GEF6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: LEAST DEVELOPED COUNTRIES FUND

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Enhancing the resilience of communities living in climate change vulnerable areas of Sudan using Ecosystem Based approaches to Adaptation (EbA)			
Country(ies):	Sudan	GEF Project ID:[1]	5703
GEF Agency(ies):	UNEP	GEF Agency Project ID:	01257
Other Executing Partner(s):	Higher Council on the Environment and Natural Resources (HCENR)	Resubmission Date:	July 22, 2016
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of Parent Program	[if applicable]	Agency Fee ($)	406,980

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in $) GEF Project Financing	(in $) Co-financing
CCA-1	Outcome 1.2: Livelihoods and sources of income of vulnerable populations diversified and strengthened	LDCF	2,140,000	3,960,000
CCA-2	Outcome 2.1: Increased awareness of climate change impacts vulnerability and adaptation	LDCF	1,284,000	2,365,200
CCA-3	Outcome 3.2: Policies, plans and associated processes developed and strengthened to identify, prioritize and integrate adaptation strategies and measures	LDCF	860,000	1,590,000
	Total project costs		**4,284,000**	**7,915,200**

B. PROJECT DESCRIPTION SUMMARY

Project Objective: Increase the climate change resilience of livelihoods and integrated productive agricultural systems in the White Nile State through Ecosystem Based Adaptation approaches

Project Components/ Programs	Financing Type[3]	Project Outcomes	Project Outputs	Trust Fund	(in $) GEF Project Financing	(in $) Confirmed Co-financing
1. Capacity Development for Ecosystems based Adaptation (EbA) and policy mainstreaming	TA	1. Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA.	1.1. A multi-disciplinary White Nile State Technical Committee established and strengthening of HCENR in order to facilitate cross	LDCF	500,000	704,000

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.
[3] Financing type can be either investment or technical assistance.

			cutting dialogue at the state and national levels, promotion of climate change adaptation and EbA and coordination of EbA measure planning (TA 70,480) 1.2. A stocktaking exercise undertaken and revisions of existing national and White Nile State policies and strategies identifying entry points for EbA and cost-effective up-scaling strategies for EbA including budget allocations (TA 88,280) 1.3. Policy briefs and technical guidelines developed and distributed for policy – and decision makers on increasing the resilience of local community livelihoods to climate change using appropriate ecosystem based adaptation and knowledge gained from demonstration activities in Component 2 (TA 125,480) 1.4 Targeted CC adaptation and EbA planning/implement ation training programmes for stakeholders completed, including field visits to learn from successful adaptation implementation.(TA 110,280)			

			1.5. Facilitation of a local policy dialogue (based on vulnerability assessments and practical experiences from pilot implementation of EbA in component 2) on mainstreaming of adaptation into state and locality development plans. (TA 105,480)			
2. Implementation of EbA measures to build adaptive capacities of vulnerable communities	INV	2. Reduced vulnerability of local communities to climate change impacts, in the White Nile State.	2.1. Climate change vulnerability and risks for the selected vulnerable sites are identified to guide EbA interventions in pilot sites in the White Nile State (INV 409,200) 2.2. Regeneration of critical ecosystem services to restore degraded rangelands, increase water infiltration and improve resilience of rain fed agriculture and pastoralism under increasing drought conditions and dry seasons (INV 457,220) 2.3. A number of EBA support measures are piloted and integrated into existing local community livelihood activities, including in situ rainwater harvesting and drought/flood resilient eco-agriculture. (INV 1,297,220) 2.4. Pilot implementation of alternative	LDCF	3,080,000	6,204,500

			livelihood activities based on indigenous practices, including, inter alia, poultry breeding, home garden farming, and small ruminant strategic feeding as well as alternative energy use strategies to enhance community resilience to climate change impacts (INV 576,220) 2.5. Local authorities, communities, committees and user groups trained on adapting community livelihoods to climate change through the use of EbA and on monitoring of EbA measures technologies aimed to reduce dependence on dwindling natural resources (INV/TA: USD 340,120)			
3. Knowledge management for appropriate EbA design	TA	3.1 Strengthened information base and knowledge on EbA and its cost-effectiveness are readily available for various uses	3.1. Information, lessons learnt from project interventions and knowledge on climate change adaptation and resilient livelihoods using EbA are captured, stored and widely disseminated among stakeholders at all levels (TA 203,000) 3.2. A central information base of data on EbA lessons learned and cost-effectiveness of interventions established within the existing Cloud operated jointly by HCENR and the	LDCF	500,000	629,900

			ARC (through the LDCF2 project) (INV 120,900) 3.3. An upscaling strategy for EbA across Sudan by both the public and private sectors is developed based on an economic cost-benefits assessment (INV/TA 176,100)			
				Subtotal	4,080,000	7,538,400
				Project Management Cost (PMC)[4]	LDCF	204,000	376,800
				Total project costs		**4,284,000**	**7,915,200**

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Cofinancing	Amount ($)
Recipient Government	White Nile State's Water Corporation	In-kind	2,415,200
Recipient Government	Animal wealth administration at the White Nile State	In-kind	2,000,000
Recipient Government	Range and Pasture administration at the White Nile State	In-kind	500,000
Recipient Government	White Nile State Ministry of Agriculture, Irrigation and Forests	In-kind	1,600,000
GEF Agency	UNEP ADAPT: Adapt for Environment and Climate Resistance in Sudan	Grants	1,400,000
Total Co-financing			**7,915,200**

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee[a)] (b)[2]	Total (c)=a+b
UNEP	LDCF	Sudan	Climate Change	(select as applicable)	4,284,000	406,980	4,690,980
Total Grant Resources					**4,284,000**	**406,980**	**4,690,980**

a) Refer to the Fee Policy for GEF Partner Agencies

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[5]

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	*hectares*
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*8,100 hectares*
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	*Number of freshwater basins*
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	*Percent of fisheries, by volume*
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	metric tons
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	*metric tons*
	Reduction of 1000 tons of Mercury	*metric tons*
	Phase-out of 303.44 tons of ODP (HCFC)	*ODP tons*
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	*Number of Countries:*
	Functional environmental information systems are established to support decision-making in at least 10 countries	*Number of Countries:*

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? NO

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

PART II: PROJECT JUSTIFICATION

[5] Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF[6]

A.1. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline projects, 3) the proposed alternative scenario, GEF focal area[7] strategies, with a brief description of expected outcomes and components of the project, 4) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 5) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

1. No significant changes have been made to the original PIF. All outcomes and outputs have been detailed and contextualized, and some outputs have been restructured/re-worded to emphasise the needs highlighted during the project preparation phase, as noted during workshops and bilateral/multilateral consultations.

2. Specific updates to the outcomes / outputs are underlined and rationalized in the following table:

Table 1: Updates to Outputs

PIF Outcomes	PIF Outputs	PIF Outcomes	PIF Outputs	Reason for Change
1.1. Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA.	1.1.1. A multi-disciplinary national committee established that facilitates cross cutting national dialogue on climate change adaptation and EbA in vulnerable sectors.	1. Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA.	1.1. A multi-disciplinary White Nile State Technical Committee established and strengthening of HCENR in order to facilitate cross cutting dialogue at the state and national levels of climate change adaptation and EbA and coordination of EbA measure planning in vulnerable sectors	More description required to show that state coordination of EbA and adaptation measures is necessary due to the number of adaptation and NRM-related projects in the state. A Project Coordination Working Group will also assist the State Technical committee with coordination.
	1.1.2. A stocktaking exercise undertaken and revisions of existing policies and strategies produced to identify entry points for promoting EbA and up-scaling EbA into national strategies including budget allocations.		1.2. A stocktaking exercise undertaken and revisions of existing national and White Nile State policies and strategies identifying entry points for EbA and cost-effective up-scaling strategies for EbA including budget allocations	The types of policies and strategies have been made explicit. Also, the up-scaling strategy will be based on the cost-benefit analysis to be conducted under Component 3 which will demonstrate the cost-effectiveness of EbA measures.

[6] 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.

[7] For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which Aichi Target(s) the project will directly contribute to achieving..

	1.1.3. Policy briefs and technical guidelines developed and distributed for policy – and decision makers on increasing the resilience of local community livelihoods to climate change using appropriate ecosystem based adaptation and knowledge gained from demonstration activities in Component 2 1.1.4 Targeted CC adaptation and EbA planning/implementation training programmes for stakeholders completed, including field visits to learn from successful adaptation implementation. 1.1.5. Facilitation of a local policy dialogue (based on vulnerability assessments and practical experiences from pilot implementation of EbA in component 2) on mainstreaming of adaptation into state and locality development plans.		1.3. Policy briefs and technical guidelines developed and distributed for policy – and decision makers on increasing the resilience of local community livelihoods to climate change using appropriate ecosystem based adaptation and knowledge gained from demonstration activities in Component 2. 1.4 Targeted CC adaptation and EbA planning/implementation training programmes for stakeholders completed, including field visits to learn from successful adaptation implementation. 1.5. Facilitation of a local policy dialogue (based on vulnerability assessments and practical experiences from pilot implementation of EbA in component 2) on mainstreaming of adaptation into state and locality development plans.	
2.1. Reduced vulnerability of local communities to climate change impacts, in the White Nile State.	2.1.1. Climate change vulnerability and risks for the selected vulnerable sites are identified to guide EbA interventions in pilot sites in the White Nile State.	2. Reduced vulnerability of local communities to climate change impacts, in the White Nile State.	2.1. Climate change vulnerability and risks for the selected vulnerable sites are identified to guide EbA interventions in pilot sites in the White Nile State	

	2.1.2. Regeneration of critical ecosystem services to restore degraded rangelands, increase water infiltration and improve resilience of rain fed agriculture under increasing drought conditions and dry seasons.		2.2. Regeneration of critical ecosystem services to restore degraded rangelands, increase water infiltration and improve resilience of rain fed agriculture and pastoralism under increasing drought conditions and dry seasons	As we are supporting the most vulnerable small-holder rainfed farmers and pastoralists (SRFP) with this project, pastoralism had to also be included in this Output 2.2.
	2.1.3. A number of EBA support measures are piloted and integrated into existing local community livelihood activities, including *in situ* rainwater harvesting and drought/flood resilient eco-agriculture.		2.3. A number of EBA support measures are piloted and integrated into existing local community livelihood activities, including *in situ* rainwater harvesting and drought/flood resilient eco-agriculture.	
	2.1.4. Pilot implementation of alternative livelihood activities, including, inter alia, fish production, bee keeping, alternative energy sources, vegetable farming, and small scale irrigation, to enhance community resilience to climate change impacts		2.4. Pilot implementation of alternative livelihood activities based on indigenous practices, including, *inter alia*, poultry breeding, home garden farming, and small ruminant strategic feeding as well as alternative energy use strategies to enhance community resilience to climate change impacts	Indigenous practices are being supported when they support EbA-thinking. Also, the types of alternative livelihood activities that the communities have selected during stakeholder consultations held during the PPG phase are now listed.
	2.1.5. Local authorities, communities, committees and user groups trained on adapting community livelihoods to climate change through the use		2.5. Local authorities, communities, committees and user groups trained on adapting community livelihoods to climate change through the use of EbA and on monitoring of EbA	Monitoring of EbA measures is very important for the knowledge management aspect of the project in

	of EbA.		measures	Component 3.
3.1 Strengthened information base and knowledge on EbA and climate change are readily available for various uses.	3.1.1. Information, lessons learnt from project interventions and knowledge on Climate change adaptation and resilient livelihoods using EbA are captured, stored and widely disseminated among stakeholders at all levels. 3.1.2. A central information base of data on EbA lessons learned and cost-effectiveness of interventions established in appropriate government entity. 3.1.3. An upscaling strategy for EbA across Sudan developed, based on business case models for both public and private sectors.	3 Strengthened information base and knowledge on EbA and its cost-effectiveness are readily available for various uses	3.1. Information, lessons learnt from project interventions and knowledge on climate change adaptation and resilient livelihoods using EbA are captured, stored and widely disseminated among stakeholders at all levels 3.2. A central information base of data on EbA lessons learned and cost-effectiveness of interventions established within the existing Cloud operated jointly by HCENR and the ARC (through the LDCF2 project) 3.3. An upscaling strategy for EbA across Sudan by both the public and private sectors is developed based on an economic cost-benefits assessment	The existing cloud database established in the LDCF2[8] project will be used to store all lessons learned and other cost-effectiveness information in order to make most efficient use of resources. National expert and stakeholder consensus during the PPG phase indicated that it is more useful to have a cost-benefit analysis of EbA measures in order to demonstrate their cost-effectiveness and need for upscaling.

A.1 1) Global environmental and adaptation problem, root causes and barriers

3. The Republic of the Sudan (hereafter Sudan) has a population of ~39 million people[9], with approximately 60% of the population dependent on traditional, rain-fed agriculture and pastoral practices. There are high rates of unemployment, limited financial resources and poverty in the

[8] The current project will be described as **LDCF3** due to the fact that it is the third project to be financed by the LDCF. Similarly **LDCF2** refers to the *Climate Risk Finance Project* (also called CRFP) for sustainable and climate resilient rain-fed farming and pastoral systems (2014-2017, US$5.7million) and **LDCF1** refers to the project entitled *Implementing NAPA Priority Interventions to Build Resilience in the Agriculture and Water Sectors to the Adverse Impacts of Climate Change in Sudan* (2009-2013, US$3.3 million).

[9] Data Bank 2014. Population Statistics. The World Bank Group.

country. The growing population density in the rural regions – coupled with poor land use planning and governance – has resulted in a wide range of social and environmental problems. In particular, poor governance of Sudan's environmental sector has led to the overexploitation of natural resources. For example, rangelands and farmlands are being destroyed rapidly.

4. Under the current and predicted effects of climate change – including increases in the frequency and severity of drought events – it is likely that the poor living conditions of rural communities will be further exacerbated. For example, increased frequency and intensity of drought events are likely to affect agricultural yields negatively, thereby compounding food insecurity in the rural region.

5. As outlined in Sudan's NAPA (2007), the groups that are the most vulnerable to climate risks are traditional smallholder rain-fed farmers and pastoralists (SRFP). During past droughts, there has been large-scale human suffering from hunger among these groups, including forced out migration from rural areas and the death of their livestock herds. Flooding also has caused widespread damage in the form of destruction of property and the death of livestock herds. There is ample evidence of recent climatic shocks generating a chain of events that has led to the disintegration of community and the discontinuity of human habitation. In general, this has been due primarily to a combination of extreme poverty levels and lack of alternative non-agricultural income-generating activities.

6. As one of Sudan's most vulnerable regions, the White Nile State is severely impacted by the climate change induced droughts and floods described above. The White Nile State recently prepared its National Adaptation Plan (NAP) where a team of experts was established in the State with representatives from water resources, agriculture and food security, health sectors, research and civil society. The team, benefiting from the training and capacity building programme of the NAP project, conducted a V&A assessment of the three priority sectors in the White Nile State to the impacts of climate change. Almost all localities on the western side of White Nile River were found to be among the most vulnerable to droughts and other impacts of climate change (including the localities of Edwaim, Tendalti, Alsallam, and Gulli, which will be the pilot communities of this project).

7. Climate change and poor natural resources management impacts have already been manifested in declining crop productivity, desertification, loss of grazing resources and rangeland valuable species, land degradation, increased frequency of crop diseases, loss of livelihoods and human migration in search for jobs and alternative livelihoods. The targeted communities along the western side of the White Nile River are particularly vulnerable because of their low capacity for dealing with impacts due to their lack of knowledge about water harvesting, lack of access to improved seeds and other agro-pastoral technologies that can increase productivity and lack of alternative livelihood systems.

8. There is also a general lack of good practical examples on how ecosystem services can provide adaptation benefits in a Sudanese context and how such approaches can be mainstreamed into a broader development agenda. Ecosystems based Adaptation (EbA) approaches that use biodiversity as an adaptation strategy are likely to be a very cost-effective and multibeneficial strategy to build climate resilience in Sudan and the White Nile State.[10] However, they are currently poorly understood and recognized at the national, regional and community levels.

9. Compounding these issues is that there are very limited public resources for support of rural development at both national and state levels. With generally low investment capacity of local communities (due to widespread poverty), investments in agro-pastoral development in the White Nile State remain chronically insufficient. This in turn makes sustaining livelihoods and keeping up farming and livestock productivity with a steadily rising population, a huge challenge even under current climate conditions.

[10] Monroe, R. et al. *Does EbA Work? A review of the evidence on the effectiveness of ecosystem-based approaches to adaptation, International Institute for Environment Development: Research Highlights, Nov 2011.*

10. Such problems are exacerbated by institutional, financial, technological and informational barriers in Sudan and the White Nile State. These barriers that must be addressed include the following:

- Political disintegration / Lack of coordination;
- Lack of inter-ministerial coordination with regards to planning for climate change adaptation;
- Limited awareness and mainstreaming of Ecosystem-based Adaptation (EbA);
- Lack of financing to pilot proven adaptation technologies;
- Lack of demonstration / proof of concept of EbA interventions and related protocols/tools.

A.1 2) Baseline scenario and baseline projects

Baseline situation

11. While underfunded, a number of development initiatives are currently ongoing in the White Nile State and in the four target localities of Al Dwaim, Tandelti, Alsalam, and Gulli addressing a number of development issues for the agriculture and pastoral sectors. These include investments in water supply infrastructure, improved livestock and crop management programmes, rangeland rehabilitation and dissemination of improved seeds. None, however, are taking account of longer term climate change impacts and potential adaptation options. With a general lack of presence and funding from bilateral and multilateral institutions in the White Nile State (due to the long standing political sanctions on Sudan, which have also affected the contributions and support programmes of UN organizations, and greatly reduced the opportunities for Sudan to access development support from bilateral sources), the majority of development activities in the water and agriculture sector are funded through regular national and state funding.

12. The White Nile State development planning follows the national approach, which is based on the 25 Year Strategic Plan to be implemented through the White Nile State's 5 year sectoral plan, with the current sector plan covering the period 2012-2016. The total annual financing allocation to this plan is in the order of 800,000 USD, divided into regular budget for maintaining ongoing activities and services, and an additional small allocation for meeting some of the new and urgent development needs within these sectors (e.g. approximately 300,000 USD). The regular budget covers the implementation of the ongoing programmes such as the support to rain-fed agriculture, plant protection, animal wealth, seeds production, infrastructure, administration, etc. The small development component, on the other hand, includes activities such as infrastructure for range gages, opening and demarcation of animal routes, nurseries, extension centres and seeds storage.

