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

## Landscape Approach to Riverine Forest Restoration, Biodiversity Conservation and Livelihood Improvement

### Part I: Project Information

GEF ID

10162

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

☐ CBIT

☐ NGI

Project Title

Landscape Approach to Riverine Forest Restoration, Biodiversity Conservation and Livelihood Improvement

Countries

Sudan

Agency(ies)

FAO

Other Executing Partner(s)

National Forestry Corporation, Ministry of Agriculture and Forestry

Executing Partner Type

Government

**GEF Focal Area**

Biodiversity

**Taxonomy**

Protected Areas and Landscapes, Focal Areas, Biodiversity, Capacity, Knowledge and Research, Productive Landscapes, Mainstreaming, Agriculture and agrobiodiversity, Forestry - Including HCVF and REDD+, Sustainable Development Goals, Influencing models, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Stakeholders, Civil Society, Non-Governmental Organization, Community Based Organization, Type of Engagement, Consultation, Participation, Communications, Behavior change, Awareness Raising, Private Sector, SMEs, Individuals/Entrepreneurs, Beneficiaries, Local Communities, Gender Equality, Gender results areas, Access to benefits and services, Capacity Development, Participation and leadership, Gender Mainstreaming, Learning, Adaptive management, Knowledge Generation, Training, Workshop

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

Climate Change Mitigation 1

**Climate Change Adaptation**

Climate Change Adaptation 1

**Duration**

36 In Months

**Agency Fee(\$)**

246,024

**Submission Date**

3/29/2019

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

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-1	GET	2,589,726	14,650,000
Total Project Cost (\$)		2,589,726	14,650,000

## B. Indicative Project description summary

### Project Objective

Project Objective: Restore and sustainably manage globally significant riverine forest landscapes along the River Nile in Sudan in order to maintain critical ecosystem services Indicator and Target: 33 riverine forest ecosystems covering 50,878 ha of land managed sustainably, benefiting biodiversity through habitat restoration and conservation for migratory and resident birds and other animal and plant biodiversity

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 1. Integrated and participatory riverine forest landscape management planning	Technical Assistance	<p>1.1 Riverine forest ecosystem services managed sustainably through integrated and participatory management plans fully integrating biodiversity and habitat restoration/ conservation</p> <p><i>Indicator and target:</i></p> <p><i>Mainstream biodiversity and ecosystem conservation and sustainable use into the management plans of the riverine forest reserves implemented by the FNC (directly benefitting the plans of the 33 riverine forest reserves in Sudan)</i></p> <p><i>Community Action Plans developed, restoring and sustaining critical ecosystem services and</i></p>	<p>1.1.1 Mapping and analysis of the BD and degradation status of riverine forest ecosystems carried out, identifying opportunities for restoration and adoption of integrated land uses (e.g. agroforestry, sylvo-pastoral or agro-sylvo-pastoral systems) at the level of the 33 riverine forest reserves</p> <p>1.1.2 Assessment of the economic, social and cultural values, through the support of Natural Capital Assessment activities of riverine forests conducted (at the level of the 33 riverine forest reserves), identifying development opportunities at the local, regional and national levels</p> <p>1.1.3. Operational guidelines prepared for the sustainable and integrated management,</p>	GET	780,000	2,950,000

*goods for 6 demonstration sites (i.e. landscapes including forest reserves and their adjacent production land, and focusing on their interactions and interdependency)*

*Indicator and target:*

*20,000 local and vulnerable female and male producers engaged in and benefitting from sustainable management of riverine forest landscapes*

restoration and conservation of riverine forest landscapes applicable to the 33 forest reserves and their wider landscapes

1.1.4. Community Action Plans (CAPs) and multi-stakeholder fora set-up to ensure local participation and integrated approaches to management, restoration and conservation of the biodiversity and ecosystem services delivered by riverine forest ecosystems for 6 demonstration sites

1.1.5. Sustainable financing strategy for integrated management, restoration and conservation of riverine forest landscapes prepared and implemented, including innovative private and public financial schemes for 6 demonstration sites

1.1.6. Local and national sector policies and plans assessed and amendments proposed (*in primis* the existing outdated riverine forest management plans of the FNC for the 33 forest reserves) in order to

operationalize and perpetuate  
CAPs and multi-stakeholder  
fora

1.1.7. Local institutions  
(including FNC, Farmer  
Unions, Women Unions,  
village committees and  
Environmental Conservation  
Society) equipped and trained  
to facilitate sustainable land  
management of riverine  
forest landscapes

1.1.8. Access to expertise on  
integrated and sustainable  
management of riverine  
forest landscapes of key  
sectors, stakeholders and  
associations increased

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Component 2. Demonstration, through community-based approaches, of integrated sustainable management, restoration and conservation of riverine forest landscapes	Investment	<p>2.1. Integrated, sustainable and community-based management of riverine forest landscapes benefit biodiversity in representative pilot sites</p> <p><i>Indicators and targets:</i></p> <p><i>6 Community Action Plans implemented and monitored for biodiversity conservation and sustainable use</i></p> <p><i>Within the context of the CAPs, increase the productivity on production land surrounding the 6 pilot riverine forest reserves (% increase TBC during PPG) to halt forest encroachment</i></p>	<p>2.1.1. Local communities and associations in representative pilot sites trained on a selection of traditional and innovative agricultural, forestry, agro-forestry and pastoral practices maximizing the sustainable use and conservation of riverine forest ecosystem services and products</p> <p>2.1.2. CAPs, fully aligned with existing sectoral plans and strategies in selected pilot riverine forest landscapes, implemented</p> <p>2.1.3. Community-based monitoring of CAP management and ecosystem services status in representative pilot sites</p>	GET	1,380,000	11,100,000
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Component 3. Knowledge and information management	Technical Assistance	3.1. Project monitored, project results captured, and lessons learnt widely and systematically disseminated	3.1.1 Awareness and communication strategy about the role of riverine forest landscape in environmental protection and biodiversity conservation developed and implemented	GET	306,406	400,000
		Indicator: Communication strategy and plan and monitoring and evaluation plan implemented	3.1.2 Monitoring and evaluation plans developed and implemented			
			3.1.3 Successful approaches and practices from Components 1 (like the operational guidelines) and 2 in the pilot sites are made available to relevant stakeholders for upscaling and replication across the riverine forest landscapes			
			3.1.4 Multi-stakeholder fora ensure use of local knowledge and information sharing of best practices, lessons learnt and successful stories			
Sub Total (\$)					2,466,406	14,450,000
Project Management Cost (PMC)						
				GET	123,320	200,000
Sub Total(\$)					123,320	200,000
Total Project Cost(\$)					2,589,726	14,650,000





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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Government	Butana Development Agency (BIRDP)	Grant	Investment mobilized	9,000,000
Government	Forest National Corporation (BRIDGES)	Grant	Investment mobilized	1,500,000
Government	Forest National Corporation	In-kind	Recurrent expenditures	350,000
GEF Agency	FAO (TCP)	Grant	Investment mobilized	300,000
GEF Agency	IFAD (SNRLP)	Grant	Investment mobilized	3,500,000
<b>Total Project Cost(\$)</b>				<b>14,650,000</b>

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

Aligned with the Cofinancing guidelines, the investment mobilised comprises all relevant investments by project partners in the Sudanese Riverine Forest Landscapes that are not operating or operational costs. Details are provided below on the nature of the investments. In addition, FAO commits itself to a new and additional investment tailored to serve the project, and particularly delivering outputs and activities that are not directly eligible for GEF financing, such as inventories, studies, and more. During PPG, the exact scope and focus of such a technical cooperation project will be identified, when activities will be spelled out in detail.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Sudan	Biodiversity	BD STAR Allocation	2,589,726	246,024	2,835,750
Total GEF Resources(\$)					2,589,726	246,024	2,835,750

