo-pastoral sector, pool support (locally and nationally) and connect to similar initiatives, such as a successful youth incubator in Niger (spurring South-South cooperation). The LDCF support sought in this component is also critical in order to strengthen and diversify the livelihoods and sources of income of the target populations, critical in a comprehensive climate change adaptation strategy.

- Additional funding sought from the GEF LDCF under Component 3 of the proposed project is USD 1,049,000.
- Additional funding sought from the GEF TF under Component 3 of the proposed project is USD 1,451,000.

### **Component 4.**

Baseline and co-financing: the baseline consists mostly in ongoing efforts to foster S&E practices and build the knowledge base on agroecology practices and biodiversity conservation in the Kayes region. Total co-financing will be USD 105,000 structured as follows:

- IRDPK: USD 30,000;
- CPEAP: USD 30,000;
- ATI: USD 30,000; and
- FAO: USD 15,000.

GEF support and financing: GEF and LDCF support (for a total of USD 144,488) will be sought under Component 4 to monitor the project's results, effectively coordinate with co-financing partners and disseminate lessons learned from the project's implementation.

- Additional funding sought from the GEF LDCF under Component 4 of the proposed project is USD 54,488.
- Additional funding sought from the GEF TF under Component 4 of the proposed project is USD 90,000.

#### 6. Adaptation and global environmental benefits

Climate change in the arid Sahelian and Sudanese landscapes of southwest Mali will reduce *inter alia* water availability, agricultural and pastoral productivity and ecosystem functioning unless adaptation interventions are implemented. The proposed project will increase the climate resilience of rural communities in the northern (circles of Kayes, Yélimané, Diéma and Nioro du Sahel) and southern (circles of Bafoulabé and Kita) landscapes of the Kayes region. By improving the management of semi-arid landscapes and natural resources (including water), and protecting them from desertification, the climate resilience of nature-based livelihoods in the target circles will be enhanced.

The specific adaptation benefits of the proposed project will include: i) increasing the resilience of agricultural production against climate-induced hazards; ii) reducing soil erosion; iii) improving water supply by promoting groundwater recharge and water conservation; iv) improving food security through the introduction of sustainable, intensification farming techniques; and v) diversifying livelihoods and generating new economic opportunities by strengthening selected commodity-based VCs.

Further to the above-mentioned tangible adaptation benefits, the project will build local, regional and national institutional capacity to plan, implement and monitor sustainable landscape management incorporating key CCA, land conservation and biodiversity priorities. Such institutional capacity building will improve the success of climate change adaptation, land degradation and biodiversity-related responses and stimulate additional investments in SLM in Kayes and more generally in Sahelian regions. In terms of local communities, training, demonstrations and the dissemination of climate-smart practices in these areas will promote the autonomous uptake and replication of interventions.

The project is also expected to generate global environmental benefits (GEB) by reducing deforestation and protecting biological diversity[27]. The proposed project will prioritize interventions in communes situated in the buffer zones of protected areas, such as the Kouroufing and Wongo National Parks, and the Bafing chimpanzee's sanctuary. In particular, mainstreaming biodiversity conservation into the SLM plans to be developed and updated under Component 1 will strengthen the role of beneficiary areas as buffer zones around protected areas. The Bafing chimpanzee sanctuary and the Boucle du Baoulé qualify as Key Biodiversity Areas[28] and will benefit from strengthened buffer protection from the proposed project. Globally significant biodiversity to be protected will thus include *Loxodonta africana*, *Pan troglodytes*, *Panthera leo* and *Taurotragus derbianus* (all endangered or vulnerable) in the Bafing sanctuary, and *Panthera leo* and *Acinonyx jubatus* in the Boucle du Baoulé.

In addition, the proposed project will protect environmental services – such as clean water and woodfuel provision – as a basis for continued resilience. The proposed project will sustain food systems and ecosystem services for 33,000 smallholder farmers (50% of women; GEF-7 Core Indicator 11 and LDCF core indicator complementing each other, with respectively 20,000 and 13,000 direct beneficiaries). GEBs will be generated through the implementation of sustainable landscape management practices on 30,500 ha of mixed land, including forests, pastures and cropland (GEF-7 Core Indicator 4 for a total 20,500 ha plus 10,000 ha captured in the LDCF core indicators). As a result, specific GEBs expected from the project interventions include:

- the mainstreaming of biodiversity concerns into landscape management plans, contributing to limit the fragmentation of natural habitats;
- the promotion of genetically-diverse cultivars, including local and traditional species;
- the restoration of grasslands through enrichment planting of shrubs and trees and seeding of local grasses;
- the preservation of naturally-occurring trees and shrubs in grasslands and forests through the promotion of fodder culture;
- a limitation of human pressure on forests for fuelwood harvesting; and
- reduced degradation of aquatic habitat through limited siltation from soil erosion.

The following table illustrates to which Aichi targets the proposed project contributes primarily.

Aichi target	How the proposed project will contribute
1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	The proposed project will work with the population in the two landscapes, so that local people are able and committed to conserving forest biodiversity.
2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	The proposed project includes consultation and planning at the landscape level, to mainstream biodiversity concerns into rural development in northern and southern landscapes of the Kayes region. Interventions to promote integration of biodiversity and land management issues will also be undertaken across the target landscapes.



5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	All project interventions will contribute in the short- to medium-term towards halting and reversing the loss and degradation of grasslands and forest ecosystems in the Kayes region.
7: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	This is a major focus of the project. As a result of Components 1 and 2, 30,000 ha of agricultural, grass and forest land will benefit from improved management practices that will promote biodiversity.
13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	The proposed project will promote the use of genetically-diverse cultivars under Component 2.
15: 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.	The proposed project will contribute to the restoration of cropland, grassland and forests, for estimated direct carbon benefits of 767,413 metric tCO <sub>2</sub> eq.

## 7. Innovation, sustainability and potential for scaling up

The project will innovate through:

- agro-ecological techniques and sustainable agricultural and VCs intensification technologies tackling degradation and leaving larger area for biodiversity conservation, such as Delfino plow and Vallerani system and tree pruning;
- a regional and national multi-stakeholder platform;

- facilitating governance reform (decentralization) with landscapes committees and management plans;
- establishing Agricultural Youth Incubators;
- designing an innovative financing vehicle with local banks and remittances from diaspora; and
- business models, including long-term landscapes restoration and management contracts with private actors.

Agro-ecological approaches to be disseminated will include both innovative and traditional practices, such as: i) the use of climate-resilient crop varieties; ii) reduced tillage; iii) alternatives to chemical fertilizers (use of compost) and pesticides (biological control, intercropping); iv) fascines; v) zaï; vi) the use of leguminous plants; and vii) crop rotation.

In addition, a number of innovative tools developed by the FAO will be used throughout the project. These include OpenForis - CollectEarth for mapping, SHARP + for resilience assessments, EX-ACT for carbon benefit estimates and DATAR for agro-biodiversity assessments.

Sustainability of the project outcomes will be achieved via:

- capacity building of a wide range of actors and institutions, including national, regional and local authorities, CECs, youth (through the AYI) and farmers (through FFS);
- the participatory development and updating of SLAs that will provide for the long-term, sustainable management of natural resources;
- the dissemination of climate-smart agricultural techniques, that will help farmers cope with the adverse impacts of climate change on agricultural productivity; and
- the development and demonstration of the feasibility of profitable business plans for local agri-enterprises.

The project will set conditions for large-scale change through:

- decentralized and integrated governance (multi-stakeholder platforms, local landscapes committees and management plans) that will allow large-scale environmental and adaptation benefits;
- innovative multi-stakeholder financial schemes that will allow scaling-up beyond the Kayes region;
- strengthened capacity of local actors to generate multiple benefits through enhanced practices and more efficient VCs that will be replicated locally and regionally; and
- synergies between local producers and global private organizations.

| In terms of GDP per capita. Source: World Bank, 2018.

| Source: World Bank, 2018.

| Data averaged over the 1901-2016 period. Source: World Bank Climate Change Knowledge Portal.

| Source: Sean D. Birkel, Paul A. Mayewski. Analysis of Historical and Projected Future Climate of Mali, West African Sahel. 2015

| Average annual rainfall has decreased by 20% between 1970 and 2000.

| Defined as when the daily maximum temperature exceeds the 95<sup>th</sup> percentile of all values (38.5°C).

| Defined as number of days with daily precipitation below 5 mm.

| Defined as when daily values are above the 95<sup>th</sup> percentile (79 mm).

| Source : Mali Météo, reproduced in the Annuaire statistique 2017 de la region de Kayes

0] European Investment Bank, Agence Française de Développement, German Development Bank. Joint ex post evaluation of the Manantali dam project. 2009.