13. A brief description of the baseline situation, as it relates to each component of the LDCF3 project and the associated baseline projects, is described below. More details can be found in Section 2.6 of the UNEP Project Document.

Component 1: Capacity Development for Ecosystems based Adaptation (EbA) and policy mainstreaming

14. All activities of the State's most recent 5 year sector plan for the agriculture and water sector relate indirectly to the maintenance of ecosystem services such as water provision for agriculture and support for productive rangelands for livestock. There is a growing understanding of the significant role ecosystem services play in maintaining and improving rural livelihoods in the state. However, the critical role of ecosystems, have yet to be comprehensively and consistently considered in national and state level planning.

15. While not currently aligned with adaptation needs and priorities, a number of non-climate focused planning frameworks and policies for environmental protection are currently active in Sudan

including: the Forest Act (2000), the Forest Policy and the 5 Year Plan for the forest, rangeland, agriculture and water sectors. (See also the Legal Frameworks discussion in Section 2.4. of the UNEP Project Document) Sudan is in the process of mainstreaming adaptation into its general planning and policy making at both the national and state level through the LDCF2, the Rural Livelihoods' Adaptation to Climate Change in the Horn of Africa programme (RLACC) and the planned ADAPT initiatives. However, the synergies between ecosystem protection, sustainable development and adaptation needs have yet to be fully explored and mainstreamed into general thinking for regular ecosystem protection and sustainable development policy and planning.

Component 2: Implementation of EbA measures to build adaptive capacities of vulnerable communities

16. Farmers and pastoralists in the White Nile State are likely to be continually impacted by climate hazards, in particular related to increasing frequency and severity of droughts and floods. This is likely to cause crop failure, low productivity, death of livestock, and abandonment of pastures. This in turn will exacerbate already existing social and environmental stressors in the state, and therefore affect general socio-economic development in the area. While some limited public support is available from the Sudanese government and through the White Nile State 5 Year sector plans, these programmes are chronically underfunded and only barely able to help communities overcome current climate variability, let alone deal with future climate change impacts. Furthermore, with limited awareness among state and community decision makers and extension staff on the potential benefits and cost-effectiveness of EbA, ecosystems and their crucial role in providing ecosystem services and adaptation benefits to agriculture and water are rarely considered in ongoing investments. Without LDCF support this situation is likely to remain unchanged.

17. In spite of water supply interventions by the White Nile State Water Corporation, there is no focus on increasing the climate resilience and sustainability of water infrastructure. The White Nile State Water Corporation lacks required financial resources and technical knowledge to climate proof water supply interventions. Consequently, rain-fed farmers and pastoralists, particularly those on the west side of the White Nile River, do not have sufficient water for drinking and irrigation. They are subject to loss of crops and livestock due to the fact that water storage mechanisms are inefficient and wells and reservoirs are in need of maintenance and repair. As identified in the NAP, there is a need to construct micro-dams, water wells outfitted with solar pumps, boreholes and water points.

18. Due to poor land management and significant tree removal for Gum Arabic (acacia gum) production, agro-pastoralists and pastoralists are losing their forests and rangelands. EbA approaches are not considered for existing interventions. Furthermore, other than some small investments by the Range and Pasture Administration and the Animal Wealth Administration of the White Nile State (on the order of USD 600,000 annually), there are limited activities to address climate risks in the livestock sector. Such interventions are focusing on current pastoralist issues by establishing grazing enclosures, reseeding and promoting the livestock value chain. However, such programmes have less than 50% of the required financing to meet annual targets. Similarly, the Forest National Corporation is a self-financed institution that lacks adequate funding to implement the NAP target of implementing agro-forestry on 10% on rain-fed agricultural lands.

19. The Rainfed Agriculture Department has a programme to provide improved seeds, to implement water harvesting and to improve extension services. However, the budget allocation and coverage of this programme is inadequate to reduce the vulnerability of the 4 target localities on the western side of the White Nile River. Similarly, the Agricultural Research Corporation (ARC) has developed a range of gender-sensitive technologies/methodologies to improve agroforestry, particularly for rain-fed farmers (e.g., pumps for rainwater harvesting, high yield cereals). Although some of these technologies/methodologies were successfully piloted in the LDCF1 project in other states, such technologies/methodologies have yet to be promoted and tested by farmers in the White Nile State.

20. Currently, rain-fed farmers and pastoralists are particularly vulnerable to climate shocks due to their dependence on natural resources. Most have no other option than to farm with traditional, ineffective methods (due to lack of knowledge on sustainable EbA practices) or to continue grazing livestock in spite of recurring drought. Diversification of livelihoods is required to ensure that the target populations, which are already in poverty, have other livelihood options to create an asset base making them more resilient to climate shocks. If not supported, pastoral systems will continue pulling out of the mobile production system, tending to compete for scarce land for farming or be lured into unsustainable industries.[11] With each generation, between 15 and 25 percent of pastoralists leave the production system because they are lured to cities or to get "rich quick" in the gold industry.[12]

Component 3: Knowledge management for appropriate EbA design

21. Knowledge and awareness of appropriate EbA strategies is non-existant at both national, state and communtiy levels. A system for compiling, storing and communicating best practices, specific to EbA, is required. Currently, a cloud-based knowledge base focused on storing environmental data is being developed with LDCF2 funds. The database contains climate projections and Agriculture Research Corporation (ARC) innovation data on climate adaptation technologies. However, the database does not detail information on the use of biodiversity and ecosystem services as part of an overall adaptation strategy. The existing platform must be enhanced in order to detail how to mainstream EbA approaches into policy development, planning, budgeting and decision-making.

Baseline projects

Baseline projects for the LDCF3 project are discussed here. More in-depth details of these projects can be found in Section 2.6 of the UNEP Project Document.

Component 1

22. **Adapt for Environmental and Climate Resistance in Sudan, ADAPT!** (2016-2019, USD 1.4 million). The project's goal is to increase understanding and integration of climate resilience and environmental management into programme delivery, plans and policy in Sudan. It is the second phase of Sudan's integrated Environment Programme (SIEP 1). Relevant aspects of ADAPT! to the LDCF3 project include:

- Component 1: coordinating environmental programming to promote linkages across government sectors, building institutional capacities to address climate issues in the long-term, and promoting best environmental practices;
- Component 2: supporting socio-economic analysis of climate constraints and promoting the use of environmental information; and
- Component 3: informing and influencing national policy and planning so as to improve environmental governance.

23. The LDCF3 project will build on the expected capacity-building interventions of ADAPT, which are aimed at improving governance in the environment sector. Under Component 1 of the LDCF3 project, approximately 30 representatives from the environment sector will be trained on: i) how to interpret EbA and climate change adaptation investment appraisals; ii) how to use cost effectiveness rationales for the planning and decision-making process; and iii) the importance of

[11] Feinstein International Center, Tufts University and UNEP Study, *Standing Wealth: Pastoralism Livestock Production and Local Livelihoods in Sudan*, 2013

[12] The nomadic groups in the East and West of the country make up 9.1% of the population; they move seasonally across very long distances and have the least access to basic services and the poorest health and education indicators, reflecting their historic marginalization.

mainstreaming EbA and climate change adaptation into regional, national and sectoral development plans for the environment sector. Without LDCF resources, ADAPT will not have the priority and capacity to mainstream EbA into planning and decision-making processes and will not be able to encourage private sector investments into proven climate-resilient, cost effective EbA measures.

Component 2

24. **Programme for Construction of Water Stations, Ponds (hafirs) and Wells funded by the White Nile State Water Cooperation** (total annual budget 2016-2020, USD 2.4 million). The purpose of this programme is to provide water supply (from the Nile river) to remote communities facing severe water stress. The LDCF3 project will provide top up funding to increase climate resilience of water infrastructure in the communities, and by creating awareness and knowledge that will enable more efficient management of water resources looking at upstream contributions by the watershed and entire ecosystem.

25. Without LDCF resources, the White Nile State Water Corporation will continue to develop water infrastructure without an understanding of climate change vulnerabilities of the water sector – and associated costs. Consequently, water infrastructure will not be 'climate-proofed' and take into account future drought/flood predictions, erratic rainfall and temperature increases. To enhance the water sector's understanding of adaptation, economic assessments will be undertaken under Outcome 3 of the LDCF3 project. These assessments will build on the sectoral vulnerability assessments and will demonstrate: i) the economic cost of current and future climate change to the water sector; and ii) the relative costs of different EbA and adaptation alternatives. Additionally, the establishment of the White Nile State Technical Committee – supported under Outcome 1 – will assist in the long-term climate-proofing of the water sector through improved inter-sectoral coordination for budget planning and adaptation.

26. **Project for Promotion of Animal Wealth and Management Funded by the Animal Wealth Administration at the White Nile State** (total annual budget 2016-2020, USD 2 million). The objective of this project is to promote a shift from traditional grazing systems to more economic livestock production models, including rangeland rehabilitation through establishment of grazing enclosures, improving meet and milk production and providing veterinary and extension services. This is a continuous programme, however, lack of adequate financial resources limit the implementation of the programme to less than 50% of its annual targets. While underfunded, activities currently ongoing under this project can be used as a foundation from which to scale up and address climate risks in the livestock production sector through the LDCF3 project. However, the LDCF3 project will promote a more integrated EbA approach without the need for enclosures.

27. **Improved Rangeland Management Programme funded by the Range and Pasture Administration at the White Nile State** (total annual budget 2016-2020, USD 0.5 million). This programme represents core activities implemented by the State's Range and Pasture administration in support of the 5 Year Plan. It will include a number of activities and investments focused on improving rangeland and pasture management in the State, including: rangeland rehabilitation, conservation and promotion (through seed collection and reseeding) of valuable grazing species, measures to prevent rangeland fires, sand dune fixation, facilitation of animal movements to prevent conflicts with farmers etc. These investments, though insufficient, provide a valuable baseline on which to build to LDCF3 project activities. The LDCF3 project will add an EbA-centric approach to demonstrate how to sustainably manage livestock and pastures while improving ecosystem services.

28. The **Integrated Solutions Project (ISP)** (USD 1.6 million, the White Nile State) being implemented by the Ministry of Agriculture and funded by the Federal Government supports training for the rain-fed sector using extension farms and pilot sites in all states of Sudan with emphasis on rainfed agricultural areas. The Project is designating pioneer farmers and providing agricultural technology packages to increase productivity. The LDCF3 project will exploit the lessons learned on adaptation technology transfer gained through the ISP. In return, the Ministry of Agriculture and its umbrella organization in the White Nile State will gain training on how to integrate EbA and successful, cost-effective adaptation measures into its planning and budgets.

Component 3

29. Component 2 of the **ADAPT** project aforementioned focuses on baseline information gathering to improve knowledge management of adaptation in Sudan. However, without LDCF resources, ADAPT will not include ecosystem-centric thinking in the existing Cloud database. By continuing support for the existing Cloud database, it will become the central storage mechanism for environmental information, forecasts, predictions, lessons learned and costs. Incorporation of successful EbA demonstrations will enable EbA to be integrated and scaled-up in other environmental-related plans and strategies.

30. Relative to adaptation technologies, a baseline project is the **Seed Development Project** (2011 – 2017, USD 17.5 million supported by IFAD, not providing cofinancing because already providing to LDCF2). This project is testing the model of a private public partnership (PPP) between private seed companies, the farmers and the public extension services to produce and market certified seeds for smallholder, traditional rain-fed farmers who generally grow less than fifteen feddans (6.3 ha) of land. A minimum of approximately 108,000 traditional rain-fed smallholder farmers, of which at least 30,000 women, are expected to benefit from the Seed Project through increased returns from the use of quality certified seed. The LDCF3 project will i) build on the experiences of the SEED project by adopting the most effective means of collaborating with the private sector and ii) contribute to the proliferation of improved seeds.

A.1 3) Proposed Alternative scenario

31. The current and predicted effects of climate change – including *inter alia* increases in the frequency of drought events, delays in the rainy season, increasing desertification – are likely to reduce the efficacy of the baseline projects. For example, the State Water Authorities will continue to develop water infrastructure such as the Wad Gabur earthen dam without an understanding of climate change vulnerabilities of the water sector – and associated costs. Similarly, without LDCF3 project interventions the Animal Wealth Administration will focus solely on improving the productivity of livestock without the benefit of restoring healthy ecosystems to buffer rangelands from decreasing fodder, increasing soil infertility and creeping desertification.

32. In order to enhance the capacity of national and state government members and agro-pastoral communities to adapt to climate change in the White Nile State and to build on the outcomes of baseline projects, the LDCF3 project will undertake a range of adaptation interventions. Under Component 1, the technical capacity of government staff at local, state and national levels to adapt to climate change in Sudan will be increased with enhanced knowledge of EbA. This will be achieved by promoting EbA as a strategy to address present and future climate change through training programmes. EbA will also be integrated into national strategies and budgets in addition to state and locality development plans. Under Component 2, EbA technologies and climate-resilient land and water management techniques will be transferred to agro-pastoral communities in the White Nile State to reduce their vulnerability to droughts, rainfall variability, and extreme events. Designs for EbA activities will take into account current and predicted climate change impacts. Similarly, alternative livelihoods supporting EbA will be promoted as a means to reduce risks associated with climate shocks. Finally, under Component 3, Sudan's EbA information base, monitoring capacities and knowledge management systems will be strengthened. Additionally, an upscaling strategy for the expansion of EbA practices will be developed based on evidence from cost-benefit analyses for both the public and private sectors. The Components are described briefly below. More detail, including the activities per output, can be found in Section 3.2 of the UNEP Project Document.

Component 1: Capacity Development for Ecosystems based Adaptation (EbA) and policy mainstreaming

Outcome 1: *Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA*

33. The project will facilitate a dialogue process (to investigate the potential for EbA as a strategy for climate change adaptation in Sudan) at both the national and state levels. HCENR will be reinforced to promote EbA at the national level while a White Nile State Technical committee will be established to facilitate dialogue and to coordinate EbA measure planning at the state level. The dialogue will take place with participation of a broad range of stakeholders including government institutions, community based organizations (CBOs) and Non-Governmental Organizations (NGOs).

34. The project will also facilitate a review of existing policies for entry points of EbA into practical legislation and planning, and will provide technical support such as policy briefs and guidelines. All planning for EbA will take into account climate predictions provided by the Sudanese Meteorological Authority which is being supported by the LDCF2 Climate Risk Finance project to enhance prediction and forecasting capacities. LDCF funds will be spent to provide targeted training of stakeholders, including, when relevant, study missions to pilot implementation sites of Component 2. On the state/locality level (based on vulnerability assessments and practical experiences from pilot implementation of EbA in Component 2) LDCF funds will be used to facilitate a policy process to mainstream adaptation into regular state/locality planning and budgeting.

Component 2: Implementation of EbA measures to build adaptive capacities of vulnerable communities

Outcome 2: *Reduced vulnerability of local communities to climate change impacts in the White Nile State*

35. Presently, a more detailed assessment is necessary for the design, planning and construction of specific EbA measures in localities. This component will provide targeted assessments to direct investments for EbA in the four pilot localities on the western side of the White Nile River (Edwaim, Tendalti, Alsallam, and Gulli. All localities were identified as vulnerable to climate change through the Sudan NAP and NAPA processes and via stakeholder consultations as indicated in Appendix 7 of the UNEP Project Document. Concrete interventions in these localities will be implemented in three phases.

36. First, a comprehensive Vulnerability and Adaptation (V&A) assessment detailing specific climate change vulnerabilities in each of the target communities will be conducted to identify entry points and guide identification of specific priority EbA measures to be pursued. This assessment will analyse existing indigenous practices for dealing with current drought and flood risks and how these can be considered in the development of local adaptation measures. Examples of indigenous practices include water harvesting, sorghum and millet grains storage, drying of vegetables like okra and tomatoes and small ruminants feeding.

37. Second, the project will implement concrete adaptation investments that integrate EbA for the agriculture, pastoral and water sectors in each of the 4 target SRFP communities. Designs for the concrete investments will take into account climate predictions provided by the Sudanese Meteorological Authority in terms of rainfall and temperatures expected seasonally. Based on the integration of present and future climate risks, the EbA approach will be piloted through targeted restoration of degraded ecosystems such as rangelands, forests and riparian zones. Climate-resilient, drought-tolerant plant species will be prioritised in these restoration activities. The project will prioritize native species which generate multiple goods and services (for example fruit trees) for the benefit of local communities. Specific, concrete EbA measures to be implemented include 1) establishment and strengthening of extension farms with improved seeds and rainwater harvesting, 2) establishment of 2,000 local farms (4 ha each) demonstrating adaptation technologies and EbA practices, and 3) water reservoir rehabilitation. By strengthening extension services of the ministries of Agriculture, Range and Pasture and Forestry, this will ensure sustainability of project interventions and easier integration of EbA into state development planning. Importantly, the EbA measures will involve communities at pilot sites in the site selection and implementation of the project's activities through the support of Village Development Committees (VDCs) and Water User Associations

(WUAs) to be established with the support of the project. VDCs had much success in supporting climate-resilient initiatives for the LDCF1 project and are now officially recognized as Civil Society Organizations. The VDCs will therefore be replicated in these localities.

38. Similarly, revolving funds had success in the LDCF1 project by strengthening the 'Sandug' structure for small-scale, financing for resilience.[13] [14] The VDCs provided the overall managerial role of the Sandug, and in most cases, women from the VDCs took the responsibility of the day to day running of the fund. The revenues obtained from the newly introduced adaptation activities under the project interventions were used to get the initial capital to start up the 'Sandug'. Two successful examples were i) using the Sandug to purchase water pumps for agricultural crop irrigation and ii) using the 'Sandug' to purchase butane gas units (cylinder and stove) by households who adopted adaptation technologies and could pay back the cost in installments.

39. Thirdly, LDCF funds will be used to provide targeted training of local farmer/pastoral producer groups, CBOs/NGOs and the Women Union on appropriate adaptation strategies for making community livelihoods more resilient to climate change impacts both present and predicted. This will include promoting women to farm in their backyards with appropriate, efficient farming implements and practices and promoting alternative livelihoods based on indigenous practices such as poultry breeding with local races and small ruminant feeding. All of the livelihood activities supported will enable populations to build an asset base to increase their resilience against climate shocks.

Component 3: Knowledge management for appropriate EbA design

Outcome 3: *Strengthened information base and knowledge on EbA and its cost-effectiveness are readily available for various uses*

40. Component 3 will support knowledge management for EbA based on the lessons learned through the implementation of project interventions in Component 2. Due to the fact that there is limited awareness about climate change impacts and adaptation across sectors at national, state and local levels,[15] Component 3 will collate all lessons learned from the demonstration sites established in Component 2.

