



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

Part I: Project Information

GEF ID

9293

Project Type

FSP

Type of Trust Fund

GET

Project Title

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

Countries

Mali

Agency(ies)

AfDB

Other Executing Partner(s):

Ministry of Rural Development; other: CILSS, Association La Voûte Nubienne

Executing Partner Type

Government

GEF Focal Area

Multi Focal Area

Taxonomy

Biodiversity, Protected Areas and Landscapes, International Waters, Climate Change, Climate Change Adaptation, Focal Areas, Type of Engagement, Communications, Stakeholders, Gender Mainstreaming, Gender Equality, Gender results areas, Integrated Programs, Food Systems, Land Use and Restoration, Knowledge Generation, Capacity, Knowledge and Research, Pollution, Community Based Natural Resource Mngt, Productive Landscapes, Forest, Forest and Landscape Restoration, Land Degradation, Land Degradation Neutrality, Land Productivity, Carbon stocks above or below ground, Land Cover and Land cover change, Sustainable Land Management, Sustainable Agriculture, Restoration and Rehabilitation of Degraded Lands, Sustainable Forest, Integrated and Cross-sectoral approach, Sustainable Pasture Management, Food Security, Innovation, Least Developed Countries, Climate Change Mitigation, Agriculture, Forestry, and Other Land Use, Chemicals and Waste, Persistent Organic Pollutants, Unintentional Persistent Organic Pollutants, Best Available Technology / Best Environmental Practices, Waste Management, Hazardous Waste Management, Emissions, Sustainable Development Goals, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Beneficiaries, Awareness Raising, Consultation, Private Sector, SMEs, Capacity Development, Comprehensive Land Use Planning, Integrated Landscapes, Knowledge Exchange, Training

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 2

Duration

60In Months

Agency Fee(\$)

817,477

A. Focal Area Strategy Framework and Program

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
LD-1_P1		GET	1,162,329	23,390,746
LD-3_P4		GET	1,162,329	5,867,971
CCM-2_P4		GET	2,640,183	23,390,738
SFM-2		GET	1,000,000	5,867,971
CW-2_P3		GET	2,640,182	935,460
			Total Project Cost(\$)	8,605,023
				59,452,886

B. Project description summary

Project Objective

To enhance food security and multiple environmental benefits through sustainable, resilient and healthy agro- and forest ecosystems in the Sahelian regions of Mali based on a landscape approach.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
1. Promoting integrated landscape planning and management for multiple objectives and resilience		1.1 Enabling frameworks and mechanisms strengthened to promote a sustainable and integrated landscape approach in planning and decision-making at sub-national levels	1.1: Collaborative planning platforms held in 5 districts to enhance multi-stakeholder dialogue and involvement in landscape management 1.2: Coordination and preparation of integrated landscape management plans in at least 3 districts 1.3: Differentiated training on INRM and implementing participatory land-use plans for relevant stakeholders	GET	626,440	7,558,717

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
2. Landscape level scale-up of SLWM, SFM, INRM and community-based interventions	Investment	2. Agro-ecosystem functionality and productivity enhanced through the sustainable integrated landscape approach, relevant measures and technologies	<p>2.1: 5,000 ha under sustainable land or pastoral management with climate-smart techniques</p> <p>2.2: 2,000 ha of croplands under conservation agriculture practices in 5 districts</p> <p>2.3: >100 of small investments in rural hydro-agricultural infrastructure</p> <p>2.4: 3,000 farmers and herders adopt good SLWM, agro-sylvo and pastoral practices suitable to drylands</p> <p>2.5: 9,500 ha under improved forest management</p> <p>2.6: 5 alternative income generating options identified and adopted in communities based on agro-forestry, ANR, sylvo-pastoralism, etc.</p> <p>2.7: 30 local producer or community groups and authorities trained to undertake SLFM, and sustain activities</p> <p>2.8: 1 rural habitat program in 10 communities (local market and transfer of know-how) based on the construction of rural bioclimatic structures using Nubian Vault (NV) technology for</p>	GET	7,354,627	40,943,053

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)	
3. Learning, adaptive management, monitoring and evaluation	Technical Assistance	3. Monitoring and evaluation of progress and results and integration of lessons learnt into decision-support tool for sustainable integrated landscape approaches	<p>3.1 Lessons captured, and knowledge disseminated</p> <p>3.2 Sustainable financing plan assessed for waste management (tax, subsidy, royalties or public-private partnerships) developed and promoted</p> <p>3.3. A framework developed for effective monitoring and adaptive management of the land use plans, including delineation of roles among key stakeholders</p> <p>3.4 A M&E system established and used to assess and monitor project impact and its multi-focal area GEBs</p>	GET	214,516	7,243,770	
Sub Total (\$)					8,195,583	55,745,540	
Project Management Cost (PMC)							
					GET	409,440	3,707,346
Sub Total(\$)					409,440	3,707,346	
Total Project Cost(\$)					8,605,023	59,452,886	

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount(\$)
GEF Agency	AfDB	Grant	25,065,796
GEF Agency	AfDB	Loans	25,065,796
Government	Government of Mali	In-kind	7,035,879
Beneficiaries	Beneficiaries (local authorities and communities)	In-kind	1,102,348
CSO	Association La Voute Nubienne (AVN)	In-kind	380,428
Private Sector	Elephant Vert	In-kind	802,639
Total Co-Financing(\$)			59,452,886

D. 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	NGI	Amount(\$)	Fee(\$)
AfDB	GET	Mali	Land Degradation		No	2,324,657	220,843
AfDB	GET	Mali	Climate Change		No	2,640,183	250,817
AfDB	GET	Mali	Multi Focal Area	SFM	No	1,000,000	95,000
AfDB	GET	Mali	Chemicals and Waste	POPs	No	2,640,183	250,817
Total Grant Resources(\$)						8,605,023	817,477

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
AfDB	GET	Mali	Land Degradation		No	100,000	9,500
AfDB	GET	Mali	Climate Change		No	50,000	4,750
Total Project Costs(\$)						150,000	14,250

Core Indicators

Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	19,000.00	0.00	0.00

Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0.00	9,500.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
Akula National Park	125689	Select		9,500.00		<input type="checkbox"/>

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0.00	9,500.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
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Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
Akula National Park	125689	Select		9,500.00			0.00		

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	2000.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	2,000.00		

Indicator 3.2 Area of Forest and Forest Land restored

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

Indicator 3.3 Area of natural grass and shrublands restored

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

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

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

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)
0.00	5000.00	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)
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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)
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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)
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	5,000.00		
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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)
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Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted
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Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
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Expected metric tons of CO ₂ e (direct)	0	3189359	0	0
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Expected metric tons of CO ₂ e (indirect)	0	1295143	0	0
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Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
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Expected metric tons of CO ₂ e (direct)		3,189,359		
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Expected metric tons of CO ₂ e (indirect)		1,295,143.00		
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Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Anticipated start year of accounting		2024		
Duration of accounting		15		

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)				
Expected metric tons of CO₂e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
0.00	100.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
SelectEndrin		15.00		<input type="checkbox"/>
SelectHeptachlor		30.00		<input type="checkbox"/>
Select		0.00		<input type="checkbox"/>

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
Select		0.00		<input type="checkbox"/>
Select				<input type="checkbox"/>
Select Technical endosulfan and its related isomers		55.00		<input type="checkbox"/>

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.3 Hydrochlorofluorocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

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

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

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

Indicator 9.6 Quantity of POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 10 Reduction, avoidance of emissions of POP to air from point and non-point sources (grams of toxic equivalent gTEQ)

Grams of toxic equivalent gTEQ (Expected at PIF)	Grams of toxic equivalent gTEQ (Expected at CEO Endorsement)	Grams of toxic equivalent gTEQ (Achieved at MTR)	Grams of toxic equivalent gTEQ (Achieved at TE)
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2.00

Indicator 10.1 Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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Indicator 10.2 Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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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		1,560		
Male		3,640		
Total	0	5200	0	0

PART II: Project JUSTIFICATION

1. Project Description

A. describe any changes in alignment with the project design with the original pif[1]

The Project’s design has been elaborated and adjustments have been made to clarify some of the Project’s components, outcomes, outputs and activities. These changes, based in part on consultations and research carried out during PPG work, are summarized below and detailed in the AfDB Project Appraisal Report.

As described in the PIF	How is this incorporated into the Request for CEO Endorsement
Project duration	The project was reduced from 60 months to 35 months for better alignment with the duration of the baseline project. the project initially had the same duration as the P2RS, namely 5 years, and that was because of the delays that it did not start at the same time as the P2RS. Arrangements will be made to implement the project within 35 months, including taking advantage of early acquisition actions and an amendment to the contract with the NGO consortium recruited by the P2RS which currently covers the area.
Budget:	The budget has been revised to allocate more funds to component 2 on ‘landscape level scale-up of SLWM, SFM, INRM and community-based interventions’
Component 1:	The component titles have not been altered. However, the sub-outcomes have been merged into a single component outcome. Some outputs have been merged and rephrased for conciseness. Instead of six outputs for this component, it now has three.

<p>Outcome 1.1 Cooperative planning mechanisms enable consideration of multi-functionality and enhance landscape protection</p> <p>Outcome 1.2 Enabling frameworks strengthened to promote a landscape-based approach in planning and decision-making at sub-national levels</p> <p>Outcome 1.3 Increased capacity and awareness of institutional and local actors to apply a landscape approach and promote sustainable development through INRM</p>	<p>Outcome 1: Enabling frameworks and mechanisms strengthened to promote a sustainable and integrated landscape approach in planning and decision-making at sub-national levels</p>
<p>Expected outputs:</p> <p>1.1.1 Collaborative planning platforms held in 5 districts to enhance multi-stakeholder dialogue and involvement in landscape management, and reconcile development and environment trade-offs (involve district and commune officials, communities, CSOs, private sector, etc.)</p>	<p>Output 1.1: Collaborative planning platforms held in 5 districts to enhance multi-stakeholder dialogue and involvement in landscape management</p>
<p>1.2.1 Preparation and adoption of integrated landscape management plans in at least 3 districts: participatory land-use plans developed with local authorities, communities, and other stakeholders to generate both development and environmental benefits</p>	<p>Outputs 1.2.1, 1.2.2, 1.2.3 and have been merged into one output as they are all concerned with the coordination, preparation and adoption of integrated landscape management plans.</p> <p>The new output title is:</p>
<p>1.2.2 3 landscape/development plans that integrate multiple functions, uses and resilience, including forestry services</p>	<p>Output 1.2: Coordination and preparation of integrated landscape management plans in at least 3 districts</p>
<p>1.2.3 Commune guidelines and action plans (at least 10) developed for reducing hazardous waste burning with stakeholder involvement (in collection, treatment and valorization), and integrated within the larger land-use plans</p>	<p>This has been merged into the new Output 1.2</p>
<p>1.3.1 Differentiated training targeting relevant stakeholders: 5 000 farmers and 200 public servants trained in INRM, managing ecosystems sustainably and implementing participatory land-use plans</p>	<p>Outputs 1.3.1 and 1.3.2 have been merged as they both deal with the training of stakeholders and rephrased for conciseness.</p>
<p>1.3.2 5,000 land users and 200 district staff trained in INRM and understanding links between multiple land uses within landscapes (agriculture, forestry, fisheries, mining, energy, conservation, etc.)</p>	<p>The new output title is:</p> <p>Output 1.3 Differentiated training on INRM and implementing participatory land-use plans for relevant stakeholders</p>

<p>Component 2. A productive, protected, and healthy landscape to maintain diverse ecosystem goods and services (agro and forest)</p>	<p>This component has been rephrased for conciseness: Component 2: Landscape level scale-up of SLWM, SFM, INRM and community-based interventions</p>
<p>2.1 Landscape level scale-up of SLWM, SFM and INRM delivers both ecosystem and development benefits:</p> <ul style="list-style-type: none"> o Agro-ecosystem functionality and productivity enhanced through measures and technologies that reduce land degradation, improve resilience and local livelihoods o Improved agro-forest and forest landscape maintains flows of forest ecosystem goods and services (provisioning, regulating, supporting) o More vegetative cover increases carbon sequestration (in soils and trees) and reduces GHG emissions <p>2.2 Pressures on forest ecosystems are reduced through INRM and community-based interventions which better livelihoods while reducing land and forest degradation</p>	<p>This reinforces the integrated approach as opposed to separated mini projects within one larger project, the sub-outcomes have been merged into one outcome, per project component.</p> <p>The unified outcome for component 2 has been rephrased to: Outcome 2: Agro-ecosystem functionality and productivity enhanced through the sustainable integrated landscape approach, relevant measures and technologies</p>
<p>2.1.1 5,000 ha under sustainable land or pastoral management with climate-smart techniques (soil conservation, trees in crop or grazing systems, mixed/inter-cropping, low till, improved grazing, revegetation of rangelands, etc.)</p>	<p>Now output 2.1. Only shortened the output name to: Output 2.1: 5,000 ha under sustainable land or pastoral management with climate-smart techniques' Otherwise unchanged</p>

<p>2.1.2 2,000 ha of croplands under conservation agriculture practices: crop rotation, crop diversification, etc. with drought-resistant seed varieties distributed to households and farmer organizations in 5 districts</p>	<p>Now output 2.2 Only shortened the output name to: Output 2.2: 2,000 ha of croplands under conservation agriculture practices in 5 districts Otherwise unchanged</p>
<p>2.1.3 >100 of small investments in rural hydro-agricultural infrastructure: rainwater harvesting, efficient irrigation on 500 ha, 15 pastoral watering points</p>	<p>Now output 2.3 Only shortened the output name to: Output 2.3: >100 of small investments in rural hydro-agricultural infrastructure Otherwise unchanged</p>
<p>2.1.4 3,000 farmers and herders adopt good SLWM, agro-sylvo and pastoral practices suitable to drylands</p>	<p>Now output 2.4 Otherwise unchanged</p>
<p>2.1.5 Ha under improved forest management: - 2,500 ha of woodlots and nurseries for fuelwood harvesting - 3,000 ha reforested via assisted natural regeneration - 2,500 ha under agro-forestry for the promotion of non-timber forest products - 5 community forests (one in each district of 300 ha) established and sustainably managed - Community planning committees formed for community forests and woodlands</p>	<p>Now output 2.5 Only shortened the output name to: Output 2.5: 9,500 ha under improved forest management Otherwise unchanged</p>

<p>2.2.1 10 of alternative income generating options identified and adopted in communities based on agro-forestry, ANR, sylvo-pastoralism, etc.</p>	<p>Now output 2.6</p> <p>The alternative income generating options have been reduced from 10 to 5.</p> <p>The output name has been shortened to:</p> <p>Output 2.6: 5 alternative income generating options identified and adopted in communities based on agro-forestry, ANR, sylvo-pastoralism, etc.</p> <p>Otherwise, this output is unchanged.</p>
<p>2.2.2 30 local producer or community groups and authorities trained to undertake SLFM, and sustain activities</p>	<p>Now output 2.7</p> <p>Otherwise unchanged</p>
<p>2.2.3 1 rural habitat program in 10 communities (local market and transfer of know-how) based on the construction of rural bioclimatic structures using Nubian Vault (NV) technology for private and community use [508 NV rural households (12,700 m²), 68 community buildings (2,550 m²) and 2 NV agrometeorological buildings (20 m²), with 3,200 beneficiaries, 64 local craftsmen and VN masons trained and/or in training, green jobs fostered (80 bricklayers and 288 apprentices trained) and 12,200 tons of potential GHGs mitigated]</p>	<p>Now output 2.8</p> <p>Only the output name has been shortened:</p> <p>Output 2.8: 1 rural habitat program in 10 communities (local market and transfer of know-how) based on the construction of rural bioclimatic structures using Nubian Vault (NV) technology for private and community use</p>
<p>2.3.1 3 pilot composting units (1 per region) for agricultural use</p>	<p>Now output 2.10</p> <p>Only the output name has been rephrased for conciseness:</p> <p>Output 2.10: Demonstration of a pilot composting unit for agricultural uses per region (3)</p> <p>Otherwise unchanged</p>
<p>2.3.2 BAT/BEP adopted for uPOPs, agricultural and municipal waste management in at least 20 communes</p>	<p>Outputs 2.3.2, 2.3.3 and parts of 2.3.5 have been merged together and into the following:</p>
<p>2.3.3 3 innovative technologies for waste valorization, mainly for organic fertilizer, are successfully deployed for a more sustainable agriculture (biogas digesters, manure management, others)</p>	<p>Output 2.11: BAT/BEP for uPOPs, agricultural and municipal waste management reduction in at least 20 communes</p> <p>Otherwise unchanged</p>

<p>2.3.4 Four initiatives to reduce, reuse and recycle solid waste to further protect the landscape: collection of compostable municipal waste in select municipalities, implemented with a PPP approach and support of local NGOs</p>	<p>Output names has been rephrased: Now Output 2.9: Demonstration of 3 innovative technologies for waste valorization, mainly for organic fertilizer</p>
<p>2.3.5 Quantifiable and verifiable tons of POPs eliminated or reduced in 3 regions</p>	<p>This output has been merged into the new output 2.11</p>
<p>Component 3. Learning, monitoring, and project management</p>	<p>Now Component 3. Learning, adaptive management, monitoring and evaluation is the new component title. The wording has been modified by replacing ‘project management’ with ‘monitoring and evaluation’ to be more reflective of the component’s outcomes, outputs and activities. Also, project management fall under another budget category which has been allocated 344,300 USD from GEF resources and 3,653,296 USD from co-financing resources</p>
<p>Outcome 3.1 Increased decision-support tools needed to apply a landscape approach and cooperatively plan and design INRM strategies</p> <p>Outcome 3.2 Lessons captured and knowledge disseminated</p>	<p>The two sub-outcomes have been merged into one a single outcome: Monitoring and evaluation of progress and results and integration of lessons learnt into decision-support tool for sustainable integrated landscape approaches</p>
<p>3.1.1 5 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</p>	<p>Output 3.1.1, 3.1.2, 3.1.3 and 3.2.1 have been merged together. This is the new output 3.1 has been rephrased to ‘Knowledge management for lessons learned from an applied landscape approach disseminated at various scales’</p>
<p>3.1.2 32 of commune resource, land use and forest maps</p>	<p>These former outputs are now activities under the new output 3.1.</p>
<p>3.1.3 BAT/BEP assessed for uPOPs, agricultural and municipal waste management</p>	<p>Instead of 5 tools, the project will now produce 10 tools for spatial planning developed and promoted: landscape-level economic, social and ecological assessments; open access mapping; etc. to assess multi-functionality as basis for generating land-use plans’</p>

3.1.4 Sustainable financing plan assessed for waste management (tax, subsidy, royalties or public-private partnerships)	Unchanged. Now output 3.2
3.2.1 Best practice guidelines on SLM and SFM developed for the extension and training conducted in 3 districts and used in component 2 activities (with recommendations on reconciling land-use tradeoffs)	This has been merged into output 3.1
3.2.2 Knowledge management for lessons learned from an applied landscape approach disseminated at various scales	This has been merged into the new output 3.1 'Knowledge management for lessons learned from an applied landscape approach disseminated at various scales'
3.3.1 A framework developed for effective monitoring and adaptive management of the land use plans, including delineation of roles among key stakeholders	Unchanged. Now output 3.3
3.3.2 A M&E system established and used to assess and monitor project impact and its multi-focal area GEBs	Unchanged. Now output 3.4

A.1. *Project Description.*

1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed.

Mali faces protracted food insecurity, rural poverty and susceptibility to climatic change, resulting from periodic drought, poor harvests and difficult socio-economic systems. Various endogenous and anthropogenic factors account for the environmental crisis in the country and in the Sahel, particularly the combined effects of reduced and erratic rainfall, a difficult agro-ecological and bioclimatic context, and population pressures via unsustainable practices that have contributed to the deterioration of agro- and forest ecosystems. The region is seeing an increasing trend towards environmental degradation (of croplands, woodlands, grasslands, etc.) and water scarcity, a growing problem particularly in the Saharan and Sahelian zones. To ease the strain, Sahelian landscapes must be restored, optimized, and underlying causes of degradation targeted through a holistic approach that considers the multi-functionality of land. Natural resource regeneration cannot keep pace with annual population growth, currently estimated at over 3,1%^[2], which puts increasing pressures on ecosystems. Environmental issues must thus be assessed in terms of the fragility of the resource base in relation to the ever-increasing needs of the population.