**E. Project Preparation Grant (PPG)**

PPG Amount (\$)

150,000

PPG Agency Fee (\$)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Sudan	Biodiversity	BD STAR Allocation	150,000	14,250	<b>164,250</b>
Total Project Costs(\$)					<b>150,000</b>	<b>14,250</b>	<b>164,250</b>

Please provide justification

A number of baseline assessments, some of which will be expensive because of the topic and location, will be carried out in a short period of time. This will require a larger than normal PPG team and additional resources. These assessments will include: prioritization of SEEA-AFF accounts (and therefore a thorough assessment of the existing data availability and gaps), gender analysis, baseline surveys at household level, social and environmental impact assessment and development of risk mitigation plan (working in and around forest reserves, the project is categorized medium risk according to FAO Environmental and Social Safeguards framework), data and information collection for land-use planning exercise (with CollectEarth-Open Foris training and use), and micro-assessment of operational capacity of FNC as suggested execution partner of the project.

## Core Indicators

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
50878.00	0.00	0.00	0.00

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
50,878.00			

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

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

## Type/Name of Third Party Certification

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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## Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
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## Documents (Please upload document(s) that justifies the HCVF)

Title

Submitted

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

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

## Part II. Project Justification

### 1a. Project Description

#### 1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

##### 1.A General context

Sudan is about 1.86 million square kilometres and is the third largest country in Africa. It is located within the tropics, between the desert in the North and the fertile, humid savannah belt in the South. It borders with seven neighboring countries, namely Egypt , Libya , Eritrea, Ethiopia , Central Africa Republic , Tchad and South Sudan .

According to the Central Bureau of Statistic (2018), Sudan has an estimated population of 41.5 million inhabitants with one of the highest growth rates amongst Sub-Saharan African countries. Almost two thirds of the population live in the rural areas and, despite the rising per capita income, the incidence of poverty is high, with 46.5 percent of the population living below the poverty line and most of the people depending on biodiversity-related goods and services for sustaining their livelihoods.

According to Harrison and Jackson (1958)[1], the country comprises various ecological zones: desert, semi-desert, low rainfall woodland savannah, high rainfall woodland savannah and special areas such as mountains and riverine ecosystems. The most important physical feature of the country is the river Nile which bisects it from South to North. Most of the main axis of the river is within the country and all its tributaries run most of their lengths and converge within it too.

This diversification of ecological zones and the presence of river Nile and its tributaries have shaped the lifes of rural population ranging from nomadic to sedentary communities.

These factors combined result in high demographic pressure, especially on the Nile's fertile river banks and plains that are suitable to build a thriving agriculture and livestock economy.

##### 1.B Riverine forests, productive riparian ecosystems that harbor a rich biodiversity and confer valuable ecosystem services

The riverine ecosystem occurs at the interface between aquatic and terrestrial ecosystems and regulates the transfer of energy between these systems, as well as insolation for the aquatic system (Pusey and Arthington, 2003). Sudanese riverine forest landscapes are located along the banks of the Blue Nile and tributaries and along the White Nile and some wetland bodies which might have been feeding in the past into the Nile tributaries. They are characterized by multiple coexisting land uses, including a very unique forest ecosystem covering a vast area and of vital environmental and economic importance. They protect the Nile system and its watershed and soil against wind & water erosion, reduces water pollution, provides habitats for wild animal species, migratory



birds and many aquatic organisms. The riverine forests are contained in two main sites. The flood basin that provide the main site for Sunut growing in pure stand and upper slopes of the flood basin where flood is rare and where forests of mixed species are observed, including *Acacia seyal*, *Balanites aegyptiaca*, *Faidherbia albida*, *Ziziphus spina-christi* and others.

These forests are situated along the banks of the White Nile and Blue Nile, on the flyway of the migratory birds from Eurasia to Africa. They constitute an important part of the bird sanctuary along the River Nile. Therefore, these ecosystems have been officially declared as forest reserves in 1932 and some of them as bird sanctuaries in 1945.

The riverine forest sites shelter a wide diversity and density of invertebrates when compared to the adjacent other forest ecosystems and comprise some of the world's most productive ecosystems. Riverine forests provide a wide range of habitat to wildlife including hedgehogs, monkeys, rats and gazelles. They also provide a habitat for insects, birds and plants.

- **Animal biodiversity:** In oligotrophic streams, the terrestrial matter carried into the water supplies an important food resource for fishes where, many varieties of fish are found in the Nile system such as the Nile perch, the bolti (a species of *Tilapia*), the barbel and several species of catfish, the elephant-snout fish, and the tigerfish, or water leopard and common eel that penetrates as far South as Khartoum. Other reptiles found in the Nile basin include the soft-shelled turtle, three species of monitor lizard, and some 30 species of snakes, of which more than half are venomous. The hippopotamus, once common throughout the Nile system, is now found only in the riverine ecosystem. Hence, the riverine integrity is extremely important for the survival of these species (Pusey and Arthington, 2003; Melo et al., 2004). In addition to being highly sensitive to environmental changes, the riverine zone is a key factor in the maintenance of the basin's resilience (Lima, 2003).

- Using information from the *Important Bird Areas in Africa* book and other sources, particularly national and sub-regional inventories, these wetland riverine forests have been found to qualifying as Ramsar Sites. Riverine ecosystems in Sudan are vital to the global conservation of migratory waterbirds, as the country is situated on one of the main migration routes of waterbirds breeding in Europe and western Asia and spending the non-breeding season in Africa. Also a great variety of resident bird species has been observed. A full list of bird species is attached in Annex.

- **Plant biodiversity:** Moreover, these forests are considered to be an important biodiversity area in Sudan where, a wide range of tree, shrub and grass species are found. The vegetation cover includes *Acacia nilotica* (dominant species), *Acacia seyal* (talh), *Acacia siberana* (kok), *Acacia albida* (haraz), and *Tamarix orientalis* (tarfa). These occur in varying extents, normally fringing the pure Sunut stand and sometimes in a mixture on the moister gerf side. On the karrab side *Acacia nilotica* give way to less moisture demanding species which may occur pure or in mixture, these species are *Acacia seyal*, gregarious species, *Balanites aegyptiaca* (higlg), *Acacia melifera* (kitir), and the gregarious colonizer of recently clear land *Acacia nubica* (laot). Other acacia, like the gum arabic tree *Acacia senegal* (hashab), occur in the southern part of the tract, where rainfall is higher in the karrab areas.

- A hoard of shrubby species are found in or adjoining these forests, particularly on the gerf side. The number and frequency of the occurrence of these species decreases from South to North, as does the rains. Significant species include: *Ziziphus spinachriti* (sidir), *Mytenus senegalensis* (yoi), *Capparis decidua* (tundub), *C. tomentosa* (heikabit), *Coardic afrieana* and *cordia rothii* (indirab), *Salvadora persica* (arak, shao), *Indigofera* sp. (dahasir), *Crateva adonsonii* (dabkar), *Ficus* sp. and *Boscia angustifolia* (surreih).

- Grasses and herb in the basins are various and numerous, of the annuals *Artisida* sp. (humra, deil elfar), *Schoenefelia gracillis* (danab el naga), and *Eragrosti* sp (banu) are found on the drier sites in some of the northern zones. The perennial sedge, *cyperus rotundus* (seid) – a noction weed is wide-spread in the moist parts of the forests and its rhizomes constitute an important food item for wild boars. *Sorghum* sp. (adar) is found in the southern basins with higher rainfall. Other species that can be mentioned are the herbs *Cassia senna* (sanamakka) which is grazed with relish when dry, and *Solannum nigrum* (gibbein) which occurs at the fringe of forests particularly on the karrab side.