41. Additionally, information-sharing mechanisms – in the form of an e-library – will be established to promote sharing of cost-effective EbA practices. The e-library will be established in the Cloud database currently being developed under the LDCF2 project. Lessons learned from the LDCF3 project and other national and international adaptation projects will also be shared through this e-library.

42. Component 3 will also develop an economic assessment of the EbA interventions of Component 2. The assessment will quantify the economic impacts of climate change on agro-pastoral zones, disaggregated by sector and quantify the cost of current and future climate change to the agriculture, water, and pastoral sectors. The assessment will report on activities interesting to the private sector including seed production, water harvesting, solar pumping,[16] fodder production, dairy processing, fattening for small ruminants and poultry production. This cost-effectiveness assessment will then provide costs of the various potential adaptation options relative to no adaptation response. Based on the economic study, an upscaling plan for cost-effective adaptation interventions for agro-

[13] Canada-UNDP Climate Change Adaptation Facility – Case Study: Using a Rural Financing Mechanism – Sandug – to scale up Climate Change Adaptation in Sudan.

[14] A 'Sandug', which literally means a box for holding money, traditionally consisted of a group of 10 to 20 women who contributed an agreed upon amount of money or commodity to a group fund, at regular periods of time.

[15] NAPA Best Practices Documentation Study, 2012, UNEP Wadi ElKu Project in Northern Darfur

[16] Promotion by the private sector on the use and maintenance of solar pumps must be done in coordination with the State Water Authority

pastoral areas will be recommended. The results of the economic assessment will be disseminated to government members and the public and private sector in order to promote the establishment of Public Private Partnerships (PPPs) to support integration of EbA in other projects, plan and budgets.

A.1 4) Additional cost reasoning and cofinancing

43. The current and predicted effects of climate change will have negative effects on the already degraded rangelands and farming systems for smallholder rain-fed farmers and pastoralists (SRFP) in the White Nile State. Local and national government staff (such as from the Animal Wealth Administration and the State Water Corporation) do not currently have the financial resources to improve the adaptive capacity of rain-fed farmers and pastoralists to climate change. In particular, these institutions have limited technical capacity to implement appropriate responses and interventions for adaptation.

44. The LDCF3 project will increase the adaptive capacity of the government and SRFP communities in the White Nile State to climate change. This will be achieved by i) promoting the integration of EbA into relevant policies, plans and budgets; ii) implementing adaptation interventions supporting EbA in the 4 target communities; and iii) strengthening technical and institutional capacity of SRFP communities at intervention sites and national stakeholders for EbA and climate change adaptation.

45. In addition, the project will support upscaling of the successful EbA measures by promoting successful, cost-effective EbA measures to the public and private sectors. Private sector implication will be important for the long-term. The private sector will be implicated in the following manner:

- Water sector: Private sector contractors will be initiated by the State Water Corporation.
- Fodder production will implicate private sector companies.
- The production and sales of improved seeds and agricultural implements such as ploughs are activities that involve the private sector.
- Alternative energy products such as improved stoves (butane gas stoves and cylinders) and solar powered pumps will continue to be provided by the private sector.
- Animal feed will exploit the existing products produced by the local sugar factories.

46. **Cost-effectiveness** was fully integrated into project design. For instance, the LDCF3 project includes technical training for VDCs, WUAs and technical focal points within each of the 4 target communities on implementing, maintaining and monitoring project interventions. This approach will reduce the overall cost for monitoring project activities. Moreover, it will promote sustainability of the interventions beyond the lifespan of the projectDuring the process of selecting interventions, alternative approaches for reducing climate vulnerability of local communities at project intervention sites in Sudan were considered. A detailed evaluation of their cost-effectiveness is described below.

Table 2: Analysis of project cost-effectiveness of adaptation alternatives

LDCF3 project interventions are implemented	**Alternative 1**	**Alternative 2**
Outcome 1: Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA		
A multi-disciplinary State Technical Committee established in order to facilitate cross cutting dialogue on climate change adaptation and	Create a new nationally-based inter-ministerial committee for CCA/EbA HCENR's role is to coordinate all environmental activities	Facilitate cross cutting dialogue on climate change adaptation by relying on the motivation of existing ministries

EbA in vulnerable sectors and to coordinate EbA measure planning	related to CCA and EbA on a national level. Also, within the White Nile State, thanks to the NAP process, there are already EbA experts and a State Environment Committee. Therefore, this option would be redundant and would waste financial and human resources. Furthermore, a new independent, nationally-based cross-sectoral committee would entail that knowledge remains isolated within a particular group of people at a high government level. This would not be a cost-effective and sustainable approach to climate change adaptation on the local level in Sudan where adaptation must take place.	Ministries do not have the mandate to consider EbA, particularly at the detailed state levels where interventions take place. Therefore, a state-based technical committee which is multi-disciplinary is the only effective option to facilitate cross-cutting dialogue in a manner which will make a difference on-the-ground. Moreover, a multi-disciplinary committee will continue to support an integrated approach to adaptation and will have the technical skills to understand and disseminate cost-benefit analysis results demonstrating EbA measure cost-effectiveness
<u>Targeted CC adaptation and EbA planning/implementation training programmes to build the capacities of line ministries and other relevant Stakeholders, including field visits to learn from successful adaptation implementation</u> Strengthened institutional and technical capacities of climate-vulnerable line sectors will promote sustained adaptation to climate change in Sudan. In particular, through training government officials from a number of relevant line ministries, a "diffusion" effect will be promoted within these ministries, whereby knowledge and skills for climate change adaptation will be transferred to staff members outside of the training sessions.	<u>Bring in national experts to promote EbA planning/implementation</u> Due to the fact that trained experts in Sudan are often lured to more lucrative, outside opportunities, it is best to keep knowledge within the existing ministries so that expertise can be stored and passed down. Furthermore, the cost of hiring new national experts would be greater than training government representatives that would remain within – and transfer knowledge and skills to – existing ministries. Most importantly, the common insufficiency of existing baseline projects has been inadequate budget lines for	<u>Training of line ministries by reading technical guidelines</u> Visits to pilot sites and seeing EbA measures in the field is the cost effective approach to strengthening national and inter-ministerial motivations as well as to increase understanding to implement adaption measures.

	financing EbA activities. Ministries must be trained to be able to budget for the most cost-effective EbA options.	
Facilitation of a local policy dialogue for mainstreaming of adaptation into state and locality development plans At the state and local level, there is limited public knowledge on: i) the effects of climate change on agro-pastoralists; ii) potential adaptation interventions to manage these effects; and iii) the benefits of EbA for increasing the resilience of communities to climate change. Through the LDCF3 project, awareness-raising campaigns will be designed and implemented for the target communities. Training will be on successful EbA implementations and how to integrate them into planning.	Provide training on national levels to mainstream adaptation LDCF funds will be used to support the national level to integrate EbA into policies, strategies and budgets. However, it is also critical to update state and locality development plans to incorporate EbA in order to fully mainstream adaptation principles into local livelihoods.	
Outcome 2: Reduced vulnerability of local communities to climate change impacts, in the White Nile State		
Regeneration of critical ecosystem services to restore degraded rangelands, increase water infiltration and improve resilience of rain fed agriculture under increasing drought conditions and dry seasons. Ecosystems – including rangelands and forests – act as buffers to increasing climate change impacts such as floods	Using solely hard infrastructure water management techniques for drought and flood risk management Some initiatives by the State Water Corporation have focused on constructing hard infrastructure to divert water and protect local communities from flooding or to build dams to divert water for storage. Although these items provide	Relocation of pastoralists in low productive rangeland areas There is a risk that economic, environmental and social costs could be incurred through relocating semi-nomadic communities. For example, relocation to new sites could result in lost livelihoods, lost sense of community and social capital, cultural alienation. Furthermore, relocation could

and droughts and provide services[17]. Moreover, these ecosystems are capable of undergoing "autonomous" adaptation because of their natural nature. In addition, rangeland restoration and afforestation provide multiple social and ecological benefits including: i) maintenance of soil fertility; ii) carbon sequestration; and iii) biodiversity and habitat restoration. In the long-term, these benefits will contribute to climate change mitigation. Therefore, EbA is a 'soft' proactive rather than reactive approach for addressing climate change. A growing body of scientific research indicates that increasing numbers of EbA projects will deliver favourable cost-benefit ratios in comparison with projects that use only hard interventions to facilitate adaptation to climate change.[18]	physical barriers against climate-related hazards, they can often lead to erosion or siltation. Furthermore, the cost of construction of this infrastructure is much greater than EbA. For example, the unit cost of constructing an earth dam is on the order of 500,000 USD. EbA measures take a holistic approach and look more upstream to prevent adverse environmental impacts such as siltation and erosion. Afforestation and tree planting along riparian zones will assist with reducing erosion and desertification. At the same time, they will provide more ecosystem services to the population.	exacerbate the already existing clashes between farmers and pastoralists over arable land. The situations of drought, desertification and scarce resources have been factors behind prolonged stays of nomads in areas of agricultural production ("Talq"), which has caused clashes between nomads and farmers.[19] Clashes are worsening with climate change, because it has caused farmers to intensify continuous cultivation (limit fallow periods), expand land use, construct more fencing and abandon previous mutual interdependencies between cultivation and pastoralism (e.g., manurism, sharing of crop residues, animal transport of crops)[20].
<u>Establish Village Development Committees (VDCs)</u> <u>Establish Water User Associations (WUAs) in each</u>	<u>Rely on the State Technical and Environment Committees to support EbA measures</u> The State committees will be working at a higher level and	<u>N/A</u>

[17] Jones et al. 2012. Harnessing nature to help people adapt to climate change. *Nature*. Published online: 26 June 1012. DOI: 10.1038/nclimate1463

[18] Monroe, R. et al. *Does EbA Work? A review of the evidence on the effectiveness of ecosystem-based approaches to adaptation, International Institute for Environment Development: Research Highlights, Nov 2011.*

[19] *Land Issues and Peace in Sudan*, Sudanese Environmental Conservation Society (SECS) and UNDP November 2006.

[20] Feinstein/UNEP Study, 2013, *Standing Wealth: Pastoralist Livestock Production and Local Livelihoods in Sudan.*

pilot area Both VDCs and WUAs will facilitate community-based EbA. They will also promote gender mainstreaming by mandating at least a 30% women representation. The VDCs have proven successful at the LDCF1 pilot sites for SRFP. Also, WUAs have been successful in managing and maintaining community water resources in Darfur[21]	will not be able to resolve traditional quarrels over water and land management. Communities and their traditional leaders (which will be reinforced by both the VDCs and the WUAs) will be supported to have the technical and operational expertise for EbA management.	
Climate change vulnerability and risks for the selected vulnerable sites are identified to guide EbA interventions in pilot sites in the White Nile State By conducting a site-specific V&A assessments of specific climate change vulnerabilities in each of the target communities, it will identify specific entry points and guide identification of specific priority EbA measures, emphasizing gender mainstreaming	Rely on NAP V&A Assessment The NAP V&A assessment was generalized to describe the White Nile State as a whole.	
Establish a revolving fund to support Village Development Committees in purchasing animal drawn ploughs, drought-resistant seeds, solar powered water pumps, animal feed supplements and improved cookstoves (2.4.9)	Direct price subsidies for clean cookstoves Past experiences show that the deployment of fully subsidized clean cookstoves through development aid projects has had limited effects on long-term adoption. Direct price	N/A

[21] The ***Wadi El Ku Catchment programme*** (financed by UNEP, USD 7.6 million) in North Darfur, currently implemented by UNEP in partnership with Practical Action (2014 – 2017), is facilitating reforms to environmental governance that enable an end to chronic cycles of conflict over natural resources.

Provide training to VDCs on accessing and managing of the revolving fund, (e.g., book keeping) The LDCF3 project will build off the successes of the revolving funds in the LDCF1 project by administering and managing them with the support of legally recognized VDCs and WUAs. In the LDCF1 project the revolving funds were used to purchase solar powered water pumps and gas cookstoves.	subsidies may, in fact, increase barriers for commercialisation as they reduce the intrinsic value of clean cookstoves which lowers customers' willingness to pay.[22]	
Outcome 3: Strengthened information base and knowledge on EbA and climate change are readily available for various uses.		
A central information base of data on EbA lessons learned and cost-effectiveness of interventions established By exploiting the existing iCloud database jointly operated by HCENR and ARC, it will be the most cost-effective option to provide EbA information to the greatest number of stakeholders at a range of levels. The adaptation materials will be freely available to all Stakeholders.	A new online platform for adaptation planning in Sudan – including EbA – is developed Creating a new platform would be redundant and a waste of financial resources. Furthermore, the target stakeholders have familiarity with this platform. Moreover, maintaining another platform would be costly and require additional technical expertise.	N/A
An upscaling strategy for EbA across Sudan is developed, based on EbA concept notes for both public and private sectors By developing and presenting	EbA interventions are upscaled through public-sector or international donor funding In line with the National Adaptation Planning (NAP) process that was initiated at	N/A

[22] DifferGroup, *Light Our Fire: Commercializing Clean Cookstove*, 7 November 2012.

EbA concepts to the private sector, upscaling and replication of this approach will be promoted. Recently, it has been acknowledged that public- and donor-funded adaptation is not sufficient to meet the pressing needs of climate-vulnerable communities and sectors[23]. Therefore, a mix of funding sources for adaptation – including the private – is the most cost-effective solution in the long term.	COP-16 (Cancun), there is a need for countries to move from immediate, isolated and project-driven adaptation to a more integrated approach that supports long-term, sustainable economic development. To advance this process, the GoS should promote innovative financing mechanisms for adaptation. By only implementing public-sector or donor-funded adaptation, this process will be undermined.	

47. A summary of the adaptation alternative and the business-as-usual scenario is represented in Table 3 below.

Table 3: A summary of the adaptation alternative and the business-as-usual scenario

Business-As-Usual		**Adaptation alternative scenario**
Overall		
Rapid population growth – coupled with poor water and land use planning – and associated environmental degradation has resulted in food and livelihood insecurity. Climate change impacts, including increased variability in rainfall and temperature and increased frequency and severity of droughts, are exacerbating these problems. While various national projects have been initiated to address these baseline problems (such as by increasing the productivity of livestock), limited technical capacity has been built to integrate EbA measures as a means to reducing the vulnerability of local communities to these impacts. Furthermore, climate change adaptation is not integrated into the budgets and plans of sectors responsible for addressing these problems (e.g. water, agriculture and livestock), and currently inter-ministerial capacity to respond to climate change remains		To address this problem the GoS – with support from UNEP– will implement a climate change adaptation project in the White Nile State funded from LDCF resources. The interventions of the LDCF3 project will strengthen the technical capacity of local and national government staff to understand and become resilient to the effects of climate change. In addition, the capacity of smallholder rain-fed farmers and pastoralists (SRFP) to implement adaptation interventions – including EbA – will be strengthened. At a national level, inter-ministerial coordination and institutional capacity for adaptation will be supported through technical support and training as well as establishment of a State Technical Committee that will focus on EbA and adaptation integration and coordination for the White Nile State. Moreover, public awareness of the effects of climate change – and appropriate adaptation interventions – will be improved by targeting NGOs and relevant private and public sectors to support cost-effective EbA measures.

[23] SEI. 2008. Private sector finance and climate change adaptation policy brief. Available online at: http://www.sei-international.org/mediamanager/documents/Publications/Climate-mitigation-adaptation/policybrief-privatesectorfinance-adaptation.pdf. Accessed on 5 April 2015.

limited by operational and technical gaps. At a local level, as indicated by the NAP, communities living on the western side of the White Nile State (the 4 target localities in particular) are currently vulnerable to non-climate related threats such as ecosystem degradation, which is exacerbated by climate change. Under the business-as-usual scenario, these communities do not have the technical capacity to improve natural resource management in a manner that integrates EbA so that they can increase their resilience to climate change.		
Outcome 1		
• Lack of a technical committee well-versed in EbA will result in poor coordination of activities that promote EbA and inadequate follow up of actions and delegation of responsible parties to mainstream EbA into decision-making. • There is limited understanding of the effects of climate change by sectoral ministries hence climate change adaptation is not prioritised into sectoral plans and budgets. • Ministries and agencies are not coordinating water infrastructure, rangeland and farming projects well. None of the existing projects focus specifically on integrating EbA measures and on improving ecosystem services for the White Nile State	⇨	The LDCF3 project will strengthen the technical capacity of HCENR at the national level to promote dialogue on EbA across sectors and to coordinate adaptation measures. HCENR will be responsible for advocating for the inclusion of climate change considerations into relevant policies, strategies and sectoral budgets. Similarly, the establishment of a White Nile State Technical Committee will increase inter-ministerial coordination of EbA measures across sectors in the state. LDCF funds will be used to strengthen the technical capacity of staff in the White Nile State to understand, interpret and replicate locality-specific, climate change vulnerability assessments.
		Cost: US$500,000
Outcome 2		
• Sudan's rain-fed farmers and pastoralists (SRFP) are vulnerable to future climate change impacts. These impacts include *inter alia* increased: i) drought; ii) soil erosion; and iii) rangeland deterioration. • Only a broad scale V&A assessment was carried out through the NAPs process. • Rangelands and forests are being degraded through unsustainable land use practices (e.g. clearing for agricultural land) and tree-felling for fuel. These degraded ecosystems are less able to provide the goods and services upon which SRFP communities and sectors depend. These services include food security, water provision and livelihood services. This degradation will continue to be exacerbated by the effects of climate change, which are predicted to worsen. Such effects include *inter alia* climate-related changes to hydrology and soil quality which will further degrade the functioning and health of Arid and Semi-Arid Land ASAL ecosystems as a result of increased desertification and erosion.	⇨	First, Component 2 will develop vulnerability assessments to enable the government to prioritise vulnerable areas and identify appropriate adaptation options. The LDCF3 project will then implement a suite of EbA interventions to restore rangeland, forests and farmland ecosystems to increase the adaptive capacity of SRFP communities. These EbA interventions will be complimented by the demonstration of climate-resilient land and water management techniques which will reduce human pressure on ecosystems by improving the existing livelihood options of local communities. This outcome will be achieved through the activities below. • Developing protocols/strategies to guide the implementation of EbA interventions. • Improving local institutional capacity to adapt to climate change by establishing VDCs and WUAs in pilot communities. These committees will oversee and coordinate community involvement in LDCF3 interventions. • Enhancing the functioning of

• Communities lack the capacity to restore rangeland, farmland and forest ecosystems and to implement climate-resilient land and water management techniques. These communities will therefore remain vulnerable to climate change. • Ongoing efforts by the Range and Pasture Administration and the National Forestry Group promote rangeland rehabilitation and afforestation. However, no previous or ongoing initiatives implement EbA, and therefore the approach is not demonstrated in the White Nile State. As a result, an understanding of the benefits of EbA among SRFP communities – including those living in the 4 target communities – is very limited.		ecosystems in the four pilot communities by implementing appropriate EbA and climate-resilient agriculture and husbandry interventions. • Strengthening the adaptive capacity of communities at intervention sites by: i) demonstrating climate-resilient land and water management techniques; and ii) training local government representatives on EbA and climate-resilient agriculture at extension farms. • Promoting sustainability of adaptation interventions by developing and implementing community-based EbA intervention management and monitoring plans. • Promoting upscaling and replication of EbA by demonstrating the cost-effectiveness of EbA measures based on cost benefit analyses and EbA project concept notes. These will be disseminated to the public and private sectors in Component 3.
		Cost: US$3,080,000
Outcome 3		
• Ministries for animal resources, agriculture, and water have a limited understanding of the effects of climate change on SRFP, despite the vulnerability of these economic sectors. • Vulnerable communities and the public have limited awareness and understanding of the effects of climate change and adaptation – including EbA. • There is no knowledge management system in Sudan specifically dedicated to EbA • Plan Sudan and SOS Sahel have initiated campaigns on climate change awareness. However, there is insufficient information available on the most effective and appropriate adaptation techniques. • Without cost-benefit analyses and the sharing of successful EbA practices, national and state government representatives will continue to have limited knowledge of: i) appropriate adaptation interventions for the SRFP and ii) the cost-effectiveness of these interventions relative to each other and to no adaptation. This will result in limited upscaling of EbA interventions.		• Cost benefit analyses from Component 3 will identify cost-effective adaptation interventions for SRFP • The LDCF3 project will improve national and local awareness on climate change effects and adaptation by storing knowledge on lessons learned and best practices of EbA in the existing Cloud database managed by the ARC and HCENR. The cloud-based knowledge base contains climate data and forecasts, together with information on climate adaptation technologies. However, the database does not detail information on sustainable agro-pastoral practices in Sudan. EbA data will be shared with NGOs and public and private sector stakeholders and with national and regional networks, such as AAKNET.
		Cost: US$500,000

Cofinancing

Component 1

48. Component 1 activities will build upon baseline activities of the ADAPT project whose costs are estimated at USD 704,000 (with an additional USD 35,200 contribution to PM costs). The additional costs sought from LDCF resources are estimated at USD 500,000.