1] Source : Institut National de la Statistique du Mali. 2016. Consommation, pauvreté, bien-être des ménages.

2] Including the forests of Djoubeba, Fangala, Falémé, Dinguir, Dag Dag, Paparah, Bangassi, Kayaba, Gangara, Gallé, Kassaro, Kobiri, Nafadji, Sebekoro, Siguifiry, nienko, Nioro, Lorack-Bane, Bagougo Est and Dinguiraye Ouest. Source : Ministry of Environment. 2008. Rapport annuel d'activités 2007.

3] International Union for the Conservation of Nature

4] Synnevåg G., Huvio T., Sidibé Y., and Kanouté, A. 1999. Farmers' indicators for decline and loss of local varieties from traditional farming systems. A case study from northern Mali. J. Serwinski and I. Faberová (eds.). Proceedings of the Technical Meeting on the Methodology of the FAO World Information and Early Warning System on Plant Genetic Resources, held at the Research Institute of Crop Production, Prague, Czech Republic 21-23 June 1999.

5] Dembélé, F. 1996. Influence du feu et du pâturage sur la végétation et la biodiversité dans les jachères en zone soudanienne-nord. Cas des jeunes jachères du terroir de Missira (Cercle de Kolokani), Mali. Institut d'Economie Rurale, Bamako, Mali.

6] Kouressy M., Bazile D., Vaksman M., Soumare M., Doucouré C.O.T., Sidibé A. 2003. La dynamique des agroécosystèmes: un facteur explicatif de l'érosion érosion érosion du sorgho. In: Dugué P, Jouve P, eds. Organisation spatiale et gestion des ressources et des territoires ruraux. Actes du colloque international, Montpellier, 25-27 February 2003.

7] Government of Mali. 2007. Rapport national sur l'état des ressources phylogénétiques pour l'alimentation et l'agriculture.

8] International Federation of Organic Agriculture Movements

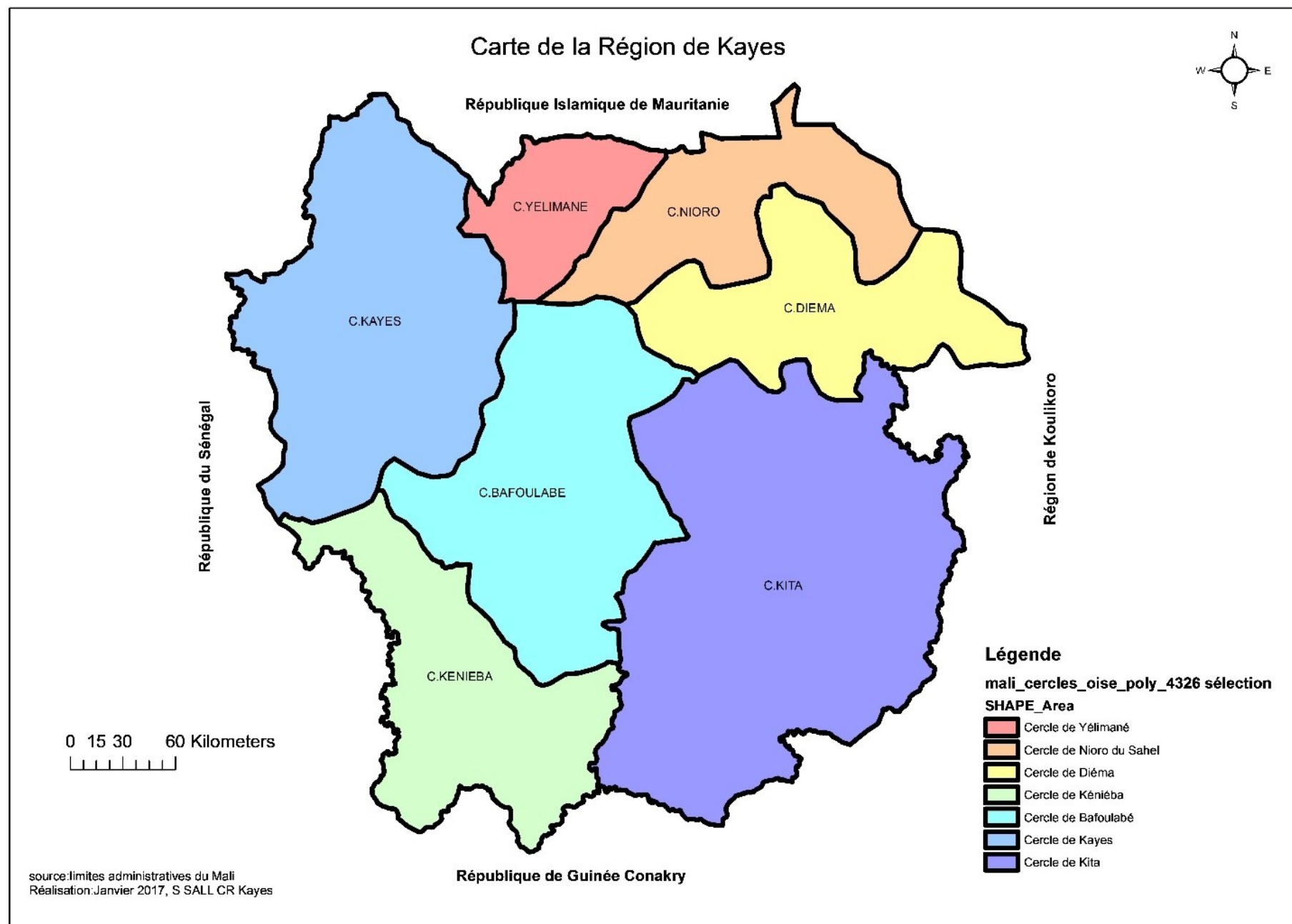
9] Source : European Union Delegation in Mali. Révision du profil environnemental du Mali. 2014