The rate of land degradation in the Sahelian belt is a growing global concern given impacts on soil, biodiversity, hydrological processes, and forests which undermine the natural assets and systems upon which rural communities and economies depend. FAO (2013)[3]³ has reported that over 80% of the region's land is degraded and further degrading. Extensive removal of vegetation as a direct consequence of human actions is resulting in increasing deforestation and desertification. Parts of Mali, for example, including Timbuktu, are now more Sahara than Sahel, exemplifying this trend. Moreover, the frequency and severity of droughts has increased over the past decades. It is expected that average temperatures will rise by 3-5 C by 2050 across the Sahel[4]⁴. The region has been characterized historically by strong bioclimatic variations but the added impacts of a changing climate pose increasingly significant obstacles. From 1990 to 2015, 14.67% of cropland area in Mali had rainfall variability greater than 20% across a total cropland area of 4.59M ha[5]⁵. With annual precipitations lower than 100 mm, Mali's Sahelian zones will be among the areas most affected by climate variations.

Overexploitation of Mali's resource base therefore has significant direct and indirect harmful impacts not only on the health of landscapes but also on human well-being. Combined with land and forest depletion, a general lack of sound waste management, and of awareness in the industrial and informal sectors about pollution and contamination, are causing further damage to ecosystems in the country. These arise from pollution in various forms resulting from poor management of waste, absence of modern waste treatment facilities (sanitary landfills, waste incinerators, etc.), and increasing agricultural, industrial and municipal waste in both rural and urban areas. Waste and untreated sewage infiltrate into soils and aquifers leading to contamination. Municipal and other types of wastes are usually dumped in open rural sites or eliminated through open burning practices, without consideration for recovery. Such extensive highly polluting practices are leading to the release of harmful chemicals, gases and particles into the air and landscape. Around 40% of garbage is collected regularly in Mali (probably less in small towns) and uncollected waste are often burned or disposed in anarchic dumping sites ("WHAT A WASTE, A Global Review of Solid Waste Management" World Bank, 2012). Municipal solid waste is disposed in uncontrolled open discharge just outside cities or remains inside the city in the form of anarchic dumps. Although the level of facilities and services varies from one area, town and neighborhood to another, Mali generally lacks infrastructure and basic services for waste collection/treatment/ management. Such a reality has huge repercussions on the health of landscapes, agro-ecosystems, and humans. Waste and environmental degradation thus also go hand in hand, and as such, waste management should be integrated within considerations for the integrity of landscapes.

Poverty in Mali is both a cause and consequence of environmental degradation. The degradation of soil is caused both by natural processes such as wind and water erosion but also by inappropriate agricultural and waste practices, overgrazing, and overexploitation of woodlands, resulting also by lack of income generating options, awareness of consequences and more sustainable techniques. Insecurity of tenure further undermines small land user's willingness to apply sustainable land management (SLM) practices over short gains. Land

degradation is severest in Mali's Sahel and poses a major threat to livelihoods in the short and long term[7]⁶. The impacts of climate change on environmentally-weakened land use systems risks further exacerbating the severity of a fast depleting resource base. According to forecasts, rainfall will fluctuate even more in the future and the frequency of extreme events such as drought or heavy rain will increase. The poorest groups are harder hit by the impacts of climate change because they depend directly on natural resources for their livelihoods[8]⁷.

The link between CC and poverty is currently difficult to quantify. Even if it is known that the vicious circle is there: the CC destroys the resources of environment leading to poverty, which implies an excessive use of natural resources (overexploitation) which, in the long run, reduces the source of income (increase in poverty). Environmental damage in Mali (MEA, 2009) is estimated at about 21.3% of GDP (more than CFAF 680 billion). In other words, out of 100 CFAF produced in Mali each year, nearly 21 CFAF "disappears" in the form of environmental damage. The costs of the measures to be taken in order to avoid these damages and inefficiencies are estimated at only 10% of GDP or 340 billion CFA francs[9]⁸.

Deforestation is also a growing problem as demand for food, fuelwood and charcoal continues to rise. In 2013, about 90% of the population depends on wood for cooking, shelter and other energy needs, which means deforestation is driven by livelihood demands[10]⁹[11]¹⁰. For instance, the installation of migrant fishermen is causing the degradation of the vegetation cover of the area of relocation. In fact, the production of smoked and dried fish requires an increase in the quantity of firewood and charcoal, resulting in an increased pressure on forest resources[12]¹¹. The consumption of wood energy amounts to more than 6 million tones/year and resulting in a deforestation rate of several hundred thousand of hectares of forest resulting in increased drought and desertification[13]¹². A regressing vegetative and forest cover in the Sahel has significant repercussions on rural well-being given negative impacts on protective, provisioning, and supporting services. Bush timber has also traditionally been used for roofing; however, growing need for timber and straw is further contributing to ecosystem degradation. With rising resource scarcity and climate change, such shelter methods are becoming less viable and do not provide protection in the face of shifting weather patterns. Furthermore, natural pastures for livestock are also in constant reduction as a result of overgrazing and vegetation loss. There is a clear displacement of pastoralists leaving the north and moving south which increases competition between agricultural and pastoral land use and creates conflict between farmers and herders.

Climate change in Mali. Population growth and climatic constraints have led to overexploitation and degradation of the country's natural resources. Two thirds of the country is arid and semi-arid, dominated by desertification problems. Natural hazards have increased with the intensification of climate change: repeated droughts, floods, strong winds, bush fires, destabilization of the rainfall regime. The most affected agriculture accounts for 45% of GNP and employs about 80% of the working population. This situation is all the more serious

as the climate scenarios for the horizon 2100 predict an average temperature increase of 3°C (successively this increase would be 0.5°C in 2020, 1°C in 2025, 1.5°C in 2030 and 1.7°C in 2050) and a decrease in rainfall of 22% over the whole country (gradual and continuous loss of rainfall in the order of 1 to 5% in 2020, 2 to 6% in 2026, 5 to 8% in 2030 and 5 to 10% in 2050). The analysis of Mali's GHG emissions inventory highlights the existence of significant GHG mitigation potential, on the one hand through the reduction of GHG emissions in the main emitting sectors, namely agriculture and agricultural land use and energy, and on the other hand through the strengthening of GHG absorption capacities by forests[14]¹³.

The main effects of Mali's climate change according to the climate scenarios developed and the NAPA are:

- A regular decrease in the amount of rainfall, and a large spatial and temporal variation,
- Characteristic Sahel grain lines centred from north to south over a distance of 500 to 750 km often with strong winds and heavy rainfall, sometimes catastrophic,
- A very strong radiation throughout the year with little differentiated average temperatures,
- An increase in temperatures from southwest to northeast with maximums recorded during the year reaching or exceeding 45°C while minimums are rarely below 10°C,
- High values of potential evapotranspiration (ETP) due to high temperatures, low relative humidity and strong winds,
- The persistence of droughts from the 1970s onwards, leading to fairly large rainfall deficits and an evolution of isohyets towards the south, which has made migration increasingly a strategy in the face of these new precarious climatic and environmental conditions.

The most plausible scenarios for climate in Mali were developed as part of NCCAP studies (Dutch Programme Assistance to climate change studies) from the MAGGICC (Model for Assessment of Greenhouse-gas Induced Climate Change) and SCENGEN (SCENario GENerator) models[15]¹⁴. The results of these studies show that the average temperature will increase from 30.50 C over the period (1961-1990) to 32.50 C in 2050 and 34.50 C in 2100.

The analysis of rainfall shows a gradual decrease from East to West by 2100. Rainfall is irregular and varies from less than 100 mm in the North to more than 1200 mm in the South. Since the appearance of drought periods in 1970, a drier climate has been observed throughout the country, a trend towards an overall decrease in useful rains and a displacement of isohyets by 200 km to the south.

For the water resources of the Niger River Basin, surface waters are highly sensitive to climate change. Indeed, vulnerability studies of water resources have shown a 18% decrease in rainfall would lead to a 35% decrease in surface water resources; while a 15% increase in rainwater would result in an 18% increase in surface water[16]¹⁵.

According to scientists, the average length of the rainy season decreases significantly on the Gourma mesosite between 1950 and 2007: by 13 days in the north, 12 in the center (the region closest to Gao) and 22 in the south. Similar results are found in a more global study on Africa. This reduction in the average duration is explained by a later start and an early end[17]¹⁶.

Extreme climatic events (droughts, floods; strong winds and sand winds,...) have particularly increased in recent decades. In 27 years (1980-2007), the country has experienced five major droughts and two major floods that affected nearly 3 million people. The decrease in rainfall will have an impact on agricultural production. According to prospective studies, climate change will lead to a loss of production for maize and cotton and a general decline in yields of millet/sorghum and rice. The high climatic variability of recent decades and the intensification of recorded extreme events have had a direct impact on animal mortality, animal health and forage availability, leading to increased transhumance. These massive movements from north to south lead to conflicts between herders and farmers. The fishing sector is particularly sensitive to the availability of surface water resources that are sensitive to high temperatures. This leads to a decrease in the quantity of fish and the disappearance of certain species. Despite significant current reforestation efforts, climate change and particularly drought will have negative impacts on forest resources[18]¹⁷.

Primary barriers

· *Overexploitation and unsustainable use and management of natural resources (land, forest, water):*

This section is based on the PANA (2005). Biomass energy consumption results in wood extraction from forest resources exceeding 5 million tons per year, mainly due to timber cutting. The quantity of extracted timber is likely to increase as a result of the progressive replacement of wood with charcoal, which requires relatively large quantities of wood for its production, due to low carbonization yields. In addition, the coal production involves the concentration of sampling in areas where forestry resources are already limited, which is all the more damaging for the forest capital.

Electricity sector planning is one of the major concerns of public authorities in Mali. Indeed, consumption, which is very low (about 694 GWh, or barely 59,000 tep) has an average increase of around 12% per year, which raises the problem of production capacity (about 340 MW, of which 34% is owned by auto-producers), transport and distribution, which must

grow at the same rate as consumption, or even more, in order to keep up the pace of economic development with a minimum reliability. Electricity production remains precarious, aggravated by the scarcity of water resources (about 50% of the production capacity of EDM the national electricity company), due to rainfall disturbances, resulting in predictable load shedding programs during periods of low rainfall. As far as forestry is concerned, Malian woodlands training occupy about 32 million hectares. However, forest formations do cover less than 17.4 million ha, and are in continuous decline due to the pressure from agricultural practices and, from increasing exploitation for energy purposes.

As a consequence, this situation leads to low productivity and environmental degradation, with high vulnerability to climatic and other shocks. As mentioned earlier, the increasing, intensive consumption of wood energy, resulting in an annual deforestation rate of several hundred thousand of hectares of forest is causing an acceleration of drought and desertification.

· *Lack of knowledge at all scales on environmental consequences and options:*

This includes the interconnectivity of land use systems

Lack of basic knowledge and conscious in sustainable development, causes over exploitation on the forest, aggravate the deforestation and forest degradation, which need to be improved through establish policies and regulations. Also, it is indispensable to put efforts in basic education for the environmental knowledge: the future state of natural environment, the proximate effects of global change on those values, the responses that humans will have made in anticipation of global change or in response to ongoing global change. All these elements can ease the situation on the over exploitation of the forest with multiple influence. So that activities of sustainable development on environment, can be easier understood and implemented.

As far as lack of information is concerned on the status, nature and extent of deforestation, the majority of those involved in forest exploitation do not have thorough working knowledge of their areas of operation. Maps of the areas showing the topography and details of species composition and timber volume allowed and essential for their operation of export or domestic oriented commercial prospects are lacking. This have given rise to logging operations in which Malian nationals are logging forest near to them using poor equipment, leading to uncontrolled forest degradation.

Or the lack of knowledge and information can cause a continuous and negative effect on the environment of the area, further thinly destroy the balance of species composition and the timber volume.

· *Weak institutional and local capacity for adopting integrated landscape management:* Sectoral approaches do not consider the multiple uses of landscapes and ecosystem services they provide.

At the core of any rural program for food security, there must be a focus on resilience, particularly important for the Sahel with highly vulnerable populations and fragile landscapes. Resilience is intrinsically and increasingly linked to environmental integrity and functionality of landscapes. In the absence of a sustainable and holistic management of natural resources and landscapes, interrelated environmental problems will increase and constitute a serious barrier to poverty reduction and environmentally sound growth.

Narrow or ad-hoc approaches do not capture the cross-sectoral nature of environmental degradation and cannot systematically address its root causes. Resilience must be used as an overarching framework, unifying rural practices and needs, including Integrated Natural Resources Management (INRM), food security, shelter, waste management, and landscape restoration, with a focus on adaptive management in order to continuously meet short and long-term priorities. INRM based on landscape approaches can be the foundation for sustained and resilient development in Mali.

2) The baseline scenario or any associated baseline projects

The regions of the proposed project, located in west-central Mali, are Kayes, Koulikoro and Ségou, specifically their northern most districts. These regions are characterized by Sahelian ecological and climatic conditions, and comprise the transition grassland and savanna zones between the northern desert and the southern Sudan ecosystems. According to a recent World Bank study, environmental shocks are the primary risk factors for rural groups in Mali and most common in the Sahel, while economic shocks dominate in urban areas. Given difficult agro-ecological conditions, the goal of the project is to reduce poverty in rural areas by enhancing resilience of the landscape and those living on it, based on restoring and preserving the ecological integrity of Sahelian agro-and forest ecosystems.

In addition to policies on agriculture, community forestry, environment protection and climate change adaptation (National Policy on Environment Protection), various policies and laws governing land and natural resources management abound in Mali, including: Mali's 2006 Agricultural Orientation Law; The Decentralized Territorial Units Law of 2004; the 2003 National Strategy for Irrigation Development ; and National Strategy for Land Use Planning, in 2016. Despite the abundance of laws, decrees and policies none of these cover Forest and Land Restoration (FLR), meaning there's no legal encouragement and financial incentives to support Mali's restoration needs, initiatives and projects. Also, there's a lack of funding for the FLR, which leads to a lack of capacity to plan; assess and monitor the projects.

Population growth in Mali is increasing demand for agricultural land both for subsistence production and cash crops. Moreover, poor knowledge on environmental threats and lack of options lead to short-term strategies with no investment in regeneration and preservation. Agricultural expansion and intensification are thus resulting in increasing pressures on forests, water, and pastureland which threaten varied ecological functions and could undermine efforts to meet future food needs. Despite agriculture being difficult in the Sahel's physical setting, there is potential for increasing agro- and forest ecosystem productivity through land rehabilitation.

Increasing demographic pressures and agricultural intensification are also specifically resulting in conversion of woodlands into land for cultivation, resulting in widespread loss of forest habitats.

Mali has significant potential for increasing productivity due to its ecological diversity and water resources, with an estimated 12 million ha of arable land and 30 million ha of pastureland. However, natural assets must be used rationally and sustainably, with a focus on optimizing existing resources and balancing the multiple functions, uses, and actors within a landscape.

-

Mali is in the process of developing various municipal waste management strategies and the Government is seeking assistance for implementing advanced management practices and technologies that could reduce the environmental impacts of unsound waste management and open burning. These issues are reflected in Mali's National Implementation Plans. According to surveys conducted in the project sites and discussions with local authorities, Mali's highest priority waste streams are municipal solid waste, industrial waste, and waste plastics, with areas of priority action related to the regulatory framework, financial gaps, and technical and scientific capacities. Some waste management regulations exist; however, not all waste streams are adequately addressed, including e-waste and new Unintentional Persistent Organic Pollutants (uPOPs). Technical guidance, new equipment and increased awareness are seen as urgent, including on the risks and alternative uses of organic and agricultural waste.

The Government of Mali aims to promote policies to increase agricultural productivity which will result in an increase in agricultural waste. However, sound waste management practices are still inadequate. If open burning of mixed wastes and biomass residue is not properly addressed, uPOPs release may dramatically rise. Mali's NIP indicates that the initial estimate of uPOPs release was 39 g TEQ/a, and that open burning contributed 3.4 g TEQ/a, ranking only second after the transport sector. Waste incineration ranked third, contributing 2.5 g TEQ/a. High levels of exposure over time, such as by waste management workers and scavengers, will lead to respiratory problems, greater susceptibility to disease, and an increase in cancer, in addition to the critical resultant environmental pollution and soil contamination.

The use and production of chemicals and wastes is expected to increase alongside Mali's projected agricultural intensification, economic growth and employment. Addressing associated environmental and health hazards (rural and urban) is increasingly crucial in light of the limited understanding of risks to the landscape (contamination, degradation, etc.). The baseline project covers rural areas but with important urban centers as well. Major industrial plants are located in the towns of Ségou, Kayes, Sikasso, and Koulikoro, with industrial waste infiltrating into soil or aquifers. Modern waste treatment facilities are very limited and sound reuse/recycling practices uncommon. In rural zones the share of municipal waste decrease compared to agricultural wastes but both are highly detrimental given that their hazard nature is generally unknown or ignored by a large part of the population. People, many of which women, young and children, on a daily basis handle different kinds of waste that expose them and the environment to the adverse effects of chemicals, including uPOPs, newly listed industrial POPs, like polybrominated diphenyl ethers (PBDEs), heavy metals, and other toxic substances.

Municipalities in Mali are beginning to consider landscape-based strategies for managing resources and reshaping urban-rural linkages to ensure environmental protection. As many LDCs, Mali has recurring problems of open air burning, agricultural waste and poorly managed municipal waste disposal. Local economic interest groups collect daily waste using carts pulled by donkeys ; however, transport to final discharge locations and treatment capacity (for breakdown and/or recycling) are poor, resulting in large open and unmanaged landfills. Consequently, open burning of waste is regularly practiced. Some small private actors in bigger cities provide basic collection services, creating employment opportunities in the process, but there is no larger private sector entity involved in urban waste management in the project area. In its NIP, Mali has emphasized various priority issues related to waste

management and POPs, including investments in waste reduction and treatment. The project will promote activities for the sound management of chemicals and wastes, which will serve as incremental measures for increasing landscape health. These will include: a pilot composting unit per region (to be located in Koulikoro, Kayes and Niono);

The Bank has financed several rural development operations in Mali (PAPIM, PMB, GDP, PAFICOT, PDI-BS, PADEPA-KS and PROGEBE etc.), mainly in the field of water and livestock management. From 2013, sector projects have been oriented towards the development of agricultural value chains and resilience to food insecurity and the effects of climate change (PRESA / DCI, PRESAN-KL, P2RS MALI, PDIR-PD2 , AROMET-2C and PATAM-EAJ). The review of the project completion reports prepared in the last decade indicates that these completed projects have contributed to improving (i) agricultural production and marketing (over 41 000 t of cereals, 417 km of rural roads completed / rehabilitated) , etc.), (ii) the protection of the environment (830 ha of land protected by reforestation and 39 000 ha by CES / DRS) and (iii) the living conditions of the populations. The implementation of these projects has made it possible to draw lessons for the taking into account of land, climate change, protection and restoration of the environment, the integration of agricultural value chains, the involvement and essential structuring of FOs, strengthening the capacity of local authorities and local elected representatives in local development planning, etc. The Bank's various reviews also identified some shortcomings, particularly in terms of quality at entry, the establishment of PCUs and significant delays in procurement. These concerns and the lessons outlined above have been taken into account in the design of the MAIR-2C.

There are a number of regional interventions, with GEF support[19]¹⁸, centered on enhancing the regulatory framework, monitoring and institutional capacity for sound chemicals and waste management and POPs reduction. These include the UNEP projects ‘Continuing Regional Support for the POPs Global Monitoring Plan under the Stockholm Convention in the Africa Region’ and ‘Capacity strengthening and technical assistance for the implementation of the Stockholm Convention National Implementation Plans (NIPs) in Africa Least Developed Countries of the ECOWAS sub-region’. The latter’s objective is to build capacity to implement country NIPs in an effective manner, while contributing to strengthen related capacities and creating enabling environments in the ECOWAS sub-region. These projects are linked to other ongoing ‘health and environment’ programs in the region and continent related to institutional coordination, regulatory frameworks and public policy, including the ‘Pan African Program to reduce chemical risks to human health and the environment’, which began as a follow-up to the 2008 adoption of the Libreville Declaration on Health and the Environment. Mali is also currently reviewing and updating its NIP. This is good timing for coordination of related projects and activities upon which to concretize on-the-ground interventions on waste management.