Component 2

49. The related activities will build upon state-run baseline activities by the State's Water Corporation, the Range and Pasture Administration, the Animal Wealth Administration and the Ministry of Agriculture, Irrigation and Forests, which are estimated to cost USD 6,204,500 (with an additional USD 310,100 contribution to PM costs) for this component. The additional costs sought from LDCF resources are estimated to cost USD 3,080,000.

Component 3

50. Component 3 activities will build upon baseline activities from ADAPT, SEED and LDCF2 whose costs (excluding SEED and LDCF2 that are already financed by GEF or providing cofinancing to GEF) are estimated at USD 629,900 (with an additional USD 31,500 contribution to PM costs). The additional costs sought from LDCF resources are estimated at USD 500,000.

A.1 5) Adaptation benefits

51. The LDCF3 project will increase the resilience of vulnerable rain-fed farming and pastoral communities in the White Nile State to the observed and predicted effects of climate change. The project will emphasise the demonstration of cost-effective, low-regret options for EbA that use biodiversity as an adaptation strategy for climate-resilient land and water management. By promoting alternative livelihoods, it will benefit impoverished rural communities. The project will create an enabling environment for EbA by: i) supporting the mainstreaming of climate change adaptation at inter-ministerial, policy and sectoral levels; ii) increasing the technical capacity of national, state and local-level government staff to deliver EbA measures; and iii) demonstrating the cost-effectiveness and sustainability of EbA and climate-resilient land / water management practices in participation with communities. The project will enhance institutional capacity and improve coordination for adaptation at an inter-ministerial level, including through investments in training and increased availability of knowledge (such as cost-effective EbA measures) to inform adaptation planning.

52. In the long-term, the investments of the LDCF3 project will generate sustained benefits for the vulnerable smallholder rain-fed farmer and pastoralist (SRFP) communities beyond the lifespan of the project. Vulnerability assessments in the target communities of the White Nile State and economic assessments of EbA measures at a national level will support mainstreaming of cost-effective adaptation measures into sectoral budgets and plans that will support medium- and long-term adaptation to climate change. Also, the knowledge management of EbA successful experiences under Outcome 3 will catalyse private sector investment in the upscaling of project interventions.

53. The LDCF3 project will ensure that baseline investments, such as with on-going programmes and projects within the White Nile State under the 5 Year Plan umbrella and the ADAPT project, are made resilient under future climate change conditions and that successful activities are scaled up to improve ecosystem services for an increased number of vulnerable communities and farmers.

54. The LDCF3 project's investments will be further strengthened by building the capacity of rain-fed farming and pastoral communities to design, monitor and implement climate-smart practices and to adopt climate resilient alternative livelihoods such as backyard gardening and small ruminant feeding. In effect, SRFP will be able to build asset bases which can make them less susceptible to climate shocks.

A.1 6) Innovativeness, sustainability and potential for scaling up

Innovativeness

55. The LDCF3 project will be the first of its kind to integrate EbA into Sudan's planning and budgeting. Project interventions are "low-regret" or "no-regret" options that use biodiversity and

ecosystem services as part of an overall adaptation strategy to help people and communities adapt to the negative effects of climate change. Interventions will support the government in achieving the Sustainable Development Goals (SDGs) by improving the productivity of farming/pastoral communities regardless of the severity of climate change. For example, design and implementation of EbA and sustainable agriculture and livestock interventions at LDCF3 project sites (Outcome 2) will improve human well-being by: i) increasing local food and water production; ii) increasing fodder through re-vegetation and afforestation; and iii) increasing the amount of alternative livelihood options available.

Sustainability

56. In terms of sustainability, this project represents an effort to upscale priorities identified in Sudan's NAPA for the White Nile State. Considering the scale of the foreseen climate zone shifts predicted for the White Nile State, establishment of a sustainable livelihood system is unlikely to be successful without the consideration of an innovative approach and solution such as EbA. If implemented appropriately, EbA, working with nature, can be selfsustaining and replicating without the need for external input or technology, thus increasing the chances of locals taking ownership and sustaining activities beyond the life of the project. The project will ensure sustainability by: 1. Selecting pilots areas that take local needs, priorities and culture into consideration, 2. Selecting pilots that show clear and demonstrable benefits (both adaptation and general livelihood improvements) within the project lifetime, 3. Providing successful awareness raising on CC issues and training on the benefits of EbA, and by 4. Contributing to the expanding Cloud knowledge base of good practices. At the national level, beyond the measures included in component 1 and 3 which are directly targeted at mainstreaming EbA into future development and investment planning and facilitating upscaling through creation of a national knowledge base, successful practical examples from communities in Component 2 shared via hosting and pilot demonstration sites will enable successful replication and long term sustainability of EbA adoption throughout Sudan.

57. The project makes the maximum use of LDCF funds to ensure sustainability by collaborating with ARC who has significant experiences supporting the LDCF1 and LDCF2 projects to implement adaptation technologies. It is thus a strategic next step to the first two NAPA projects by piloting adaptation measures for smallholder rain-fed farmers and pastoralists (SRFP) that have already been tested in other states with similar climatic conditions.

58. Under Component 1, the strengthening of national capacities at the highest level of decision-policy-makers for the integration of climate change adaptation into relevant policies and plans will be the cornerstone for the sustainability. Also, the activities of the project include a strong emphasis on capacity-building, training and institutional strengthening, particularly with respect to climate change adaptation. Stakeholders that are targeted for inclusion in the project's capacity-building activities include representatives of local (e.g., WUAs, VDCs), state and national government, the private sector and NGOs. It is anticipated that the LDCF investments in strengthening the capacity of these stakeholders will support the sustainability and effectiveness of similar ongoing and future projects.

59. The four SRFP communities will be trained on planning, implementing, monitoring and maintaining EbA and climate-resilient land/water management with the assistance of VDCs and WUAs to be formed. VDCs helped greatly with successful implementation of the LDCF1 project. As a result, local stakeholders will have the capacity to sustain on-the-ground interventions after project completion and will have ownership over the activities. Improved awareness of EbA and climate-resilient land management and benefits of the demonstrations that will be implemented within Component 2 will promote sustainability of these interventions.

60. Under Component 2, within the LDCF3 project, research will be undertaken to inform, and strengthen the evidence base for, adaptation options. This research will include: i) vulnerability assessments under Outcome 2 for the project sites; and ii) cost-benefit analyses on EbA measures supporting climate resilience under Outcome 3. The knowledge that is generated through this project will be stored in a Cloud KM platform being developed under the LDCF2 project and will pave the

way for new projects to build on successful EbA measures. Moreover, this knowledge will inform the design of future adaptation interventions in Sudan.

61. A particularly important aspect of the LDCF3 project's activities which will support long-term sustainability is the cost-benefit analysis that will highlight the socio-economic and environmental benefits of EbA for the interest of the private sector. Private sector representatives will include the State Water Corporation, alternative energy product suppliers and sugar factories that can produce animal feed supplements with locally-sourced products.

62. Importantly, the LDCF3 project will benefit from the UNEP's previous experiences in Sudan, particularly through the SIEP 1 project and water management interventions in Darfur. The LDCF3 project will build on the lessons learned from these projects and the previous LDCF projects as well as other initiatives for water management, rangeland restoration and shelterbelt establishment to avoid pitfalls that have been experienced.

Potential for scaling up

63. To facilitate scaling-up, lessons learned and good practices on implementation of EbA gained here, will have immediate replication potential in a large part of the country because the White Nile State is representative of 3 of the 4 ecological zones in the country. Importantly, the project design is building on the successes of the LDCF1 and LDCF2 projects. This will increase the likelihood EbA applications will succeed and can be scaled-up.

64. Under Component 1, this project has focused on updating plans and strategies so as to support the future integration of EbA measures in the context of climate change. Moreover, Component 1 will support the integration of cost-effective adaptation interventions into: i) local planning; and ii) sectoral strategies, budgets and plans.

65. Subsequently, in Component 2, protocols will be developed to facilitate EbA replication. These protocols will be designed for particular ecosystems (i.e. rangelands, Arid and Semi-arid Lands - ASALs) so that they can be used in similar landscapes throughout Sudan in the future. Furthermore, the cost-effectiveness of EbA and climate-resilient land/water management activities under Component 2 will promote replication of these approaches amongst: i) vulnerable SRFP communities who do not have access to financial capital; and ii) surrounding farmers and pastoralists that will benefit from improved ecosystem services.

66. To facilitate effective replication by Ministries, Component 3 will document and disseminate lessons learned and knowledge generated during the project implementation through an existing Cloud database. The database and awareness-raising under all components will promote replication of interventions outside of project sites. Furthermore, cost-benefit analyses under Component 3 will support an enabling environment for the private sector to make investments in cost-effective and lucrative investments (e.g., drought-tolerant seedlings) that will simultaneously generate multiple social and ecological benefits.

A.2. Child Project? If this is a child project under a program, describe how the components contribute to the overall program impact.

No

A.3. Stakeholders. Identify key stakeholders and elaborate on how the key stakeholders engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes ☒ /no☐)? and indigenous peoples (yes ☒ /no☐)? [24]

[24] *As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.*

67. Stakeholder consultations (with participation from both local stakeholders and relevant state officials and experts) were organized around the community vulnerability assessments and selection of pilot activities to be implemented. Field visits and surveys were conducted in the White Nile State during August and September of 2015. National experts had focused meetings with the Range and Pasture Locality Office, the Rainfed Sector Administration, and the Field Range and Pasture Administration during October and November 2015. They also met with Wad Gabur and Hilba Villages during October 2015. The Inception workshop was held at Kosti town during November 2015 with 110 participants (50% women). The validation workshop was held in Khartoum during March 2016 with 51 participants (37% women). Consultations were also held with representatives of key baseline and related projects such as CRFP and Plan Sudan.

68. Table 1 in the UNEP Project Document shows the list of consultations which took place to develop the LDCF3 project document. The project outcomes, outputs and activities are based upon the recommendations of the Stakeholders given the technical, operational and financial constraints of the project. The role and participation of each agency relative to the following are indicated:

- National Inception Consultations
- Involvement in Baseline Assessment
- Role Identification
- Risk/Barrier Analysis
- Policy/ Strategic alignment to priorities
- Co-financing Identification
- Gender representation
- Upscale / Sustainability planning – consulted on how to maintain and duplicate the project
- Validation Workshop participation
- Document Endorsement

69. The implementation strategy for the LDCF-financed project includes extensive stakeholder participation. Details of the stakeholder participation during the PPG phase are provided in Section 2.5 and Appendix 7 and 16 of the UNEP Project Document. Stakeholder engagement will be continuous throughout the project implementation phase, beginning with the project inception workshop. Stakeholders will be consulted throughout the implementation phase to: i) promote community understanding of the project's outcomes; ii) promote local community ownership of the project through engaging in planning, implementing and monitoring of the interventions; iii) communicate to the public in a consistent, supportive and effective manner; and iv) maximize complementation with other ongoing projects. The multi-disciplinary White Nile State Technical Committee will be established to foster dialogue on EbA and mainstreaming the concept into state development plans and adaptation strategies. HCENR will be focusing on facilitation dialogue on EbA at the national level. Similarly a Project Coordination Working Group will coordinate dialogue among the project managers from baseline projects and other ongoing initiatives to discuss and develop synergies between these projects and the LDCF3 project. The participation of stakeholders per outcome is detailed in the table below.

Table 4. Stakeholder participation per outcome.

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
1.Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA	1.1 A multi-disciplinary national committee established that facilitates cross cutting national dialogue on climate change adaptation and EbA in vulnerable sectors	HCENR	• National Ministry of Agriculture • National Ministry of Animal Resources • National Ministry of Gender	• Establish a State Technical Committee • Enhance the technical capacity of HCENR, relevant ministries and the State Technical Committee • Support cross-sectoral meetings
	1.2 A stocktaking exercise undertaken and revisions of existing policies and strategies produced to identify entry points for promoting EbA and up-scaling EbA into national strategies including budget allocations	HCENR	• National Ministry of Agriculture • National Ministry of Animal Resources • National Ministry of Gender	• Conduct stocktaking exercise for policy- and decision-makers on incorporating EbA • Provide operational and technical support to HCENR, the State Technical Committee and relevant ministries on how to include climate change considerations in relevant strategies, plans and budgets
	1.3 Policy briefs and technical guidelines developed and distributed for policy – and decision makers on increasing the resilience of local community livelihoods to climate change using appropriate ecosystem based adaptation and knowledge gained from demonstration	HCENR	• National Ministry of Agriculture • National Ministry of Animal Resources • National Ministry of Gender	• Develop and distribute policy briefs detailing the economic impacts of climate change for rain-fed farmers and pastoralists as well as potential adaptation interventions • Develop and distribute technical guidelines for policy- and decision-makers on best practices of EbA

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
	activities in Component 2			
	1.4 Targeted CC adaptation and EbA planning/implementation training programmes for stakeholders completed, including field visits to learn from successful adaptation implementation	HCENR	• State Ministry of Agriculture • State Range and Pasture Administration • State Ministry of Animal Resources • ARC	• Site visits to gather lessons learned on best EbA practices • Conduct training sessions for HCENR, relevant ministry members and the State Technical Committee on: i) interpreting the climate change adaptation economic assessment produced under Component 3 and ii) using a cost effectiveness argument in the planning and decision making process
	1.5 Facilitation of a local policy dialogue (based on vulnerability assessments and practical experiences from pilot implementation of EbA in component 2) on mainstreaming of adaptation into state and locality development plans	State Technical Committee	• ARC • VDCs	• Provide awareness raising campaigns for State authorities and local communities on the benefits of EbA for increasing the resilience of communities to climate change • Develop and/or adapt technical guidelines in Arabic on how to assess, plan and finance climate change adaptation interventions • Provide training to the State Technical Committee and relevant local representatives on how to integrate EbA into the state and local planning
2. Reduced vulnerability of local communities to climate change impacts, in the White Nile State	2.1 Climate change vulnerability and risks for the selected vulnerable sites are identified to guide EbA interventions in pilot sites in the White Nile State	State Technical Committee	• VDCs • ARC • White Nile State's Women's Union	• Climate change vulnerability assessment and sector specific vulnerability assessments • Define cost effective strategies for rangeland regeneration, increasing water infiltration and improving agricultural yields in consultation with the VDCs • Develop protocols to guide the implementation of EbA interventions • Develop and implement community-based EbA intervention management and monitoring plans
	2.2 Regeneration of critical	State Technical	• Range and Pasture	• Establish Village Development Committees

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
	ecosystem services to restore degraded rangelands, increase water infiltration and improve resilience of rain fed agriculture under increasing drought conditions and dry seasons	Committee	Administration • National Forest Corporation • Ministry of Agriculture (state department) • ARC	(VDCs) • Establish Water User Associations (WUAs) • Establish sub-committees of VDCs • Document successful experiences by North Kordofan State in limiting the use of tractors • Appoint technical service providers to implement the EbA measures • Rehabilitate rangeland reserves in collaboration with the Range and Pasture Administration • Implement reforestation • Replant and protect trees along riparian zones • Develop large-scale shelter belts to prevent desertification • Establish demonstration plots
	2.3 A number of EBA support measures are piloted and integrated into existing local community livelihood activities, including *in situ* rainwater harvesting and drought/flood resilient eco-agriculture	State Technical Committee	• State legislation Council • VDCs • Range and Pasture Administration • Ministry of Agriculture (state department) • Extension services • ARC • WUAs • White Nile State's Women's Union	• Implement rainwater harvesting techniques • Introduce ploughs and agricultural implements • Conduct seed broadcasting • Design and rehabilitate reservoirs and wells • Repair water hand pumps and introduce solar pumps for surface wells in conjunction with UNICEF • Map current land use and soil quality using community involvement
	2.4 Pilot implementation of alternative livelihood activities, including, *inter alia*, backyard gardening, poultry breeding, small ruminant	State Technical Committee	• VDCs • White Nile State's Women's Union • Range and Pasture Administration • Ministry of Agriculture (state	• Provide alternative livelihood support: home poultry production and small ruminant strategic feeding • Establish community-led nurseries for climate-resilient plant species and tree seedlings • Promote alternative building materials to reduce dependencies on trees as