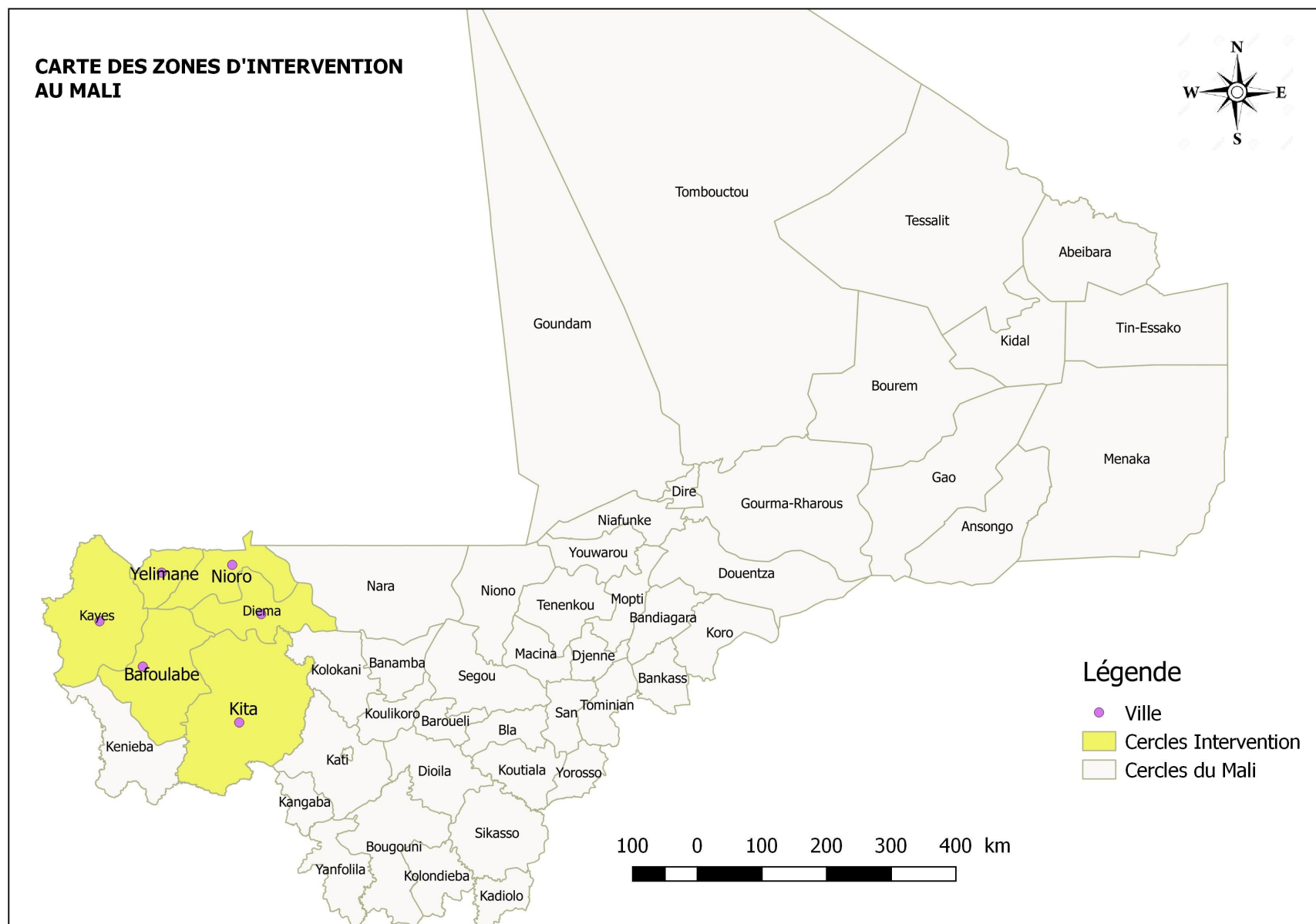
0] These conflicts are exacerbated by the rarefaction of resources such as water and arable land because of climate change. See for example Jones-Casey K. and Jones A. 2011. Farmer-Herder conflicts in Mali. Focus on Land in Africa Brief

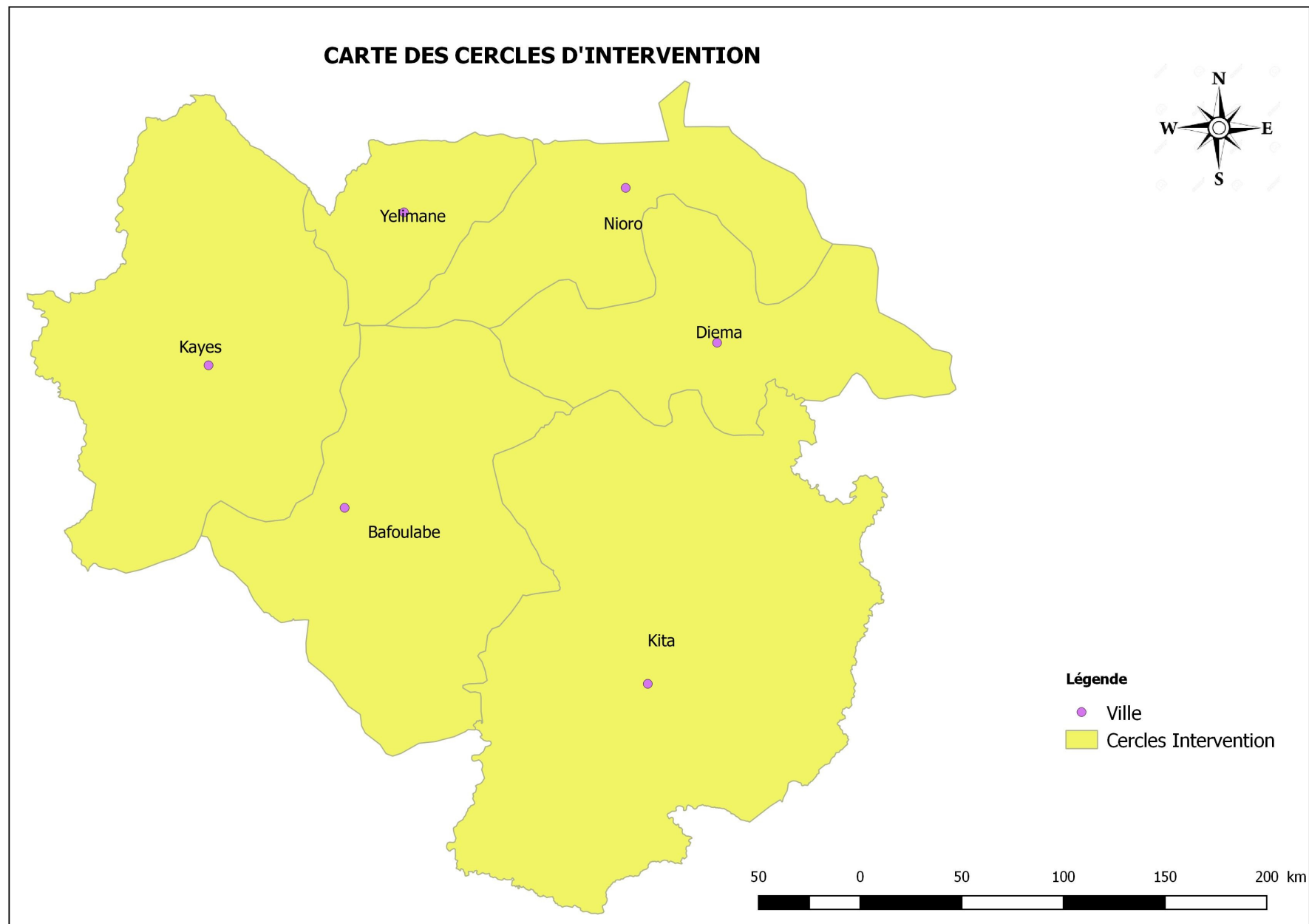
- 1] Four Readiness proposals have been approved by the GCF as of October 2019, namely two to strengthen the Nationally Designated Authorities and two to develop Mali's country programming and capacity to engage with the GCF.
- 2] Synnevåg G., Huvio T., Sidibé Y., and Kanouté, A. 1999. Farmers' indicators for decline and loss of local varieties from traditional farming systems. A case study from northern Mali. J. Serwinski and I. Faberová (eds.). Proceedings of the Technical Meeting on the Methodology of the FAO World Information and Early Warning System on Plant Genetic Resources, held at the Research Institute of Crop Production, Prague, Czech Republic 21-23 June 1999.
- 3] Law n°01-004 from 27 February 2001
- 4] Dated 2017.
- 5] Administratively, most communes include several villages. The capacity of CECs will be strengthened under Component 4.
- 6] UNCCD. 2017. Global Land Outlook. Annex 1 : Scientific Conceptual Framework for Land Degradation Neutrality.
- 7] In particular, are located in and around the Manantali watershed, and their protection will benefit from project interventions in their buffer zones.
- 8] Source : <http://www.keybiodiversityareas.org/site/mapsearch>

### 1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.









Town	Coordinates	
	Longitude	Latitude
Kayes	-11, 436059	14,443880
Yelimané	-10,572060	15,119279
Nioro	-9,592150	15,227150
Diéma	-9,188129	14,543499
Bafoulabé	-10,834459	13,814500
Kita	-9,494510	13,037369

## 2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

**In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.**

During the identification phase, consultations were undertaken with a range of stakeholders, including officials, civil society representatives and beneficiary communities in Bamako, Kayes and target circles. An identification mission was conducted between 21 and 27 July 2019, with the participation of the GEF Focal Point for Mali. In particular, representatives from the following institutions were consulted : i) Direction Régionale de l'Agriculture (Regional Directorate for Agriculture, DRA); ii) Direction Régionale des Eaux et Forêts (Regional Directorate for Water and Forests, DREF); iii) Direction Régionale de la Pêche (Regional Directorate for Fisheries, DRP); iv) circle authorities in Kayes, Yélimané, Bafoulabé and Kita; v) ADRS; and vi) ATI. Women and farmer cooperatives were also met in the four target circles. The complete list of stakeholders consulted is presented in Annex G.