Inventory of POPs pesticides and associated wastes

According to the NIP of Mali (submitted in 2006), the evaluation of POPs pesticides found that among the registered POPs is DDT (5,800 liters) at Gao and 800 liters of DDT and 43,844 liters of Dieldrin. The NIP provided an overview of stock quantities, contaminated sites and waste. The results obtained through these inventories for the given project area are the following:

- Surveys and evaluation missions have shown that large stocks of POPs are dispersed throughout the entire National territory. From North to South of the country in the regions of Gao Kidal and Kayes, the large stock of obsolete pesticides and packaging are piled up in stores.
- Regarding the quantities of stocks, a large batch of pesticide POP, dieldrin 41,720 liters of which 3,920 liters to be reconditioned in lined drums are stored in Gao. In addition to dieldrin are huge quantities of obsolete pesticides. Also, with the locust invasion in 2005 significant quantities of chemicals have been imported and used by the countries to deal with the disaster.
- There are five highly contaminated sites in the Kayes region: north Tin Essako, Gao, Aguel Hoc, Anephis and Niogomera at Yélémané. Despite the efforts of the Government to secure the sites, is to recognize that a large area (soils) of about 27,000 m³ or 40,000 tons of earth in these agglomerations are heavily contaminated. At Anephis, the wells are contaminated with dieldrin. Populations living in these areas are at risk of contamination. From the analysis of the situation, it is critical to address the environmentally sound management of all obsolete pesticide stocks (POPs and non-POPs pesticides) and their containers.
- A large amount of dieldrin has continuously contaminated the ground because of poor drum / container conditions, which has led to soil pollution. Evaluation studies revealed that more than 44,000 tons of contaminated land exists in the northern parts of the country (Gao and Kidal).
- The inventory of dioxins and furans highlighted the production of ferrous metals and non-ferrous, electricity generation and heating, transport, uncontrolled combustion processes, production of chemicals and consumer goods, processes for treatment / discharge as the main source categories;
- According to the inventory, 3,4 g TEQ/a of uPOPs are released annually from due from uncontrolled combustion sources

Mali is still in the process of updating and reviewing its NIP to include the newly listed POPs. However, based on preliminary national inventory findings obtained in the process, POPs pesticides have already been identified in all the project regions. These include Endrin, Heptachlor and Endosulfan. In the context of the integrated approach and scope of this project, the project will be able to tackle the environmentally sound disposal of at least 100 tonnes of POPs pesticides.

Baseline project:

AfDB baseline project: the P2RS in Mali (*Programme Régional de Renforcement de la Résilience à l'insécurité alimentaire et nutritionnelle au Sahel*)[20]¹⁹

The number of people affected by poverty and food insecurity is on the rise in the Sahel. According to the WFP (2018)[21]²⁰ up to 5.8 million people risk severe hunger. In all Sahel states, drought generated a decline in production which, combined with rising prices, caused food and nutritional insecurity that affected more than 10 million people[22]²¹.

Tackling the problem in this unique context requires building resilience within ecosystems and livelihoods, agricultural sector support and developing regional integration for addressing common problems that transcend political borders. AfDB's Program to Build Resilience to Food and Nutrition Insecurity in the Sahel (P2RS)[23]²² was designed with a 20-year timeframe to sustainably increase agro-sylvo-pastoral and fisheries productivity in the Sahel.

In order to eradicate the structural causes of acute and chronic food and nutrition crises, this regional project concerns all 13 CILSS member countries, namely Mali, Benin, Burkina Faso, Côte d'Ivoire, Cape Verde, Gambia, Guinea Conakry, Guinea Bissau, Mauritania, Niger, Senegal, Chad and Togo. The first phase of implementation covers 7 countries in the Sahel: Burkina Faso, Chad, Gambia, Mali, Mauritania, Niger, Senegal and Chad. P2RS is part of regional strategies and policies and its implementation within the framework of the national strategy and objectives is linked to i) the AfDB's transition support strategy (2013-14); ii) the National Agricultural Sector Investment Program (PNISA) of the countries concerned. In addition to a regional component, each country involved implements its own national project.

The baseline of the GEF project is the P2RS Mali which concerns interventions in the regions of Kayes, Koulikoro, and Ségou. The project targets 32 out of the 166 most vulnerable communes in Mali that do not yet benefit from any resilience project or program. Moreover, this is an area that has been hit hard by internal strife since 2012, further underlying its extreme socio-economic vulnerability and the need for intervention. The P2RS Mali project is critical in contributing to achieving and sustaining the objectives of the recently signed peace agreement in terms of employment creation, poverty reduction, and socio-economic development in the Sahelian belt.

In the country, the project directly involves 600,000 people from small agro-sylvo-pastoral and fisheries farms. Its actions primarily target the most vulnerable populations, including small producers, pastoralists and agro-pastoralists and artisanal fishermen. They will pay particular attention to women and young children. Over all, P2RS Mali seeks to eliminate the structural causes of acute and chronic food and nutrition crises by increasing production, developing infrastructure and basic social services, and diversifying income options. The strategy is based on the development of stock breeding, irrigation schemes, markets for inputs, and agricultural and livestock products as well as enhancing the capacity of agricultural sector private, public and community institutions. To this end, the project will construct water and pastoral facilities in targeted rural districts and assist vulnerable households to enhance agricultural productivity by sustainably managing natural resources and improving market access. The baseline is implemented over a five-year period (2014-2019) through three components which cover rural infrastructure development.

Component 1 of the baseline project aims to develop the agro-silvo-pastoral and fishery-related rural infrastructure, production, processing and marketing needed to increase the competitiveness of promising agricultural sectors and to strengthen the resilience of farms. The component is subdivided into 6 subcomponents and covers: (i) Development of hydro-

agricultural infrastructure; ii) Land defense and restoration, iii) Pastoral development, (iv) Development of conservation / processing and marketing infrastructure, v) Development of basic social infrastructure and vi) Technical assistance and contractual services. In Mali, the Program of Social and Economic and Cultural Development (PDSEC) has been implemented. The objective of PDSEC is to make an updated diagnosis of the physical, economic and social situation and cultural of the region. Therefore, the following activities are planned in specific communes in the region of Koulikoro in order to better demonstrate the objective of PDSEC.

Component 2 of the baseline project focuses on the development of value chains targeting a sustainable increase in the productivity of major agro-sylvo-pastoral and fisheries systems. A value chain approach based on growth sub-sectors is used to secure and increase access to and marketing of agricultural products. Activities and capacity building will promote the sustainable development of all agricultural sub-sectors, improvement of market access and financing, promotion of employment, and strengthening of nutrition. This component is based on the value chain strategy and articulated around the following specific objectives: (i) promoting the plant sectors; (ii) improve market access and financing; (iii) support the generation of resilient technologies; (iv) improve access to a nutritious and healthy diet; and (v) promote youth employability and women's economic activities. It is structured into the following sub-components: (i) Capacity building; (ii) Development of plant chains; (iii) Protection and management of natural resources; (iv) Development of animal sectors; (v) Improved market access and financing; (vi) Strengthening nutrition; (vii) Implementation of the ESMF viii) Technical assistance and studies.

The intervention zone of MAIR-2C, that of P2RS MALI as well, is one of the 166 most vulnerable communes of the country. It extends over the Sahelian belt whose unfavorable environmental conditions and increasing degradation make it difficult to ensure livelihoods. The area has experienced a succession of socio-politico-security and climate crises that have led to prolonged food and nutritional insecurity, increasing poverty and greater vulnerability to climate change. For this reason, the Government of Mali has designed the MAIR-2C, which will serve to improve and further strengthen the environmental protection actions planned in the P2RS MALI

The GEF project will build upon this baseline scenario through experiences gained, the strengthened regulatory framework, and the improved technical and institutional capacities to actualize field-level activities within the project's targeted landscapes.

3) The proposed alternative scenario

Many social and environmental problems have to be tackled at a range of scales, only possible through a holistic methodology that brings together relevant actors working across a landscape. The GEF project will apply a landscape approach to INRM in target districts, with considerations for the linkages between multiple ecosystem functions and services.

A landscape approach can generally be defined as a framework or method that integrates considerations and activities for multiple land uses within a given area, in a way that ensures sustainable use of resources while at the same time strengthening measures to alleviate poverty. Landscape approaches seek to provide tools for managing land to achieve concurrent social, economic, and environmental objectives in areas where agriculture and other productive (or non) land uses compete with environmental and conservation goals. The principles of such an approach particularly emphasize stakeholder involvement, adaptive management, and multiple objectives to reconcile tradeoffs.

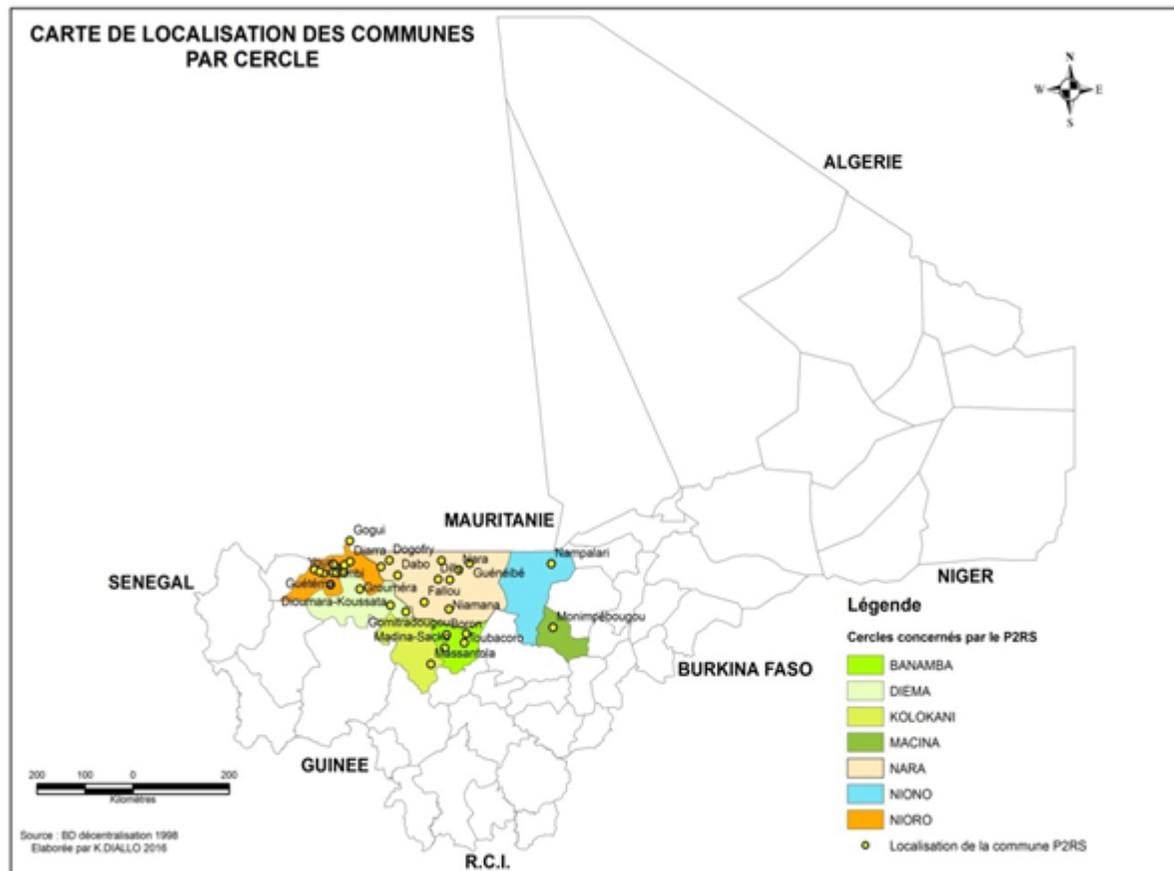


Figure 1: Map of the targeted regions

The objective of the proposed project is to increase or maintain agro- and forest ecosystem productivity based on INRM, with the idea to restore and protect the overall health and functions of the landscape and the provision of ecosystem services for the benefit of multiple uses and users. It aims to build resilience in both ecosystems and communities. The project's reliance on a landscape approach supports it to address resilience across the landscape as a way to significantly reduce environmental tradeoffs and vulnerability. The project will do this through activities for:

- strengthening planning and management of the resource base
- sustainable agriculture and pastoral management
- measures for the restoration and improvement of forests and agro-forestry landscapes
- waste management for incremental ecological integrity.

Activities will form a strategic intervention for reducing land and forest degradation in targeted landscapes, enhancing carbon sequestration in those agricultural and forest landscapes, improving overall soil and ecosystem health, and increasing awareness at all levels on the value of adopting an integrated landscape approach to NRM.

One of the tools of land use planning is based on landscapes of varying dimensions. Landscape is thus considered as a product resulting from the joint action of human societies, the living world (animal, plant and fungal) and the abiotic environment. It is also a product used in response to the functional and cultural perception that people have of their environment.

“Landscape” refers to a contiguous area, of intermediate size between an "ecoregion" and a "site" and having a specific set of ecological, cultural and socio-economic characteristics distinct from those of its neighbors. (See WWF 2002 position paper).

A landscape is also a portion of space on which the dynamic combination of physical, biological and anthropogenic elements occurs, which, by reacting with each other, makes it a unique and inseparable entity in perpetual evolution providing important ecosystem services. The notion of landscape has several dimensions: geographical, historical, geological, ecological and aesthetic. From this point of view, the landscape can present an unexpressed eco-potentiality (hidden in the soil seed bank for example), but which could be revealed.

The heterogeneous nature of the landscape contributes to its capacity for ecological resilience, the structure of landscapes, can range from wilderness to urban environments. A sustainable landscape is considered to be one that has the capacity to provide ecosystem services over the long term and a resilient landscape has the capacity to absorb disturbances, renew and reorganize itself to maintain its functions.

Landscape ecology is defined as the study of spatial variation in landscapes at different scales, including biophysical and social causes and consequences of landscape heterogeneity, making it a necessarily interdisciplinary branch of science. Landscape ecologists are interested in the functional aspects of landscape structure, including the nature, size, arrangement and connectivity of landscape “spots”.

The matrix is a theoretical, facilitating, multi-scale concept, used in particular for the pedagogy and mapping of the natural elements of the landscape. A matrix is only used when one element of the landscape dominates the others (in terms of surface area)

Landscapes can be made up of:

- Heterogeneous natural forest
- Artificial forest
- Agro-ecological site
- Sylvopastoral site
- Urban vegetation

It should be noted that resilience is increasingly intrinsically linked to environmental integrity and landscape functionality.

Fully in line with GEF7 directives and priorities of having more integrated projects with strong potential for GEBs and alignment with national priorities, this project for Mali will incorporate four GEF thematic focal areas (LD, CCM, SFM and CW) within a landscape-based framework. It is envisioned as a multi-focal project based on a multiple benefits approach to enhance landscape health and resilience of the rural territory, with a holistic consideration of agro- and forest ecosystems, rural household needs (food, income, shelter, etc.), and also climate change (adaptation and mitigation). Most landscapes provide a diverse range of goods, services and values. They have multiple uses and purposes which are

valued in different ways by different stakeholders, meaning that tradeoffs exist. The landscape approach acknowledges these tradeoffs and addresses them through a spatially-defined and INRM-based method that tries to reconcile various stakeholder needs, priorities and objectives.

The proposed GEF project has synergies with the GEF Food Security Integrated Approach Pilot (FSIAP) Program. The GEF FSIAP country projects have similar objectives to this project proposed in Mali, and there are opportunities for cross-fertilization, including on the application of the integrated approach. The proposed project is aligned with the three-pronged approach of the FSIAP through:

1. *Engages all stakeholders through strengthening of institutional frameworks for sustainability and resilience* – component 1 of the proposed project will support multi-stakeholder platforms will help strengthening platforms bringing together all of the key actors at the appropriate levels, with the aim of creating a common space to act in synergy and enhance resilience in agro- and forest landscapes
2. *Acts to scale up, diversify and adapt practices that will achieve large-scale transformation of agro-ecosystems in SSA* – component 2 of the proposed GEF project involves the landscape level scale-up of sustainable NRM practices will provide both multifaceted gains by delivering environmental benefits (local and global) and livelihood improvements
3. *Tracks impacts on ecosystem services, resilience and food security in agro-ecosystems in target geographies, including beyond the effects of the specific child projects themselves* - component 3 of the proposed project emphasises the importance of collecting and evaluating results with respect to the sustainability and resilience of agro- and forest landscapes for food security and rural development.

The GEF project will contribute to the following GEF Results Framework:

The proposed GEF project is in line with the GEF-6 Focal Areas (LD-1, Program 1; LD-3, Program 4; CCM-2, Program 4; SFM-2, and CW-2, Program 3).

Component 1: Promoting integrated landscape planning and management for multiple objectives and resilience

Component 1 will center on activities which bring together relevant stakeholders for participatory dialogue through the establishment of multi-stakeholder/multi-sector platforms geared towards collaborative planning and coordinated action. Cooperative planning mechanisms are important to enhance effective landscape management and enable consideration of its multi-functionality, for the ultimate aim of its protection. A process of information and perspective exchange helps arrive at an understanding of the landscape's conditions, uses, challenges and opportunities.

District platforms will be established for rural actors to dialogue and agree on the 'mosaic' of land-uses and targets, and to integrate sector-based thinking within a more holistic approach to reconcile various interests. During the PPG phase, the project delineated the type of coordination mechanism to be developed and the spatially-defined target areas, with strong consideration for landscapes enduring, or at high risk of, soil and forest degradation.

The platforms will bring together different institutions and stakeholders with sectoral responsibilities, including local authorities, communities, CSOs and private sector actors, to strengthen the enabling framework for landscape decision-making at sub-national levels. They will be tasked with the preparation and adoption of integrated landscape management plans. The plans will integrate considerations for multiple needs, adaptive management and resilience, and will include guidelines and actions for sustainably enhancing productivity, forest protection and sound waste management. The platforms will help remove barriers and disincentives, and ensure broad-based approval of the land-use plans. They will also guarantee a more synergistic approach to the implementation of the plans, resulting in greater potential for successful landscape restoration in the long-term, with ensuing benefits across scales.

This component will also support cross-cutting development of knowledge and capacities. The capacity of institutional and local actors at different scales (sub-national, district, community) will be enhanced in order to effectively apply a landscape approach and promote sustainable development through INRM. Differentiated training targeting various stakeholder groups will help incorporate ecosystem-based thinking into planning and management, which will facilitate negotiation and implementation processes. Landscape actors will be better equipped to understand trade-offs, identify synergies and options for designing more sustainable resource management systems, which strengthen the ecological basis of production. This capacity building will be complemented by awareness raising and training linked to ground activities.

Outcome 1: Enabling frameworks and mechanisms strengthened to promote a sustainable and integrated landscape approach in planning and decision-making at sub-national levels

Output 1.1: Collaborative planning platforms held in 5 districts to enhance multi-stakeholder dialogue and involvement in landscape management

Activities under this output include:

- Activity 1.1.1: Development of ToRs for the collaborative planning platforms, and delineation of roles and responsibilities, approach for multi-stakeholder engagement and a plan for sustainability, upon project inception.
- Activity 1.1.2: Development of information and exchange modules on the landscape approach: This information must be structured and targeted based on well-developed materials.
- Activity 1.1.3: Development of a comprehensive stakeholder engagement plan for the duration of the project
- Activity 1.1.4: Information and exchanges on the landscape approach in the 32 P2RS municipalities of intervention: This will allow the different categories of actors, in addition to understanding the concept, to perceive the challenges and opportunities offered by the landscape.
- Activity 1.1.5: Setting up an information system for stakeholders at different levels: such a system is necessary in order to achieve a participatory dialogue between the stakeholders involved in landscape management on the one hand and between them and different decision-making levels on the other hand.

Output 1.2: Coordination and preparation of integrated landscape management plans in at least 3 districts

The multi-stakeholder/multisectoral platforms will be created at the level of the district level in the 3 Regions. They will be made up of government departments, relevant socio-professional organizations, CSOs and the private sector. They will be responsible for identifying the landscapes to be treated, preparing and adopting integrated landscape management plans throughout the district. Since a municipality may have several landscapes to deal with on its territory, coordination at municipal level is essential. Most landscapes provide a diverse range of goods, services and values that have multiple uses assessed in different ways by stakeholders. It is therefore necessary to have a framework for exchanges in order to reach compromises.

Landscape management cannot be achieved without the integrated management plan, which is the tool for planning activities in time and space. It must take into account considerations of multiple needs, adaptive management and resilience. They are accompanied by guidelines and measures to sustainably improve productivity, forest protection and good waste management. Intergrated waste management plans will be included within the landscape development plans prepared for the focal regions. Cross-cutting development of knowledge and capacities will also be integrated into the integrated landscape management plans. The proposed GEF project will consider the conceptual framework on LDN developed by UNCCD's Science Policy Interface which describes the scientific basis and principles for implementing and monitoring LDN, when developing the integrated landscape management plans.