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
	feeding and alternative energy sources to enhance community resilience to climate change impacts		department) • Extension services • ARC • WUAs	biomass fuel • Purchase improved cook stoves • Establish a revolving fund to support purchase of animal drawn ploughs, drought-resistant seeds, animal feed supplements, solar pumps for wells, improved cook stoves and alternative building materials • Provide training to the VDCs on accessing and managing of the revolving fund • Provide training to extension services on post-harvest activities (dry/processing and storage vegetables, finishing and fattening lambs, etc.) • Provide training to WUAs on the maintenance of surface wells and the use of spare parts
	2.5 Local authorities, communities, committees and user groups trained on adapting community livelihoods to climate change through the use of EbA	State Technical Committee	• VDCs • WUAs • White Nile State's Women's Union • Range and Pasture Administration • Ministry of Agriculture (state department) • Extension services • ARC	• Develop and/or adapt training programmes for local communities on EbA • Provide training to communities • Establish extension farms • Train local government representatives on EbA • Train community management committees to oversee, monitor and coordinate local community involvement in EbA • Train local communities at each project intervention site on the implementation and maintenance of EbA interventions • Host experience-sharing events
3. Strengthened information base and knowledge on EbA and climate change are readily available for	3.1 Information, lessons learnt from project interventions and knowledge on climate change	HCENR, State Technical Committee	• ARC • Range and Pasture Administration • Schools • State	• Collate and disseminate lessons learned and knowledge generated through the project through appropriate national networks • Hold workshops to

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
various uses.	adaptation and resilient livelihoods using EbA are captured, stored and widely disseminated among stakeholders at all levels.		television • State radio • VDCs • WUAs • White Nile State's Women's Union	share the results of the vulnerability assessment • Establish an education programme in local schools on the benefits of EbA • Prepare a short-film demonstrating successful EbA measures for agro-pastoralists
	3.2 A central information base of data on EbA lessons learned and cost-effectiveness of interventions established in appropriate government entity.	HCENR, State Technical Committee	• ARC • Range and Pasture Administration	• Create a link with the existing iCloud environmental database jointly operated by HCENR and ARC • Disseminate lessons learned on other web-based platforms to appropriate national and regional networks, such as the Africa Adaptation Knowledge Network
	3.3 An upscaling strategy for EbA across Sudan developed, based on cost-benefit analyses for both public and private sectors.	HCENR, State Technical Committee	• ARC • Range and Pasture Administration • Public and private sector representatives	• Develop an economic cost-benefit assessments for EbA measures • Develop an upscaling plan for EbA measures based on the cost-benefit assessment • Provide workshops with the public and private sectors to disseminate EbA project concepts and raise awareness about the cost-benefits of such projects

A.4. Gender Equality and Women's Empowerment. Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes ☒ /no☐)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes ☒ /no☐)?; and 3) what is the share of women and men direct beneficiaries (women 50%, men 50%)? [25]

70. The LDCF3 project will address the vulnerability and low adaptive capacity of women to climate change by mainstreaming gender considerations into the design and implementation of EbA activities. Approximately, 50% women will be targeted. Initially, the Project will support the Village Development Committees (VDCs) in conducting a comprehensive participatory assessment of specific climate change vulnerabilities in each of the target communities to identify entry points and guide identification of specific priority EbA measures, emphasizing gender

[25] Same as footnote 8 above.

mainstreaming. The local Vulnerability Assessments will use gender tracking in its baseline analyses in order to feed into UNEP's initiative on financial resource tracking for gender. The project also focuses on improving the livelihoods of women and integrating them into decision-making processes. Any committees/associations such as the Village Development Committees (VDC) and Water User Associations (WUAs) to be formed under the Project will have at least 30% women representation.

71. The project will also work directly with women-focused cooperatives and associations. To integrate gender into relevant activities, the LDCF3 project will collaborate with the White Nile State's Women Union for all activities supporting women within the state. The Women's Union of the White Nile State will be implicated and the Ministry of Gender, Child and Social Welfare will receive capacity reinforcement on integrating climate change and EbA into policies and strategies. Under Component 2, gender specific indicators and targets will be developed to monitor the progress of gender mainstreaming into EbA activities and the development of alternative livelihoods.

72. Under all Components, gender sensitivity will be incorporated into trainings so that female participants are empowered to participate fully in the training sessions and related EbA activities. Trainers will be required to have the skills and experience necessary to plan and facilitate gender-sensitive training.

73. The project will also significantly benefit women by improving food and water security. In rural Sudan, women participate in household farming by contributing to crops cultivation in back yard farms (Jubrakas), which provide households with early income and food prior to the harvest of field crops. They are responsible for feeding and watering of the household herd when at home and collection of water and firewood. The project will enable women to reduce the time required for water and firewood collection due to the provision of water and improved cook stoves. The project will also focus on diversifying women's livelihoods by supporting backyard gardening and small ruminant feeding in order to improve their food security. Women will also be support to lead community water management initiatives and to be primary beneficiaries of revolving funds.

A.5 Risk. 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.(table format acceptable):

74. Risks and recommended countermeasures were identified during bilateral consultations during the project preparation phase. Key risks and mitigation measures underlying project development are indicated in Table 5.

Table 5: Key risks and mitigation measures

	Description of risk	**Potential consequences**	**Mitigation measures/proposed interventions**
1	Lack of institutional capacity and coordination on EbA could lead to inappropriate or deficient implementation of EbA measures and policy frameworks	Multi-sectoral adaptation interventions are compromised and interventions are confined to those sectors willing to engage in cross-sectoral dialogue. The vulnerability of certain sectors and Sudan as a whole to climate change is not fully addressed. Lack of institutional coordination and capacity on EbA could lead to inappropriate or deficient implementation of EbA measures and policy	• Implicate ministers across sectors so that in the case that one ministry's mandate changes, the overall goal of integrating EbA measures in the context of CC into development plans and budgets will still be upheld • Produce and distribute cost-benefit analyses of EbA measures to attract cross-sectoral support • Develop technical capacity of the White Nile State Technical Committee to support inter-ministerial coordination and planning around climate change adaptation at the state level • Ensure technical representatives from all line ministries are included in the trainings provided. This will increase institutional capacity within, and facilitate coordination between different ministries. • Produce sectoral vulnerability assessments for different line ministries to promote support for the LDCF3 project activities.

	Description of risk	Potential consequences	Mitigation measures/proposed interventions
		frameworks.	• Establish the mandate of the White Nile State Technical Committee to facilitate cross-cutting dialogue by including a broad range of representatives from relevant ministries and NGOs • Design the Technical Committee so that it can grow into a more permanent body for coordination of adaptation and EbA planning and mainstreaming at the state level
2	Volatile political situation in Sudan could lead to government shifts or disruption of project activities.	Project activities are interrupted. Natural and financial capital is lost.	• The White Nile State is generally peaceful and not considered a zone of conflict. In the White Nile State there are already number of UN and other internationally funded projects being implemented without any security hazard or negative interference at the state level. • To avoid disruptions to project activities, the PCU will be set up in a way that will limit the impact of government shifts. The PC will keep abreast of national events and politics to ensure knowledge of any potential disruption to project activities at intervention sites. This will allow for the timely implementation of contingency plans. Should civil unrest/national emergencies be deemed by the project manager to be a direct threat to project activities at implementation sites, alternative project sites identified during the PPG phase will be considered.
3	National financial instability	Climate integration into national budgets are undermined by several cuttings in national budgets The government will not have funds to sustain the national arrangements once the project ends.	• Strengthen advocacy efforts focused on long- and medium-term economic benefits on integration of adaptation options into national budgets and communicate these to policymakers throughout. • Engage with the private-sector through EbA project concept notes to promote investments outside of the national budget to sustain and upscale climate change adaptation interventions. • In Component 3 develop and institutionalize a strategy to upscale, sustain and replicate resilient agriculture practices using the EbA approach based on cost-benefit analyses and the knowledge management system to be developed • Provide awareness-raising among the decision-makers • Embed EbA in policies / legislation
4	Trained, qualified engineers/technicians leave for more lucrative positions (“brain drain”) resulting in limited sustainability of requisite human resources and	National expertise on EbA is lacking after project completion	• Requirements for training as per signed contracts and TORs will be to stay at their respective institute for 2 years (as per Sudanese law) in order to transfer knowledge to others. Also, junior staff will be targeted and training will take place in pairs wherever possible. • National experts will be reinforced because results from the LDCF1 project indicated that there was limited transfer of knowledge from international experts to both

	Description of risk	Potential consequences	Mitigation measures/proposed interventions
	technical/operational capacities.		national and state levels;
5	Current climate and seasonal variability and/or hazard events prevent implementation of planned activities.	Economic loss or physical damage to infrastructure (e.g., reservoirs) delays implementation of project activities.	• Intervention sites will be mapped to establish the extent to which they are vulnerable to specific natural hazards. The vulnerability assessments from Component 2 will be based on NAP and NAPA analyses. This mapping will be used to inform restoration practices and techniques.
6	Communities do not support interventions and do not adopt ecosystem management activities for adaptation during or after the LDCF3 project because of limited immediate benefits of EbA.	Unsustainable use of natural resources continues, leading to further degradation of ecosystems. Climate-resilient land and water management techniques are not implemented in the long term. Consequently, communities continue to be vulnerable to climate-induced natural hazards.	• Actively involve SRFP communities in project implementation through *inter alia: i)* establishing VDCs / WUAs; ii) liaising with the community management committees and other community members to identify intervention sites for EbA interventions; and iii) developing and implement community-based EbA intervention management plans. • Implement alternative livelihoods that have been deemed financially, technically and socially viable/feasible to reduce reliance on intensive land us (e.g., poultry breeding) • Engage community stakeholders in the implementation and impact monitoring of on-the-ground adaptation measures to strengthen their continued buy-in into the LDCF3 project as per the Stakeholder Participation Plan • Raise awareness on the capacity of the restored ecosystems to increase community resilience to climate change through communication campaigns, via radio and television programmes • Improve capacity building and training of the communities to improve their understanding of the adaptation benefits of the EbA activities • Implement activities that have direct benefits in addition to the ecosystem restoration interventions
7	Priority interventions implemented are not found to be cost effective	Project interventions are not upscaled for large-scale EbA programmes.	• Develop a cost-benefit assessment in Component 3 to demonstrate cost-effectiveness of EbA measures • Record detailed information on cost effectiveness. Such information will be widely disseminated for use by future projects and research through Component 3
8	Conflicts between farmers and pastoralists such as uncontrolled nomadic settlements, continuous cultivation and illegal tractor use	The restoration activities are unsustainable and physical violence breaks out between farmers and pastoralists	• Clearly establish land use plans identifying specific areas for rangelands and cultivation establishment • Raise awareness of communities on the benefits of restored natural ecosystems for adaptation and their livelihoods • Implicate traditional leaders in decision-making processes • Rehabilitate rangelands along the migration routes of nomadic pastoralists. • Forbid enclosures of farmlands

	Description of risk	Potential consequences	Mitigation measures/proposed interventions
			• Mandate the Village Development Committees to mediate and ensure equitable distribution of ecosystem services for both farmers and pastoralists • Include detailed analyses of how to avoid natural resource-induced conflicts in the Vulnerability Assessments to be conducted in each locality prior to design and implementation • Maximise the economic benefits from sustainable natural resource management • Build on successful tractor prohibition measures from the North Kordofan State
9	Use of the revolving fund for purposes other than those supporting EbA	Actions contribute to mal-adaptation and resources are wasted.	• A clear management plan will be developed during the second year of the project • Funds will only be able to be legally dispersed to approved Village Development Committees (VDCs) • A revolving fund expert will be hired to ensure that appropriate monitoring mechanisms are in place. He/she will provide training to VDCs on accessing and managing the fund (e.g., book-keeping)
10	Health and safety risks due to water mobilization, care for animals, cook stove use	Open water sources (rainwater harvesting tanks, wells, reservoirs) may become breeding grounds for mosquitoes and other insects that may transmit malaria and other vector-borne diseases. Communities may not use safe practices with butane gas powered stoves. Animal-borne diseases might spread with livelihood diversification activities.	• The Water User Associations (WUAs) in each target locality will be provided with medical kits that will contain medicines such as prophylactics to address these issues. The WUAs will also be trained in water-borne diseases and proper hygiene. • Farmers and pastoralists will also be provided capacity building on Integrated Pest Management by ARC. • Any community members that purchase cook stoves (butane gas powered) will be trained on safety measures. • Veterinarians will be supported to come to training sessions so that animal-borne diseases from small ruminants, lamb and poultry will not become rampant. The revolving fund will also support Community Animal Health Workers (CAHW) to provide veterinarian care due to the fact that animal health and hygiene is crucial to sustain diversified livelihoods for farmers and pastoralists.

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.

75. The LDCF3 project will be implemented over a four-year period (2017–2020). UNEP will be the GEF Implementing Agency (IA) for the project. UNEP will provide oversight for all components of the project. The project will be nationally executed by the HCENR.

76. Through all three components, the LDCF3 project will be building capacity for adaptation planning, undertaking pilot EbA interventions and developing climate change outreach and awareness-raising. All of these interventions correspond with the current UNEP Programme of Work (PoW 2016–17) Subprogamme 1 on Climate Change, Output (a) which promotes adaptation approaches, including an ecosystem-based approach, to be implemented and integrated into key sectoral and national development strategies to reduce vulnerability and strengthen resilience to climate change impacts. This Subprogramme promotes implementing pilot adaptation activities and integrating climate change adaptation into national development strategies, as well as ensuring that participating countries have full access to knowledge networks and climate change tools and methodologies, are all mechanisms that are likely to bring about policymaker understanding of and support for ecosystem-based adaptation.

Management structure

Implementing and Executing Agencies

77. UNEP will be the **Implementing Agency (IA)** for this proposed project and will be responsible for over-seeing and monitoring the project implementation process as per its rules and procedures, including technical back stopping. It will work in close collaboration with the Higher Council on Environment and Natural Resources, who acts as the **Executing Agency (EA)** for the project. The Executing Agency will be responsible for the achievement of project outputs and outcomes, day to day management and coordination of project activities and inputs, as well as for the reporting on achievement of project objectives. The Executing Agency will be responsible for entering into agreements with other partners, as well as for ensuring that co-financing contributions from the Government of Sudan, the White Nile State and external sources materialize as planned. The EA will report technically and financially to UNEP.

National Project Director (NPD)

78. A designated official within HCENR will serve as the **National Project Director (NPD)**. The NPD will ensure a continued cohesion between the project and the mandate of the HCENR and provide additional linkages and interactions with high level policy components within the Government. He/she will follow up on, supervise and coordinate the contributions of the Government of Sudan.

Project Coordinating Unit (PCU)

79. Project execution will be ensured by a **Project Coordination Unit (PCU)** comprised of a Project Coordinator, a Financial and Administrative Assistant and a Chief Technical Advisor. At the state level, the PCU will be assisted by a State Technical Committee delegated by HCENR, who will be responsible for state-level technical implementation of the project.

Project Coordinator (PC)

80. The project will hire a full time **Project Coordinator (PC)** who will lead and direct the PCU and will accountable to PSC and its Chair. The PC will bring in administrative experience and a general technical knowledge in climate change adaptation and will be responsible for the day to day execution and management including the financial management of the project and the preparation of all due reports. He/she will be provided with administrative/logistical support staff assistance. The PC will carry out all of the above functions under the direct supervision of the NPD. In addition, the PC will report to the UNEP Task Manager on progress and challenges during execution.

Chief Technical Advisor (CTA)

81. A **Chief Technical Advisor (CTA)** will be hired by the project and will function as a member of the PCU. The CTA will provide the following services: i) quality assurance and technical review of project outputs (e.g. studies and assessments); ii) assist in drafting TORs for technical consultancies and supervision of consultants work; iii) assist in monitoring the technical quality of project M&E systems, including annual work plans, indicators and targets; iv) advise on best suitable approaches and methodologies for achieving project targets and objectives; v) provide a technical supervisory function to the work carried out by other technical assistance consultants hired by

the project; and vi) assist in knowledge management, communications and awareness raising. The CTA will report to the NPD and will participate in the meetings of the PSC as a resource person.

Project Steering Committee (PSC)

82. A **Project Steering Committee (PSC)** will be appointed at the beginning of the project, and will be chaired by the Secretary General of HCENR. The PSC will play an oversight role, and provide support, policy guidance and supervision for the project. Specifically, it will consider, approve and validate the project's annual work plans, budgets and procurement plans, as well as all progress, monitoring, evaluation and final reports. It should be multi-disciplinary and multi stakeholder in its composition to include membership relevant to the project objectives and components, including representatives of NGOs/CBOs, the private sector, and government institutions and departments. The PSC will include representatives from both national and state levels, relevant institutions, including at the national level, the Ministry of Agriculture (MoAg) and Forests, the Ministry of Livestock (MoL), Rangeland and Fisheries, the Ministry of Health of Social Affairs, the Ministry of International Cooperation (MIC), the Ministry of Foreign Affairs, the Agriculture Research Corporation and the Sudanese Environment Conservation Society. From the state level the PSC will include the Ministry of Health (as chair of the State Environment Committee), the Ministry of Agriculture and Forestry, the Ministry of Animal Wealth and Rangelands and the Ministry of Urban Planning. UNEP will be a full-fledged member of the PSC. Specific roles of the PSC are outlined in Appendix 11 of the UNEP project document.

83. The expected contribution of the PSC members is to facilitate the implementation of the project activities in their respective agencies as appropriate, and ensure that activities are implemented in a timely manner and to facilitate the integration of project inspired activities into existing programmes and practices. The PSC will meet at least twice annually and will be expected to review implementation progress and to address any challenges or major changes in implementation plans.

84. The NPD and the Secretary General of HCENR will be members of the PSC with the latter serving as its chair, while the PC will serve as its secretary. During the project implementation, the Executing Agency (HCENR) will enter on behalf of the project into agreements with other relevant ministries in order to delegate the delivery of sector specific activities, and to ensure the integration of project activities into the program of work of different ministries. HCENR will remain responsible for the use of resources, and for the application of adequate social and environmental safeguards, including the application of environmental impact assessment requirements.