1.C Sudanese Riverine Forest Ecosystems are gradually disappearing, despite their status as gazetted forest reserves. This Key Biodiversity Area is eroding and the habitat for significant numbers of migratory and resident birds is threatened to disappear.

The natural forests of *Acacia nilotica* on the flood basins along the Nile and its tributaries started to be protected and declared reserves early in the 20th century (Forest Ordinance 1932 and Forest Policy 1932). The conversion of the natural forests of *A. nilotica* into plantations started in 1935 when sawmills were operated for the production of railway sleepers. The *A. nilotica* riverine forests currently constitute less than 0.1 percent of the total reserved forests area in Sudan (Esmat, 2008) but *A. nilotica* is among the three priority species for forest genetic resources in the country, easy to regenerate and fast growing. It is one of the main sources of sawn timber and fuel wood in the country.

These elements combined explain why management plans of the 'Sunut forests' have focused on one tree species, and failed to consider the ecosystem and its multiple ecosystem services.

Indeed, some other documented ecosystem services provided by the riverine forests include:

- The forest ecosystem is known to play an important role in stabilizing the Nile riverbanks from erosion and degradation, and having as well profound effects on water quality and the hydrology of the river which sustains agricultural activities for local communities and their livelihoods.
- The Gezira Key Biodiversity Area<sup>[2]</sup> is known to hold large congregations of global populations of different bird species. It is the habitat of a wide diversity of animal species and, particularly, for sustaining large populations of sedentary and migratory bird species that flee the Northern Hemisphere winter including the Demoiselle Crane *Anthropoides virgo* and White-winged Tern *Chlidonias leucopterus* (source Birdlife International). It is suggested that at least 20,000 waterbirds occur during the winter season. The Nile riverine strip has been also indicated by UNDP in the preparation of the GEF6 project 9425 "Strengthened Protected Areas System and Integrated Ecosystem Management in Sudan" as a gap in the Sudanese system of protected areas, highlighting the importance of this area for conservation of biodiversity. A comprehensive list of bird species observed in the period October 2011-June 2012 in the Khartoum Riverine Forest Reserve is found in Annex.
- The forests contribute significantly to economic growth and poverty reduction, as they provide many non-wood forest products and fodder to the local communities, representing an important source of revenue both at the national and local levels.

In Sudan, 33 riverine forest reserves distributed along the banks of the river Nile are managed by the Forests National Corporation (FNC). These forest reserves are managed over a thirty year period of time for the production of railway sleepers and other small-sized sawn timber while the land surrounding the forest reserves is partially dedicated to agroforestry activities and agriculture involving the local population.

Although the management followed guidelines and prescriptions setting targets of stocking and yield, forests are rapidly dwindling and ground vegetation has disappeared from extensive areas creating various environmental hazards, forests products scarcity and land productivity decline, in terms of age/area gradation, decrease in the number of trees per unit area, decline of the main tree size and productivity per tree. The involvement of local communities in natural resources management is limited. In the specific case of *A. nilotica* forest reserves, the access of local population to the stands at productive stages is prevented by law. This favours illegal activities which results in forests degradation (illegal cutting and woodfuel collection, overgrazing, unsustainable collection of non-wood forest products, illegal agricultural encroaching) (Awadalla, 2008).

Different studies have warned about natural resources decline and emphasized the importance of quantifying and appraising the remaining resources. Sustainable landscape management integrating competing land uses and involving local communities has been recommended by these studies as a way to revert the trend towards more and more degraded riverine forest landscapes. To this end, greater institutional support is required to enhance sustainable management of natural resources at landscape level, with the objective to promote integration of different land uses and intersectoral collaboration.

In conclusion, the management plans of the forest reserves have focused on *Acacia nilotica* for timber, and not or insufficiently considered the plant and animal biodiversity these forests once harboured. They have also failed to consider the uses local communities make of the ecosystem services and products from these forests. As a result, the ecosystems and ecosystem services are rapidly degrading due to multiple interacting factors resulting in many species having either disappeared from their natural habitats or subject to severe threats.

### 1.D Threats and Barriers

The threats to Sudan's riverine forest ecosystems include unsustainable management, overexploitation and degradation by human activities which are further aggravated by climate change. Both anthropogenic factors (agricultural encroachment, overgrazing, illegal cutting, and woodfuel collection) and non-anthropogenic factors (siltation, bank erosion and changes in the Nile flood regimes) can be observed. Recent surveys conducted to identify problems faced by the riverine forests, indicated that:

- 84 percent of these forests suffered from unsustainable farming practices and agricultural encroachment.

This is a trend that can be observed more generally in Sudan, where prevailing agricultural practices and uncontrolled urban expansion have contributed to an overall reduction in habitats and ecosystems, which in turn have resulted in the loss of both biodiversity as well as critical ecosystem services such as soil quality and erosion control. Today, almost 40 percent of the country's total land surface is agricultural land, 71 percent of which is land under permanent meadows and pastures and 29 percent is arable land (FAOSTAT, 2016). Uncontrolled land conversion has resulted in habitat degradation and loss, including a decrease and degradation of areas of critical habitats such as riverine forests -according to FAO, some 17 million hectares of forests have been converted into mechanized and traditional rain-fed and irrigated agriculture during the period 1940-2012). The biophysical changes have both social and economic impacts, with the most immediate effects being felt by communities that depend on productive landscapes for their income and livelihoods.

- siltation (90 to 220 cm) has caused serious disturbance to *A. nilotica*'s habitat modifications. Other problems include decline in survival rate of newly planted trees, closing of drainage systems, loss of boundary pillars and hence disturbance of the whole ecosystem.

In addition, Sudanese forests are threatened by illegal woodfuel collection. Sudan derives 71 percent of its energy from woodfuel (Mugo and Ong, 2006[3]). The government has recognized woodfuel and charcoal as important sources of energy and vested the power to regulate them in the FNC. The agency is responsible for planning and organizing production from natural and planted forests. The widespread use of woodfuel and charcoal as energy sources in the riverine forest landscapes causes degradation of sunut forests, though the scale of this threat is much more limited compared to the agricultural encroachment. Despite the possibility to legally collect woodfuel in the forest reserves through permits, there is a continuous illegal activity that affects the forest stands.

These threats have impacts on multiple forest and non-forest values associated with the riverine forest landscapes, though a thorough natural capital accounting and assessment of the ecosystem has not been conducted to date, and therefore cannot be costed in detail. In this perspective, the project will constitute a first NCAA attempt in Sudan, while applying the System of Environmental-Economic Accounting for Agriculture, Forestry and Fisheries (SEEA AFF) accounting tables already implemented in several African countries, including Morocco, Cameroon and Senegal.

Key barriers that are further impeding a concerted action against these threats, and degradation of riverine forests and their wider landscapes, are:

- Lack of integrated land use approaches

One relevant barrier to a long term sustainable and integrated management of riverine forest landscapes is the poor adoption of integrated land use approaches. An improved collaboration between different actors is needed to increase the environmental and social sustainability of activities carried out by competing land uses over the use of a scarce natural resource base. Many efforts have been made to date by different actors, including FNC, to improve environmental community-based interventions in the management of riverine forests but the integration of surrounding land uses is scarce, coordination has been a challenge and requires more support. Furthermore, the management plans of the FNC have had a single focus on one dominant tree species found in the riverine forest reserves, which is the *Acacia nilotica*, and has failed to address the forests as ecosystems, undervaluing the ecosystem services they provide at the local, national and regional levels. In component 1 of this project, an alternative forest landscape management approach will be proposed, involving multiple sectors and land users and integrating local communities more strongly in the decision-making and monitoring processes.