Local conventions are the legal arrangement recognized in the context of decentralization that can enable communities to come together to carry out integrated landscape management work. They may be signed between communities within the same municipality or between communities in different municipalities for landscapes that extend over two or more municipalities. If necessary, they can be consolidated by intermunicipal cooperation. The community development plans provide relevant information enabling the multi-stakeholder district platforms to identify degraded or at risk of degradation landscapes in their districts.

This component also aims at providing trainings on organizational and institutional skills of youths and women to strengthen the existing structures

Activities under this output include:

- Activity 1.2.1: Establishment of landscape management committees
- Activity 1.2.2: Establishment of landscape coordination bodies at municipal level
- Activity 1.2.3: Resilience, Adaptation Pathways and Transformation Assessments in the focal landscapes
- Activity 1.2.4: Preparation of complete assessments undertaken for the focal landscapes to factor the needs of the landscape inhabitants into the landscape development management plans
- Activity 1.2.5: Identification of relevant indicators appropriate for measuring the multi-functionality presented by the landscape approach through INRM to update the evidence for the approach and the results framework
- Activity 1.2.6 Elaboration of integrated landscape management plans around the selected landscapes
- Activity 1.2.7 Elaboration of local conventions for the management of the said landscapes
- Activity 1.2.8 Development of at least 10 communal land use plans in the 32 communes of the intervention area (including 2 in Ségou, 15 in Kayes and 15 in Koulikoro)
- Activity 1.2.9 Cross-cutting development of knowledge and capacities: (i) community life, (ii) spatial planning and landscape approach, (iii) conflict management

Output 1.3: Differentiated training on INRM and implementing participatory land-use plans for relevant stakeholders

Activities under this output include:

- Activity 1.3.1: Training of stakeholder groups to integrate ecosystem thinking into planning and management: agroforestry, reforestation, SLM, fish farming, pastoral management
- Activity 1.3.2: 5,000 land users and 200 district staff trained in INRM and understanding links between multiple land uses within landscapes (agriculture, forestry, fisheries, mining, energy, conservation, etc.)
- Activity 1.3.3: Prepare and lead a series of 4 trainings for practitioners in national and regional decision makers and environment protection practitioners. The training shall give a profound and strategically meaningful knowledge structure to the trainees about Stockholm Convention and Categorization of UPOPs/POPs.

Component 2: Landscape level scale-up of SLWM, SFM, INRM and community-based interventions

Component 2 implements the landscape approach based on the plans developed for the target districts and ground level investments and technical assistance for the ultimate rehabilitation and protection of the landscape. The aim is to restore and maintain flows of agro- and forest ecosystem goods and services (whether provisioning, regulating, or supporting). Community-based actions to reduce pressures on ecosystems will better livelihoods while reducing land and forest degradation, with added considerations for sound waste management to further protect the landscape. It is the project's largest component, given it integrates its multi-focal interventions.

Component 2 activities will seek the restoration and protection of the resource base by reversing the loss of ecosystem services within degraded/ing landscapes. It will involve wide-scale adoption of SLWM, sustainable forestry and other INRM measures, suitable to a dryland context. Agricultural innovations and inputs that support sustainable production will be the focus of the field interventions.

Sahelian agro-ecosystems will be enriched through improved agro-sylvo-pastoral management, site-appropriate SLWM, improved agricultural techniques and inputs (such as drought resistant seeds), and integrated crop-tree-animal systems that concurrently enhance soil fertility, help protect water sources and habitats, and reduce carbon emissions from increased vegetative cover. Sustainable land and pastoral management will be sought particularly via climate-smart agriculture techniques, known to strengthen food security and deliver mitigation benefits. Specific activities will involve 5000 ha of cropland under measures for soil conservation, mixed/inter-cropping, improved grazing, conservation agriculture and small rural hydro-agricultural infrastructure (e.g. rainwater harvesting and improved irrigation).

Component 2 activities will also seek to rehabilitate wooded areas in the landscape, improve forest management, and defend remaining forest ecosystems, thereby maintaining the provision of forest services and carbon stock. Techniques for increasing woody biomass will be adopted more widely by placing 9500 ha under woodlots, agro-forestry, ANR, and community forestry. These techniques are additionally important for economic diversification, creating new income activities, and conserving biodiversity, and will include the promotion of NTFPs and harvesting of fuelwood to reduce deforestation. They will also reduce vulnerability and pressure on agro and forest ecosystems by optimizing existing land and providing options.

As an additional measure to preserve landscapes and enhance rural wellbeing, component 2 will include a sustainable habitat program based on the construction of bioclimatic structures. Bush timber has traditionally been used for roofing but is further contributing to deforestation. Increasing regression of forested areas in Mali's Sahel means that traditional building techniques using timber are no longer feasible given they contribute to ecosystem degradation and do not provide protection in the face of changing weather patterns. This sub-component will thus promote safe and environmentally sound construction technologies which improve living standards and lessen overexploitation of local resources. The Association la Voûte Nubienne (AVN) works in the Sahel to offer sustainable Nubian Vault housing and shelter (based on three principles of a roof, a skill, a market), which improve

economic circumstances, quality of life, and environmental protection. The architectural technique relies on simple structures with vaulted roofs using basic, readily available local materials (earth for making mortar and sun-dried mud bricks). The technique results in long-lasting, eco-sustainable housing with a low carbon footprint. This sub-component thus links well to LD, SFM and CCM objectives and involves incremental measures for forest protection.

Component 2 also integrates an aspect promoting the sound management of harmful chemicals and waste, in a further attempt to protect the landscape, human wellbeing, and address multiple land use issues, with a specific consideration for exploiting once harmful substances into a potential input for agriculture. Best Available Technologies (BAT) and Best Environmental Practices (BEP) will be adopted for agricultural and municipal waste management in at least 20 communes, including sanitary landfill operations; a program for the collection and recycling of compostable municipal waste in select municipalities, implemented with a PPP approach and support of local NGOs; and technologies for waste valorization in rural areas, mainly for organic fertilizer (biogas units, individual composting, etc.).

The project will consult the implementation team of the Enabling Activities for the NIP Update and Review project on new POPs for updated inventory figures and findings on (i) old and new POPs pesticides and (ii) old and new unintentionally produced POPs (u-POPs), as the last POPs inventory for Mali was submitted in 2006. The proposed project will further undertake an inventory of open burning practices and uPOP releases in the project region using the UN Environment Standardized Toolkit for Identification and Quantification of Dioxins and Furans and Other Unintentional POPs under Article 5 of the Stockholm Convention, as well as, utilize information already gathered from the NIP Update and Review activities.

Composting site will be developed through a PPP approach, in collaboration with the company Elephant Vert firm. Each site will produce at least 5 000 tonnes of compost annually, and will include measures to limit pollution, such as disposal of bottom liners and leachate treatment facility. Elephant Vert will ensure the provision of at least 3 000 tons of compost annually for project partners at discounted price. Appropriate training will be provided for interested farmers, to adapt their cultural practices. Based on updated studies conducted by DNACPN, BAT/BEP will be promoted in a very adaptative way, depending on each situation, for the sound management of municipal and hazardous waste with the establishment of controlled landfills. Pilot activities will involve the collection, recycling, treatment and valorization of solid and organic waste into fertilizer for agricultural use; and will reduce extensive open burning practices. The separation of organic matter and other recyclable wastes directly from households and public structures will be promoted. Feasibility studies and opportunities has been explored for public-private partnerships (PPP) for recycling, valorization and/or resource recovery and a proposal for PPP is included in the project. The PPG phase has involved the stakeholder analysis, consultations and definition of the details of activities, investments and partnerships (with local authorities, private sector, and NGOs). Options for waste separation and treatment/composting plants for agricultural and municipal waste streams has been investigated and included in the financing plan to sustain activities. Moreover, related commune action plans will be developed and integrated within the larger landscape management plans. Awareness raising on recycling, exposure risk and chemical safety (targeting authorities, communities, private sector, etc.) may parallel technical training on sampling and monitoring (to be determined based on other partner interventions).

Outcome: Agro-ecosystem functionality and productivity enhanced through the sustainable integrated landscape approach, relevant measures and technologies

Output 2.1 5,000 ha under sustainable land or pastoral management with climate-smart techniques

- Activity 2.1.1: Conservation agriculture: promotion of the cultivation technique by direct seeding
- Activity 2.1.2: Promotion of planting techniques of defensive hedges
- Activity 2.1.3: Installation of windbreaks, henna in hedges
- Activity 2.1.4: Training courses on good agricultural and aquaculture practices
- Activity 2.1.5: Elaboration of local conventions on the exploitation of forest and water bodies
- Activity 2.1.6: Diversification of crop systeming and promotion of intercropping techniques

Output 2.2 2,000 ha of croplands under conservation agriculture practices in 5 districts

- Activity 2.2.1: Promotion of cereal-vegetable crop systems
- Activity 2.2.2: Promotion of techniques for vegetating the banks of water bodies and streams: popularization of vetiver
- Activity 2.2.3: Distribution of drought-resistant varieties to households and farmer organizations in 5 districts
- Activity 2.2.4: Mapping, planning and planting of water catchment with water loving trees (*Prunus africana*, *Maesupis* spp, *Acacia* spp, *Podocarpus*...) This activity will improve the accessibility of water to other trees and help forest land restoration. These plants will grow in wet, swampy area, and may help correct the poor drainage in the area.

Output 2.3 Over 100 small investments in rural hydro-agricultural infrastructure

- Activity 2.3.1: Implementation of anti-erosion structures: dikes, anti-erosion benches, agro-sylvo-pastoral benches
- Activity 2.3.2: Construction of hydro-agricultural structures: micro-dams, efficient irrigation
- Activity 2.3.3: Construction of hydro-agricultural structures: pastoral water points

- Activity 2.3.4: Promotion of pisciculture: development of water bodies and infrastructures (fish ponds, hydraulic structures, fish food supply, Creation of local units for the production of fry and food)

Output 2.4 3,000 farmers and herders adopt good SLWM, agro-sylvo and pastoral practices suitable to drylands

- Activity 2.4.1: Agroforestry with species adapted to arid regions: introduction of Mucuna and Moringa in cotton-corn-sorghum/pluvial rice systems)
- Activity 2.4.2: Dissemination of techniques and establishment of infrastructures based on local materials for the conservation and storage of fodder (cutting and mowing of grasslands, silage, haymaking)
- Activity 2.4.3: Marking of grazing paths, delimitation of pastoral areas and rehabilitation of pastoral areas
- Activity 2.4.4: Protection, management and development of pastoral resources: bushfire control (fire brigades and awareness raising)
- Activity 2.4.5: Production of wood-based forage production
- Activity 2.4.5: Promotion of improved forest fallows
- Activity 2.4.6: Promotion of Zai techniques in animal traction or associated with mulching, half-moons, stony cords (V in stones)
- Activity 2.4.7: Promotion of the herbaceous mat technique

Output 2.5 Ha under improved forest management: (i) 2,500 ha of woodlots and nurseries for fuelwood harvesting; (ii) 3,000 ha reforested via assisted natural regeneration; (iii) 2,500 ha under agro-forestry for the promotion of non-timber forest products (NTFP); (iv) 5 community forests (one in each district of 300 ha) established and sustainably managed; (v) Community planning committees formed for community forests and woodlands

- Activity 2.5.1 Training and support for NTFPs: Intensive production of leaves, Baobab plants and monkey bread, support to the value chain for Arabic gum, trainings on the value added of NTFPs, creation of NTFPs producers' organization, and provision of adequate tools and materials for NTFP. This activity also aims at providing trainings on organizational and institutional skills of youths and women to strengthen the existing structures.
- Activity 2.5.2: Promotion of assisted natural regeneration techniques (ANR)
- Activity 2.5.3: Management of silvicultural plantations
- Activity 2.5.4: Creation of 5 community forests in 5 districts

- Activity 2.5.5: Promotion of standards for sustainable use of fuelwood and forests for charcoal production
- Activity 2.5.6: Plantation of neem (*Azadirachta indica*), baobab (*Adansonia digitata*) and acacia (*Acacia albida*) in degraded areas
- Activity 2.5.7 Training and support of nursery farmers to produce and market quality tree seedlings: trainings on the distinction of improved germplasm and unselected planting material, on quality seeds certification, financially support existing nurseries. Financially support the creation of seed gardens with prioritization on tree germplasm that suits both fuelwood and conservation ends.

Output 2.6 5 alternative income generating options identified and adopted in communities based on agro-forestry, ANR, sylvo-pastoralism.

- Activity 2.6.1: Support for women's groups working in market gardening (development of market gardening perimeters, supply of inputs)
- Activity 2.6.2 Promotion of the gum sector
- Activity 2.6.3 Intensification of fodder cultivation: irrigation, introduction of grass-producing varieties (bourgou, siratro), fallow, fodder perimeters

Output 2.7 30 local producer or community groups and authorities trained to undertake SLFM, and sustain activities

- Activity 2.7.1: Capacity building events to be provided: SLM, FLR, NTFP, bamboo for public sector ministries, agricultural extension service providers, trade groups, local grower associations, and communities of Ségou, Kouliko and Kayes. Inter-sectoral coordination mechanisms will be encouraged for greater coherence of policies and regulations and effective integration of restoration priorities in key sectors. This activity comes from the fact that a major barrier to achieving long-term solutions to forest management and conservation has been identified as a lack of knowledge among the Malian authorities, at the national and local level. Capacity building events on the topics of the project are therefore necessary to create an enabling environment for forest and landscape restoration, and to strengthen scientific capacities of the national and local authorities for the implementation of sustainable financing mechanisms.

Output 2.8 1 rural habitat program in 32 communities (local market and transfer of know-how) based on the construction of rural bioclimatic structures using Nubian Vault (NV) technology for private and community use

- Activity 2.8.1: Rural Housing Program: construction of 508 NV rural households 25 m² and 32 community use in Banamba (4 communes), Nioro (4 communes) and Nara (2 communes) for the accessibility of VN housing for vulnerable populations (incentives) with monitoring and control.
- Activity 2.8.2: Construction of 32 storage warehouses for agricultural products (onions/shallots). Construction of 48 onion storage buildings of 37.5 m² each, i.e. 16 buildings built per year with provision of technical assistance and construction of 2 weather station buildings (10 m² each).

Output 2.9: Demonstration of 3 innovative technologies for waste valorization, mainly for organic fertilizer

Three initiatives will be undertaken to reduce, reuse and recycle solid waste in the target landscape namely: collection of compostable municipal waste in select municipalities, implemented with a PPP approach and support of local NGOs

- Activity 2.9.1: Support to communal consultation committees in the three cities with composting facilities (Kayes, Moribabougou -or Koulikoro- and Niono). Based on studies realized by the DNACPN to actualize or elaborate Solid Waste Management Strategies (SGDS in French) in 11 Malian cities, the project will facilitate consultation process for the implementation of such strategies (in order to precise the description of needs, identify appropriate solutions, and if needed search for additional funds, etc.).
- Activity 2.9.2: Conduct a survey of location and quantification of sources of uPOPs/POP (Incinerators/combustion units of organic waste, pesticide use, organic hazardous waste such as surface treatment solutions and medical waste), waste characterisation and identification of obsolete pesticides in the project zone to determine the best technology options for demonstration
- Activity 2.9.3: Support to the implementation of communal waste management strategies. Based on the context of each three cities, the project will assist local authorities (technical services, regional representation of the Sanitation Direction, etc.). Especially, consultants will be recruited by the projects to support stakeholders in designing a comprehensive waste management system, including planning of waste collection points, transfer stations, logistic routes, landfill, valuable material separation, compostable waste separation and waste management billing system.
- Activity 2.9.4: Identification and support of local stakeholders implicated in the valorization value chain in Kayes (already recycling paper, cardboard or plastic for exemple). Such recyclers are often working in informal sector, with poor sanitation conditions. The project will propose these recyclers in Kayes to work together by creating a GIE, which will be supported (construction of a recycling site, furniture of appropriate equipments, participation to trainings, etc.).
- Activity 2.9.5: Capacity building of local stakeholders (training of municipal workers, GIE workers, recycling associations; subsidies for collection materials)
- Activity 2.9.6: Financial means development (support to GIE and municipalities to maximise their financial means in the long term)
- Activity 2.9.7: Communication / Awareness campaigns

Output 2.10: 3 pilot composting units (1 per region) for agricultural use

- Activity 2.10.1: Realize a deepful analysis of raw organic material available around production units
- Activity 2.10.2: Assist the project developer for the acquisition (or provision) of land

- Activity 2.10.3: Organize 15 trainings for farmers to use the produced compost
- Activity 2.10.4: Subsidies of the compost for vulnerable farmers in the 32 communes of the project
- Activity 2.10.5: Ensure monitoring of major process indicators (quantity of waste processed, quantity of compost produced, frequent chemical analysis of compost produced, etc.) for each of the three project sites and organize annual coordination meetings.

Output 2.11 BAT/BEP adopted for uPOPs, agricultural and municipal waste management in at least 20 communes

- Activity 2.11.1: Undertake an inventory of open burning practices and uPOPs releases in the project region.
- Activity 2.11.2: Design and construct 1 pilot large scale bio-digester with electricity generation and basic leachate treatment for each of the three regions.
- Activity 2.11.3: Design and construct 100 pilot small scale household bio-digester with energy recovery for domestic cooking usage and utilization of manure digestate.
- Activity 2.11.4: Train 200 households to produce and use their own compost in rural areas by construction of appropriate domestic composting areas or pits.
- Activity 2.11.5: Design and construct 1 micro pilot incineration unit for treatment of flammable POPs with air purification system for each of the three regions.
- Activity 2.11.6: Elimination of 100 tons in the project zone. This activity will be led in collaboration with the DNACPN, in respect of the treatment process recommended by the PEPPPO project.

<p>Component 3: Learning, adaptive management, monitoring and evaluation</p>

Component 3 promotes and facilitates learning, monitoring, and decision support tools as necessary aspects of a landscape approach. It will support the preparation and adoption of tools and guidelines addressed at stakeholders and institutional authorities to help them better understand, cooperatively plan, monitor and implement the approach and plans. The component looks to improve the analytical tools, information base, and monitoring systems for better planning and stakeholder engagement. Key activities include: tools for spatial assessment, mapping and planning, action research, and knowledge products plus guidelines for extension, which will be applied through component 2. Such products help promote INRM scale up by connecting field activities to information and knowledge sharing.

This component will also see the establishment of a Monitoring, Reporting and Verification (MRV) system to monitor the carbon results achieved by the project. At the beginning of the project the baseline data will be strengthened (and supported by a Geographic Information System) to support the MRV system. The MRV system will support the imposition of supporting institutional arrangements to manage the permanence of the carbon benefits from the project's afforestation and reforestation measures. Component 3 also helps in the formulation of better informed land-use plans and serves as a basis for field activity selection and their monitoring.

Continual learning and adaptive management are considered fundamental principles in a landscape approach and will underpin the entire project approach. Learning and effective revision require continual adjustment in which new knowledge is derived from multiple sources. Component 3 comprises knowledge management, experience dissemination, and strong M&E, both for project implementation (including of the land use plan targets), impact, and the assessment of GEBs related to the four focal areas used. To facilitate shared learning, information needs to be made widely available to increase understanding of tradeoffs within landscapes and best practices for the Sahel. The GEF project supports targeted learning on INRM and assessments will directly feed into the design, development, and monitoring of SLWM, SFM and ESM of waste activities. Component 3 can subsequently enable the eventual scaling-up and replication of the lessons learned through Component 2, using the platform and mechanisms created in Components 1 and 3 to share experiences within and among the targeted sites and relevant stakeholders at all scales.

Concurrent to all the above activities and those of components 1 and 2, knowledge will be strengthened through targeted awareness-raising and outreach programs that foster practical and technical learning for the benefit of beneficiaries, CSOs, local authorities, etc. Training will be promoted in a diverse set of SLWM and SFM skills and gaps in knowledge. For example, this will include demonstration of new forest product production which ensures protection of resources while at the same time generating revenue from them.