85. A national **Project Administrative and Finance Assistant (AFA)** will be hired by HCENR to directly support the National Project Manager on all financial and administrative issues. He/she will be recruited to: i) administer the finances of the LDCF3 project; and ii) produce the necessary financial reports. In addition, a driver for the project will be recruited by HCENR.

State Technical Committee (TC)

86. The **State Technical Committee (TC)** will support the PCU at the state level. It will build off the State Environment Committee (SEC) formed during NAP preparation. Other than the SEC, it will be comprised of state representatives from the White Nile State Ministries of Agriculture / Livestock, Ministry of Physical Development, Ministry of Health, and Plan Sudan (an international NGO), Farmer/Pastoral Producer's Groups (2), the Agricultural Extension and Technology Transfer Administration (AETTA) (1), the Agricultural Research Corporation, the White Nile State's Women's Union and representatives from the sugar factories in the state and the Village Development Committees (VDCs). The VDCs will be continuously involved in decision-making processes, both planning and execution. Chaired by the NPC, the TC will be responsible for discussing technical issues, setting priorities, preparing work plans, resolving conflicts and supervising site-level activities in order to ensure local level coordination and linkages. The Village Development Committees (VDCs) will assist the TC to liaison with the larger communities. Costs for the TC will be covered by both the State Ministry and the Project.

Project Coordination Working Group (PCWG)

87. A **Project Coordination Working Group (PCWG)** will be established to improve the coordination and dialogue between the ongoing projects at the state level including the LDCF2 project (UNDP), the proposed RLACC programme (AfDB), the ADAPT! project (UNEP), the current State CRFP project, the IFAD Project coordinator, the Sudan Sustainable NRM Project (SSNRMP). The PCWG will provide a support role to the TC to ensure coordination, coherence and complementarity in terms of other adaptation-related initiatives and targeted

areas. The PCWG will also ensure that overall impacts and interventions are in line with the development priorities of the state. The PCWG will be established by the state government, coordinated by an appropriate government institution and will include HCENR, the managers of baseline projects and representatives of other aligned projects as well as a representative from Plan Sudan, an NGO who is active in White Nile State as members. Meetings for the PCWG will be held twice a year. They will work towards: i) promoting synergy between projects; ii) preventing the duplication of activities; iii) optimizing the effects of the project interventions; and iv) sharing lessons learned.

Project Assurance

The UNEP Task Manager will monitor the project's implementation and achievement of the project outcomes and outputs – and ensure the proper use of GEF funds. UNEP will be responsible for the recruitment of mid-term and terminal evaluators and the required follow-up.

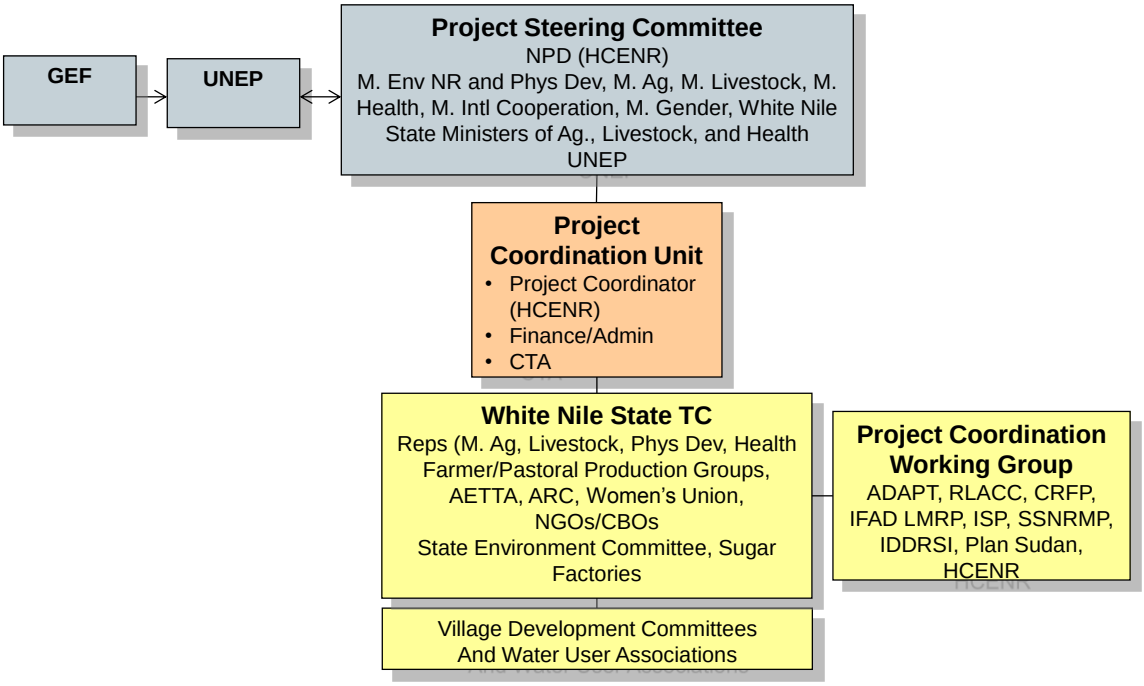

Figure 1: Institutional arrangements for the Sudan EbA project financing by the LDCF

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)?

88. The project aims to increase resilience among at least 6,800 farmer / pastoral households in the targeted localities of Edwaim, Tendalti, Alsallam and Gulli of the White Nile state. Extension services, the Agriculture Research Corporation, the Women's Union, Farmer/Pastoral Production Groups and NGOs/CBOs such as Plan Sudan will receive support in implementing, managing and monitoring EbA measures. Village Development Committees and Water User Associations will be formed to support EbA implementation such as rangeland rehabilitation and water well rehabilitation respectively as well as to support revolving fund book-keeping. Direct EbA measures to be implemented include:

- Reforestation of 1,500 ha with native, climate-resilient tree species *
- Regeneration of 6,600 ha of rangeland with climate resilient species

- Installation of 200 Rainwater Harvesting pits on 2,000 community farms (4 ha each)
- 3,200 men/women with access to solar-powered hand pumps
- 160 men/women supported with locally-sourced feed supplements for small ruminants
- At least 12 Community Animal Health Workers (CAHW) supported to access the revolving funds to provide veterinarian care
- At least 165 people (30% women) from the Water User Associations supported
- At least 200 people (30% women) from the Village Development Committees supported

* Note that it is expected that reforestation will generate not only adaptation benefits but also mitigation benefits through carbon sequestration.

89. Socio-economic benefits from support for alternative livelihoods include:

- - At least 1600 women (160 backyard gardens) practicing backyard gardening and/or post-harvesting
- - At least 3200 men/women (at least four villages) with new access to solar powered hand pumps for wells
- - At least 160 men/women (10 from each of the 16 villages) supported with feed supplements for small ruminants
- At least 165 people (30% women) from the Water User Associations supported
- At least 200 people (30% women) from the Village Development Committees supported
- - At least 480 men/women using revolving funds established by the project**

**The revolving fund can be used for purchase of EbA focused technologies and practices such as solar irrigation pumps, gas stoves (to reduce impact on biomass resources), veterinary services, drought-tolerant seeds and alternative building materials.

90. Such direct investments in the targeted communities will give immediate and tangible adaptation benefits to individual vulnerable farmers and herders, e.g. through securing them access to climate change resilient grassing, reducing loss of land to desertification, providing access to improved and more resilient water sources, and more diversified and less climate sensitive livelihood opportunities.

91. Furthermore, the project will facilitate mainstreaming and scaling up of successful EbA strategies in other communities as well as at the state and national level thereby, creating a self-reinforcing process that will lead to adaptation benefits for a much larger group of stakeholders than those reached by direct investments. This will include support to policy frameworks and general promotion of EbA as a sensible adaptation strategy in community, state and national planning, targeted training of stakeholders, and creation of codified good practice communication documentation tailored to the needs and interest of different stakeholders. On the national level, approximately 30 members of the Ministries of Environment, Agriculture, Livestock, Health, Gender and Physical Development will receive capacity development on mainstreaming EbA into strategies, policies, budgets and plans. Branches of these ministries at the state level will also receive support on EbA mainstreaming.

92. The LDCF3 project will also significantly support women. The Agricultural Research Corporation has developed certain adaptation technologies targeted to women. These technologies enable women to improve their cultivation / livestock husbandry and feeding practices. The LDCF3 project will exploit and pilot these technologies in order to build the resilience of women in the rain-fed regions of Sudan.

93. The project also focuses on improving the livelihoods of women and integrating them into decision-making processes. The Technical Committee to be created to manage the project on the State level (See Section A.6 Institutional Arrangement) will each have a female representative to promote gender awareness and gender assessments. Also, the Village Development Committees and Water User Associations to be created under the LDCF3 project will have at least 30% representation by women.

94. Furthermore, the project will support gender-equality. The local Vulnerability Assessments will use gender tracking in its baseline analyses in order to feed into UNEP's initiative on financial resource tracking for gender.

95. Other direct socio-economic and environmental benefits expected for women include:

- Support for at least 320 women (20 women per village) to use improved cook stoves
- Support for at least 300 women to access the revolving funds established by the project to purchase animal drawn ploughs, drought-resistant seeds, animal feed supplements, solar pumps for wells, improved cook stoves, veterinarian care and alternative, locally-sourced building materials

Finally the project will create strong links between the public and private sector in the White Nile State such as by the following:

- State Water Corporation who subcontracts water infrastructure repair to the private sector
- Fodder and feed supplements produced by local factories
- Proliferation of improved seeds sourced from the private sector
- Use of alternative building materials and cook stoves provided by the private sector

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.

96. Component 3 is centered around knowledge management for EbA. Lessons learned through the implementation of project interventions in Component 2 will be stored in the existing Cloud database that is in the process of being developing under the LDCF2 project. Content produced and lessons learned on successful EbA demonstrations will be shared with both the public and private sector using this database.

97. Furthermore, best practices on EbA will guide technical guidelines to be developed and distributed to policy and decision makers. Where practical, upscaling of project interventions will be focused on areas around the target regions in order to make use of the implementation capacity of local communities so that they can transfer knowledge in a peer-to-peer fashion. Additionally, due to the documentation of lessons learned on successful and cost-effective EbA measures (including best practices for implementation, maintenance and monitoring) as well as capacity building through the LDCF3 project, extension services, Village Development Committees and Water User Associations will be able to continue knowledge management generation in other vulnerable regions in the future.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 *Consistency with National Priorities.* Describe the consistency of the project with national strategies and plans or reports and assessements under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:

98. The proposed project is consistent with **Sudan's First and Second National Communication** which detail that increasing ecosystem resilience and reducing the risk of climate-related disasters are major goals in the Sudanese strategy for adaptation to climate change.

99. The project also supports conclusions of the **National Adaptation Programme of Action (NAPA, 2007)** that outlined a programme of adaptation interventions in 5 representative ecological zones of Sudan (3 of which are in the White Nile State), with a major focus on the enhancement of food security for vulnerable rain-fed farming and pastoral communities.

100. Furthermore, the project is aligned with **Sudan's National Adaptation Plan (NAP)** that was recently developed as part of a multilateral environmental agreement (MEA) to combat desertification and to preserve biological diversity. In the White Nile State, recommended adaptation programmes for the agriculture sector include i) provision of improved seeds to small-scale farmers, ii) application of rainwater harvesting technologies and iii) support for agricultural extension services and field demonstration sites to train farmers. For the range and pasture sector, recommended adaptation programmes include i) provision of water, ii) introduction of high nutrient fodder, iii) construction of fences to fix sand dunes and prevent desert creeping and iv) activation of the rangeland protection act. The LDCF3 project is completely aligned with NAP Programme A, "Modernization of agricultural production systems, natural resource conservation and rehabilitation of the livestock sector." Relevant Programme components to which the LDCF3 project is contributing towards include 1. Using suitable agricultural technology and best practices to cope with climate change and 2. Rehabilitation of the rangeland.

101. In the White Nile State, the NAP process established a technical committee to deal with climate change adaptation issues at the state level. The LDCF3 project will build on this committee and use the previous experts where possible to form a permanent White Nile State Technical Committee. Furthermore, the LDCF3 project will build on the Vulnerability and Adaptation (V&A) assessment of the water, agriculture and food security, and health sectors in the White Nile State using its conclusions and calling on the experts who developed it to conduct the locally targeted V&A assessments.

102. Furthermore, the LDCF3 project is also consistent with the following strategies, plans and assessments:

103. **Technology Needs Assessment (TNA)**. The advantages of EbA are increasingly recognised in the TNA process though such measures as environmental protection, biodiversity conservation and cost-effectiveness.

104. **25 Year Strategic National Development Plan.** The LDCF3 project is consistent with the 25 years Strategic National Development Plan, which is being implemented through 5-year state and sectoral plans. The current 5 year plan is for the period (2012-2016) includes activities on water, agriculture and food security and is thereby consistent with the activities described in the LDCF3 project.

105. The **Sudanese government's Five-Year Plan (2012-2016)** is aligned with the outcomes of the LDCF3 project namely, (a) public investment in infrastructure; (b) focusing on small-scale farmers in rain-fed farming areas; (c) continued institutional reforms such as land policy; and (d) increased involvement of the private sector in developments.

106. **Action Plan for Agricultural Revival (APAR).** The project is also consistent with the national Action Plan for Agriculture Revival (APAR), launched in 2008, which aims to develop the agricultural sector and improve its contribution to state and national income, through increasing crop and livestock productivity, reducing poverty and promoting sustainable management of natural resources.

107. **Sudan's Medium-Term Strategy** also calls for reviving agricultural development with a significant shift in emphasis and policies in favour of traditional agriculture. The main elements of the strategy relevant to the LDCF3 project include: (i) land tenure reform `and (ii) technological package development and outreach (research and extension).

108. The project is also in-line with the **Interim Poverty Reduction Strategy Paper (IPRSP, 2011)** which emphasizes the promotion of economic growth and employment creation as the first pillar of the Government of Sudan's development strategy. Due to the secession of South Sudan in 2011, the IPRSP stresses diversification in the agricultural sector to relieve losses attributed to decreases in oil export earnings. Consequently, Sudan's growth strategy will focus on expanding private sector investment and pro-poor and broad based growth.

C. DESCRIBE THE BUDGETED M &E PLAN:

109. All activities implemented by the project will be designed to improve environmental conditions in the short- to long-term. Consequently, none of the project activities should trigger EIAs, as verified in the PPG phase through stakeholder consultations. Nevertheless, environmental legislation will be reassessed during project inception to verify this. If necessary, assessments will be undertaken to determine the environmental effects generated by the project's interventions. In addition, mitigation measures will be undertaken to ameliorate any related negative social or environmental effects. Furthermore, the project will focus on improving the livelihoods of women and integrating them into decision-making processes.

110. The project will be monitored through the following Monitoring & Evaluation (M&E) activities. The M& E budget is provided in Appendix 7. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome and output as well as mid-term and end of project targets. These indicators, when necessary along with the key deliverables and benchmarks, could be developed in some more detail and fine-tuned during the inception phase of the project and will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7. Other M&E related costs are also presented in the costed M&E Plan and are fully integrated in the overall project budget.

111. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. At the

time of project approval, baseline data for most of the indicators established in the Results Framework was available. Baseline data gaps will be addressed during the first year of project implementation.

112. Day-to-day project monitoring is the responsibility of the project coordinating unit but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Coordinator to inform the PSC of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion. To perform these tasks, the project will be supported by a Monitoring and Evaluation Clerk, who will be a part-time member of the project coordination unit and will be trained in accordance to UNEP rules and regulations in terms of monitoring and evaluation.

113. The Project Steering Committee will receive periodic reports on progress and will make recommendations concerning the need to revise any aspects of the Results Framework or the M&E Plan. Project oversight is the responsibility of the Task Managers of UNEP. The Task Manager will review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

114. Project supervision will take an adaptive management approach. The UNEP Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop, which will be held within the first 2 months of project commencement with those with assigned roles in the project organization structure, UNEP staff and where appropriate/feasible other technical, policy and program advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. The Inception Workshop should address a number of key issues including:

i) Assisting all partners to fully understand and take ownership of the project.

ii) Discussion on the roles, support services and complementary responsibilities of UNEP staff vis-à-vis the project team.

iii) Discussion on the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms.

iv) Discussion on the Terms of Reference for project staff if required.

v) Finalize the annual work plan (AWP), based on the project results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate.

vi) Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.

vii) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements.

viii) Agreement and scheduling of the Monitoring and Evaluation work plan and budget.

ix) Discussion of financial reporting procedures and obligations, and arrangements for annual audit.

x) Plan and schedule Project Committee meetings.

xi) Clarification of the roles and responsibilities of all project organization structures and planning of meetings.

115. The first Project Steering Committee meeting should be held within the first 10 months following the inception workshop.

116. An Inception Workshop Report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting. Progress made shall be monitored in the UNEP system.

117. Project Implementation Reports (PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (June 30th to July 1st). The PIR combines UNEP and GEF reporting requirements. The PIR includes, but is not limited to, reporting on the following:

i. Progress made toward project objective and project outcomes each with indicators, baseline data and end of project targets (cumulative).

ii. Project outputs delivered per project outcome (annual).

iii. Lesson learned/good practices.

iv. AWP and other expenditure reports.

v. Risk and adaptive management.

vi. Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

118. Periodic Monitoring through site visits: Relevant staff from UNEP 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 Steering Committee may also join these visits. A Field Visit Report/BTOR will be prepared by the UNEP no less than one month after the visit to the project team and Project Steering Committee members.

119. Mid-term of project cycle: The project will undergo an independent Mid-Term Evaluation or Mid Term Review at the mid-point of project implementation. Also, if the proposed project is rated as being at risk, a Mid-Term Evaluation will be conducted by the Evaluation Office (EOU). UNEP will be responsible for managing the mid-term review/evaluation and the terminal evaluation. The Project Manager and partners will participate actively in the process. The project will be reviewed or evaluated at mid-term (tentatively in 05/2017 as indicated in the project milestones). The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyse whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools. The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager. An MTE is managed by the Evaluation Office (EOU) of UNEP. The EOU will determine whether an MTE is required or an MTR is sufficient.

120. *End of Project*: An independent Terminal Evaluation (TE) will be initiated no earlier than six months prior to the operational completion of project activities and, if a follow-on phase of the project is envisaged, should be completed prior to completion of the project and the submission of the follow-on proposal. Terminal Evaluations must be initiated no later than six months after operational completion. The EOU will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

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

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

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

123. The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E Plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the Task Manager in UNEP/GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer-reviewed procedures to ensure adequate quality of scientific and technical outputs and publications.

124. Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the

inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost effective use of financial resources.

125. The tracking tools (Appendix 14 of the Project Document) will be validated/updated at inception, mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

Table 6: M&E framework

M&E activity	**Responsibility**	**Budget US$** *Excluding project team staff time*	**Time frame**
Inception Workshop	• Project Coordinator • UNEP • CTA • M&E Clerk	Indicative cost: 7,000	Two months after project approval
Inception Report	• Project Coordinator • CTA • M&E Clerk	None	One month after Inception Workshop
Steering Committee Meetings	• National Project Director (NPD)	Indicative cost: 8,000	Twice annually
Baseline study	• Project Coordinator • UNEP • CTA • M&E Clerk	Indicative cost: 35,000	No more than 6 months after project start.
Measurement of Means of Verification for Project Progress on output and implementation	• Oversight by Project Coordinator • Project team • M&E Clerk	To be determined as part of the annual work plan preparation	Annually prior to PIR and to the definition of annual work plans
Periodic monitoring of implementation progress	• Project coordinator • M&E Clerk	None	Quarterly
Periodic Progress reports	• Project coordinator • M&E Clerk	None	Quarterly
Project Implementation Review (PIR)	• PC • CTA • UNEP • M&E Clerk	None	Annually
Mid-term Review / Evaluation (MTR/MTE)	• UNEP TM / UNEP evaluation office • External consultant • M&E Clerk • Project Coordinator	Indicative cost: 35,000	At the mid-point of project implementation
Terminal Evaluation	• UNEP Evaluation Office	Indicative cost: 35,000	Close to the end of project

M&E activity	Responsibility	Budget US$ *Excluding project team staff time*	Time frame
			implementation
Project Terminal Report	• Project Coordinator • M&E Clerk	None	At least three months before the end of the project
Audit	• Government • Project Coordinator • M&E Clerk	Indicative cost: 20,000	Yearly
Visits to field sites	• UNEP • Government representatives • M&E Clerk	For UNEP Task Manager, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time		US$ 140,000 (+/- 2% of total GEF budget)	

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. GEF Agency(ies) certification

This request has been prepared in accordance with GEF policies[26] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Brennan Van Dyke, Director, GEF Coordination Office, UNEP		July 22, 2016	Barney Dickson - Head, Climate Change Adaptation Unit, UNEP-DEPI	+254 (0) 20 762 3545,	Barney.Dickson@unep.org

[26] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

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).

Primary Applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): Promote climate change adaptation					
Applicable GEF Strategic Objective and Program: OBJECTIVE 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level					
Applicable GEF Expected Outcomes: Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas Outcome 1.2: Reduced vulnerability in development sectors Outcome 1.3: Diversified and strengthened livelihoods and sources of income for vulnerable people in the target areas Outcome 2.1: Increased knowledge and understanding of climate variability and change-induced risks' at country level and in targeted vulnerable areas					
	INDICATOR	**BASELINE**	**END OF PROJECT TARGETS**	**SOURCE OF INFORMATION**	**RISKS AND ASSUMPTIONS**
Project Objective[27] Increase the climate change resilience of livelihoods and integrated productive agricultural systems in the White Nile State through Ecosystem Based Adaptation approaches	Percentage of targeted HHs (head of HH disaggregated by gender) that have adopted EbA measures which improve access to climate change resilient food / water sources for improved agricultural productivity	BASELINE 1: 0% of the targeted HHs have adopted EbA measures to improve their access to food and water.	TARGET: 100% of all targeted 6,800[28] HHs (head of HH disaggregated by gender) have access to climate change resilient food / water sources for improved agricultural productivity	Vulnerability Assessment baseline disaggregated survey and final evaluation surveys on food / water security	ASSUMPTION: Local communities are incentivized to implement climate resilience-building measures to improve their productivity due to sufficient sensitization on climate change impacts.

[27] Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR.
[28] 6,800 households have been estimated based on local consultations during the PPG phase

Outcome 1 Improved and strengthened technical capacity of local, state and national institutions to plan, implement and upscale EbA	Number of national and state development frameworks that have integrated EbA planning and budgeting for implementation and upscaling	BASELINE: All activities of the White Nile State's most recent Five Year Sector Plan (2012 – 2016) for the agriculture and water sector, within which the Action Plan for Agricultural Revival (2008) has been integrated, relate indirectly to the maintenance of ecosystem services. Total annual financing for both sectors is limited and on the order of USD 800,000 only.	TARGET: At least 1 national development framework and 1 state Five Year Sector Plan are updated with a budget of at least USD 30,000 to implement and upscale gender-sensitive EbA measures	- Review of the uptake of adaptation measures to climate change in existing plans/frameworks - Review of budget lines for EbA within the planning of the Ministry of Agriculture, Irrigation and Forestry, the Ministry of Animal Wealth and the Rain-fed Agriculture Department	ASSUMPTION: There is sufficient political support and capacity (including capacity building activities) within the agencies dealing with adaptation for successful execution and implementation of the project. RISK: Lack of institutional coordination and capacity on EbA could lead to inappropriate or deficient implementation of EbA measures and policy frameworks RISK: Financial instability and lack of financial resources
Output 1.1 A multi-disciplinary White Nile State Technical Committee established and strengthening of HCENR in order to facilitate cross cutting dialogue at the state and national levels of climate change adaptation and EbA and coordination of EbA measure planning in vulnerable sectors	Development of a White Nile State Technical Committee with a clear mandate to promote and coordinate climate change and resilience building projects and activities in the State	BASELINE: While underfunded, a number of development initiatives are currently ongoing in the White Nile State addressing the agriculture and pastoral sectors. There is NO coordinating body at the state level to make such initiatives coherent and efficient.	TARGET: Development of a White Nile State Technical Committee with a clear mandate to coordinate actors involved in cross-cutting adaptation activities for the State. The Committee will be responsible for identifying points of entry for promoting Ecosystem based Adaptation (EbA)	- Government authorization for the White Nile State Technical Committee - White Nile State Technical Committee meeting minutes - Awareness raising sessions on EbA by the Technical Committee	
Output 1.2	Number of policies revised	BASELINE: EbA has not been	TARGET: 1 National level	Review of updated	

A stocktaking exercise undertaken and revisions of existing national and White Nile State policies and strategies identifying entry points for EbA and cost-effective up-scaling strategies for EbA including budget allocations	that account for EbA	integrated into any policies throughout Sudan.	policy and 1 state level policy revised to account for gender-sensitive EbA	policies/strategies	
Output 1.3 Policy briefs and technical guidelines developed and distributed for policy – and decision makers on increasing the resilience of local community livelihoods to climate change using appropriate ecosystem based adaptation and knowledge gained from demonstration activities	Number of policy briefs and technical guidelines developed for decision-makers on using EbA	BASELINE: Decision-makers are unaware of how to build the resilience of local communities to climate change using EbA approaches.	TARGET: 2 gender-sensitive policy briefs / technical guidelines developed for decision-makers on using EbA	Review of policy briefs / technical guidelines	
Output 1.4 Targeted CC adaptation and EbA planning/implementation training programmes for stakeholders completed, including field visits to learn from successful adaptation implementation	Number of field visits conducted to provide lessons learned on adaptation / EbA implementation with a focus on gender	BASELINE: Both national and state government representatives are unaware on how to use biodiversity and ecosystem services as part of an overall adaptation strategy to help communities adapt to the negative effects of climate change.	TARGET: One site visit by at least 4 government and 4 state ministry members conducted in each of the localities to document lessons learned on adaptation/EbA implementation (numbers to be confirmed by baseline study)	PC field visit logs	

Output 1.5 Facilitation of a local policy dialogue (based on vulnerability assessments and practical experiences from pilot implementation of EbA in component 2) on mainstreaming of adaptation into state and locality development plans	Number of state/locality development plans that have mainstreamed gender-sensitive EbA	BASELINE: State and locality development plans have not mainstreamed EbA into planning and budgets due to a lack of awareness on the benefits and cost-effectiveness of EbA.	TARGET: At least 4 state/locality development plans have mainstreamed gender-sensitive EbA	Review of state / locality development plans	
Outcome 2 Reduced vulnerability of local communities to climate change impacts in the White Nile State	Percentage of targeted HHs (head of HH disaggregated by gender) that have adopted EbA measures which improve access to climate change resilient food / water sources and improved ecosystem services (e.g., via reforestation and rangeland regeneration)	BASELINE 1: 0% of the targeted HHs have adopted EbA measures to improve their access to food, water and ecosystem services. Farmers and pastoralists are unable to mobilize water with physical infrastructure for use during the dry season (e.g., using rainwater harvesting, boreholes, etc). Also, ecosystem services are poor due to forest and rangeland destruction and unsustainable land use practices. Farmers and pastoralists do not have technical and applied knowledge on soil and water conservation methods and other sustainable practices to ensure that they can continually make use of productive ecosystem services.	TARGET: 100% of all targeted 6,800[29] HHs (head of HH disaggregated by gender) have access to climate change resilient food / water sources and improved ecosystem services relative to the baseline	Vulnerability Assessment baseline gender disaggregated survey and final evaluation surveys on food / water security and strengthened ecosystem services	ASSUMPTION: Initial hydrogeological studies and technical assessments are accurate in their predictions of water capture and storage capacities. ASSUMPTION: Local populations, including nomadic pastoralists, will not trespass into protected reforestation and re-vegetation areas due to being informed of the purpose of these areas to restore the natural environment and reduce erosion. Also, illegal tractor use will be
Output 2.1 Climate change vulnerability and risks	Risk and vulnerability assessments conducted for selected vulnerable sites in the White Nile State to	BASELINE: A team of experts was established in the White Nile State to conduct a general Vulnerability and Adaptation assessment for the	TARGET: Detailed gender-sensitive risk and vulnerability assessments conducted for each of the	Independent review of the risk and vulnerability assessments for	

[29] 6,800 households have been estimated based on local consultations during the PPG phase

for the selected vulnerable sites are identified to guide EbA interventions in pilot sites in the White Nile State	guide EbA interventions	agriculture, range and pasture, water and forestry sectors under the NAPs process. Presently, a more detailed assessment is necessary for the design, planning and construction of specific EbA measures in each locality.	4 selected vulnerable sites in the White Nile State to guide EbA interventions	each target locality by an EbA expert	successfully banned in the targeted localities. RISK: Communities do not support interventions and do not adopt ecosystem management activities for adaptation during or after the LDCF3 project because of limited immediate benefits of EbA. RISK: Current climate and seasonal variability and/or hazard events (floods, droughts) prevent implementation of project activities. RISK: Volatile political situation in Sudan could lead to government shifts or disruption of project activities.
Output 2.2 Regeneration of critical ecosystem services to restore degraded rangelands, increase water infiltration and improve resilience of rain fed agriculture and pastoralism under increasing drought conditions and dry seasons	Number of hectares of land reforested and rangelands protected and regenerated to restore critical ecosystem services	BASELINE: Due to poor land management and significant tree removal for Gum Arabic (acacia gum) production, agro-pastoralists and pastoralists are losing their forests and rangelands. Other than some small investments by the Range and Pasture Administration and the Animal Wealth Administration of the White Nile State (on the order of USD 120,000 annually), there are limited activities to address climate risks in the livestock sector. Such interventions are focusing on current pastoralist issues by establishing grazing enclosures, reseeding and promoting the livestock value chain. None of these interventions consider EbA approaches. A baseline study is required to confirm the number of hectares requiring reforestation and rangeland regeneration with Climate Change (CC) resilient species.	TARGET: - 1,500 ha reforested with CC resilient species - 6,600 ha of rangeland regenerated with CC resilient species - Shelterbelts established on 10% of cultivated areas[30]	Reforestation/ afforestation, and rangeland restoration records kept by the Range and Pasture Administration, the Animal Wealth Administration and the Forest National Corporation	
Output 2.3 A number of EBA support measures are piloted and integrated into existing local community livelihood activities, including *in*	Number and type of sustainable water management and farming practices introduced to increase access to irrigation and water supply and improved food supplies under existing and predicted climate	BASELINE: In spite of water supply interventions by the White Nile State Water Corporation, there is no focus on increasing the climate resilience and sustainability of water infrastructure. The White Nile State Water Corporation also lacks required financial resources and technical knowledge to climate proof water supply interventions. Consequently, rain-fed farmers and	TARGET: -Design and rehabilitation/construction of approximately 10 water reservoirs and wells with the support of WUAs - 200 rainwater harvesting	Construction log of the Rain-fed Agriculture Department and the Ministry of Animal Wealth	

[30] A national law dictates that shelterbelt establishment should be on 10.0% in rainfed cultivated areas and on 5.0% on irrigated areas.

situ rainwater harvesting and drought/flood resilient eco-agriculture	change	pastoralists, particularly those on the west side of the White Nile river, do not have sufficient water for drinking and irrigation. Also, water storage mechanisms are inefficient because of high evaporation rates. As identified in the NAP, there is a need to construct/rehabilitate reservoirs and wells. The baseline study will confirm the number of wells and reservoirs required to serve the targeted population. The Rainfed Agriculture Department has a programme to provide improved seeds, to implement water harvesting and to improve extension services. However, the budget allocation and coverage of this programme is inadequate to reduce the vulnerability of the 4 target localities. A baseline study is required to confirm the percentage of farmers requiring improved seeds.	pits installed on 2,000 community farms (4 ha each) with support of WUAs - 2 successful harvests with improved seeds for 90% of targeted farmers (gender disaggregated, men vs. women farmers)		
Output 2.4 Pilot implementation of alternative livelihood activities based on indigenous practices, including, *inter alia*, poultry breeding, home garden farming, and small ruminant strategic feeding as well as alternative energy use strategies to enhance community resilience to climate	- Number of women practicing backyard gardening and/or post-harvesting in each locality - Number of women using improved cookstoves - Number of men/women with new access to solar powered hand pumps for wells - Number of men/women supported with feed supplements for small	<u>BASELINE:</u> Currently, the populations have no (0) access to diversified livelihood assets and revolving funds. Diversification of livelihoods is required to ensure that the target populations, which are already in poverty, have other livelihood options to create an asset base making them more resilient to climate shocks. If not supported, pastoral systems will continue pulling out of the mobile production system, tending to compete for scarce land for farming or be lured into unsustainable industries.[31]	<u>TARGET:</u> - At least 1600 women (160 backyard gardens) practicing backyard gardening and/or post-harvesting - At least 320 women (20 women per village) using improved cook stoves - At least 3200 men/women (at least four villages) with new access to solar powered hand pumps for	- Baseline and final socio-economic surveys supported by the White Nile State Women Union - Review of bookkeeping by Village Development Committees (VDCs) and Water User Associations	

[31] Feinstein International Center, Tufts University and UNEP Study, *Standing Wealth: Pastoralism Livestock Production and Local Livelihoods in Sudan,* 2013

change impacts	ruminants - Number of men/women using revolving funds established by the project - % of men/women revolving fund recipients who have successfully repaid loans		wells - At least 160 men/women (10 from each of the 16 villages) supported with feed supplements for small ruminants - At least 480 men/women using revolving funds established by the project - At least 90% of revolving fund recipients have successfully repaid loans	(WUAs) on revolving funds	
Output 2.5 Local authorities, communities, committees and user groups trained on adapting community livelihoods to climate change through the use of EbA and on monitoring of EbA measures	Percentage of targeted local authorities, community members, VDCs and WUAs trained on implementing, maintaining and monitoring EbA interventions	BASELINE: Currently, community members are unaware of how the use of biodiversity can be used as part of an overall adaptation strategy to help them adapt to adverse impacts of climate change.	- 50% of local authorities, community members, VDCs and WUAs trained on implementing, maintaining and monitoring EbA interventions (30% of those trained must be women)[32] - Establishment of an extension farm in each of the 4 target localities with access to improved seeds	Training logs kept by PC	
Outcome 3 Strengthened information base and knowledge on EbA and climate change	Number of lessons learned, demonstrations of intervention cost-effectiveness and upscaling strategies on	BASELINE: An existing cloud database contains climate data and forecasts, together with information on climate adaptation technologies. It is currently managed by ARC and HCENR under the	TARGET: At least 10 lessons learned, 10 demonstrations of intervention cost-	Review of database managed by HCENR and ARC for incorporation of	ASSUMPTION: In spite of political and financial instability, the adaptation database will be able to be continually maintained

[32] Note that the WUAs and VDCs have a 30% women representation.

are readily available for various uses	EbA integrated into the existing Cloud database	CRFP project. However, the database does not detail information on sustainable agro-pastoral best practices in Sudan and there is no information specifically on EbA activities.	effectiveness and 1 upscaling strategy on EbA integrated into the existing Cloud database	baseline and final socio-economic survey information, lessons learned and costs	by HCENR RISK: Priority interventions implemented are not found to be cost effective.
Output 3.1 Information, lessons learnt from project interventions and knowledge on climate change adaptation and resilient livelihoods using EbA are captured, stored and widely disseminated among stakeholders at all levels	Number of workshops held in local communities to disseminate lessons learned on using EbA	BASELINE: As EbA is a new concept in Sudan, there have been no trainings or workshops held to disseminate knowledge on this topic.	TARGET: 2 workshops held to disseminate gender-sensitive lessons learned on using EbA	Review of training logs by PC	
Output 3.2 A central information base of data on EbA lessons learned and cost-effectiveness of interventions established within the existing Cloud operated jointly by HCENR and the ARC	Number of links between the Cloud database and regional adaptation databases such as the African Adaptation Knowledge Network in order to disseminate lessons learned on EbA from Sudan experiences	BASELINE: There is currently no data on EbA in Sudan. Also, the cloud database has not been linked with regional knowledge sharing systems.	TARGET: At least one link between the Cloud database and a regional adaptation database in order to disseminate gender-sensitive lessons learned on EbA from Sudan experiences	Review of cloud database platform and regional links	

Output 3.3 An upscaling strategy for EbA across Sudan by both the public and private sectors is developed based on an economic cost-benefits assessment	Upscaling strategy developed for EbA based on a cost-benefit assessment	BASELINE: There is currently no strategy to support EbA in Sudan. Although Economics of Adaptation (Global Water Partnership) [33] and adaptation cost-benefit [34] tools and trainings exist to guide replication of adaptation activities and investments by the public and private sector, none of these have been applied in Sudan.	TARGET: Development of an upscaling strategy for EbA based on a cost-benefit assessment	Review of the cost-benefit assessment	

[33] Capacity Development on Economics of Adaptation, Water Security and Climate Resilient Development in Africa (2013-2014)

[34] New York State Energy Research and Development Authority (NYSERDA) (2011) *An Economic Analysis of Climate Change Impacts and Adaptations in New York State*: Annex III to the ClimAID Inegrated Assessment for Effective Climate Change Adaptation Strategies in New York State. Available online at: http://www.nyserda.ny.gov/climaid

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).