- Lack of tools and instruments for community involvement

The limited involvement of local populations and farmers in the sustainable management of sunut riverine forests has led to the invasion of marginal areas in search of agricultural land, leading to widespread degradation, soil erosion and in some cases deforestation. In addition to land degradation, agricultural expansion is decreasing the overall area of sunut forests, simplifying the structure of mature forests and threatening the survival rate of newly planted trees . Together forest degradation, unsustainable agricultural practices and deforestation are causing lower soil productivity, reduced water quality and flow regulation, widespread loss of biodiversity and reductions in supply of various goods and services.

FNC already developed instruments to involve local communities in the sustainable management of natural resources of riverine forests and surrounding land: opportunities for controlled collection of wood and non-wood forest products have been already put in place and the promotion of agroforestry practices in abandoned land surrounding the forest reserves is already possible. The limited use of these opportunities, compared to frequent episodes of illegal wood collection, agricultural encroachment and overgrazing, indicates that there is a need to raise awareness of the local populations on such instruments and initiatives. Permit systems must be simple and easy to enforce and the creation of local associations can facilitate the communication between FNC and end users.

The lack of tools for community involvement and, consequently, the little private and public financing available for riverine forest landscapes (and their biodiversity) is also related to the fact that the real value of these landscapes and forest ecosystems, in monetary terms, is not fully understood and captured and payment systems for ecosystem services are not in place. Riverine forest landscapes need to become more attractive for other users to get involved in, and support the integrated and sustainable management of these landscapes.

In component 1, these systems will be further updated and local community participation promoted, while under component 2 the use of enhanced management plans will be demonstrated in a selection of demonstration riverine forest landscapes.

- Lack of awareness about sunut forest biodiversity status and value

The lack of awareness and knowledge about the importance of riverine forest ecosystems in general and the effects of illegal woodfuel and charcoal production is the main barrier that prevents local communities from choosing legal ways. Under component 1 and 2, institutions and local communities will be fully equipped to promote sustainable land management of riverine forest landscapes and component 3 will provide adequate awareness and communication campaign to support a more common understanding.

## 2) The baseline scenario and any associated baseline projects

The Government of Sudan is addressing land, natural resources degradation and poverty control through a number of projects and initiatives in various sectors. These efforts are reported in the National Quarter-Century Strategy (2007-2031) which priorities, among others, are: reconstructing and protecting forests' ecological systems; increasing the tree belt to cover about 20% of the country area; raising the environmental awareness and developing the forest industry; maintaining the ecological balance and biodiversity in production areas while consolidating the environmental factor in all the socioeconomic policies, protecting the national genetic resources of the agricultural.

The initiatives proposed by this project act as a bridge between all sectors and seeks the involvement of all stakeholders for the benefit of local communities, enhancing the transition to a more sustainable food and land-use system. The Government is already supporting, through the work done by the FNC, the rehabilitation and sustainable management of riverine forests but further efforts are needed for more integration with other land uses at landscape level and more involvement of local communities.

The implementation of the proposed project will draw heavily upon the wealth of knowledge, experience, and lessons learnt from both within the country and beyond. Among the projects, thematically and/or geographically, from which this FAO project can draw synergies and that constitute the baseline, are:

Name of project	Financing, dates, implementing partners	Objectives	Baseline problems addressed by the project and link to FAO project's objectives
Butana Integrated Rural Development Project (BIRDP)	USD 43 million  2006-2022  Implementing agency: IFAD  Executing agency: Butana Development Agency (BDA)	To improve the livelihoods of poor rural households in Butana region, and strengthen communities' resilience in the face of drought.  The specific objectives of the project are to:  i) support improvements in natural resource governance to ensure regulated access to land and water resources in Butana region for all;  ii) improve the access of women and	- The enhancement of agro-forestry systems will support the activities foreseen by the FAO project in the areas surrounding the sunut forest reserves  - The successful involvement of targeted and non-targeted communities will be used as example to enhance the adoption of the practices for the con

	Agency (BDA)	<p>d men to livestock markets and strengthen their bargaining position with in markets, by rehabilitating market infrastructure and by establishing market information systems and organizing producers' groups;</p> <p>iii) build the capacity of grass-roots organizations to design and implement environmentally sound development initiatives that include women and marginalized social groups.</p>	<p>servation and management of riverine forest ecosystems (component 2)</p> <p>- Community-based groups are empowered and become more business oriented, which is of direct interest for component 2.</p>
BRIDGES - Boosting Restoration, Income, Development, Generating Ecosystem Services	<p>USD 3 million from Turkey and USD 600 000 from the EU-ACP funded Action Against Desertification project</p> <p>2017-2020</p> <p>Executing agency: FAO in collaboration with FNC</p> <p><b>Co-financing:</b> <b>USD 1.5 million</b></p>	<p>Objectives:</p> <p>- Catalyze action, support sustainable management and restoration of dryland forests and agrosilvopastoral systems in three Great Green Wall countries - Eritrea, Mauritania, Sudan - stimulating production, benefiting livelihoods and generating ecosystems goods and services</p> <p>- Stimulate South-South cooperation between Turkey and Africa's Great Green Wall and across dryland regions worldwide.</p>	<p>- The planned restoration of 5 000 hectares of dryland forests and landscapes will be of interest for component 1 and in particular the production of guidelines and involvement of local farmers, stakeholders and communities</p> <p>- The compilation, management and sharing of knowledge and good practices, promoting communications and visibility will be useful to the communication and awareness strategies to be developed under component 3</p>
Sustainable Natural Resources and Livelihoods Programme (SNRLP)	<p>USD62.94 million from IFAD</p> <p>2019-2025</p>	<p>The project objective is to increase the adoption of natural resources management practices, technologies and business models enhancing NR sustainable use and securing access for vulnerable resource</p>	<p>Operating in the Butana region where most of the riverine forests are located, and where the FAO-GEF project is planning to intervene, this IFAD invest</p>

	<p><b>Co-financing:</b> <b>USD 3.5 million</b></p>	<p>gaining access for vulnerable resource users.</p> <p>The project will have two main components:</p> <p>Component 1. Upscaling of community based natural resources management practices, technologies and Businesses; and</p> <p>Component 2. Improving the institutional framework for upscaling community based NRM</p>	<p>ment supports planning and implementation of community NRM plans, harmonizing current legal NRM frameworks, and strengthening NR governance.</p> <p>It will therefore complement the components 1 and 2 of the proposed project. Both projects have the opportunity to jointly capture, document and disseminate sustainable practices and lessons learned.</p>
Sudan Sustainable Natural Resources Management Project	<p>USD 7.73 million from GEF (2014-2018) + Additional USD 5.5 million from GEF-LDCF extends the project to June 2022</p> <p>Implemented by the World Bank through FNC</p> <p>Co-financing: USD 0</p>	<p>The objective of the project is to increase the adoption of sustainable land and water management (SLWM) practices in targeted landscapes.</p>	<p>This investment will not be considered as co-financing, but one to further build upon and collaborate with. The project aims at (i) adoption of improved soil and water management practices; (ii) forested ecosystem rehabilitation and rangeland management; (iii) creation of sustainable alternative livelihood activities related to natural resource management; and (iv) strengthened capacity to implement SLWM and biodiversity conservation. Component 2 of this proposed project will benefit from lessons learned and established good practices by the SSNRMP.</p>

In addition to these already ongoing projects which activities and lessons learnt will be directly relevant to the three component of the FAO project, the State-level FNC Forest Director is already working with all the stakeholders at the State, local and community level and is implementing programs related to riverine forest reserves. The project will build on those programmes and management plans improving the participation of local associations (such as farmers associations, village councils, agricultural cooperatives, women's groups, youth groups), farmer groups involved with sustainable resources management of riverine forest landscapes.