The mission facilitated the participatory identification of challenges faced in the northern and southern landscapes. These challenges are described in the mission report (Annex G) and further analysed in the Project Description and Problem Tree (Annex D). In addition, coordination meetings were held to identify potential synergies with some of the baseline projects described above. A tentative list of target communes was elaborated in a collaborative process guided by the Climate Proofing tool. This pre-selection is based on vulnerability criteria, and will be further refined during the PPG phase, especially to avoid any duplication of efforts with other projects in the target region. In particular, communes in the buffer zones of Key Biodiversity Areas will be prioritized. The tentative list of target communes is presented in the table below.

It should be noted that the initiative to conduct a participatory mission at the identification phase was markedly welcome by local authorities and beneficiaries alike. During the Project Preparation Grant (PPG) phase, further consultations will be conducted, with a view to secure stakeholders' engagement from the onset of the project. A special focus will be placed on the consultation of ethnic groups particularly concerned by conflicts over the use of natural resources (e.g. Peulhs herders), as well as Civil Society Organizations (CSOs) and professional organizations representing the private sector.

During the implementation phase, a participatory approach will be used across activities. Landscape management plans will be designed in consultation with all relevant stakeholders. Local councils such as the Comités Fonciers and Clubs d'Ecoute Communautaires will benefit from capacity-building interventions to further strengthen their potential as key fora for the implementation of sustainable landscape management and conflict resolution. A regional multistakeholder platform on integrated landscape management will be established. The Agricultural Youth Incubator and the field school approach for climate-smart agricultural techniques will be instrumental to disseminate best practices, stimulate innovation and foster local ownership of the project. The project will also place a special focus on gender aspects, as described in the following section.

Circles	Vulnerable communes
Northern landscapes	
Kayes: 14 communes	Samé Diongoma, Diamou, Liberté Dembaya, Séro Diamanou, Kéméné Tambo, Khouloum, Logo, Hawa Demba ya, Kéri Kafo, Marintoumania, Falémé, Ségala, Sony
Diéma: 8 communes	Dioumara Koussata, Dianguirdé, Gomitradougu, Lakamané, Diéma rural, Guédébiné, Diancounté Camara, Lambidou
Nioro du Sahel:13 communes	Gogui, Sandaré, Simbi, Bagnéré korè, Gavinané, Yérére, Korera korè, Troungoumbé, Youri, Diaye coura, Guétéma, Diarra, Diabigué
Yélimané:11 communes	Kirané/Kaniaga, Krémis, Guidimé, Fanga, Soumpou, Tringa Marena, Marékafo, Konsiga, Gory, Diafounou Tambacara, Diafounou Diongaga, Toya
Southern landscapes	
Bafoulabé: 12 communes	Mahina, Bamaflé, Djokélé, Koundian, Oualia, Niambia, Gounfa, Bafoulabé, Kontéla, Diallan, Tomora, Sidibéla, Diakon
Kita: 12 communes	Didanko, Kourouninkoto, Diougoun, Guémoucouraba, Séféto Nord, Séféto Ouest, Gadougou 1, Gadougou 2, Koulou, Kita nord, Bendougouba, Toukoto

### 3. Gender Equality and Women's Empowerment

**Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

A survey<sup>[1]</sup> conducted in 2006 estimated that the share of women over 15 years old involved in agricultural activities is 63.7% nationally. It should also be noted that Kayes is the region in which the share of women responsible for agriculture plots is the highest (30% against 20% on national average). In the agricultural sector, the gender balance has a strong influence on the production organization. For example, men are more represented in cash crop cultures that generate higher revenues, while women tend to be responsible for market gardening and subsistence crops for household self-consumption.

The proposed project will contribute to women empowerment through a diversity of avenues. The participation of women to the regional multi-stakeholder platform will be encouraged, while CECs – where women hold an important role to settle disputes and mediate potential conflicts – will be strengthened, including in women-only formats. It is estimated that 60% of remittances sent by the diaspora are directed to women. Leveraging this source of funding to invest in agri-equipment will require to work directly with women, which will provide an opportunity to strengthen women's role in investment decisions and SME management.

Throughout the proposed project, women will be consulted and involved in activities, either in their individual capacity or through representative organizations. Some of these organizations have already been consulted in focus group discussions during the identification phase (e.g. women cooperatives in Samé and Liberté Dembaya). Other organizations will be approached during the PPG phase, including the Coordination des Associations et ONG féminines du Mali (Coordination of Women Associations and NGOs in Mali, CAFO) and the Fédération Nationale des Femmes Rurales (National federation of rural women, FENAFER). The overall gender approach of the proposed project is aligned with the Politique Nationale du Genre du Mali (National Gender Policy of Mali, PNG-Mali, 2011), which identifies agriculture and decentralization amongst the key sectors to advance women empowerment.

Indicatively, at least one gender-sensitive indicator will be included in the results-based framework of the proposed project, namely: sustain food systems and ecosystem services of 12,000 smallholder farmers (50% of women; GEF-7 Core Indicator 11).

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<sup>[1]</sup> Source: Enquête légère intégrée auprès des ménages. 2006.

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes**

**closing gender gaps in access to and control over natural resources;**

**improving women's participation and decision-making; and/or Yes**

**generating socio-economic benefits or services for women.** Yes

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

#### 4. Private sector engagement

**Will there be private sector engagement in the project?**

Yes

**Please briefly explain the rationale behind your answer.**

Private sector involvement in the project will be twofold.

- The proposed project will establish a global platform between local private producer organization, international sustainability bodies (IFOAM Organics International, Fairtrade International) and global retailers (e.g. Royal Ahold) that use their own private standards to green targeted VCs, and link sustainable production with consumption.
- The proposed project will harness remittances sent from Kayes' diaspora and seek synergies with local financing bodies (e.g. Kafo Jiginew, Banque Nationale de Développement Agricole) in order to help securing beneficiaries' financial solvency.

In addition, the private sector will be represented at the regional multistakeholder platform to be established under Component 1, with members of farmers' associations, the finance sector and other private companies involved in the transformation and retail of agricultural commodities.

## 5. Risks

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Description	Type	Mitigation measure
Insecurity in the northern circles of the Kayes region	Political	The risk is not under the project control. One of the key measures to address the risk is postponing and stopping all project activities in the project area if the security situation deteriorates.
Limited national and local capacity for the project effective implementation and limited chances to involve international consultants due to insecurity	Operational	The risk is only partly under the project control. However, under all components, the proposed project will invest considerable resources in capacity building of regional and local authorities as well as communities to plan, implement and monitor sustainable landscape management. The project implementation will involve a wide range of partners that have significant capacity to ensure achievement and sustainability of the project outcomes.
Ethnic and local tensions over the access to water, pastures, forest and other natural resources in the project areas	Social	Latent conflicts over use of natural resources between different ethnicities, farmers and herders, local people and outsiders are exacerbated by the over-exploitation and resulting scarcity of these resources. To mitigate these conflicts, the proposed project will invest in the strengthening of CECs for conflict mediation, involve all relevant stakeholders in the development and updating of SLAs and ultimately reduce the opportunities for conflict over access to and use of natural resources.
Low participation in multi-stakeholder platforms	Social	The proposed project aims to raise awareness and emphasize the multiple benefits of participating to the regional multistakeholder platform to be established under Component 1. In particular, a focus will be placed on the economic gains to be derived from the strengthening of value chains, for which coordination will be undertaken through the regional platform.
Climate-induced hazards (based on GCMs used by the IPCC, more frequent El Nino events with increased intensity and frequency of droughts, more significant changes in duration of dry spells between November and March and associated floods, and mean annual temperature increases) and the secondary impacts: increased incidence and intensity of	Climatic	The mitigation of secondary impacts of climate threats are a cornerstone of the project intervention logic. In short, a number of practices are foreseen (crop diversification, extension of resilient crops, soil and water conservation, integrated pest management, etc.) at the plot level, while answers to mitigate impacts are also sought at the landscape level (flood management micro-infrastructure, groundwater rehabilitation infrastructure, etc.). Furthermore, the project will maximize the use of early warning systems and improve access to credit for agricultural activities. Finally, the project will adopt approaches that are already well institutionalized in Mali (the FFS and APFS) to rapidly upscale and out scale practices and therefore facilitate a transition towards more climate resilient food