Outcome 3 Monitoring and evaluation of progress and results and integration of lessons learnt into decision-support tool for sustainable integrated landscape approaches

Output 3.1 Lessons captured and knowledge disseminated

- Activity 3.1.1: Identify/develop and promote 10 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
- Activity 3.1.2: Identify themes for capacity building (in the form of short-term consultant + diffusion / training): waste recycling, fish farming in dry regions, forage crops and cattle or sheep fattening, agroforestry systems and silvopastoral systems, etc.)
- Activity 3.1.3: Training of stakeholder groups related to field activities: These training courses will include agroforestry, reforestation, sustainable land management, fish farming, pastoral planning, waste management and best environmental practices (BEPs).
- Activity 3.1.4: Training on landscape management "tools" and processes. Transversal development of knowledge and capacities in topics as varied as: (i) community life, (ii) spatial planning and landscape approach, (iii) conflict management. Integrated management of natural resources. Thus, 5000 farmers and breeders and 200 staff members at the district and community administration level will be trained
- Activity 3.1.5: Analysis of methods in waste treatment, all the method should be collected and analyzed with multi-perspective: the level of the degradation, the production produced by the treatment procedure, can those productions be used as other source, the effect on the environment and the climate, what is the best way to treat the waste and reason, result.
- Activity 3.1.6: Collect information related to household waste management in the targeted cities (Kolokani and Nara), exchange with stakeholders in the waste sector to understand the needs of the sector, identify opportunities for waste recovery in the targeted municipalities.

- Activity 3.1.7: Best practice guidelines on SLM and SFM developed for the extension and training conducted in 3 districts and used in component 2 activities (with recommendations on reconciling land-use tradeoffs)
- Activity 3.1.8: Analysis of conflict management experiences, peer exchanges and exchanges with other projects that take place with the same objective in the 3 regions / districts of the project
- Activity 3.1.9: Capitalization of experiences, analysis and systematization of practices, formalization of good practices (from a socio-cultural, economic, environmental point of view)
- Activity 3.1.10: Specific analysis of the experiences acquired in terms of gender and youth approach
- Activity 3.1.11: Production of capitalization documents and dissemination

Activity 3.1.12: Disseminate lessons learnt and recommendations for apply systems thinking by addressing inter-connected environmental, social, economic, and governance challenges under the landscape approach, with an eye towards resilience and transformational change.

- Activity 3.1.13: Develop a clear rationale and theory of change to tackle the drivers of environmental degradation through assessing assumptions and outlining causal pathways
- Activity 3.1.14: Develop clear indicators that will be monitored to determine progress and success in achieving lasting outcomes.
- Activity 3.1.15: Further assess the potential risks and vulnerabilities of the key components of the system, to measure its resilience to expected and unexpected shocks and changes, and the need for incremental adaptation or more fundamental transformational change.
- Activity 3.1.16: Devise a logical sequence for follow-up interventions, which is responsive to changing circumstances and new learning (adaptive implementation pathways).

Output 3.2 Sustainable financing plan assessed for waste management (tax, subsidy, royalties or public-private partnerships) developed and promoted

- Activity 3.2.1: Research on potential financing source for the waste recycling, waste treatment, analyze all the potential government support on the waste recycling and management, and then public-private partnerships such as climate funds, investment facility, focused on climate finance.

Output 3.3. A framework developed for effective monitoring and adaptive management of the land use plans, including delineation of roles among key stakeholders

- Activity 3.3.1 Mali météo's involvement in services related to climate change: climate change scenarios, modelling at the scale of the 3 regions, training for regional managers - districts - communes - NGO partners, agrometeorological warning service

Output 3.4 A M&E system established and used to assess and monitor project impact and its multi-focal area GEBs

- Activity 3.4.1. Monitoring and evaluation system covering activities (progress, results, impacts) and changes in the context in the intervention area (socio-economic developments, climate scenarios and prospects)
- Activity 3.4.2. Operationalization of a land-use Carbon MRV system, supported by institutional arrangements, to ensure the permanence of afforestation and reforestation interventions of the project

4) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and co-financing

GEF resources are being requested to provide technical assistance and capital investment to enhance resilience in agro- and forest landscapes of Mali's Sahel regions (Kayes, Koulikoro and Ségou) by ensuring the integration of the landscape management and the waste treatment project. It is hoped that the beneficiaries can master, with understanding of the project goals, their influence on the environment as caused by their behavior. Some of the people may be under the objective by that time if the procurement of the contractor is successful. Accordingly, GEF financing is expected to play a key catalytic role in this project to improve the landscape management and waste treatment procedures with a contribution to climate change mitigation.

The GEF funds will be used for incremental activities designed to remove the identified barriers and expand the scope of - or supplement - the baseline activities in leading to or enhancing global environmental benefits.

Description	GEF Project financing	Confirmed Co-financing
Component 1 Promoting integrated landscape planning and management for multiple objectives and resilience	\$ 484,300	\$ 7,448,516
Component 2 Landscape level scale-up of SLWM, SFM, INRM and community-based interventions	\$ 7,344,860	\$ 40,346,132

Component 3	\$ 431,600	\$ 7,138,161
Learning, adaptive management, monitoring and evaluation		
Sub-total	\$ 8,260,760	\$ 54,932,809
Project Management Cost (PMC)	\$ 344,263	\$ 3,653,296
Total project cost	\$ 8,605,023	\$ 58,586,105

In the Sahel, a structural approach is needed to cope with multifaceted vulnerabilities and threats. Landscapes have multiple purposes, each of which is valued in different ways by different stakeholders. Landscape approaches seek to achieve social, economic, and environmental objectives in areas where agriculture and other land uses compete with environmental goals. Improving ecosystem integrity in the Sahel necessitates laying emphasis on the complexities and multiple needs demanded by fragile ecosystems. The project seeks an approach to natural resource planning, use and management that can restore and protect the health, functional integrity and resilience of ecosystems. GEF funds will be used to adopt such an approach. The incremental aspect of the project is to apply such a framework in target Malian districts by facilitating the development of management plans and the implementation of their integrated elements. It will provide a basic framework for joint thinking among multiple stakeholders to help balance competing demands on land, for meeting different priorities, and delivering equitable benefits.

P2RS will be financed through grants and loans. For Mali, co-financing will come from an AfDB grant and loan of an equivalent total amount of USD 51 million, a government contribution of USD 7,777,503 and beneficiaries of USD 1,251,714. The contribution of beneficiaries will be in kind by bearing the operation and maintenance costs of select infrastructure and facilities. GEF funding will complete on-the-ground activities and align the project to the GEF2020 vision (i.e. scaling up, integration, resilience, sustainability).

GEF funds will allow the project to better address drivers of and solutions to environmental degradation by concurrently balancing considerations for socio-economic development, poverty alleviation, food security, and climate change adaptation, all of which are fundamentally interlinked in Mali's fragile rural landscapes. GEF will help promote a cross-sectoral, holistic approach to landscape management to reverse the decline in ecosystem services and reduce impacts from habitat degradation (e.g. overexploitation, harmful chemicals, agricultural waste), climate change, pollution and resource overexploitation. Moreover, GEF funding will allow the integration of two additional aspects into the project's landscape approach: waste management and shelter. Both have a clear role in ecosystem degradation and their insertion into the project aims to make it even more holistic by targeting additional uses of - and pressures to - that landscape.

In the target landscapes, GEF funds will allow the creation of multi-stakeholder platforms involving public and private sectors and civil society to facilitate consultation, participatory planning and roll-out of activities. A participatory planning process will help better address land use priorities and specific needs at village level. The GEF incremental process begins with a participatory problem/option analysis and results in plans and activities for INRM interventions. Specific interventions will be tailored to improve land use practices based also on priorities identified by communities themselves, with their involvement in implementation made possible.

Fully in line with GEF6 aspirations, this multi-focal area project for Mali envisions an intervention based on a multiple benefits approach and an all-inclusive concern for ecosystem health and rural needs.

The project emerges from national priorities discussed at Mali's NPFE in June 2015 and has been developed as an operation combining several of the GEF strategic goals. It is an ambitious project given its nature and innovative mix of focal areas. Contributions from Mali's LD and CCM allocations plus SFM and CW focal areas will enable the project to target a bigger spectrum of environmental pressures and apply cross-cutting responses to the development/environment nexus. These focal areas will each have a role in the project's landscape-based approach and help target multiple issues that affect ecosystem integrity.

GEF will promote the scale-up, and bottom-up implementation, of SLWM activities to improve agro-sylvo-pastoral systems, flow of agro-ecosystem services, and reduce pressures on the resource base (LD-1, LD-3). CCM and SFM funds will be used in activities that lead to reduced emissions from forest and land-based sources, including open burning of agricultural and other wastes, and through measures for improved management practices in agriculture, forest, and land-use sectors (CCM-2, SFM-2). Improved forest management will reduce pressure on forest ecosystems, avoid deforestation and increase carbon sequestration capacity from greater vegetative cover. Moreover, environmentally-friendly construction techniques that further contribute to reduced deforestation and GHG emissions will be additional incremental elements to this project (CCM-2). CW-2 funds will integrate activities for achieving a progressive reduction of harmful chemicals, wastes and uPOPs emitted from unsound waste management and open burning practices. A healthier, greener landscape, which supplies sustainably diversified production and sustains agro- and forest ecosystem services, contributes to reducing fragility of the landscape and communities. Activities will together respond to the needs of households and ecosystems, forming a strategic intervention for reducing land and forest degradation, enhancing carbon stock, and improving overall landscape health.

Interventions meant to regenerate degraded landscapes help break the cycle of food insecurity, vulnerability and environmental degradation. The GEF funds will allow the project and stakeholders to reconcile environmental protection and development through interventions in different elements of a matrix, which seek livelihood goals, economic gains, and/or conservation, within the context of the AfDB baseline. The GEF-AfDB partnership will be synergistic, permitting investments in agro- and forest ecosystems so they become more

productive, diversified, better conserved and more resilient. The project will address underlying human-induced causes of ecosystem degradation. In addition to improving infrastructure, value chains, and market linkages, as planned in the baseline, incremental activities in SLWM, SFM and environmentally sound waste management will complement and add a holistic perspective to the baseline project, such that the food crises resulting from the general nature of the Sahelian landscape will be reduced.

Most of the CW funds will be used to promote BAT/BEP for sound management of municipal waste. The incremental reasoning of the CW component arises from the fact that waste will be treated and also valorized for use in agriculture, thereby linking the sub-component strategically to project objectives on sustainable agriculture. The baseline project will seek to develop productive investments using the pilot units, and this will be assessed during project appraisal.

During PPG, detailed activities and co-financing from the private sector and local authorities were defined and assessed. The aim is to also underline the costs of inaction and in parallel demonstrate that feasible measures exist to reduce uPOPs releases and other contaminants, and turn once harmful substances into a potential to be exploited for productive purposes. By integrating waste management considerations within the landscape approach, the GEF intervention is by its nature highly incremental per se.

Without GEF, the integrity and sustainability of the natural assets of Mali's Sahelian regions will continue to degrade to the detriment of the environment, economy and livelihoods. As areas continue to experience population growth, natural vegetation will be systematically cleared for food production and land-use competition will intensify. These unsustainable patterns will exacerbate poverty and curb the future growth potential of the target regions and country as a whole. Without the project, actual ground interventions on ESM, including uPOPs emissions, would also not be implemented. The absence of GEF funding would hinder the baseline intervention in addressing long term environmental degradation issues. However, with GEF support, root causes of resource degradation will be targeted through a multi-scale, multi-sectoral and multi-stakeholder approach to INRM which will help ensure preservation of agro- and forest ecosystems for the long-term viability of Malian Sahel. Agro-ecosystem productivity over time will be enhanced, with reduced deforestation and land degradation as well as decreased vulnerability of rural households to climatic, economic or political shocks. Through the planned interventions, a large section of the Sahelian population can better cope and bounce back from the impacts of recurrent drought and degrading soils, thus greatly improving their food security, health and nutrition. GEF resources will make both the AfDB regional and Mali projects more effective in their objectives.

5) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

The project will realize important environmental - both local and global - benefits linked to the targeted GEF focal areas, in addition to livelihood benefits, enhanced by the use of a landscape approach. First and foremost, the project will enhance the productivity and protection of Mali's agro- and forest ecosystems. This will be achieved through the application

of the landscape approach to natural resource planning, use and management, to will better support the restoration and protection of health, functions and the resilience of the entire landscape for ,multiple benefits.

Component 2 implements the landscape approach that concurrently meets a diverse range of local needs (e.g. food or crop production; water availability; alternative income; rural shelter); reduces harmful chemicals and wastes that are absorbed into ecosystems; and contributes to global environmental benefits (e.g. reduced land and forest degradation, net reductions in land-based and deforestation-induced GHG emissions). The project's integrated approach will deliver numerous GEBs by enhancing vegetative cover and maintaining various ecosystem services in fragile priority landscapes. The expected increase in vegetation cover by harnessing water, protecting woody biomass, soil conservation and the increase of agro-sylvo-pastoral lands will contribute to safeguarding the services provided by agro- and forest ecosystems and the direct or indirect sequestration of carbon. The GEF support will help Mali reduce land degradation as a consequence of agricultural expansion, deforestation and soil fertility loss. Raising soil organic matter and increasing the quantity of woody and other biomass will increase carbon sequestration in land and trees. Enhanced agricultural practices will enhance soil quality while reducing agro-based GHG emissions. Improved forest management, targeting forest depletion drivers and mitigation, will enhance the social and environmental benefits provided by forests (in terms of provisioning, regulating, or supporting services). Restored tree landscapes help stabilize micro-climates and reduce CO₂ emissions. Through the AVN activities, ecological structures will be built within communities, further contributing to environmental protection and reduced emissions (in addition to increasing environmental stewardship and new economic opportunities based on a stimulated local market for housing).

In meeting objectives under the Stockholm Convention, the project will demonstrate alternatives to preventing POPs formation from open burning of different categories of wastes, such as agricultural residues and municipal wastes. Increased awareness of the health, environmental and economic impacts and gains to be made from ESM will help lead to action. By avoiding human and animal contact with waste, reducing contamination of water sources (surface and groundwater) and agricultural fields, the load of pollutants that enter the landscape and food chain will be reduced. Additionally, as open burning practices are also significant contributors to GHGs, such as carbon dioxide and methane, project activities will give a positive contribution to CCM, in addition to those already delivered by the SLM, SFM and sustainable housing related activities.

Global benefits will cut across the four GEF focal areas to result in:

- (i) A reduction in the negative trend and severity of land degradation in target landscapes (soil degradation, desertification and deforestation);
- (ii) Increased land area under SLM and SFM which reverses the decline in agro- and forest ecosystems in the Sahel;
- (iii) Vegetative cover restored in areas of degraded croplands, rangelands, and woodlands;

- (iv) Target landscapes are able to support increased production due to healthy ecosystems, with agro- and forest ecosystem services restored/maintained in support of human livelihoods;
- (v) Reduced pressures on natural resources from competing land uses and users in the wider landscape;
- (vi) Reduced GHGs and increase in carbon stock, over time, through increased vegetation cover, conservation agriculture, restored forest landscapes and avoided deforestation;
- (vii) Reduced health and environment risks caused by the unsound management of chemicals and wastes, particularly by open burning, thus protecting populations as well as reducing emissions to the atmosphere,
- (viii) The phasing out of agricultural use of POP pesticides through the promotion of BAT/BEP;
- (ix) The protection of human health and the environment through reduction of emissions originating from unsustainable municipal and agricultural waste operations;
- (x) Reduced emissions from forest and land-based sources, including open burning of agricultural and other wastes, and through improved measures in agriculture, livestock, forest, and land-use sectors; and
- (xi) Increased resilience to climate change within production systems and communities.

According to a recent FAO forestry report[1], the forest area in Mali has been decreasing 79 (1,000 ha) per year from 6,690 (1,000 ha) in 1990 to 4,715 (1,000 ha) in 2015 with an annual change rate of -1.4%.

Deforestation has worsened since 1990 to reach the level of 146.0 (1000 ha/year) in 2010.

In order to improve forest landscapes and maintain flows of forest ecosystem services, the project plans the following activities:

- 1) Avoid or reduce deforestation through forest protection/conservation. 5 community forests (of 300 ha in each district) will be established and sustainably managed by community planning committees (Activity 2.1.5.4).
- 2) Foster reforestation by establishing 2,500 ha of woodlots and nurseries, 3,000 ha reforested via assisted natural regeneration, and 2,500 ha under agro-forestry (Result 2.1.5).

Furthermore, we assume that SFM will provide additional benefits to the forested area based on better management of target areas and enrichment, and we add this consideration to the final estimation. According to FAO's 2010 Global Forest Resources Assessment, the estimate of average forest carbon stock per ha in Mali is 23 tons of carbon per ha.

1) Afforestation and Reforestation

The Ex-Ante Carbon Balance Tool (Ex-ACT) (www.fao.org/tc/exact/review-of-ghg-tools-in-agriculture/en/), developed by the FAO, was used to estimate the GHG emissions to be mitigated by this project. The GEF 'Guidelines for Greenhouse Gas Emissions Accounting and Reporting for GEF Projects', considers that the FAO's Ex-ACT Tools for estimating GHG emissions in the agro-forestry sector, to be consistent with the GEF proposed methodology. The Ex-ACT was used as it is recommended for use at the lowest level of detail (i.e. Tier 1). It was not possible to identify the date that is required for a higher-level assessment, which would produce more detail, precision and confidence in the accuracy of the data, at CEO Endorsement stage. As part of the MRV system to be implemented by the project (under component 3), the project will produce and sustain more detailed, precise and accurate data on the carbon sequestration results of the afforestation and reforestation measures.

The project intends to provide afforestation from former 'set-aside' land by establishing 5 community forests of a total 1,500 ha over 5 years (activity 2.5.4), which is 300 ha for each year, as well as, on 2,500 ha of woodlots/nurseries. Together, this amounts to 4,000 ha that will be afforested (Ex-ACT Plantation Zone 3).

The project intends to promote reforestation on 5,500 ha based 3,000 ha under assisted natural regeneration (ANR) (Ex-ACT Forest Zone 3) from previously degraded land, and 2,500 ha under agro-forestry (Ex-ACT Plantation Zone 3) from annual crop used land.

Based on the above data, and 20 year duration of accounting (in the language used from the Ex-ACT Tool, 5 years for the implementation phase and 15 years for capitalization), the Ex-ACT tool calculates that the amount of GHGs sequestered through this project to be 132,693 tCO₂eq / year and 2,653,852 tCO₂eq over the 20 year duration of accounting.

3) POPs pesticides disposal and UPOPs emission reductions

Based on recent and preliminary national inventory findings obtained in the process of updating Mali's National Implementation Plan (still ongoing) for the project regions, the project will undertake the environmentally sound disposal of 100 tonnes of POPs pesticides (15 tonnes of Endrin, 30 tonnes of Heptachlor and 55 tonnes of Endosulfan)

Mali's NIP indicates that open burning contributed 3.4 g TEQ/a of UPOP releases. It is envisioned that the proposed measures that are being proposed under this project will lead to the reduction of open burning practice through BAT/BEP and awareness raising and capacity building initiatives, significantly reducing the formation and emissions of UPOPs. When fully implemented, the project will lead to the avoidance of 50 - 60% of open burning practices, which translate to approximately 2g TEQ/a .

The main quantifiable GEBs are:

- **5,000 ha** of land under SLM in production systems (agriculture and rangelands), contributing also to Mali's Land Degradation Neutrality target setting;

- Avoided deforestation and forest degradation (% reduction lost tbd);
- Enhanced carbon stock through SFM, reforestation, etc. (on a **total 9,500 ha**) with a cumulative avoided GHG emissions of **132,693 tCO₂eq / year** and **2,653,852 tCO₂eq** over the 20-year duration of accounting (in the language used from the Ex-ACT tool, 5 years for the implementation phase and 15 years for the duration of accounting phase).
- Project activities related to AVN methods will lead to an additional 350,000 tons of CO₂ mitigated. It is expected that the rural housing sub-component will be expanded beyond the project life as a result of training and creation of a local market. About 20,000 AVN rural houses are expected to be developed in the years following, with a total CO₂ emission reduction of 350,000 tons (20 tons CO₂ avoided per house of 25m² over 30 years life).
- Environmentally sound disposal of **100 tonnes** of obsolete POPs pesticides (Eldrin, Endosolfan and Heptachlor)
- Reduced prevalence of harmful chemicals and waste and reduced uPOPs released into the environment (air and land), with concurrent reduction of the exposure levels of humans and ecosystems to harmful chemicals and wastes: **2g TEQ p.a** decline in dioxins and furan emissions resulting from the reduction of open burning practices, improved management of municipal solid waste, and reduced chemical pollutants and contamination.