The implementation of this project, through the GEF support, will allow the Government of Sudan to strengthen the current efforts, address all drivers of degradation, ensure biodiversity conservation in riverine forest landscapes through landscape approach and local communities participations. The efforts towards biodiversity conservation will contribute effectively to the conservation of a unique forest ecosystem, to sustainable agriculture, climate change mitigation and adaptation, and community resilience.

### **3) The proposed alternative scenario with a brief description of expected outcomes and components of the project**

The project will target the riverine forest landscapes located in Gezira, Khartoum and Northern States along the Blue Nile and River Nile. These landscapes are characterized by 33 unique forest reserves of 5 878 ha. The forest reserves are surrounded by a mixture of different land uses, including 45 000 ha irrigated and degraded agricultural land, abandoned lands and rangelands. Over 200 villages depend upon the ecosystem services provided by these ecosystems and are included in the area targeted by the project.

The activities will be initially implemented in 6 demonstration forest reserves in the Gezira State and surrounding agricultural and/or degraded land. Management plans, management structures and investment strategies for the other forest landscapes will facilitate outscaling by FNC. Eventually, the basis will be laid in order to reconnect the forest reserves, disconnected and degraded relicts of a once rich riparian forest productive ecosystem conferring valuable ecosystem services locally and at scale. The project proposes an alternative *modus operandi*, tackling the root causes of the degradation of the forests, i.e. unsustainable agricultural practices and forest encroachment, and single-focused outdated forest management plans that do not address needs of local forest-dependent populations and the rich ecosystem services and goods provided by the riparian forest ecosystems.

**The 6 demonstration sites will be selected during PPG, and criteria for selection include:**

1. Biodiversity and ecological importance
2. Diversity of land use types present in the landscape
3. Level of threats and environmental challenges
4. Willingness of local communities, private sector and key stakeholders to be involved in the management of riverine forest ecosystems and surrounding areas.



The objective of the project is to promote the sustainable and integrated management of Sudanese riverine forest landscapes to restore degraded land, conserve unique biodiversity, promote the integration of different land uses with the active participation of local communities and therefore enhance livelihoods.

Riverine forest landscapes in Sudan are vital for the conservation of the river Nile ecological system and for the livelihoods of local communities. They are known for being the habitat of a wide diversity of animal species, especially for being the stopover of migratory birds. Riverine forests are therefore crucial for Sudanese biodiversity conservation but, providing a wide variety of goods and services to the local communities and being a source of income, they represent also an economic asset for the country.

The project will adopt an integrated approach to sustainable management of riverine forest landscapes, demonstrating that a participatory management can sustain the provision of ecosystem goods and services while supporting local community's livelihoods. The project will enhance ecosystem restoration techniques integrating competing land uses and using native species with high economic values. It will mitigate the effects of the previously applied unsustainable practices and contribute to the conservation of biodiversity. The biodiversity benefits according to conservation status of endemic flora and fauna within the riverine forests derive from an improvement in the forest management system. The integrated management system will result in threat reduction, increased participation of local communities in land protection and sustainable management, riverine forest conservation and exploitation. It is also expected to improve the management effectiveness and the integration of the current riverine forests management practices with production activities in surrounding landscapes (croplands, rangelands, agroforestry, ...). Such system will provide a wide and diversified source of food for human use, fodder for animal use and wildlife through adoption of intercropping systems to restore and rehabilitate forests and to improve farming systems in surrounding areas. The already existing forest management plan, which will be revised and updated, form the basis for long term and sustainable management of riverine forest reserves integrating them into their wider landscape and enhancing sustainable management practices in key land uses. In parallel, alternative and complementary livelihood options for the communities will be developed (sustainable woodfuel collection, sustainable charcoal production, horticulture, vegetable and cereal crops, aromatic and medicinal plants, honey) and opportunities for restoration of degraded riverine landscapes. This will further bring connectivity between riverine ecosystems and long-term sustainability of biodiversity. Address the underlying causes of biodiversity loss, reduce the direct pressure and promoting sustainable land use are guiding principle and national strategic goals for Sudan.

The project is organized in three interconnected and complementary components:

### **Component 1. *Integrated and participatory riverine forest landscape management planning***

This component is mainly aimed at establishing a strong integrated framework for effective riverine forest landscape management and planning that fully embeds biodiversity conservation. It provides the evidence, data and means to integrate biodiversity, and in particular key ecosystem services provided by riverine forest ecosystems, into the forest and agricultural management/development plans. Therefore, in this first component, there is a strong focus on delivering tangible outputs (evidence, data and principles) that support the FNC in revising its current outdated riverine forest reserve management plans, in a more integrated and participatory fashion. These updated management plans are an important element of larger, more comprehensive development plans at the landscape level (these have been called Community Action Plans), which involve different land uses, sectors and stakeholders, as they relate to areas that are beyond the geographic limits of the riverine forest reserves, but also include the surrounding production land. Still, to date, land uses coexisting in a landscape are rarely interlinked, and knowledge about sustainable and integrated land management is fragmented. Effective integrated and sustainable management requires agreement amongst multiple stakeholders that are given support to understand the approach and knowledge of the ecological, socio-

economic and institutional context to make decisions. NCAA activities will be carried out, and relevant accounts will be selected during PPG based on data availability and priorities identified by relevant stakeholders. Initial accounts proposed include habitat for globally significant plant and animal biodiversity, riverbank erosion and water pollution control and soil health. In addition, the work delivered under component 1 will also focus on financial sustainability, that is needed for the success on the medium to long term, of a sustainable and integrated landscape management program. NCAA activities will significantly contribute to the analysis of financial sustainability, as it helps consider the full cost (including environmental externalities) of the different economic options.

Activities from this component will be based on strengthening integrated multi-sectoral (forest, agricultural and rangeland) restoration and conservation interventions in riverine forest landscapes and strengthening management and technical capacities of local communities and key stakeholder groups to enhance the sustainable management of riverine forest landscapes and biodiversity conservation.

The result of this component will be a robust framework, compliant with international standards (i.e. SEEA), that will guide FNC at the local level on how to involve the local communities and regulate the participated management of riverine forest reserves. At the same time local communities will be facilitated in the dialogue with FNC and the CAP will help them being more involved in the management of local natural resources.

### ***Component 2. Demonstration, through community-based approaches, of integrated sustainable management, restoration and conservation of riverine forest landscapes***

This Component will support one of the Sudanese NBSAP Strategic National Goals that promotes the implementation through participatory planning, knowledge management and capacity building. The Component includes the application of the integrated sustainable landscape approach for riverine forest landscapes restoration and conservation for the improvement of biodiversity conservation, ecosystem functions and services in at least six demonstration sites. Enhanced integrated, sustainable and community-based management will be demonstrated and replication will be planned. These CAPs will address the main threats to the forest ecosystems, and therefore focus on providing alternatives to the unsustainable agricultural production practices and encroachment, as well as (even though to a lesser extent) the illegal cutting of wood for woodfuel and charcoal consumption at the local level. As an example, CAPs (and in particular the revised management plans of the forest reserves) will address the latter threat as follows:

- Set up licenses, permits, quotas, rights with local communities to manage wood collection in dedicated forest strands;
- Sensitize and train these local communities on sustainable/improved wood collection practices in order to minimize impacts on the forest ecosystem and ecosystem services provided;
- Build capacity of the FNC and the local communities to better monitor the forest ecosystems, and enforce the licenses, etc.; and
- Revise the umbrella concession with the Sudan Charcoal Producers Association in such a way that the carrying capacity of the forests is fully accounted for, and local needs are met in a sustainable way.