<p>crop pest infestations, increased intensity of heat stress on crops, and loss of water quality and quantity [1]</p> <p>[1] Climate Risk and Adaptation Country Profile: Vulnerability, Risk Reduction and Adaptation to Climate Change, April 2011, World Bank</p>		<p>systems in short time frames.</p> <p>Noting the dependency of the agriculture sectors on the natural resource base, climate and the lack of poor communities to cope with natural hazards, a more solid climate risk assessment and mitigation plan will be carried out during the PPG phase.</p>
<p>Land tenure</p>	<p>Legal / social</p>	<p>Insecure and unclear tenure can undermine incentives for sustainable landscape management and ultimately the supply for supported value chains. The proposed project will work with all stakeholders – local, national, governmental, non-governmental – to identify working landscape management strategies.</p>



## 6. Coordination

**Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.**

The suggested execution partners are the National Directorate for Agriculture (Direction Nationale de l'Agriculture, DNA) of the Ministry of Agriculture (MA) and the Ministry of Environment, Sanitation and Sustainable Development (MESSD). The DNA will lead the project execution, with support from MESSD. Mali's DNA is a long-term FAO partner in the country. Since 1999, it has implemented various relevant projects, including those from the GEF: i) "Strengthening resilience to climate change through integrated agricultural and pastoral management in the Sahelian zone in the framework of the Sustainable Land Management approach", 2015-2019; ii) "Integrating climate resilience into agricultural production for food security in rural areas of Mali", 2012-2016; and iii) the "Caisses de resilience" project in Bandiagara.

The GEF Implementing Agency for the proposed project is the Food and Agriculture Organization of the United Nations (FAO). FAO's comparative advantage in Mali lies not only in its historical support to rural institutions, but also in its technical capacity and experience in food systems, land-use practices and restoration of ecosystem services. FAO has also spearheaded integrated programming approaches as a core element of its operations. Building on this, FAO represents a unique partner able to effectively deliver policy advice in the field of land and forest restoration, as well as to nudge private investments across agricultural value chains.

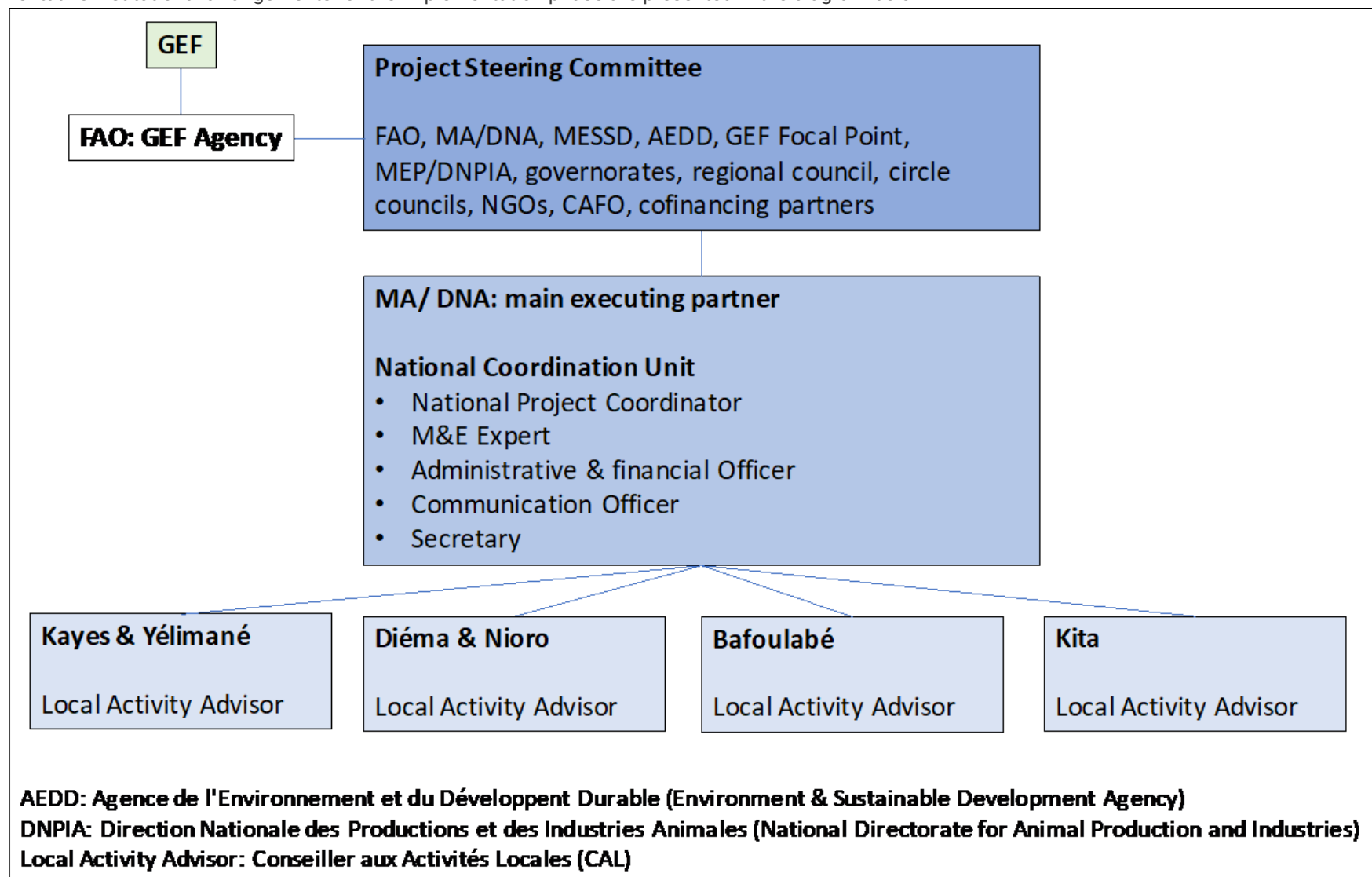
During PPG, the operational capacity of DNA will be assessed in order to determine the nature of DNA's role in project execution. It is envisioned that DNA will be the Operational Partner managing the project funds and supervised by the GEF Agency if all fiduciary standards are met. If not, DNA will be steering the project execution and delegating selected support services to another execution partner who meets technical and operational requirements for timely and quality project execution. This latter may be FAO if no other cost-effective and technically sound partners can be assessed positively during PPG.

Other partners will be involved as appropriate. They include the following:

- government:
  - o Ministry of Livestock and Fisheries;
  - o decentralized authorities;
- civil society / NGOs:
  - o farmers organizations: Permanent Assembly of chambers of agriculture (APCAM), National Coordination of farmers organizations (CNOP);
  - o local NGOs, radios;
  - o Coordination of women's NGOs and organizations in Mali (CAFO);
  - o National federation of rural youth (FENAJER);
  - o National federation of rural women (FENAFER);
- research institutions:
  - o Agricultural Economics Institute (IER);
  - o Katibougou Polytechnic Institute for Rural Training and Applied Research (IPR/IFRA);
- Private sector:
  - o local SMEs;

- o international sustainability & certification bodies (e.g. IFOAM Organics International, Fairtrade International; and
- o financial actors (e.g. Kafo Jiginew, BNDA).

Tentative institutional arrangements for the implementation phase are presented in the diagram below.



Numerous national GEF and non-GEF projects that focus on land management and adaptation to climate change have been or are currently being implemented in Mali. These projects will provide information on relevant, cost-effective sustainable landscape management interventions as well as lessons learned that can guide the planning and implementation process in the northern and southern landscapes of the Kayes region. The proposed project will focus

on collating and synthesizing the lessons learned from past and ongoing relevant projects to inform its design during PPG, when first contacts with all the project management teams will be established. This approach will maximize synergies and avoid duplication of activities. Furthermore, the project foresees exchange on a continuous basis with relevant GEF projects and programmes through participation in a working group chaired by the GEF OFF. In this working group, all GEF projects under execution inform the partnership on project progress and lessons. This working group meets on a 6-month basis. These exchanges can furthermore lead into joint missions and alignment of workplans and activities, particularly with projects GEFID 9293 and 5746. Coordination with projects and programmes not financed by the GEF will be assured through participation of the respective project teams (as observers) in the project steering committees. The most relevant initiatives are described below.