6) innovativeness, sustainability and potential for scaling up

Innovativeness

Overall, the project will be innovative as it will involve wide-scale adoption of SLWM, sustainable forestry and other INRM measures, suitable to a dryland context. Agricultural innovations and inputs that support sustainable production will be the focus of the field interventions. At the long-run food security will be increased as a result of the dissemination of the projects' practices. This will be coming from an increased production in the agriculture sector by introducing innovation such as early maturing/drought resistant crops, direct seeding or crop rotation.

Moreover, it envisages the development of three innovative technologies for waste valorization, mainly for organic fertilizer. As part of component 2 of the project, these innovative technologies help to achieve a more sustainable agriculture (biogas digesters, manure management, others).

A landscape approach entails managing land by considering the natural and human systems that depend on it. It is people-centered and addresses the needs of those who live, work and shape these landscapes. The approach's principles are innovative, and emphasize integration of development and environmental priorities with continuous adaptation as necessary to meet shifting needs and objectives. This project's multiple benefits approach to address a multiplicity of productive, social and environmental needs (local and global) first and foremost underlines its innovativeness. This may be a first or one of few GEF projects integrating LD, CCM, SFM and CW focal areas using a landscape approach. Fully in line with GEF6 and GEF2020 priorities for multiple scales and integration, the project aims to eliminate structural rural causes of the Sahelian crisis by bringing together relevant actors under a platform for collective dialogue and planning to rehabilitate and maintain the viability of ecosystems. Looking at the broader landscape scale allows projects to address a far greater

number of factors and stakeholder needs from the outset, which likely increases the probability of successful outcomes. Allowing stakeholders to decide on resource use in such a manner that community, economic and conservation interests are more balanced has potential to be much more sustainable.

The project is additionally innovative by addresses competing demands on resources, while considering the physical features of the landscape itself and the socio-economic and socio-political drivers that affect land use, particularly for agriculture, forestry and water. Innovation is also related to: the elimination of production and human-induced constraints; technical innovations for drylands that are more ecologically appropriate and socio-economically sustainable; and working at different scales. In parallel to the enhancement of agro-sylvo-pastoral systems, this project is additionally unique by integrating housing and sound waste management aspects into its landscape approach, thus giving fuller consideration to landscape health and resilience, which concurrently reduce pressure on land and forest.

Sustainability

The sustainability of the project outcomes will be underpinned through the following aspects throughout the project:

- Capacity building in risk assessment
- Risk reduction
- Vulnerabilities assessment
- Adaptation technologies
- Including development policy frameworks, training of staff, and institutional building and strengthening.
- Establishing roles and responsibilities for the facilitation and sustainability of all platforms and training modules created under the project.

Institutional strengthening and capacity building are significant components in this project and key for establishing a basis for sustainability. Sustainability aspects will be further enhanced by building capacity of beneficiaries and decentralized staff in the adoption of INRM.

As an ongoing process, institutional strengthening and capacity building are fundamental components that will ensure project sustainability and continued success.

In addition, the commitment expressed by the partners will help ensure the funding and implementation of the various measures planned as part of this project. The financial sustainability of these measures will require the mobilization of additional resources that can go beyond national funding capacities.

The implementation of measures that are economically, financially and technically viable will help ensure the feasibility and sustainability of project interventions. Sustainability can be achieved only by ensuring participation of all relevant stakeholders, including communities, in the design of activities based on diversified needs; considering competing needs for

land uses within a given area; monitoring actions on the territory; and enhancing technical and organizational capacities at all levels to facilitate knowledge and uptake of technologies. The project will seek each. The design of activities is additionally articulated around the following principles: careful sizing and targeting of infrastructure; stakeholder participation and ownership (men and women); involvement of beneficiaries in all stages of planning and implementation; quality of facilities and equipment; and the viability of production activities suitable to the agro-ecological zone thereby ensuring durability. Sustainability aspects will be further enhanced by building capacity of beneficiaries and decentralized staff in the adoption of INRM. The AVN approach also has long term sustainability impacts. Its activities stimulate a value chain for bioclimatic constructions able to become self-sufficient. Sahelian community members will be trained in the new AVN technique, thus building a local housing market and additional economic opportunities that will last beyond the project lifetime. When this occurs, AVN withdraws from the territory and targets a new area: hence the potential for scale-up of ecological habitat measures which reduce environmental degradation. Capacity building will not be limited to sensitization and training of the various project stakeholders, but it will also include monitoring/guidance, coaching and practical application of acquired knowledge (thus linking all three project components), helping ensure post-project continuity.

Potential for scaling up

Improvement of landscape management and waste treatment method, particularly through training process, will contribute and facilitate the project's potential for scaling-up. This project can introduce to people the basic knowledge in how human behaviors changing the climate and the environment. On the national side, the multi-stakeholders committee will focus on adapting and education sector not only for this three region but further to the nation, solve the problem from the root. In this perspective, the GEF will play a major role given its leading role in promoting the integration through investment and project development in Mali, with Municipalities as their chief partner.

As it is also the aim to ensure long-term viability, the project will seek to promote and scale up successful activities to other areas via knowledge sharing to national institutions, to the region via the AfDB regional program through the CILSS network; and through other effective avenues for knowledge sharing, such as the recently established Regional BAT/BEP Forum for Western Africa, by which lessons on waste management, ESM and uPOPs release reduction can be disseminated at regional level. Through strong emphasis on sharing experience and lessons, the tools and measures used in the project could be widely replicated in the country and beyond. Given it embraces various socio-economic sectors (agriculture, forestry, shelter, waste, etc.) and related capacity building activities, it will create opportunity for awareness raising, training, strengthened coordination and collaboration between sectoral stakeholders, which are each conditions for scale up and replicability. The project promotes adaptive farmer centered participatory SLFM to identify locally-appropriate solutions to degradation for replication across communities but also administrative regions. The knowledge and skills gained by the community-level committees will further ensure long-term sustainability of the practices. Encouraging institutional actors to work with farmers will lead to the adoption and validation of a number of sustainable agricultural, pastoral, and INRM practices. It also influences how government institutions implement extension activities in rural communities, which has important implications for sustainability and potential for up-scaling. The knowledge and practical capacities will be in place, as well as enabling frameworks through the development of land use plans.

By focusing learning aspects on the benefits of a landscape approach and by demonstrating the gains to be made locally and nationally (via, for example, enhanced production, improved socio-economic indicators, etc.), there will be strong incentive at institutional and community levels to sustain the activities and mechanisms beyond project closure. The

project is a real opportunity to strengthen growth in agriculture while conserving the productive capacity of the land on a significant portion of Mali's Sahel. GEF support will be critical to assist Mali promote and expand INRM, and ensure larger scale dissemination of SLFM to fight rural scarcities. The project will help Mali in its transformation towards a country and economy of more widespread landscape health, lower land degradation and low-carbon. The successful activities from Mali will become experiences for regional up-take and will have an effective avenue for dissemination.

[1] For questions A.1 –A.7 in Part II, if there are no changes since PIF , no need to respond, please enter “NA” after the respective question.

[2] AfDB Statistics / Country Social Data (Weekly data flash 08-14 october 2018)

[3] <https://www.un.org/africarenewal/magazine/december-2013/sahel-one-region-many-crises>

[4] https://www.researchgate.net/publication/301338612_Climate_Change_over_West_Africa_Recent_Trends_and_Future_Projections

[5] <https://dataafrica.io/profile/mali#climate>

[6] <https://donnees.banquemondiale.org/indicateur/ag.lnd.prcp.mm>

[7] <https://www.tandfonline.com/doi/abs/10.1080/21632324.2015.1022972?journalCode=rmad20>

[8] <http://www.adaptation-undp.org/explore/western-africa/mali>

[9] FIDA, 2012

[10] https://www.researchgate.net/publication/258239658_Rural_community_perception_of_fuelwood_usage_by_families_living_in_Wassorola_Mali_Interview_with_women_as_main_fuelwood_collectors

[11] <http://www.fao.org/docrep/004/X6794F/X6794F03.htm>

[12] Gerbe, A., 2013, Rapport de l'étude inventaire pour identifier et collecter les données et les informations existantes au Mali, Observatoire du Sahara et du Sahel, Projet Amélioration de la Résilience des Populations Sahéliennes aux Mutations Environnementales, 115p.

[13] Coulibaly, A., Kanouté, A., Kassamba, B., Konate, S., Sanogo, N., (2005), Programme National d'Adaptation aux Changements Climatiques, Groupe Sectoriel Energie, République du Mali, 43 pp.

[14] Contribution Prévues Déterminées au niveau National, 2015

[15] <http://www.cgd.ucar.edu/cas/wigley/magicc/>

[16] FIDA, Evaluation environnementale et des changements climatiques, 2012

[17] CIRED, Changements climatiques passés et futurs au Mali, 2009

[18] Politique nationale sur les changements climatiques, 2011

[19] To be added: links in footnotes to the GEF projects (thegef.org/projects with the link per project). Projects closed for more than 5 years should be excluded

[20] <http://p2rs.cilss.int/index.php/le-cycle-pregec-prevention-et-gestion-des-crisis-alimentaires-au-sahel-et-en-afrique-de-louest/>

[21] <http://www1.wfp.org/emergencies/sahel-emergency?page=66>

[22] Ibid

[23] Ibid.

A.2. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

Not applicable.

A.3. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

The application of a multi-stakeholder approach, as is the purpose of component 1, is especially critical for successfully integrating any landscape approach due to the multi-functional services that exist within a given landscape. Through component 1, the project is committed to engaging a broad range of stakeholders operating within the focal landscapes to comprehend the requirements of each stakeholder group, expectations, trade-offs and synergies.

In order to develop a project that reflects both the needs of Malians and to ensure that all local partners feel ownership of the project, the project document is based on information from stakeholder consultations.

These consultations were instrumental in finalizing the design of the project.

Name of the stakeholders	Role
CILSS[1]	The <i>Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel</i> (CILSS) was founded in 1973 to tackle droughts in the Sahelian countries. Together with the AfDB, it manages the P2RS at the regional level.
AVN[2]	The Nubian Vault Association (AVN) was established in 2000 to help reverse housing problems for the many in Africa, promoting the development of an adapted housing market, via the diffusion of the NV technical concept. AVN is present in Mali since 2007, with a deployment in 6 regions: Segou, Dioïla, Koutiala, San, Banamba and Sikasso. 21 local employees of the AVN Mali team implement the program.
Ministry of Agriculture[3]	The Ministry is the official counterpart for the project implementation, supervision and monitoring. A specific convention has been established between P2RS Mali programme and the Ministry.
Other ministries (see people present from other administration during the consultation workshops in Bamako, Koulikoro, Segou and kayes)	As well as with the Ministry of agriculture, the P2RS Mali programme established a cooperative framework with all the technical ministries for support in the implementation and the reporting.
DGDP[4]	DGDP is leading the monitoring and reporting of the implementation of the programme, specifically linked to the budget consumption.
Associations SOS Faim/CAEB/ICD/VSF-Belgique/Le Tonus [5]	The consortium of NGOs has been selected to implement activities of the P2RS related to development and social approaches. It is foreseen that the same consortium would be involved in the implementation of the activities defined for the GEF project.
Regional Council of Kayes, Koulikoro and Ségou	The subnational governments are informed and associated to the definition and implementation of the activities.
Municipalities of the 32 communes	The subnational governments are informed and associated to the definition and implementation of the activities.

Women groups, local groups, youth association, GIE and other local stakeholders	They have been consulted during the formulation of the project and they will be associated in the implementation of the activities of the GEF project, as local actors and/or as beneficiaries.
Elephant vert	A Public-Private Partnership will be established between the GEF project and this private society, aiming to improve the collect of the domestic waste and to transform it into high quality compost to be preferentially used by the producer's groups supported by the GEF project.
PGRNCC and others relevant projects	In the P2RS region many projects are implementing similar activities in order to improve the resilience and to better the adaptation measures. Therefor, the GEF project will develop close relationship with them in order to share information and experiences and to develop positive synergies.

[1] <https://www.cilss.int/>

[2] <https://www.lavoutenubienne.org/>

[3] <https://ma.gouv.ml/>

[4] www.finances.gouv.ml/structures-rattachées/dgdp

[5] <https://www.sosfaim.be/conseils-et-appui-pour-leducation-a-la-base-caeb/>

Documents

Title

Submitted

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Most landscapes provide a diverse range of goods, services and values. They have multiple uses and purposes which are valued in different ways by different stakeholders, meaning that tradeoffs exist. The landscape approach acknowledges these tradeoffs and addresses them through a spatially-defined and INRM-based method that tries to reconcile various stakeholder needs, priorities and objectives.

The proposed GEF project has synergies with the GEF Food Security Integrated Approach Pilot (FSIAP) Program. The GEF FSIAP country projects have similar objectives to this project proposed in Mali, and there are opportunities for cross-fertilization, including on the application of the integrated approach. The proposed project is aligned with the approach of the FSIAP which seeks to engage *all stakeholders through strengthening of institutional frameworks for sustainability and resilience*. Component 1 of the proposed project will support multi-stakeholder platforms will help strengthening platforms bringing together all of the key actors at the appropriate levels, with the aim of creating a common space to act in synergy and enhance resilience in agro- and forest landscapes. The platforms will bring together different institutions and stakeholders with sectoral responsibilities, including local authorities, communities, CSOs and private sector actors, to strengthen the enabling framework for landscape decision-making at sub-national levels. They will be tasked with the preparation and adoption of integrated landscape management plans.

In addition, differentiated training targeting various stakeholder groups will help incorporate ecosystem-based thinking into planning and management, which will facilitate negotiation and implementation processes. Landscape actors will be better equipped to understand trade-offs, identify synergies and options for designing more sustainable resource management systems, which strengthen the ecological basis of production. This capacity building will be complemented by awareness raising and training linked to ground activities.

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier; Yes

Member of project steering committee or equivalent decision-making body; No

Executor or co-executor; Yes

Other (Please explain)

A.4. Gender Equality and Women's Empowerment

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

Mali is in a position of comparatively high inequality both regarding income and Human Development Index.

The situation of women in Mali is still severe for gender gap in secondary school attainment, and labor force participation gap, when compared with other African countries, both in the region and globally. The research shows that women are still suffering from high level of social discrimination since Mali is almost at the lowest place for both female share of seats in parliament and female/male GNI per capita. At the same time, they are lack of support from the institutions. It limits women's decision making power and status at home, which leads that they will have less access to resources and less participation in politics and public life.

Documents

Title

Submitted

GEF P2RS Gender analysis

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

Yes

If yes, please upload document or equivalent here

The project will take into account the socio-economic and gender dimension in all its components, seeking strong participation of women and youth. It will ensure the application of gender-sensitive infrastructure and technologies. It will enhance income-generating activities for women linked to enhanced agricultural productivity and the strengthening of capacities of women associations. The project will also focus on rural activities in which women have a recognized know-how (vegetable gardening, rice, small livestock, poultry, processing activities, etc.) and from which they can most benefit. Baseline training will additionally target their skills development in business planning, literacy, marketing techniques and financial management, thus strengthening entrepreneurship and empowerment at the local level.

Specific gender promotion activities may include: producing gender-disaggregated data throughout project implementation; analyzing tenure and raising awareness; women participation in production and income-generating activities; capacity building with specific targeting of women; strengthening the position of women's groups in agricultural and forestry product processing; identification of groups vulnerable to chemical exposure (subsequently ensuring that actions address gendered risks); facilitating women's access to factors of production; promoting gender-sensitive infrastructure which reduces the burden on women; ensuring equal access by men and women to information, capacity building and awareness campaigns; gender sensitive budgeting and planning; hiring a gender expert for the PMU; and ensuring female participation in decision making bodies.

More precisely, a framework for gender sensitive M&E will be developed before implementation starts to identify relevant indicators and procedures for feedback and reporting. Furthermore, the knowledge management for lessons learned from an applied landscape approach as part of component foresees a Specific analysis of the experiences acquired in terms of gender and youth approach.

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

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

A.5. Risks

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being, achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.

Risk description	Rating	Mitigation measures
Weak capacity of communities is a risk for all project activities proposed at pilot sites level and management, agroforestry, Income Generating Activities, wildfire management plans, etc.	Low	Large part of project budget devoted to capacity development at communities' level – stakeholder meetings, training, learning by doing through project implementation. Specific training activities will include agroforestry, organic fertilizer production and management, monitoring, land use planning and management. The selection of a number of pilot sites will allow thorough development of activities which are chosen by all stakeholders and have strong technical and financial support to ensuring their effectiveness.
Issues in public procurement, contract award, financial resources handling	Medium	Adequate procurement and disbursement support staff will build up from the P2RS
Limited sustainability of the project	Medium	Capacity building in risk assessment, risk reduction, vulnerabilities assessment, and adaptation technologies, including development policy frameworks, training of staff, and institutional building and strengthening will underpin the sustainability of the project outcomes. Component 2 activities will demonstrate and spread model practices in terms of sustainable land management and adaptation to climate change. These practices are specific to each agro-ecological zone and will be implemented following a participative and demand-led approach, ensuring the sustainability of their adoption by the Malian population.
Adverse climatic variability and changes resulting in flash floods and prolonged drought as well as other extreme events undermine achievement of benefits	Medium	Awareness raising and promote climate resilience activities. Promote the use of early warning systems at the community level
Inadequate participation by all stakeholder groups to identify and prioritize adaptation needs in a sufficiently objective manner	Medium	Careful attention will be given to ensuring the involvement of all relevant stakeholders at an early stage and throughout the project implementation process. This will facilitate consideration of all points of view and balanced objective prioritization
Limitations in adoption of sustainable land management practices	Medium	Promote feedback sharing and experience exchange. Engage community leaders in community mobilization activities.

The security problem in the Sahelian band, the area of intervention of P2RS MALI, particularly the municipalities concerned in the Ségou region could prevent or delay the execution of the project in these areas.	Medium	The Government of Mali has taken steps to strengthen the security system. Moreover, the mayors of these communes, on the recommendation of the coordination of the P2RS MALI, have conducted dialogues with the leaders of certain armed groups in order to secure their communes and allow development.
Environmental risks/ Climate Change.	Medium	Ductility of tools used, in case of a rapid change in the environmental parameters, or in the plight inflicted by climate change. Flexibility of environmental impact assessments, which may need redoing.
Lack of coordination among government stakeholders	Medium	Strengthening of the DVCC through institutional and technical support, as well as targeted capacity building will make it the core of all climate-change related decisions, and monthly meetings between Ministries experts and led by the DVCC are organized to share feedback on respective projects ensures coordination and cooperation.
Insufficient time dedicated by collaborating and partner organizations and agencies to successfully implement the project components	Low	During the project preparation phase, time availability and commitments will be discussed among the participating organizations and agencies to ensure that none is carrying a heavier burden that it can sustain, especially among CILSS/Ministry of Agriculture and the three DRA (<i>Directions Régionales de l'Agriculture</i>) of Segou, kayes and Koulikoro
Limited commitment from rural communities will not allow for the success of the landscape approach, resulting in community members returning to previous destructive practices or circumventing restrictions in favour of high-return, high environmental cost land-use practices	Low	Engage community leaders and encourage platforms for information sharing and exhibition of good practices for communities to visually identify benefits. Capacity building, training and awareness raising
Lack of technical capacity to effectively implement project activities	Low	Ensure knowledge transfer from technical assistance provided by identifying national counterparts, and enable the development of such capacities nationally and sub-nationally.

A.6. Institutional Arrangement and Coordination

Describe the Institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

The GEF project supports the P2RS program by developing more specifically the aspects related to climate change issues. Attached to the P2RS, it will be implemented according to the same modalities and institutional set-up.

In particular, the monitoring of GEF activities will be done within the framework of the agreement signed between P2RS and the central administrations.

On behalf of the Ministry of Agriculture, the Project Management Unit wishes to delegate part of its responsibilities to a Delegated Contracting Authority in order to accelerate the implementation of the Project's activities. The agency will be responsible for the procurement and management of some of the works and services. The management rules will be those of the African Development Bank as a implementing agency. All procurements of this project will be carried out in accordance with the Procurement Framework for operations financed by the Bank Group as of October 2015, as well as which will be set out in the Financing Agreement.

In this respect, it is planned that the Regional Directorates will have the means to monitor the implementation of activities. This point, which is not fully operational under P2RS, should be improved for the GEF.