The actual benefits generated by restored and sustainably managed riverine forests landscapes will depend both on their initial condition and potential and on the final set of interventions. While component 1 would support and guide the definition of the framework to establish a dialogue with stakeholders, component 2 would put it in practice in the context of the demonstration areas. It is expected that environmental benefits generated from the sustainable management at landscape level will decrease the pressure on the riverine forest reserves while providing additional land for agroforestry uses or opportunities for creating income from non-wood forest products.

### **Component 3. *Knowledge and information management***

Knowledge of appropriate, sustainable and intersectoral landscape strategies is lacking at national, state and community level and a system for compiling, collecting and communicating such strategies as best practices does not exist in Sudan. This component, based on the results of components 1 and 2, will support the establishment of a knowledge database that will be available for various stakeholders. The SEEA AFF, through its linkages to the Statistical National Agency, the CPC, the ISIC, will strongly contribute to information comparability and robustness. The component aims at sharing lessons learnt and best practices originated from the project and to ensure the availability of such information to different practitioners.

This component will run since the beginning of the project, with the aim to build communication along with the development of activities in the other two components.

### **4) Alignment with GEF focal area**

The project is aligned with the Biodiversity focal area objectives and focuses on unique forest ecosystems inserted in a complex and fragile riverine landscape. The project effectively adopts a landscape approach in order to better integrate different (and at times competing) land uses, guaranteeing the sustainable management of these fragile ecosystems, evaluate their services and assess and account for their products (including NWFPs), restoring and maintaining critical environmental, social and economic benefits at the local, national and global levels. Project results will be achieved through the involvement of local communities, the conservation and sustainable use of biodiversity, enhanced sustainable management of forest reserves and surrounding land. The sustainable management of a landscape mosaic requires an integrated approach that secures the sustainable provision of environmental and social ecosystem services while combating land degradation and ensuring local communities' livelihoods. Given the importance of riverine forests to both the conservation of the Nile river ecosystems and the local communities, the project embraces awareness raising of local stakeholders in its change theory, as well as providing local practitioners and stakeholders with the adequate instruments to participate in the sustainable management of natural resources.

The proposed project is aligned to the GEF-7 objective for the Biodiversity focal area "*Mainstream biodiversity across sectors as well as landscapes and seascapes through Biodiversity Mainstreaming in Priority Sectors*" (BD-1-1). It will support activities to help reduce the negative impacts of human activities on riverine forest landscapes, especially targeting negative impacts from unsustainable resource extraction (woodfuel and non-wood forest product harvesting), agricultural encroachment on the borders of forest reserves, unsustainable livestock practices (overgrazing in forest reserves). More specifically, the project will support activities to facilitate the involvement of local communities in the sustainable management of forest and non-forest land at landscape level, raising awareness on the importance of riverine forest landscapes for the conservation of biodiversity and the provision of ecosystem goods and services. The GEF resources will help to establish agroforestry plots in the areas surrounding forest reserves, in order to reduce the risk of illegal encroachment and therefore the negative impact on riverine forests. Concerning livestock, the project will help to regulate grazing in the forest reserves and

then to provide benefits to various stakeholders. These investments will built upon experiences gained through the projects “Sudan Sustainable Natural Resource Management Project” and “Strengthened Protected Areas System and Integrated Ecosystem Management in Sudan” that focus on the sustainable and integrated management of buffer zones around protected areas and involvement of local communities.

#### 5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

Component	Baseline and co-financing	GEF support and financing
1	<p>As the FNC is currently in charge of the management of riverine forest reserves, the baseline is the in-kind support of FNC. FNC's contribution is about USD100,000 which includes the provision of staff, office space (central of State-based) and consultation activities over the full duration of the project.</p> <p>Moreover, the BRIDGES investment planned restoration of 5,000 hectares of dryland forests and landscapes will be of interest for the production of guidelines and involvement of local farmers, stakeholders and communities under component 1. USD1,100,000 of the BRIDGES investment is accounted as co-financing here.</p> <p>Component 1 of the IFAD SNRLP project will support community NRM planning in the same region, and USD1,500,000 is considered grant co-financing.</p> <p>Also a dedicated FAO TCP project will be designed so as to complement assessment work under component 1 to the tune of USD250,000.</p> <p>Total co-finance component 1: USD2,950,000</p>	<p>The GEF project will provide capacity development support and help particularly the FNC and the MoA in the development of a solid landscape restoration and management planning framework. The GEF grant is USD 780,000.</p>
2	<p>Collaboration will be established with the BIRDP project listed in the baseline to ensure complementarity, avoid duplication and ensure the out-scaling of results. The grant contribution to this component is USD 8,900,000. Also component 1 of the IFAD SNRLP project will support implementation of community NRM and livelihood investment plans, and USD2,000,000 is considered grant co-financing. Total grant contribution to this com</p>	<p>This component is the most resource-intensive: USD 1,380,000. The GEF project will cover the cost of demonstration on the ground of solid technical natural resource management options based on integrating different competing land uses.</p>

	<p>ponent 2 is USD10,900,000.</p> <p>In addition, the provision of staff, facilities, materials, mapping, consultation and training activities, support to infrastructure and engineering interventions in the sites will be the in-kind contribution of FNC, as well as the management plans and the expertise of FNC with riverine forest ecosystems, time/labour of local communities, trained forest guards and individuals involved in the agroforestry initiatives. In-kind contribution by FNC is estimated at roughly USD 200 000</p>	
3	<p>The project will build a communication strategy based on previous activities of FNC and projects listed in the baseline (BRIDGES - compilation, management and sharing of knowledge and good practices, promoting communications and visibility) and coordination sections. The communication will be streamlined at local, national and international levels, using State, Government and FAO's channels.</p> <p>Grant contribution from BRIDGES is estimated to be USD400,000.</p>	<p>The project will focus on local community involvement and raising awareness on the importance of riverine forest landscapes for biodiversity conservation and provision of ecosystems services. Best practices, lessons learnt and the outreach material will be disseminated through the collaboration with the projects listed in the baseline and coordination section. The project will also cover the cost of project monitoring and evaluation. The cost of this component is about USD 306,406.</p>
4 (PMC)	<p>FNC, FAO and BIRDP will also contribute to the management costs of the project for an estimated amount of USD200,000.</p>	

In summary, the investments considered as co-financing:

Component	Butana Dvlp Agency BIRDP	FNC BRIDGES	IFAD SNRLP	FAO TCP	FNC in-kind	TOTAL
1		\$1,100,000	\$1,500,000	\$250,000	\$100,000	<b>\$2,950,000</b>
2	\$8,900,000		\$2,000,000		\$200,000	<b>\$11,100,000</b>
3		\$400,000				<b>\$400,000</b>
PMC	\$100,000			\$50,000	\$50,000	<b>\$200,000</b>
TOTAL	<b>\$9,000,000</b>	<b>\$1,500,000</b>	<b>\$3,500,000</b>	<b>\$300,000</b>	<b>\$350,000</b>	<b>\$14,650,000</b>

## 6) Global environmental benefits (GEFTF)

The implementation of effective sustainable landscape management that integrate forest, agricultural and pasture land uses described above, will require both restorative activities of degraded riverine forests as well as the institutionalization, through an enabling environment, of a long-term landscape approach across the country. The SEEA AFF, with its focus on environmental-economic linkages in Agriculture Forestry will supply an analysis useful for integrated and sustainable policy decision-making. The synergies across a variety of ecosystems, stakeholders and sectors, will support a gradual shift towards more sustainable food and land use systems that will manage natural resources and at the same time guarantee biodiversity conservation and fight against land degradation. The expected global environmental benefits to be delivered by the project are:

- improve management plans for conservation and sustainable use of riverine forest reserves covering 5,878 ha and ensure that the 45 000 ha of production land surrounding the sunut forest reserves are sustainably managed to benefit biodiversity. This includes diversified croplands dedicated to agro-forestry activities, with the involvement of local populations (Core Indicator 4.1); and
- 20,000 female (50%) and male (50%) farmers directly benefit from project investments and become engaged in sustainable natural resources management in critical riverine forest landscapes (reference made to Core Indicator 11).