#### Strengthening Resilience to Climate Change through Integrated Agricultural and Pastoral Management in the Sahelian zone in the Framework of the Sustainable Land Management Approach

This Least Developed Countries Fund (LDCF)-funded, FAO-implemented project has a total budget of USD 16.519 million, including a GEF grant of USD 2.172 million. It works in three regions of the Sahelian zone (Koulikoro, Segou and Kayes), and lies upon three components. The first one is to develop climate change adaptation (CCA) strategies, plans and tools for agro-pastoral and agricultural production systems in vulnerable areas. The second one is to strengthen small agro-pastoralists' capacities so they can adopt CCA technologies and best practices. The third one is to mainstream CCA in policies and development programs related to agricultural and livestock production to ensure the sustainable integration and adoption of CCA practices. By implementing 150 Agro-Pastoral Field Schools, the project directly supports at least 3,000 agro-pastoralists to develop and implement new approaches, practices and technologies that increase climate resilience. It also addresses the conflicting situation between farmers and herders over natural resources, which hinders the development of these two sectors. Implementation started in 2014 and is due to terminate in 2019.

#### Scaling up a Multiple Benefits Approach to Enhance Resilience in Agro- and Forest Landscapes of Mali's Sahel Regions (Kayes, Koulikoro and Ségou)

This GEF Trust Fund-funded project is under development with the African Development Bank. The concept which was approved in May 2017 is comprised of three components, for a total GEF financing of USD 8.6 million. Component 1 seeks to promote integrated landscape planning and management, including through the development of integrated landscape management plans in at least three circles. Component 2 will assist with the implementation of the plans developed for the target districts and provide technical assistance for a range of sustainable land management activities, including: i) climate-smart agro-sylvo-pastoral practices; ii) improved management for forested areas; and iii) improved waste management. Component 3 will consist in project monitoring, documentation of lessons learned and knowledge management. Throughout the project, a strong focus will be placed on waste management. During the PPG phase, the proposed project will coordinate with this project to identify the target communes of intervention, with a view to avoid any duplication of efforts. Synergies will also be sought in the development of landscape management plans, as the same regional staff (for the Kayes region) will be involved in their development and in the design of landscape management under Component 2 of the proposed project. Capacity-building activities conducted under the GEF TF-African Development Bank (AfDB) project will thus directly contribute to create an enabling environment for the implementation of the proposed project. Of particular relevance will be Outputs 3.1.1 ("Tools for spatial planning: landscape-level economic, social and ecological assessments; open access mapping; etc. to assess multi-functionality as basis for generating land-use plans"), 3.2.2 ("Knowledge management for lessons learned from an applied landscape approach disseminated at various scales") and 3.3.1 ("A framework developed for effective monitoring and adaptive management of the land use plans, including delineation of roles among key stakeholders").

#### Programme d'Appui au Développement Durable de Yélimané (PADDY, Phase-II)

The Support Programme for the Sustainable Development of Yélimané saw its first phase terminate in 2009. Co-funded by the City of Montreuil (France), the Veolia Foundation and the City of Yélimané, PADDY invested approx. EUR 340,000 to refurbish the existing water network and extend it to three villages around the City of Yélimané, bringing drinkable water to over 30,000 people. The interventions also included capacity building, enabling users' associations to operate

and maintain the system by themselves, including in terms of financial and administrative management. Phase II of the programme is currently under development, and will focus on food safety (esp. through self-sufficiency in cereals) and poverty reduction in the Yélimané circle. This will be done by building the capacity of cultivators as well as local staff from the technical and administrative offices at the region, circle and target communes. A focus will be placed on financial savviness and access to funding. The budget is anticipated to be approx. USD 10 million. The proposed project will coordinate with phase II of PADDY to target other communes in the Yélimané circle, complement capacity-building activities and replicate successful ones in target circles. It will also benefit from the improved capacity and awareness of technical and administrative staff in extension offices at the region and circle levels.

#### Projet de Développement Rural du Kaarta/Sefeto (PDRKS)

The Project for the Rural Development of Kaarta/Sefeto is embedded within the National Investment Plan in the Agricultural Sector, and seeks to tackle chronic food insecurity in the northwestern part of the Kita circle. This situation is the result of widespread poverty, limited development of productive systems, low agricultural productivity and remoteness of the area. PDKRS addresses these challenges by supporting the development of 1,396 ha of arable land, building 38km of dirt road between Kéniénifé and Séfeto, improving the access to drinkable water and facilitating the access to short-term credits. The proposed project will build on these interventions to further disseminate climate-smart agricultural techniques in northwestern Kita and support the development of selected value chains by leveraging the potential of improved access to loan finance and better access to the area. The financing of PDKRS is currently being finalized; its anticipated budget is approx. USD 51 million.

#### Green Innovation Centres for the Agriculture and Food Sector (GIC)

This global programme, commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the German Cooperation Agency (GIZ) in 15 developing countries across Africa and in India (2014 – 2023), seeks to promote innovations in the agriculture and food sector to increase the incomes of small farming enterprises, boost employment and improve food supply in the rural target regions. The Green Innovation Centres support the expansion of innovations by providing advisory services, organizing educational and training courses, and facilitating access to loans. These innovations include mechanization within agriculture or improved seeds, fertilizers and food cooling chains. In many cases, they focus on new channels for cooperation, such as setting up producer associations, specialized enterprises or interest groups. In Mali, the Innovation Centre advises farmers on the use of innovations in irrigation farming. For example, around 7,500 farmers have received training in the resource-conserving 'System of Rice Intensification (SRI)' method, which reduces seed use by up to 80% and water consumption by up to 35% compared with traditional cultivation methods. Three circles in the northern landscape of the Kayes region have received support through the programme, for a total budget of approx. EUR 700,000. In the Kayes region, interventions have focused on disseminating efficient practices for the rice culture and market gardening, as well as post-harvest storage and marketing (linking producers and sellers). The proposed project will build on the GIC programme by: i) disseminating the agricultural practices that have proven efficient; ii) complementing them with support to other cultures; iii) further strengthening the value chains, especially to facilitate the access to credits and enter cross-border markets; iv) and capitalize on capacity-building activities to lay the basis of the Agricultural Youth Incubators.

#### Senegal River Basin Multi-purpose Water Resources Development Project

Funded by the World Bank (USD 106.78 million) and implemented between 2011 and 2013, the objective of the Senegal River Basin Multi-purpose Water Resources Development Project was to enhance regional integration among the riparian countries of the Senegal River Basin through the Organisation pour la Mise en Valeur du fleuve Senegal (Senegal River Basin Organization, OMVS) for multi-purpose water resources development to foster growth, including improved community livelihoods. In its revised form, the project was comprised of three components. Component 1 supported regional institutional development for water resources to consolidate and strengthen policies, plans and actions relating to integrated water resources development. Component 2 focused on the development of small hydraulic infrastructure and related activities, including: i) the support to recessional agriculture (esp. the identification

of suitable options for processing and marketing agricultural products), improvements to cropping systems (esp. inter-cropping and integrated pest management practices); and ii) the expansion and rehabilitation of small-scale irrigation and drainage schemes. Component 3 was centered on activities of pre-investment support for OMVS multi-purpose dams in Balassa, Guinea. From the overall budget of the project, Mali received USD 30.08 million, of which USD25.57 million was disbursed.

## 7. Consistency with National Priorities

### Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

**If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc**

In addition to national priorities described in Section II.1.a, the proposed project will contribute to Mali's objectives set out in several international strategic documents, as synthesized below.

#### - National Adaptation Programme of Action (NAPA) and National Adaptation Plan (NAP) Process

Mali's NAPA was submitted in 2007. Amongst the prioritized adaptation actions that will be supported by the proposed projects are: i) the adoption of climate-resilient varieties in agriculture; ii) the use of climate-smart agricultural techniques; iii) the strengthening of the innovation potential in the agricultural sector, in particular with women and the youth; and iv) fodder production. The NAP process was initiated in early 2014, and the Agence de l'environnement et du développement durable (AEDD) has been receiving support to ensure the proper representation of smallholder climate change adaptation needs in the NAP process. To ensure coherency with this NAP process, amongst other things, the AEDD is proposed to be a member of the Project Steering Committee of the FAO-GEF project, aligning activities and outputs to the NAP process. During PPG other mechanisms to secure coherency will be explored.