In addition, P2RS signed an agreement to implement activities with a consortium of NGOs responsible for training, information, awareness-raising and nutrition enhancement in the Kayes and Koulikoro regions. As the currently recruited NGO consortium also has interesting experiences in line with the activities implemented by the GEF, it is envisaged that it will be responsible for these activities, as part of an extension of this Convention. .

However, new conventions will be needed to implement GEF-led activities, such as improving waste collection and recovery, for which a PPP is being considered with the Elephant Vert company; or as the development of biodigesters, for which SVN is identified [1].

The GEF will be able to mobilize Mali weather through a convention (P2RS has prepared a convention but it is not operational) in order to strengthen the network of agro-meteorological stations and produce localized information with agro-meteorological perspectives for the project's intervention regions.

In the municipalities of P2RS, the GEF's area of action, other projects are working on the same themes. In particular, the PGRNCC (World Bank, GEF) develops an ecosystem approach and activities such as management plans, sustainable land management, forest management, agroforestry, pastoral perimeters, trail development, market gardening, fattening, crafts. The first phase of the project is scheduled from 2014 to September 2019. They are already planning a second phase. The comparison of the municipalities of intervention (see table below) shows that 12 of the 32 P2RS municipalities are the same as those where the PGRNCC intervenes. In particular 3 communes of the Nioro district; 3 communes of the Banamba district; 6 communes of the Nara district. There is therefore a significant geographical overlap.

Table of P2RS / PGRNCC municipalities of intervention

Regions		Municipalities	
		P2RS	PGRNCC
Kayes	Diéma	Dioumara Koussata	
		Fassou Debe	
		Gomitradougou	
		Groumera	
	Nioro	Diarra	
		Diaye Coura	
		Gadiaba Kadiel	Gadjiaba Khadiel
		Gavinané	
		Gogui	
		Guetema	Guetema
		Nioro	
		Nioro Tougounerangabe	
		Simbi	
		Yerere	Yerere
Youri			
Koulikoro	Banamba	Boron	Boron
		Madina Sacko	

		Sebete	Sebete	
		Toubacoro	Toubakoro	
	Kolokani	Massantola		
	Nara		Allahina	
			Dabo	Dabo
			Dilly	Dilly
			Dogofry	
			Fallou	Fallou
			Gueneibe	
			Koronga	Koronga
			Nara	
			Niamana	Niamana
			Ouagadou	Ouagadou
	Segou	Macina	Monimpebougou	
Niono		Nampalari		

In addition, the PGRNCC has an agreement with Mali météo for the dissemination of agrometeorological information through radial programmes and it is considering the construction of stations: in the implementation of the activities, the respective teams will meet in order to specify the contents, define the cooperation and work according to their complementarities. The same situation will be managed with the UNDP project “Appui à la stratégie nationale d’adaptation au CC”.

The initial institutional and implementation arrangements of the baseline project will be maintained for the proposed GEF project. The Government of Mali will continue to be the borrower of the funds and recipient of the grant. The lead Executing Agency is the Ministry of Agriculture, who will be responsible for the overall coordination of planning, implementation and monitoring of the GE project. Other executing partners are CILSS and Association La Voûte Nubienne. The implementation of the programme will continue to be managed through existing national decision-making structures, utilizing national planning, procurement, budgeting, accounting and reporting systems.

[1] In Mali, only two organizations have a recent and appropriate experience of dissemination of such household biogasifiers : the NGO AVSF and SNV. PPG included a consultation phase with these 2 NGOs, and only SNV accepted to work in the project area. The preparation phase then worked with SNV on the action plan to implement such a dissemination program of 100 biogasifiers in the project area and about their experience feedbacks. This phase confirmed the need to have a partner with a strong experience for implementing this part of the project, which will be able to help to the selection of appropriate households, provide professional trainings to local masons, command suitable equipments, verify the quality of the construction and ensuring basic maintenance training to beneficiaries.

Additional Information not well elaborated at PIF Stage:

A.7. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

While delivering GEBs, the activities will concurrently improve the livelihoods of direct and indirect beneficiaries, especially smallholders involved in agriculture and pastoralism. The project aims to strengthen a trend towards sustainable management, regeneration and protection of Sahelian landscapes with an additional focus on enhancing local livelihoods. The main socio-economic positive impacts as a result of this will be: improvement and diversification of agricultural and forest productivity leading to secured food production and security; reduced vulnerability to climatic and economic shocks; income generation (especially for women and youth); improved access to basic socio-economic facilities; improved environmentally sound waste management leading to enhanced human health.

The project will generate important environmental - both local and global - benefits linked to the targeted GEF focal areas, in addition to livelihood benefits, enhanced by the use of a landscape approach. First and foremost, more broadly, it will result in enhanced productivity and protection of Mali's agro- and forest ecosystems. The application of the landscape approach to natural resource planning, use and management will better restore and protect the health, functions and resilience of the entire landscape for different benefits.

Component 2 implements the landscape approach that concurrently meets a diverse range of local needs (e.g. food or crop production; water availability; alternative income; rural shelter); reduces harmful chemicals and wastes that are absorbed into ecosystems; and contributes to global environmental benefits (e.g. reduced land and forest degradation, net reductions in land-based and deforestation-induced GHG emissions). The project's integrated approach will deliver numerous GEBs by enhancing vegetative cover and maintaining various ecosystem services in fragile priority landscapes. The expected increase in vegetation cover by harnessing water, protecting woody biomass, soil conservation and the increase

of agro-sylvo-pastoral lands will contribute to safeguarding the services provided by agro- and forest ecosystems and the direct or indirect sequestration of carbon. The GEF support will help Mali reduce land degradation as a consequence of agricultural expansion, deforestation and soil fertility loss. Raising soil organic matter and increasing the quantity of woody and other biomass will increase carbon sequestration in land and trees. Enhanced agricultural practices will enhance soil quality while reducing agro-based GHG emissions. Improved forest management, targeting forest depletion drivers and mitigation, will enhance the social and environmental benefits provided by forests (in terms of provisioning, regulating, or supporting services). Restored tree landscapes help stabilize micro-climates and reduce CO₂ emissions. Through the AVN activities, ecological structures will be built within communities, further contributing to environmental protection and reduced emissions (in addition to increasing environmental stewardship and new economic opportunities based on a stimulated local market for housing).

In meeting objectives under the Stockholm Convention, the project will demonstrate alternatives to preventing POPs formation from open burning of different categories of wastes, such as agricultural residues and municipal wastes. Increased awareness of the health, environmental and economic impacts and gains to be made from ESM will help lead to action. By avoiding human and animal contact with waste, reducing contamination of water sources (surface and groundwater) and agricultural fields, the load of pollutants that enter the landscape and food chain will be reduced. Additionally, as open burning practices are also significant contributors to GHGs, such as carbon dioxide and methane, project activities will give a positive contribution to CCM, in addition to those already delivered by the SLM, SFM and sustainable housing related activities.

LD-1: Agriculture and Rangeland Systems: Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods Global benefits will cut across the four GEF focal areas to result in:

- (i) A reduction in the negative trend and severity of land degradation in target landscapes (soil degradation, desertification and deforestation);
- (ii) Increased land area under SLM and SFM which reverses the decline in agro- and forest ecosystems in the Sahel;
- (iii) Vegetative cover restored in areas of degraded croplands, rangelands, and woodlands;
- (iv) Target landscapes are able to support increased production due to healthy ecosystems, with agro- and forest ecosystem services restored/maintained in support of human livelihoods;
- (v) Reduced pressures on natural resources from competing land uses and users in the wider landscape; (vi) reduced GHGs and increase in carbon stock, over time, through increased vegetation cover, conservation agriculture, restored forest landscapes and avoided deforestation;
- (vi) Reduced health and environment risks caused by the unsound management of chemicals and wastes, particularly by open burning, thus protecting populations as well as reducing emissions to the atmosphere,
- (vii) The phasing out of agricultural use of POP pesticides through the promotion of BAT/BEP;

- (viii) The protection of human health and the environment through reduction of emissions originating from unsustainable municipal and agricultural waste operations;
- (ix) Reduced emissions from forest and land-based sources, including open burning of agricultural and other wastes, and through improved measures in agriculture, livestock, forest, and land-use sectors; and
- (x) Increased resilience to climate change within production systems and communities.

Socio-economic benefits are numerous for the beneficiaries targeted by the project to adopt SFM, INRM, practices. The activities of the project involve significant co-benefits, synergies and trade-offs, including:

Social benefits	Economic benefits
Some 5000 green jobs created, in sustainable forest and land management	More than 5,000 ha will be restored, with higher soil fertility, services supply and production potential.
Some 5000 stakeholders trained to monitor, promote and develop the integration of SLM/SFM, etc practices.	At the long-run food security will be increased as a result of the dissemination of the projects' practices. This will be coming from an increased production in the agriculture sector (by, e.g. introducing innovation such as early maturing/drought resistant crops; direct seeding, crop rotation).
Over 32 communities will be trained and reap larger incomes at the end of the project. Participation of civil society, through the involvement of NGOs, including women NGOs already mentioned above, and stakeholder consultations, in the decision-making process related to climate change, and reduction in land degradation, and for information and awareness raising activities.	Fighting negative economic impacts, through a better consideration of soil erosion/waste management, etc in investment decision – making;
	The communities will benefit from the targeted activities in 8 communes (Madina Sacko, Toubakoro, Nara, Kolokani, Banamba, Ségou, Nioro) both technically but also economically, as these will be considered as shops to sell high value products from communities.

Job creation and income generating activities

As the project will support 8 communes with activities in the field, it will create some 5000 jobs for the operation and maintenance of the installations made by the project. Moreover, 32 communities will benefit from additional income-generating activities (IGAs), technical support in sustainable agriculture practices, forestry management and natural resources monitoring, conducted by the project.

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Additional income generating activities will be introduced by the project activities through, for instance, the sales of agroforestry parcels products. The introduction of new practices and technologies will enhance agricultural yields and hence augment households' revenues and quality of life. As a result, villagers livelihoods will become more resilient and their adaptive capacity will be enhanced.

Especially for young people, the new technology of waste collection EIGS needs people with a high ability of learning to master the technologies in these procedures, which concerns more young people (men and women) and people with a extent level of education, encourages people to pursue a higher level of education, and further push forward the industrial development of this area.

As we can predict a total advancement in all the sectors, the conscious of gender equality will be soon realized, women in most of the african country are face to sex violence and inequality in their lives, one of the reason is lack of conscious and common sense of the gender equality and human rights. This situation can be improved along with the project.

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Food security and health

The project also plans to put in place community demonstration committees whose aim will be the promotion of the adoption of practices and technologies such as agroforestry, fruit tree culture and sustainable land management. This will lead to a diversification of culture and better agricultural yield, supporting – with an income increase - food security and better nutrition. Additional incomes and more diverse food resources, as well as more sustainable households' livelihoods, can thus contribute to better health, especially for vulnerable groups as women and children's.

The project will contribute to the following Sustainable Development Goal (s):

- SDG 1 – End poverty in all its forms

- SDG 2 – End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- SDG 4 – Achieve gender equality and empower all women and girls
- SDG 15 – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

A.8. Knowledge Management

Elaborate on the Knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

Component 3 of the GEF project is dedicated to knowledge management in terms of ‘Learning, adaptive management, monitoring and evaluation. As such, knowledge promotion and management will be core elements of the project, given its national and regional dimension and potential for sharing experiences and lessons. A system for managing and sharing knowledge on the regional P2RS and sub-country projects will be established by setting up communication portals and services (electronic document management, internet tools, etc.) to build on and manage the data and experiences acquired. An adequate information, knowledge and communication system will be set up and an individual consultant will administer the strategy. This will include facilitating the flow of information at all levels of the program to the various stakeholders and partners on the ground. Internally, the strategy will focus on information sharing, regular dialogue at all levels, the dissemination of documents, and knowledge management. Externally, it will focus on the dissemination of information to partners (government, civil society, etc.) and to beneficiaries. 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 execution. A framework for gender sensitive M&E will be developed before implementation starts to identify relevant indicators and procedures 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.

Often project indicators of a landscape approach are sectoral, which limit the understanding of feedback loops, and capacity to apply adaptive management. The project will assess the relevance of indicators specified in the project results framework and will strive to evaluate the current and future uses of indicators appropriate for measuring the multi-functionality presented by the landscape approach through INRM. This will contribute to the evidence for the approach, including documenting benefits and identifying gaps in terms of monitoring and assessing progress.

As an integrated approach is required to enhance food security and multiple environmental benefits through sustainable, resilient and healthy agro- and forest ecosystems, based on a landscape approach, knowledge management products to be developed during implementation will include:

- Disseminating lessons learnt and recommendations for apply systems thinking by addressing inter-connected environmental, social, economic, and governance challenges under the landscape approach
- Developing a clear rationale and theory of change to tackle the drivers of environmental degradation through assessing assumptions and outlining causal pathways
- Further assessing the potential risks and vulnerabilities of the key components of the system, to measure its resilience to expected and unexpected shocks and changes, and the need for incremental adaptation or more fundamental transformational change.
- Devising a logical sequence for follow-up interventions, which is responsive to changing circumstances and new learning (adaptive implementation pathways).
- Developing clear indicators that can be monitored to determine progress and success in achieving lasting outcomes under the integrated landscape approach.

Other knowledge management activities face-to-face consultations and building stakeholder capacity to better capture lessons learned and support the scaling up for achieving results.

It is also important to raise the visibility of the GEF (among Ministries, CSOs and private sector) and its approach for successfully achieving environmental benefits at the global scale. As such: i) all members of the project's management unit will be requested to undertake the GEF Introductory E-course in order to better understand the core components of GEF requirements and values, once the course is available in French, and ii) stakeholder engagement activities will be used for outreach and raising awareness on the importance of GEF and the approach for achieving scale-up and large-scale impact.

B. Description of the consistency of the project with:

B.1. Consistency with National Priorities

Describe the consistency of the project with nation strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The project will generate environmental benefits while simultaneously advancing the Government's main development objectives and its commitments under environmental conventions. Mali has ratified the UNCCD, UNFCCC and the Stockholm Convention. The project contributes to efforts under each of these. It is synergistic with Mali's National Action Plan to Combat Desertification (NAP-CD) which pursues objectives for resilience of ecosystems for agriculture, food production, and biodiversity conservation. For Mali's government, land degradation and desertification are critical issues to be urgently tackled, and the project's land restoration aims are perfectly in accord. Through its mitigation options in agriculture and forestry, it also adheres to Mali's UNFCCC Second National Communication (2011). Mali ratified the Stockholm Convention on POPs in May 2003. It submitted its NIP in August 2006 and prioritized protecting human health and the environment through restoration of contaminated areas. Based on indicative data, solid municipal waste management, health waste management, open burning of agricultural residue and bush fires were identified as the main activities that release uPOPs in Mali. Mali is currently in the important process of reviewing and updating its NIP, and the project will implement on the ground interventions shaped by its priorities. It thus assists Mali in adhering to the Stockholm and other conventions (Basel, Rotterdam, etc.) on hazardous waste disposal.

Mali's key development objectives are set out in the Growth and Poverty Reduction Strategic Framework (GPRSF) which currently covers the 2012-2017 period. The overall goal of GPRSF is inclusive development that seeks to reduce poverty and inequality, based on security, macroeconomic stability, sustainable pro-poor growth, social services and governance. The project is consistent with each of its five pillars applied to a local level. The project is consistent with numerous other national policies and strategies, primarily those that govern Mali's agricultural sector: the Agricultural Development Policy; the Agricultural Sector Investment Program; the National Food Security Program; the National Irrigation Development Strategy; and the National Strategic Investment Framework for SLM in the context of TerrAfrica. It will also help achieve objectives set out in the national nutrition, gender, environmental protection, and climate change policies and action plans. Mali's Agricultural Development Framework Law urges the Ministry of Agriculture and producer organizations to promote SLM, with a focus on issues such as land tenure, soil fertility, land restoration, and environmentally friendly agricultural practices.

Finally, the project is consistent with the AfDB's country support framework for Mali, the agricultural sector strategy and the Ten-Year Strategy (2013-2022) which target inclusive and green economic growth. As regards AfDB priorities to pursue regional solutions to food security, the project will contribute to operationalizing the Global Water Coalition for the Sahel for which CILSS Member Countries designated the Bank as Leader, and is consistent with a number of regional policy guidelines on agriculture, food security and environmental management particularly related to CILSS, ECOWAS, and CAADP. The AfDB is placing strong attention on the Sahel and this GEF project is aligned to bank priorities for socio-economic stability in this crisis-prone region.

C. Describe The Budgeted M & E Plan:

Project start

A Project Inception Mission will be held within the first 2 months of project start with those with assigned roles in the project organization & structure, AfDB country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Mission is crucial to building ownership for the project results and to plan the first year annual work plan. An Inception Workshop will then be held, that should address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of AfDB staff vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule Project Board meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Mission report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly

Based on the initial risk analysis submitted, the risk log shall be regularly updated in AfDB information system. Risks become critical when the impact and probability are high. Note that for GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of value chain actors are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).

Based on the information recorded in AfDB information system, a Project Progress Report can be generated in the Executive Snapshot.

Annually

Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (1 July to 30 June). The APR/PIR combines both AfDB and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes — each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- AfDB information system

Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well. However, under the new cycle, the GEF-7 Core Indicator Worksheet will have to be used at the next opportunity which is the CEO Endorsement stage for this project.

Periodic Monitoring through site visits

AfDB will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report will be prepared by the AfDB and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle

The project will undergo an independent Mid-Term Review at the mid-point of project implementation. The Mid-Term Review will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the Mid-Term Review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-Term Review will be prepared by the AfDB based on guidance from the GEF. The management response and the evaluation will be uploaded to AfDB corporate systems. The relevant GEF Focal Area Tracking Tools will also be completed during the Mid-Term Review cycle.

End of Project

An independent Final Evaluation will take place three months after the final Project Board meeting and will be undertaken in accordance with AfDB and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the Mid-Term Review, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the AfDB based on guidance from the GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded. The relevant GEF Focal Area Tracking Tools will also be completed at project completion stage.

During the last two months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Audit clause

The project audit will be conducted in accordance with applicable AfDB audit policies.

Table: Project Monitoring and Evaluation workplan and budget

Type of M&E activity	Responsible Parties	Budget USD Excluding project team staff time	Time frame
Year 1: Inception Workshop and Report	Project Manager PMT (Project Management Team – GoM-AfDB) AfDB, GEF	Indicative cost: USD 30,000	Within first two months of project start up with the full team on board

Type of M&E activity	Responsible Parties	Budget USD Excluding project team staff time	Time frame
Year 1, 2, 3: Measurement of Means of Verification of project results.	AfDB GEF/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. PMT, esp. M&E expert	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
End of year 1, 2, 3: Measurement of Means of Verification for Project Progress on output and implementation	Oversight by Project Manager PMT, esp. M&E expert Implementation teams	To be determined as part of the Annual Work Plan's preparation. Indicative cost is USD 60,000	Annually prior to ARR/PIR and to the definition of annual work plans
End of year 1, 2, 3: Annual review	Project manager; PMT; AfDB and GEF	None	Annually
Every quarter for 3 years: Periodic status/ progress reports	Project manager and team	None	Quarterly
After 18 months after project start: Mid-term Review	Project Manager PMT (Project Management Team – GoM-AfDB) AfDB, GEF External Consultants (i.e. evaluation team)	Indicative cost: USD 55,000	At the mid-point of project implementation.