From Sudan's NBSAP (2011-2020), the project primarily contributes to the following priority actions:

- Train relevant civil servants and stakeholders in transforming biodiversity components into items of monetary value. 2. Encourage universities to incorporate biodiversity economic accounting in their curricula. 3. Enhancing the contribution of the forests to the national economy, considering the preservation of the biodiversity. 4. Taking forestry resources as means for rural development and strategy for poverty alleviation. (Aichi Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.)
- Involvement of local communities in forest management, protection and utilization (Aichi Target 4 - By 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.)
- Enhance awareness among the local communities, farmers, nomads and other stakeholders on the role of the forests in environmental protection and forestry biodiversity conservation and sustainable use through: 1. Translation of policies and legislation into simpler forms and involve stakeholders in policy reforms. 2. Undertake awareness campaigns and disseminate forest biodiversity awareness materials such as posters, leaflets, fact sheets and videos. 3. Promote and integrate forest biodiversity issues into educational institutions 4. Extend formal and sustainable agricultural extension programs in forests protection and biodiversity conservation, particularly, in the rain-fed sector and the climate change hotspots. (Aichi Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.)
- In-situ, on-farm and ex-situ conservation and management of reserved forests in representative ecosystems (Aichi Target 7 - By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity).

The project will also contribute to the Sustainable Development Goals (SDG) and in particular to SDG15: "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss". Contributing to increase the area of forest under sustainable management, the project directly address target 15.2 "By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally".

Indirectly, the project will also make a contribution to SDG1 (End poverty in all its forms everywhere) by increasing economic income from the sustainable management of natural resources; and by assessing the value of all forestry products, including NWFPs; SDG2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture) by promoting diversified croplands and agroforestry activities; SDG5 (Achieve gender equality and empower all women and girls), by emphasizing the need to empower women because already actively involved in wood fuel, agriculture and non-wood forest product collection; SDG8 (Promote inclusive and sustainable economic growth, employment and decent work for all) by generating employment opportunities for local communities in the project area.

## **7) Innovation, sustainability and potential for scaling up**

The project's innovation lies in the enhanced role for and engagement of local communities and producers in the management of unique riverine forest reserves and their buffering production land, introducing an integrated and sustainable approach at landscape level in order to benefit the globally significant biodiversity these forest ecosystems represent. It also applies international standards for NCAA activities, such as the SEEA, which primarily focus on Agriculture and Forestry activities. Moreover the SEEA AFF, because of its linkage to the SNA and the GDP, will further facilitate national upscaling. The project activities will be planned to ensure the conservation and sustainable use of fragile yet economically, socially, culturally and environmentally vital ecosystems. The project will integrate the forest reserves with their buffer zones in order to enable the restoration of the productive capacity of riverine forest reserves and surrounding non-forest land. It will therefore build upon an integrated and participatory approach and facilitate the creation of an enabling environment to generate GEBs.

Innovation lays also in the use of tools to engage in the planning, management, monitoring and evaluation processes of the selected forest ecosystems and their services. The tools to be potentially deployed will include for instance the Collect Earth and Earth Map for planning and monitoring purposes, RuralInvest for investment opportunities assessment, and much more.

And finally, innovative land management practices will be introduced integrating sometimes competing land uses (agroforestry, sylvo-pastoral and agro-sylvo-pastoral systems), complementing the re-introduction or enhancement of traditionally applied practices and eventually maximizing the biodiversity benefits, as well as socio-economic benefits for local communities.

Synergies across a variety of stakeholders and sectors will support a gradual shift towards more sustainable food and land use systems that will manage natural resources and at the same time guarantee biodiversity conservation and land degradation neutrality. The involvement of local communities, aware of the importance of sustainability and biodiversity conservation, regulated by a simple but robust framework will lead to an increase in the quantity, quality and diversity of ecosystem services in the targeted area. The provisions taken under component 3 of the project will support replication in riverine forest landscapes not targeted as demonstration sites. But more importantly, for all riverine forest landscapes in Sudan an enabling environment (policy, legal, financial, technical) will have been set in place through the outputs foreseen under component 1. This sensibly increases the potential of replication throughout the Sudanese States where riverine forest ecosystems are located.

Restored, protected and sustainably managed riverine forest landscapes will increase local productivity. Technologies, policy, governance, financing associated to sustainable agriculture and forest management businesses will be catalyzed across sectors and stakeholders. Replication in other landscapes and ecosystems with similar threats and barriers will be promoted. Through dissemination of project results, lessons learnt and coordination with various other projects the experience gained from this project will be replicated in the country. Through the FAO regional and global networks and being Sudan part of various regional initiatives, the results of the project will be disseminated and possibly applied in other regions.

The project results matrix has been designed in such a way that it maximizes the sustainability of the project results. Involvement of local communities, the beneficiaries of the project as end users of the forest ecosystem services and goods, in the decision making, implementation and monitoring of CAPs, as well as the contribution of the project to improved livelihoods, eventually helps change the attitudes of these local communities towards the forests. Behavioural change is not considered sufficient in order to guarantee sustainability. Therefore, the project outputs also propose to develop financial strategies in order to ensure medium and longer term financial support to CAPs and multi-stakeholder fora. And where needed, proposals to amend policies and laws in the most relevant sectors (forestry, agriculture) will be made in order to facilitate not only the implementation of the project activities, but also the uptake, replication and sustainability of its results.

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[1] Harrison, M.N. and Jackson, J.K. (1958) Ecological Classification of the Vegetation of the Sudan. Forest Bulletin No. 2, Forest Department, Ministry of Agriculture, Khartoum, Su-dan. (16) (PDF) Ecological Zones Degradation Analysis in Central Sudan during a Half Century Using Remote Sensing and GIS. Available from:  
[https://www.researchgate.net/publication/311738618\\_Ecological\\_Zones\\_Degradation\\_Analysis\\_in\\_Central\\_Sudan\\_during\\_a\\_Half\\_Century\\_Using\\_Remote\\_Sensing\\_and\\_GIS](https://www.researchgate.net/publication/311738618_Ecological_Zones_Degradation_Analysis_in_Central_Sudan_during_a_Half_Century_Using_Remote_Sensing_and_GIS) [accessed Dec 15 2018].

[2] <http://datazone.birdlife.org/site/factsheet/gezira-iba-sudan/text>

[3] F. and Ong, C. 2006. Lessons of eastern Africa's unsustainable charcoal business.