#### - United Nations Framework Convention on Climate Change National Communications (NC)

Mali submitted its Third NC to the UNFCCC in 2018. The proposed project will contribute to the objective of reduction of GHG emissions in the agricultural sector by 9,759 kT CO<sub>2</sub>-eq in 2025, and to the objective of increase of carbon sequestration in the Land Use, Land-Use Change and Forestry (LULUCF) sector by 21% in 2030. In terms of adaptation, the following prioritized actions will be supported by the proposed project: i) Assisted Natural Regeneration for deforested areas; ii) livelihood diversification in rural areas to disincentivize rural communities to harvest and sell fuelwood; iii) participatory elaboration of landscape management plans at the local level; iv) restoration of degraded soil; and v) production of fodder.

#### - UNFCCC National Determined Contribution

Mali submitted its Nationally Determined Contribution (NDC) under the UNFCCC in 2016. It includes a Greenhouse Gases (GHG) emission reduction target of -29% for the agricultural sector and -21% for land-use change and forestry. Specific avenues for reducing emissions include Assisted Natural Regeneration, measures to combat sand encroachment and strengthening of protected areas (over a total of 9 million ha), reforestation (325,000 ha), development of climate-smart agriculture (hydro-agricultural improvements on 92,000 ha), and realization of 3,300 km of transhumance routes and 400,000 ha of rangelands. The proposed project will contribute to these objectives through its Component 2.

#### - UNFCCC Technology Needs Assessment (TNA) for adaptation and mitigation

Mali submitted its Second TNAs for adaptation and mitigation to the UNFCCC in 2012. In terms of adaptation, the proposed project will contribute to cover some of the technology needs in the agricultural sector, namely: i) fodder culture practices; ii) land management to prevent erosion due to runoff; iii) adoption of climate-resilient crops. In terms of mitigation, relevant objectives are: i) reduction in the use of chemical fertilizers and increased use of compost; ii) increased use of improved cookstoves; iii) decrease in land use changes, from forest to pastures and agricultural fields; and iv) reforestation.

- National Biodiversity Strategy and Action Plan (NBSAP)

Through its engagement in the Convention on Biological Diversity (CBD), Mali has committed in its last National Biodiversity Strategy and Action Plan (2014) to reduce by half the pace of degradation and thinning out of natural habitats, included forests, by 2020. The proposed project will contribute to this objective through its Component 2.

- CBD National Report

Mali submitted its fifth National Report to the CBD in 2014. Among the prioritized actions towards which the proposed project will contribute are the protection of the Bafing chimpanzee's sanctuary located in and around the Manantali watershed. The Bafing sanctuary will benefit from project interventions in its buffer zones. In addition, the proposed project will work towards a greater awareness from local authorities and communities on the importance of preserving biological diversity.

- United Nations Convention to Combat Desertification (UNCCD) National Action Program

Mali has established a National Action Program in the context of the UNCCD (2000). The proposed project will contribute to several of its national objectives, including: i) enhancing stakeholder's capacity to manage natural resources; ii) protecting forested areas by promoting the sustainable use of fuelwood; iii) improving the sustainable management of drinking and irrigation water resources. The project will also contribute to some of the specific objectives for the Kayes region: i) raising awareness on the importance to fight land degradation; and ii) incentivizing communities to adopt sustainable agricultural practices and technologies, both traditional and modern.

## 8. Knowledge Management

**Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.**

Internally, the knowledge management approach will focus on information sharing, regular dialogue at all levels and the dissemination of documents. Externally, it will focus on the dissemination of information to partners (government, civil society, etc.) and to beneficiaries. In particular, lessons learned from the support to three champion agri-enterprises under Component 4 will be document and disseminated to elicit similar initiatives in the Kayes region, nationally and in neighboring countries. Appropriate channels of communication (technical guidelines, radio, posters, brochures etc.) will be used to target specific stakeholders.

Supervision and monitoring missions will be organized during project implementation. A framework for gender-sensitive Monitoring & Evaluation (M&E) will be developed before implementation starts to identify relevant indicators and procedure for feedback and reporting. Special emphasis will be laid on targeting the most relevant parameters that can be examined and collected internally. The information collected in the context of M&E will feed into activities for knowledge management, identify and share good practices, identify problems and constraints, and promote the continuous improvement of the project and its contribution to the implementation of national and regional objectives on food security and environmental protection.



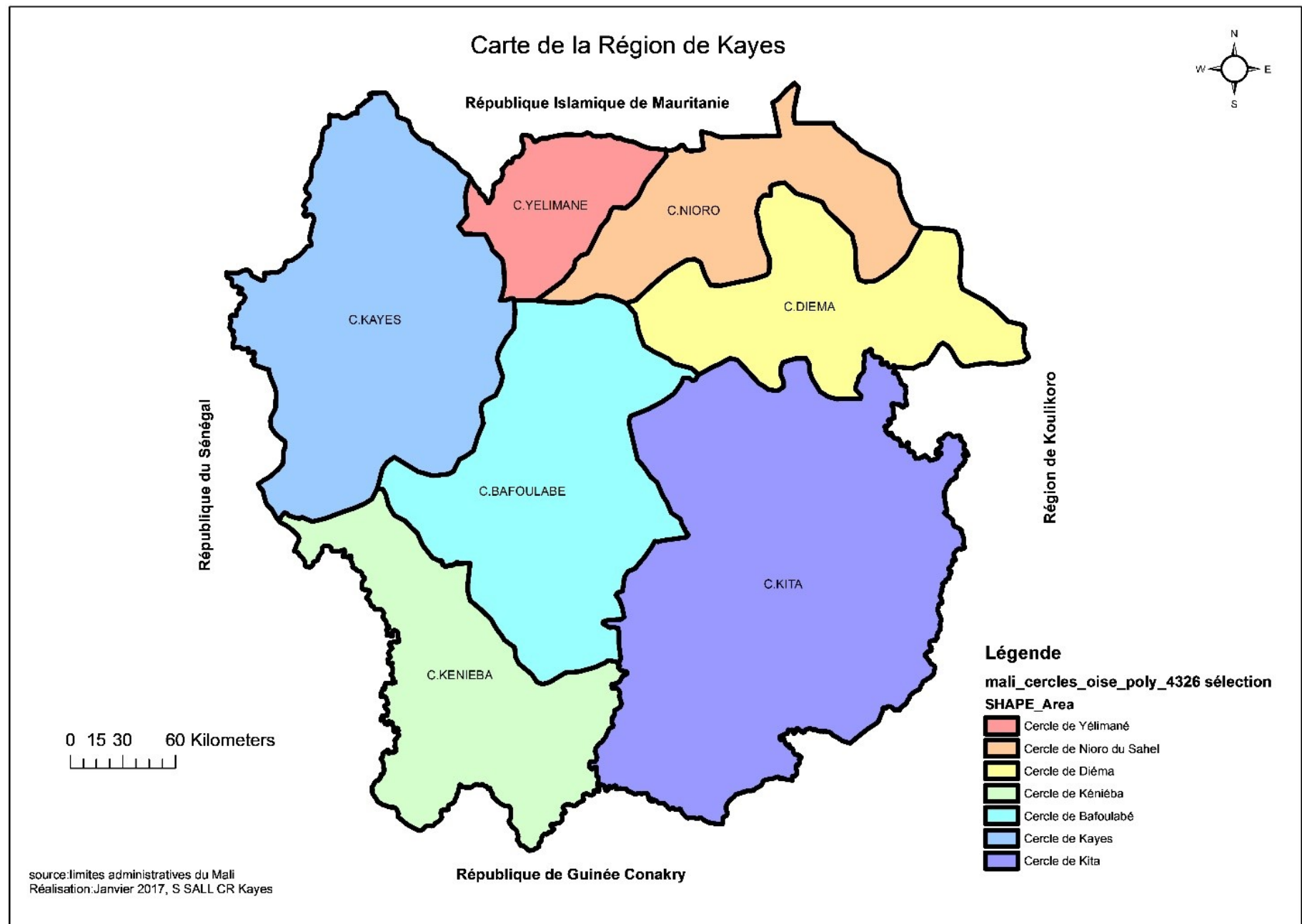
**Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)**