Type of M&E activity	Responsible Parties	Budget USD Excluding project team staff time	Time frame
At the end of Y3: Terminal Evaluation	Project Manager PMT (Project Management Team – GoM-AfDB) AfDB, GEF External Consultants (i.e. evaluation team)	Indicative cost: USD 55,000	At least three months before the end of project implementation
Years 1, 2, 3: Audit	AfDB Project manager PMT	Indicative cost per year: USD 5,000 (USD 15,000 total)	Yearly
Years 1, 2, 3: Visits to field sites	AfDB GEF Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
Total indicative cost Excluding project team staff time and AfDB staff and travel expenses		USD 335,000	

PART III: Certification by GEF partner agency(ies)

A. GEF Agency(ies) certification

GEF Agency Coordinator	Date	Project Contact Person	Telephone	Email
Ayanleh Daher Aden	11/23/2018	Fatoumata Diallo		f.b.diallo@afdb.org
Ex-ACT Tool Excel sheet				
Ex-ACT Tool Assumptions				

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
Impacts	Enhanced food security and multiple environmental benefits through sustainable, resilient and healthy agro- and forest ecosystems in the	Local, national and sector wide policies, plans and processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures related to the agriculture sector	4	50 documents (plans, policies and processes) revised by local and national institutions as a result of the project activities	Activity reports Revised documents	<u>Risks</u> Risks climate insecurity and expansion of areas of conflict <u>mitigation</u>

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
benefi	Sahelian regions of Mali based on a landscape approach	Number of direct beneficiaries with decreased vulnerability to climate change and level of decrease	The indicator will be updated according to the baseline during the first year of implementation.	5200 beneficiaries (at least 30% of the women of the target communes) see their average vulnerability reduced by 30% (characterized by rate of access to water, resilience to water scarcity and floods and agricultural yields) is reduced by 30%. The relevance of this target shall be assessed during the first year of implementation.	Survey in local communities in each target commune	<p>measures</p> <p>crop diversification, expansion of cultivation and dissemination of technical and resilient WCAT , hydro-agricultural installations of P2RS, etc.</p> <p>Mediation efforts, actions to mitigate the causes of fragility foreseen in the program</p> <p>Risks</p> <p>Institutional and organizational weaknesses of the communities and technical services</p>
	RESULTS CHAIN	Indicators	Baseline 2018	Target	MEANS OF VERIFICATION	
	Outcome 1: Enabling frameworks and mechanisms strengthened to promote a sustainable and integrated landscape	# of local stakeholder groups represented in the collaborative planning meetings # of woman represented in the collaborative planning meetings	0 0	50% 30%	Approved integrated landscape development plans	Low participation in multi-stakeholder platforms

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
	approach in planning and decision-making at sub-national levels	# of landscape/development plans that integrate multiple functions, uses, waste management and resilience, including forestry services	0 districts	5 districts	Activity and meeting reports of the PMU, stakeholder meetings, the intermediation NGO and the SPC SDR	<p><u>Measures mitigation:</u></p> <p>Awareness raising and capacity building</p> <p>Awareness of multiple benefits at scale, highlighting the need to reconcile trade-offs between environment and development</p>
		# of commune guidelines and action plans developed for reducing hazardous waste burning and integrated within larger land use plans	0	At least 10		
		# of trainings in INRM, managing ecosystems sustainably and implementing participatory land-use plans	0			
	Outcome 2: Agro-ecosystem functionality and productivity enhanced through the demonstration of a integrated landscape approach, measures and technologies	To be determined within 6 months from project start				<p><u>Risk:</u></p> <p>Non application of technological</p>

	RESULTS CHAIN	PERFORMANCE INDICATORS				MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018		Target		
	Outcome 3: Monitoring and evaluation of progress and results and integration of lessons learnt into decision-support tool for sustainable integrated landscape approaches						packages Conflicts between farmers / breeders and genera: <u>Mitigation measures:</u> Put in place incentives for POs
	Component 1: Promoting integrated landscape planning and management for multiple objectives and resilience						
Outputs	Output 1.1: Collaborative planning platforms held in 5 districts to enhance multi-stakeholder dialogue and involvement in landscape management	# of collaborative multi-stakeholder planning platforms established	0		5	Activity reports of the PMU, the intermediation NGO and the SPC SDR, ToR for platforms (including stakeholder and sustainability plan, and delineation of roles and responsibilities)	Early engagement, dialogue, information sharing and mediation efforts, as well as specific activities taking into account distinct but interdependent realities and needs. <u>Risk:</u>
	Output 1.2: Coordination and preparation of integrated landscape management plans in at least 3 districts	# of commune guidelines and action plans developed for reducing hazardous waste burning and integrated within larger land use plans	0		At least 10		

	RESULTS CHAIN	PERFORMANCE INDICATORS				MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018		Target		
	Output 1.3: Differentiated training on INRM and implementing participatory land-use plans for relevant stakeholders	# of trainings in INRM, managing ecosystems sustainably and implementing	0		5,000 land users and 200 district staff trained		Non application of technological packages Conflicts between farmers / breeders and genera:
Component 2: A productive, protected, and healthy landscape to maintain diverse ecosystem goods and services (agro and forest)							<u>Mitigation measures:</u>
	Output 2.1 5,000 ha under sustainable land or pastoral management with climate-smart techniques	Hectares under sustainable land or pastoral management	0		5,000	Activity reports of the PMU, the intermediation NGO and the SPC SDR	Put in place incentives for POs Early engagement, dialogue, information sharing and mediation efforts, as well as specific activities taking into account distinct but interdependent realities and needs.
	Output 2.2 2,000 ha of croplands under conservation agriculture practices in 5 districts	Hectares of croplands under conservation agriculture practices	0		2,000 across 5 districts		
	Output 2.3 Over 100 small investments in rural hydro-agricultural infrastructure: rainwater harvesting, efficient irrigation on 500 ha, 15 pastoral watering points	# hydro-agricultural infrastructures established	0		100 installations		
		Hectares under efficient irrigation practices	0		500		
		# of pastoral water points	0		15		

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
	Output 2.4 3,000 farmers and herders adopt good SLWM, agro-sylvo and pastoral practices suitable to drylands	# of farmers and herders adopting good SLWM, agro-sylvo and pastoral practices suitable to dryland	0	3000 farmers / herders		
		Hectares of woodlots and nurseries for fuelwood harvesting	0	2,500		
		Hectares reforested via assisted natural regeneration	0	3,000		
		Hectares under agro-forestry for the promotion of non-timber forest products	0	2,500		
		# of community forests (one in each district of 300 ha) established and sustainably managed	0	5 community forests of 300 ha for each district		
		Output 2.5 9,500 ha under improved forest management	# of Community planning committees formed for community forests and woodlands	0	5	
	Output 2.6 5 alternative income generating options identified and adopted in communities based on agro-forestry, ANR, sylvo-pastoralism	# of alternative income generating options identified and adopted	0	5		

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
	Output 2.7 30 local producer or community groups and authorities trained to undertake SLFM, and sustain activities	# of local producers / community groups / authorities trained	0	30		
	Output 2.8 1 rural habitat program in 32 communities (local market and transfer of know-how) based on the construction of rural bioclimatic structures using Nubian Vault (NV) technology for private and community use	# of NV rural households	0	508		
		# of NV community buildings	0	68		
		# of NV agrometeorological buildings	0	2		
		# of local craftsmen and VN masons trained and/or in training	0	64		
	Output 2.9: Demonstration of 3 innovative technologies for waste valorization, mainly for organic fertilizer	Deployment of low GHG technologies and practices	0	3		
	Output 2.10: Demonstration of 3 pilot composting unit for agricultural uses, one per region	# of composting units constructed	0	3 (1 per region)		

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
	Output 2.11 BAT/BEP adopted for uPOPs, agricultural and municipal waste management in at least 20 communes	# of household bio-digesters constricted	0	100		
		Tons of POPs reduced	0	200 tons		
		# of households trained	0	200		
	Component 3: Learning, adaptive management, monitoring and evaluation					
	Output 3.1 Lessons captured, and knowledge disseminated	3.1.1 Number of spatial planning tools to assess multifunctionality 3	0	5	Activity reports of the PMU, the intermediation NGO and the CPS SDR	
		# of forest maps	0	5		
		BAT / BEP evaluated for POPs, agricultural and municipal waste management	0	4		
		# of Sustainable Financing Plans assessed for waste management	0	10		
		# of SLM and SFM Best Practice Guidelines Developed for Extension and Training	0	10	Activity reports of the PMU, the intermediation NGO and the SPC SDR	
		# of Lessons Learned Capitalization Paper	0	1	Activity reports of the PMU, the	

	RESULTS CHAIN	PERFORMANCE INDICATORS			MEANS OF VERIFICATION	RISKS / Mitigation measures
		Indicators	Baseline 2018	Target		
	Output 3.2 Sustainable financing plans assessed for waste management (tax, subsidy, royalties or public-private partnerships) developed and promoted	# of Sustainable Financing Plans assessed for waste management	0	10	intermediation NGO and the SPC SDR Activity reports of the PMU, the intermediation NGO and the SPC SDR	
	Output 3.3. A framework developed for effective monitoring and adaptive management of the land use plans, including delineation of roles among key stakeholders	# of developed framework for effective monitoring and adaptive management of land use plans	0	5	Activity reports of the PMU, the intermediation NGO and the SPC SDR Activity reports of the PMU, the intermediation NGO and the SPC SDR	
	Output 3.4 A M&E system established and used to assess and monitor project impact and its multi-focal area GEBs	M & E system established and used to assess and monitor project impact and its global environmental benefits.	0	1		

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

Pending questions from GEF Review Sheet at PIF stage:

Questions	Secretariat Comment at PIF Stage	AfDB Response to Secretariat comments at CEO Endorsement
Is the project designed with sound incremental reasoning?	The acceptable and quantifiable GEB are: 5,000 ha under SLM, 2,000 ha under pastoral rangeland management, 5,000 ha of better carbon storage through SFM, avoided GHG emissions of 150,000 tons, 2g TEQ p.a. decline in dioxine and furans emissions (the metrics will be refined at CEO endorsement)	Superficies considered into the GEF project are confirmed. The project will develop activities in private lands and / or collective lands managed by community rules, in order to avoid land-tenure problems.
Are the components in Table B sound and sufficiently clear and appropriate to achieve project objectives and the GEBs?	Component 1: - At CEO endorsement , be more specific on the nature of SLM and Climate Smart Agriculture activities (outputs 1.1.1, 1.1.2, 1.1.3).	Best practices in agroecology, based on consolidated experiences in the region. Promoting use of native species, agroforestry systems and silvopastoralism. Generating incomes from values chains (agriculture products, forest and non-timber products).

<p>Are socio-economic aspects, including relevant gender elements, indigenous people, and CSOs considered?</p>	<p>08/19/2015</p> <p>Yes, p18. At CEO endorsement, confirm the role of CSO, NGO, farmer organizations, local communities, officials and authorities.</p>	<p>While promoting the landscape approach to integrated natural resource management, the MAIR-2C will contribute to job creation for youth and women through, inter alia, the development of sub-sectors Agroforestry, bioclimatic habitats and value chains "Domestic and agricultural waste". Indeed, young people and women will be heavily involved in the creation / operation of IGA or MER / SME / SMI in these sectors. The project will thus contribute to the achievement of the objectives set by the Bank through its Ten-Year Strategy (2013-2022) and its cross-cutting concerns "food security" and "gender", its Priorities "Feed Africa" and "Improving the living conditions of African populations", its Gender Strategy and Mali's CSP. It also responds to the concerns of the Bank's Climate Change Action Plan and the National Policy on Climate Change. The MAIR-2C will also enable the Bank to strengthen its footprint in the Sahel and reaffirm its willingness to support the actions of the Sahel Alliance.</p> <p>As mentioned above, a specific attention has been oriented during the project formulation to the local stakeholders and beneficiaries, with a special focus for women and young people. See also the Gender analysis.</p>
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Further guidance from STAP at PIF stage

STAP Comment at PIF Stage	AfDB Response at CEO Endorsement
<p>STAP appreciates the attention to enhancing resilience, and suggests that the AfDB could consider applying the Resilience, Adaptation Pathways, and Transformation Assessment (RAPTA) Framework.</p>	<p>Component 1, output 1.2 will apply the Resilience, Adaptation Pathways, and Transformation Assessment (RAPTA) framework with the context of developing the integrated landscape development management plans</p>

<p>STAP applauds the focus on the landscape and suggests that this aspect could be further enhanced. For example, it would be valuable to identify indicators that are related to the multi-functionality of the approach. This would contribute to the evidence for the approach, including documenting benefits and identifying gaps in terms of monitoring and assessing progress. Often the indicators of a landscape approach are sectoral, which limit the understanding of feedback loops, and capacity to apply adaptive management.</p>	<p>The project will identify the relevance of indicators for outcomes 2 and 3 appropriate for measuring the multi-functionality presented by the landscape approach through INRM, in component 1, output 1.2. The results framework will then be updated accordingly. This will contribute to the evidence for the approach, including documenting benefits and identifying gaps in terms of monitoring and assessing progress.</p>
<p>STAP recommends for the AfDB to consider the following paper that supports building evidence on "how the landscape approach has been applied, how progress has been measured, and evidence generated to support the outcomes": Reed, J. et al. (2016). Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future. <i>Global Change Biology</i>. 22. 2540-2554.</p>	<p>The paper is very informative, and the principles presented in it have been integrated within the development of the Request for CEO endorsement. As part of component 2, the project will undertake complete assessments to factor the needs of the landscape inhabitants into the landscape development management plans</p> <p>The paper also ‘emphasizes the need for some simple and understandable landscape metrics that will enable stakeholders to evaluate progress and make informed decisions for future Management’. This important aspects forms part of the activities under component 3.</p>
<p>STAP notes that the project is intended to contribute to Mali's LDN target, and suggests that this component could be strengthened. Planning for LDN planning could be integrated into Component 1. STAP recommends that the AfDB use the conceptual framework on LDN developed by UNCCD's Science Policy Interface: http://knowledge.unccd.int/knowledge-products-and-pillars/land-degradation-neutrality-ldnconceptual-framework/land to inform the project. The framework describes the scientific basis and principles for implementing and monitoring LDN.</p>	<p>The Request for CEO Endorsement has been developed to consider the conceptual framework on LDN developed by UNCCD's Science Policy Interface which describes the scientific basis and principles for implementing and monitoring LDN.</p>

In addition to complementing the projects mentioned on page 22, STAP recommends that the AfDB look for synergies with the Food Security Integrated Approach Pilot (FSIAP) Program. The FSIAP country projects have similar objectives to this project in Mali, and there are opportunities for cross-fertilization, including on the application of an integrated approach.

The proposed alternative scenario has been updated to highlight the synergies with the FSIAP:

The proposed GEF project has synergies with the GEF Food Security Integrated Approach Pilot (FSIAP) Program. The GEF FSIAP country projects have similar objectives to this project proposed in Mali, and there are opportunities for cross-fertilization, including on the application of the integrated approach. The proposed project is aligned with the three-pronged approach of the FSIAP through:

1. *Engages all stakeholders through strengthening of institutional frameworks for sustainability and resilience* – component 1 of the proposed project will support multi-stakeholder platforms will help strengthening platforms bringing together all of the key actors at the appropriate levels, with the aim of creating a common space to act in synergy and enhance resilience in agro- and forest landscapes
2. *Acts to scale up, diversify and adapt practices that will achieve large-scale transformation of agro-ecosystems in SSA* – component 2 of the proposed GEF project involves the landscape level scale-up of sustainable NRM practices will provide both multifaceted gains by delivering environmental benefits (local and global) and livelihood improvements
3. *Tracks impacts on ecosystem services, resilience and food security in agro-ecosystems in target geographies, including beyond the effects of the specific child projects themselves* - component 3 of the proposed project emphasizes the importance of collecting and evaluating results with respect to the sustainability and resilience of agro- and forest landscapes for food security and rural development.

STAP suggests that the AfDB could consider a wider range of technology options for beneficial use of organic wastes, including high efficiency combustion for heat and electricity, or pyrolysis which can produce heat plus biochar for use as a soil amendment. The appropriate technology depends on the characteristics of the biomass, and the context (energy needs, soil constraints).

Under component 2 the following activity has been included:

Activity 2.9.2: Conduct a survey of location and quantification of sources of uPOPs/POP (Incinerators/combustion units of organic waste, pesticide use, organic hazardous waste such as surface treatment solutions and medical waste), waste characterisation and identification of obsolete pesticides in the project zone to determine the best technology options for demonstration

STAP would like the project to detail the assumptions, or conditions, that need to be in place in order to meet the objective. This would further strengthen the impact pathways proposed in the project, and lead to better planning and implementation.

The project assumes that:

- Communities will have the capacity to adopt relevant project activities, e.g. at pilot sites level and management, agroforestry, income generating activities, wildfire management plans, etc.
- Capacities to handle public procurement, contract award, financial resources handling
- Adequate participation by all stakeholder groups to identify and prioritize agro- forestry landscape needs in a sufficiently objective manner
- Capacities to adoption of sustainable land management practices
- Coordination among government stakeholders
- Commitment from rural communities to adopt the landscape approach
- Technical capacity to effectively implement project activities

See section A.5 Risks for measures the project is undertaking to mitigate the risks associated with these assumptions

STAP would like to see more evidence that the bioclimatic structures are accepted, and sustainable, in similar agro-climatic zones as the project site.

Bioclimatic structures are not a new phenomenon in the Sahel and have prevalent in the region for a long time. Bioclimatic potentially present many benefits including overall cost reductions for beneficiaries and improved wellbeing for inhabitants.

In Mali, bush timber has traditionally been used for roofing, but this is further contributing to deforestation. Increasing regression of forested areas in Mali's Sahel means that traditional building techniques using timber are no longer feasible given they contribute to ecosystem degradation and do not provide protection in the face of changing weather patterns.

Communities will be informed about the benefits of bioclimatic structures to the preservation of their habitat.

Additional comments were received from Canada at CEO Endorsement and were addressed as shown in the table below:

Canada's comments at CEO Endorsement stage	AfDB response at CEO Endorsement stage
<p>"The proposed project aims to promote resource planning and management that address socio-economic and climatic priorities. In doing so, it aligns with Mali's national priorities in the agriculture sector and supports the Mali government's current policies of increasing agricultural productivity.</p> <p>1. Conflict dynamics in the central regions of Mali (Ségou, Mopti) are not overtly considered in this project. There has been a rise of multilayered community-based conflicts involving different ethnic groups over land issues (sharing, access, ownership, rights, etc.) in the region. Further, farmers, pastors and herders are competing over the lands in the central regions. We suggest that the project proponent consider hiring a conflict analysis and resolution focal expert who could assist with any conflicts that might arise during project implementation.</p>	<p>1. The NGO that will be executing the Programme to develop the agricultural value chain and to strengthen the nutrition of benefitting communities of the P2RS Baseline project in Mali has already mobilized a Conflict resolution expert. His remuneration will be covered by the GEF financing.</p>
<p>2. Youth constitutes one of the most underemployed and marginalized groups in the central regions of Mali. Does the project proponent have plans to incorporate activities that will focus on this vulnerable population?</p>	<p>2. Most of the baseline project's activities will target the women and the youth (amongst the vulnerable communities). Nearly all capacity building activities from the baseline project will benefit young men and women, including for waste management activities.</p>

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

A. Provide detailed funding amount of the PPG activities financing status in the table below:

During the recruitment of the consulting firm for the preparation of the GEF project, it was found that the financial proposal of the most qualified firm indicated an amount higher than the total PPG amount obtained from the GEF. In light of this financing gap, the Bank managed to lower the amount requested by the firm to about 148 400 Euros. Given that the PPG requested for this project corresponds to 150 000 USD which corresponds to about 120 000 Euros, there was therefore a gap of 28 400 Euros. This gap was filled by a contribution from the AfDB's administrative budget. This the reason why the commitment amount of 173 745 USD is superior to the 150 000 USD requested as PPG from the GEF.

PPG Grant Approved at PIF: 150 000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF/CBIT Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Land Degradation	100,000	79,000	115,830
Climate Change	50,000	39,500	57,915
Total	150,000	118,552	173,745

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

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

Not applicable.

Use this Worksheet to compute those indicator values as required in Part I, Table G to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Indicator values indicated as required in Part I.

ANNEX: Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part1 by ticking the most relevant keywords/topics//themes that best describes the project

Focal Areas, Climate Change, Climate Change Adaptation, Livelihoods, International Waters, Pollution, Nutrient pollution from all sectors except wastewater, Land Degradation, Land Degradation Neutrality, Land Cover and Land cover change, Sustainable Land Management, Restoration and Rehabilitation of Degraded Lands, Income Generating Activities, Sustainable Forest, Chemicals and Waste, Best Available Technology / Best Environmental Practices, Biodiversity, Protected Areas and Landscapes, Terrestrial Protected Areas, Mainstreaming, Agriculture and agrobiodiversity, Stakeholders, Beneficiaries, Type of Engagement, Participation, Consultation, Communications, Awareness Raising, Local Communities, Gender Equality, Gender results areas, Capacity Development, Gender Mainstreaming, Women groups, Integrated Programs, Food Security in Sub-Saharan Africa, Agroecosystems, Sustainable Production Systems, Capacity, Knowledge and Research, Enabling Activities, Knowledge Generation, Training, Climate Finance (Rio Markers), Climate Change Mitigation 1, Climate Change Adaptation 2

<input type="checkbox"/>

Submitted to GEF Secretariat Review

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