Sudan: Enhancing the Resilience of Communities Living in Climate Change Vulnerable Areas of Sudan using Ecosystem based Approaches to Adaptation (EbA), GEF Project ID 5703		
Germany Comments at PIF stage	**Response**	**Reflection in the CEO ER / Project Document**
Germany welcomes that the selection of pilot localities for EbA measures in the White Nile State (component 2) builds on the results of previous vulnerability assessments (VAs) conducted within the context of the Sudanese NAP process. Moreover, it is highly appreciated that the PIF foresees comprehensive participatory VAs in each of the targeted localities to identify entry points for EbA measures. Germany recommends repeating these VAs after the implementation of EbA measures to generate valuable information on outcomes and effectiveness of the intervention. The results generated on this basis could also very well be integrated in the planned knowledge management and awareness activities (component 3).	The Project builds off the V&As conducted under Sudan's NAP as indicated in Section 2.1 of the Project Document. The NAP V&A assessment was generalized to describe the White Nile State as a whole. Targeted V&A assessments for the localities are required to understand specific climate change vulnerabilities. These site-specific V&As will be conducted in the beginning of implementation (Activity 2.1) and will enable lessons learned to be captured. These lessons learned will be captured as indicated by the following activities. 2.5.8 Design and implement a monitoring strategy to assess the impacts of EbA to provide lessons learned and best practices for upscaling EbA 3.1.2 Collate lessons learned on EbA interventions by the VDCs and WUAs 3.1.3 Collate lessons learned and best practices from other national/international projects on: i) EbA interventions; ii) climate-resilient land/water management techniques; iii) the social and environmental benefits of these approaches; and iv) community management structures for the implementation, monitoring and maintenance of these interventions Lessons learned will be stored in the Cloud database managed by HCENR and ARC (supported by the CRFP	Discussion on the Project outputs has been included in the CEO Endorsement.

	project) in Component 3.	
The PIF mentions that the LDCF-funded "*Climate risk finance for sustainable and climate resilient rainfed farming and pastoral systems*" project, which is currently in the preparation phase, will also be active in the White Nile State. Among other things, it aims to improve local climate modelling capacities. Germany suggests closely collaborating with this project and making use of synergies wherever possible. In particular, enhanced climate modelling capacities could greatly benefit the VAs in the targeted pilot localities. In addition, the results from improved climate modelling should be included in the "central information base" that will be established under component 3.	As stated in Activity 2.3.1, the protocols on EbA implementation will be based on CC predictions provided by the Sudanese Meteorological Authority (SMA) through the Climate Risk Finance (CRFP) or LDCF2 project.[35] SMA's capacity to forecast is being built by the LDCF2 project to tailor regionally available products to the Sudanese context, including per state. As recommended by STAP, the Project will also look into climate scenarios by UCAR (http://www2.cgd.ucar.edu/) Also, the strong link with LDCF2 will support the integration of any climate change related forecasts and previsions into the existing environmental Cloud database housed at HCENR. Furthermore, the LDCF2 project is linking adaptation technologies developed by ARC with MF packages. Through ARC's support, successfully piloted adaptation technologies and practices will be replicated in the relevant communities which have similar socio-environmental contexts.	More details have been added to the Project Framework for all Outputs under Component 1 and to the Results Framework.
STAP Comments	**Response**	**Reflection in the CEO ER / Project Document**

[35] **LDCF2**: Climate risk finance for sustainable and climate resilient rain-fed farming and pastoral systems (2014-2017, US$5.7million, funded by the LDCF and being implemented by UNDP)

STAP recommends addressing the following. 1. In the full proposal, STAP recommends including the criteria that will be used to select target sites and groups. STAP also recommends that project indicators be developed. 2. STAP welcomes the focus on women and other vulnerable groups and hopes the gender aspects will be further developed and specified in the full proposal. 3. Table 1 should be updated to include health risks associated with some of the proposed activities. 4. Also note that Table 1 says the risks of political volatility will be minimized by setting up the central project administration to limit the impact of government shifts. This appears to be somewhat inconsistent with the project goals to influence government policy. It would be helpful to understand how both will be achieved. 5. While not discussed, medium to longer-term adaptation options require consideration of projected changes in climate change, including extreme weather and climate events, and consideration of how development patterns could alter vulnerability. UNEP could consider developing regional scenarios including emission pathways (RCPs) and shared socioeconomic pathways (SSPs) that can inform identifying adaptation options	1. The criteria to select the target localities have been listed in Appendix 7. 2. As seen in the Appendix 16 notes, the project development workshop included representation by 50% women. Also, the Village Development Committees (VDC) and Water User Associations (WUAs) to be formed under the Project will have 30% women representation. Women will be behind most of the community water management initiatives and will be beneficiaries of revolving funds. Furthermore, the adaptation technologies that ARC will promote account for gender, and the activities that concern the diversification of livelihoods are gender-specific and target women. Stakeholder consultations indicated that women's role is major in using alternative energy sources, feeding small ruminants, poultry raising, vegetable gardening, post harvesting activities and rural dairy processing. During Project development the Women's Union of the White Nile State was implicated and will continue to be implicated as indicated in Section 5 of the Project Document. Also, the Ministry of Gender, Child and Social Welfare will receive capacity reinforcement on integrating CC and EbA into policies and strategies. 3. Table 2 of the Project Document as well as Table 1 of the CEO Endorsement have been updated as well as the Project Document discussion to include health risks and their	See Appendices 7, 16 of the Project Document. Also see Table 2 of the Project Document and Table 1 of the CEO Endorsement.

robust against a range of future climates and societal changes. Further information on the development of these new climate scenarios can be found at http://www2.cgd.ucar.edu/research/iconics	mitigation measures. The following discussion and measures have been included in Project design: a) Open water sources (rainwater harvesting tanks, wells, reservoirs) may become breeding grounds for mosquitoes and other insects that may transmit malaria and other vector-borne diseases. The Water User Associations (WUAs) in each target locality will be provided with medical kits that will contain medicines such as prophylactics to address these issues. The WUAs will also be trained in water-borne diseases and proper hygiene. b) Farmers and pastoralists will also be provided capacity building on Integrated Pest Management by ARC. c) Any community members that purchase cook stoves (butane gas powered) will be trained on safety measures. d) Veterinarians will be supported to come to training sessions so that animal-borne diseases from small ruminants, lamb and poultry will not become rampant. The revolving fund will also support Community Animal Health Workers (CAHW) to provide veterinarian care due to the fact that animal health and hygiene is crucial to sustain diversified livelihoods for farmers and pastoralists. 4. Table 2 of the Project Document and Table 1 of the CEO	

	Endorsement have been updated to demonstrate that political instability will be mitigated by implicating ministries across sectors. Hence if one ministry's mandate changes, the overall goal of integrating EbA measures in the context of climate change into development policies, plans and budgets will still be upheld. 5. Germany had a similar comment about forecasting. As stated in Activity 2.3.1, the protocols on EbA implementation will be based on CC predictions provided by the Sudanese Meteorological Authority (SMA) through the LDCF2 project.[36] SMA's capacity to forecast is being built by the LDCF2 project to tailor regionally available products to the Sudanese context, including per state. As recommended by STAP, the Project has recommended the use of climate scenarios generated by UCAR (http://www2.cgd.ucar.edu/). The close collaboration with the LDCF2 project will ensure that the most pertinent forecasting and climate prediction products are utilized.	
STAP Minor Issues STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to: (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised.	(i) In spite of receiving STAP's comments during Project Document review by UNEP authorities, the responses here demonstrate UNEP's willingness to adhere to STAP's comments at a late stage. The Project will continue to implicate STAP during project implementation. Furthermore, all technical and scientific issues will be addressed by the Chief Technical Advisor to be hired by the Project as well as various experts including: an internationally-recognized expert on EbA, a community-based NRM expert, a rural alternative energy expert, a	See TORs in Appendix 11 of the Project Document.

[36] **LDCF2**: Climate risk finance for sustainable and climate resilient rain-fed farming and pastoral systems (2014-2017, US$5.7million, funded by the LDCF and being implemented by UNDP)

(ii) Set a review point at an early stage during project development, and possibly agreeing to terms of reference for an independent expert to be appointed to conduct this review. The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement. STAP Major Issues STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical methodological issues, barriers, or omissions in the project concept. If STAP provides this advisory response, a full explanation would also be provided. The proponent is strongly encouraged to: (i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development including an independent expert as required.	consultancy specialized in adaptation to climate change, an adaptation economics / policy expert and a Vulnerability and Adaptation (V&A) Assessment expert. (ii) Project development has implicated two national experts from the Agricultural Research Commission (ARC). As the Project is also based on expert V&A reports prepared during the recent NAP process, it is also founded on a sound scientific and technical background. Project implementation will include expertise from ARC on adaptation technologies (proven in the LDCF1 and LDCF2 projects) as well expertise from the consultants to be hired. Baseline vulnerability assessments by a V&A expert will provide further expertise. In terms of review, the project will be evaluated at mid-term and at the final stages by independent experts. All of these reports and evaluations will be publicly available and can be shared with STAP upon request.	
GEF Secretariat Comments at PIF stage	**Response**	**Reflection in the CEO ER / Project Document**
8. (a) Are global environmental/ adaptation benefits identified? (b) Is the description of the incremental/additional reasoning sound and appropriate? By CEO Endorsement: Please make explicit the ways in which the EbA measures will be taking potential future change in climate into account in design of the on-the-ground activities. For example, bee-keeping has been	EbA measures will take into account future climate change. Poultry-raising, small ruminant feeding and lamb fattening are not "climate-resilient" activities in and of themselves as suggested by the GEF Secretariat. Activities will improve rural community nutrition ***(particularly to women and children)*** and empower them to become more resilient to climate shocks due to the fact that the activities support	See Sections 3.3 and 5 of the Project Document.

suggested as an alternate, "climate-resilient" livelihood. In some parts of the world, however, the impact of climate change on bees is not clear; such considerations should be guiding activity selection, design and planning. The activities might not be "climate-resilient" in and of themselves. By CEO endorsement stage, please ensure that climate change considerations guide all proposed activities.	livelihood diversification. Small ruminant fattening and poultry raising are both considered adaptation activities by building resilience and capacity of rural women and youth in view of a deteriorated natural resource base. Furthermore, these activities will support the use of more productive animals decreasing grazing pressure on the already deteriorated rangelands. These adaptation activities have already had success in the context of climate change. For instance, NAPA interventions in North Kordofan by the IFAD Natural Resource Management Program implemented small ruminant fattening for rural women between 2000 and 2007.[37] Each woman was provided with a loan from a revolving fund to buy two lambs or kids (young male goats), feed them for 45 days, and sell them in village markets. The activity could accrue as much as SDG 250 per 45 days per lamb and most importantly, it could withstand dry periods, increasing temperatures and spreading desertification.	
10. Is the role of public participation, including CSOs, and indigenous peoples where relevant, identified and explicit means for their engagement explained? Not fully yet. The project will employ participatory approaches and involve local communities in validation of key process. The project will create partnerships with NGOs at national and regional levels, as well as with private sector partners at project sites. Also, the PIF mentions that women are highly vulnerable to adverse	10. The Project will create strong links with Village Development Cooperatives and Water User Associations which will take the form of Civil Society Organizations. Also, the private sector will be heavily implicated in Component 3. As indicated in Activity 3.3.3, the private sector will be implicated in workshops that disseminate	See Section 5 of the Project Document. See Section 3.7 (Additional Cost Reasoning) of the

[37] IFAD. Enabling the rural poor to overcome poverty in Sudan. North Kordofan Rural Development Project. 2007.

impacts of climate change and that the project will specifically target them, but does not mention how women's interests will be captured in the project design itself. Recommended action: It would be preferable to provide assurances that women's groups and community members will be consulted during the project preparation itself, ahead of implementation. In addition, by CEO endorsement: Please discuss more fully how stakeholders will continue to be consulted throughout project implementation.	EbA project concepts. As such, the private sector will have awareness on the cost-benefits of successfully piloted EbA measures that account for climate change impacts. In terms of women's representation, please see response 2. to STAP on women's representation: "Project development workshop included representation by 50% women. Also, the Village Development Committees (VDC) and Water User Associations (WUAs) to be formed under the Project will have 30% women representation. Women will be behind most of the community water management initiatives and will be beneficiaries of revolving funds. Furthermore, the adaptation technologies that ARC will promote account for gender, and the activities that concern the diversification of livelihoods are gender-specific and target women. Stakeholder consultations indicated that women's role is major in using alternative energy sources, feeding small ruminants, poultry-raising, vegetable gardening, post-harvesting activities and rural dairy processing. During Project development the Women's Union of the White Nile State was implicated and will continue to be implicated as indicated in Section 5 of the Project Document. Also, the Ministry of Gender, Child and Social Welfare will receive capacity reinforcement on integrating CC and EbA into policies and strategies." Other private sector involvement will include the following: • Water sector: Private sector contractors will be initiated by the State Water Corporation. • Fodder production involves several private sector companies. • The production and sales of improved seeds and	Project Document.

	agricultural implements such as ploughs are other activities that involve the private sector. • Alternative energy products such as improved stoves (butane gas stoves and cylinders) and solar powered pumps are provided by the private sector.	
11. Does the project take into account potential major risks, including the consequences of climate change, and describes sufficient risk mitigation measures? (e.g., measures to enhance climate resilience) FI, 2/27/14: Not quite. Please also discuss risks posed by lack of institutional coordination and capacity for EbA: due to the cross-cutting nature of EbA, coordination across relevant institutions will be necessary, including links with relevant research on resilience to climate change.	Lack of institutional capacity and coordination on EbA could lead to inappropriate or deficient implementation of EbA measures and policy frameworks. The impacts include that i) Multi-sectoral adaptation interventions are compromised and interventions are confined to those sectors willing to engage in cross-sectoral dialogue.; ii) The vulnerability of certain sectors to climate change is not fully addressed.; and iii) Lack of institutional coordination and capacity on EbA could lead to inappropriate or deficient implementation of EbA measures and policy frameworks. Mitigation measures include: • Developing the technical capacity of the White Nile Technical Committee to support inter-ministerial coordination and planning around climate change adaptation • Ensuring technical representatives from all line ministries are included in the trainings provided: This will increase institutional capacity within, and facilitate coordination between different ministries. • Producing sectoral vulnerability assessments for different line ministries to promote support for the LDCF3 project activities. • Establishing the mandate of the White Nile State Technical Committee to facilitate cross-cutting dialogue by including a broad range of representatives from relevant ministries and NGOs in the Committee • Designing the Technical Committee so that it can grow into a more permanent body for coordination of adaptation and EbA planning and mainstreaming in Sudan • Producing and distributing cost-benefit analyses of EbA	See Table 2 and Table 1 of the Project Document and CEO Endorsement respectively.

	measures to attract cross-sectoral support • Implicating ministries across sectors to enhance stability because if one ministry's mandate changes, the overall goal of integrating EbA measures in the context of climate change into development plans and budgets will still be upheld	
Comment on the project's **innovative aspects, sustainability, and potential for scaling up**. • Assess whether the project is innovative and if so, how, and if not, why not. Innovativeness: EbA is a relatively innovative approach to climate change adaptation, However, as mentioned in Item 8, above, the EbA measures will need to fully consider climate change adaptation considerations and (by CEO endorsement) provide details on the measures being taken to do so. If the project simply implements a suite of ecosystem/rangeland improvements that are needed regardless of climate change, it is not innovative.	The EbA measures consider climate change adaptation in their design. Examples of the most pertinent include the following: • The V&A will assess CC vulnerabilities in each state to guide entry points for EbA. • The EbA consultant will support VDCs and WUAs to verify sites for appropriate climate-resilient land and water management techniques. • The State Technical Committee will operationalize national dialogue on CCA and EbA and develop policy briefs that detail how to integrate CCA and EbA into relevant policies and budgets. Concrete measures have also fully integrated CCA such as: • rangeland rehabilitation, replanting and protecting trees along riparian zones, afforestation, shelter belts, RWH, drought-tolerant seed broadcasting • using alternate building materials and improved cookstoves to reduce forest destruction • training locals climate-resilient agricultural and pastoral techniques • training on EbA and climate resilient land-water management techniques for all levels from local to national	See Section A.4 of the CEO ER and Section 3.3 of the Project Document.
17. At PIF: Is the indicated amount and composition of co-financing as indicated in Table C adequate? Is the amount that the Agency bringing to the project in line with its role? At CEO endorsement: Has co-financing been confirmed?	The UNEP ADAPT! Project is providing USD 1.4 million in grant cofinancing due to synergies between the LDCF3 and ADAPT projects in the following aspects:	See Table C of the CEO Endorsement and discussion on ADAPT in Section 2.6 of the

FI, 2/27/14: Further information is requested. The amount and composition of co-financing is adequate ($11.1 million), with most being provided from local and national Government sources. The Agency (UNEP) is not bringing co-financing, however. Recommended action: The PIF (Section B.3) indicates a strong UNEP presence in Sudan. Please provide an explanation of why UNEP is not providing co-financing for this project.	ADAPT Component 1: coordinating environmental programming to promote linkages across government sectors, building institutional capacities to address climate issues in the long-term, and promoting best environmental practices; (linked to LDCF3 Component 1) ADAPT Component 2: supporting socio-economic analysis of climate constraints and promoting the use of environmental information; (linked to LDCF3 Component 3) and ADAPT Component 3: informing and influencing national policy and planning so as to improve environmental governance. (linked to LDCF3 Component 1)	Project Document.
24. Is PIF clearance/approval being recommended? FI, 2/27/14: Not yet. Please address the comments provided for Items 10, 11 and 17. Please also note that the Agency fee amount is missing from Table D and should be included.	The Agency fee is now included.	See Table D of the CEO Endorsement.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[38]

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

PPG Grant Approved at PIF:			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent Todate***	***Amount Committed***
International Consultants	50,000	16,300	33,700[39]
National Consultants	25,500	4,934	20,566
Travel	8,000	7,195	805
Meetings and conferences	15,500	4,252	11,248
Communication	1,000	313	687
Total	**100,000**	**32,994**	**67,006**

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

[39] 20,000 of these have been committed for use in the inception phase (i.e. within year 1 of project implementation) toward community level data collection for the baseline study.

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

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

Not applicable