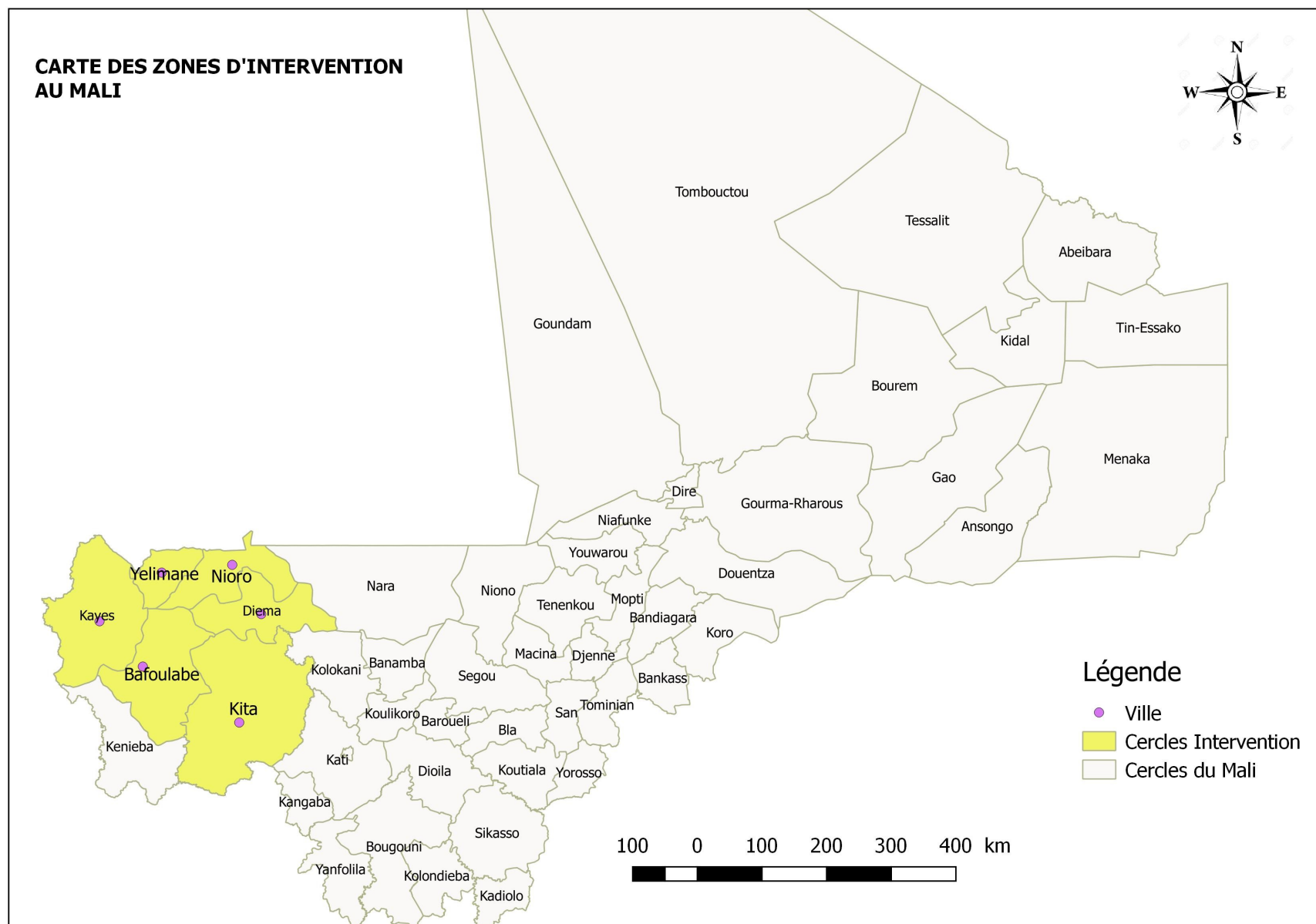
**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).**

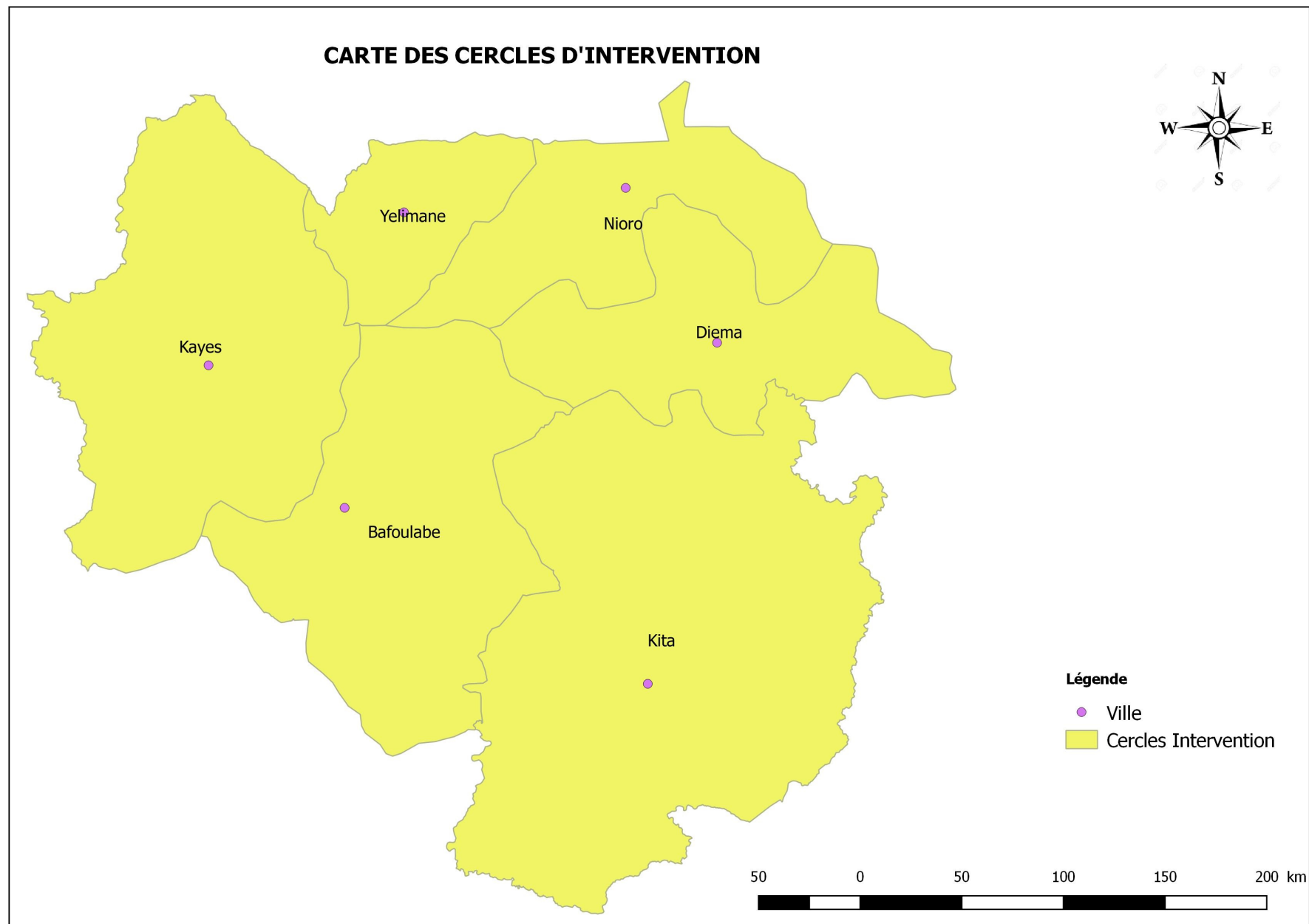
<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Issa Fahiri KONE	GEF Operational Focal Point	Agence de l'Environnement et du Développement Durable	5/22/2019

## ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place







Town	Coordinates	
	Longitude	Latitude
Kayes	-11, 436059	14,443880
Yelimané	-10,572060	15,119279
Nioro	-9,592150	15,227150
Diéma	-9,188129	14,543499
Bafoulabé	-10,834459	13,814500
Kita	-9,494510	13,037369