## 1b. Project Map and Coordinates

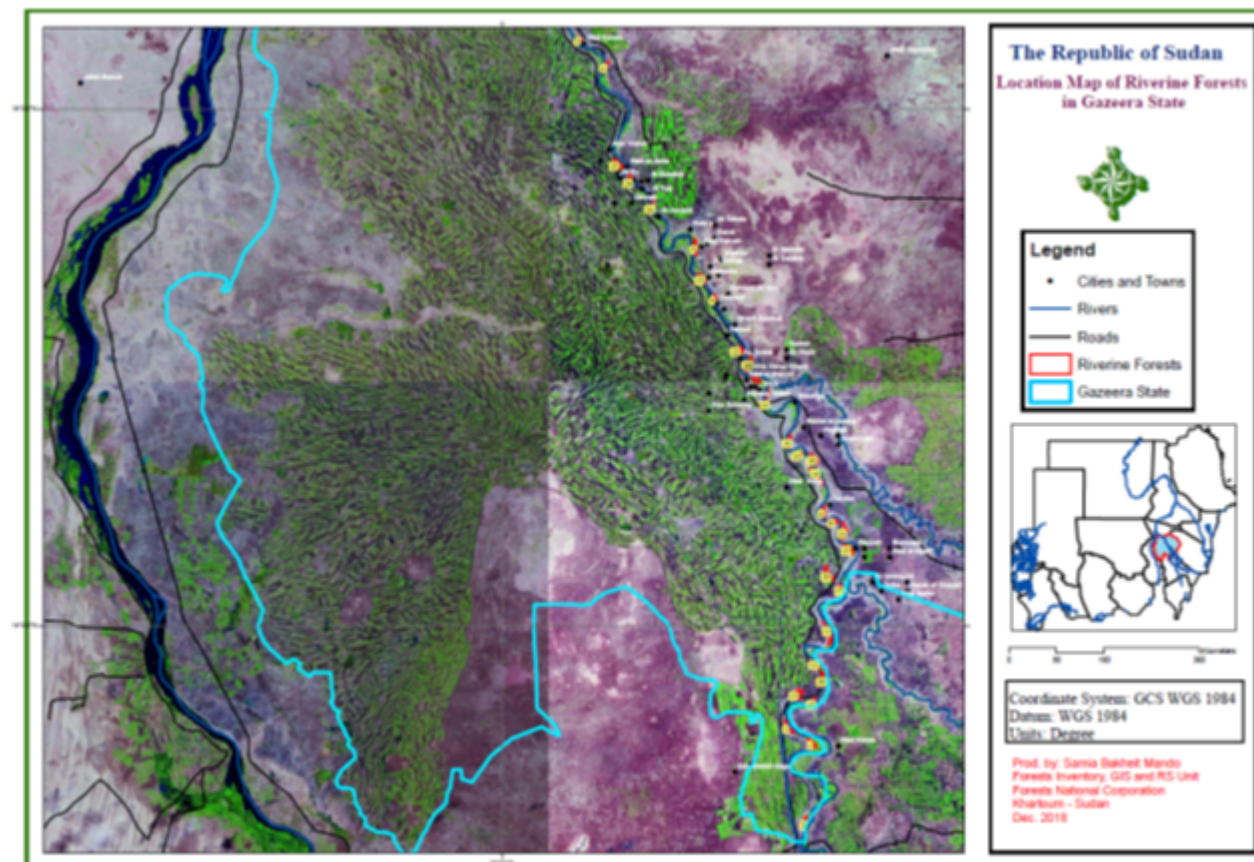
**Please provide geo-referenced information and map where the project interventions will take place.**

The project will focus on the riverine forest landscape in the Gezira, Northern and Karthoum States which includes 33 riverine forests (5 878 ha), over 200 villages and 45 000 ha of agricultural land.

In the map below the 33 riverine forests are indicated in yellow.

Coordinates:

- 30,500428E
- 19,375839N
- 33,600148E
- 13,771841N



## 2. Stakeholders

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

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities

If none of the above, please explain why:

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

Stakeholders that have been involved in the preparation of this PIF include the Ministry of Agriculture (MoA), the Forests National Corporation (FNC) at central and state level, the Higher Council for Environment and Natural Resources (HCENR) and local communities (farmers and women groups). The current management of forest reserves and surrounding croplands falls under the responsibility of FNC but local communities are directly concerned: they have access to land and use of natural resources through permits but illegal cutting, overgrazing and agricultural encroachment are common problems. Therefore, facilitating the participation of local actors in the sustainable management of natural resources at landscape level will help their conservation and, at the same time, will enhance livelihoods. The project includes the involvement of associations, local cooperatives and unions at different levels and stages to plan management interventions and monitor progress and biodiversity status. Consultations of local communities to identify their needs, problems and challenges are considered crucial for the adoption of a robust landscape approach. The dialogue with local stakeholders will be key to change the current view of riverine forests as resources that do not provide any income to local populations. With the support of NCAA on forestry products, including NWFPs and forest related ecosystem services, local stakeholders will have a more complete appreciation of forest ecosystem and biodiversity. This will allow for more informed policy decision-making.

An assessment of existing associations, cooperatives and unions will be developed in order to plan an homogeneous and comprehensive consultation during the project preparation phase. This includes focus group discussions and consultation meetings with key stakeholders, key informants including community, tribal and local leaders, unions, private sector and key staff of relevant institutions at the federal and state levels. An inception workshop will be held at the start of the PPG phase with participation of main stakeholders. During the inception workshop, a project development team and steering committee including representatives of different stakeholders, will be established.

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

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

Particularly in rural areas throughout the country, women are responsible for the home and childcare, household food production and small-scale cash cropping. According to FAO[1], women represent 49 percent of the farmers in the irrigated sector and 57 percent in the rainfed traditional sector in Sudan. Women in the rainfed sector are primarily subsistence farmers but they also work as seasonal wage labourers in the rainfed mechanized sector, and as hired or unpaid family labourers in the irrigated sector. Although women play a crucial role in agriculture, contributing to both the gross domestic product and to household food security, their contribution to agriculture and the overall economic development process continues to be undervalued. Women in Sudan carry out a major portion of agricultural activities and bear almost the entire burden of household work, including water and fuelwood collection and food processing and preparation. According to the Ministry of Agriculture, in the rainfed traditional sector both men and women participate in land clearance and in the preparation, harvesting, transporting and marketing of crops, while women carry out most of the planting, weeding and food processing. In the livestock sector, men have the primary responsibility for cattle and sheep raising, while women participate in milking and processing milk products. In the agro-forestry sector, women participate in all aspects of the work and have the major responsibility for seedling preparation and weeding. Men and women are sometimes responsible for different types of trees.

Although women play a crucial role in the agricultural cycle, their role has not improved as a result of technology in the agricultural sector. Most of women are not encouraged to participate in the decision-making phase and there is an inconsistency between the policy goals in agricultural improvement and the resulting demise of women farmers.

This project aims at improving the participation and involvement of women in different activities, from consultation to decision making. The activities will be build on the FNC's experience from the special women program in Dulawat riverine forest where women have been successfully involved in seeds collection, seedling production, tree planting and tending operations. Such program provided women with new source of income from the sustainable management of forest resources.

In this FAO project, women will be explicitly targeted for support, given their active role in shaping the current status of riverine forest reserves (woodfuel and non wood forest products collection). They will be strongly involved in managing the riverine forest plantations and restoration interventions, in agroforestry activities in the surrounding croplands and in generating income from non wood forest products. Their participation will be facilitated by the creation of associations and monitoring will be ensured.

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[1] [http://www.fao.org/nr/water/aquastat/countries\\_regions/SDN/printfra1.stm](http://www.fao.org/nr/water/aquastat/countries_regions/SDN/printfra1.stm)

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

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

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

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

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

Yes

#### 4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

A comprehensive assessment of private activities currently ongoing and linked to riverine forests and surrounding areas will be designed and implemented during the PPG phase of the project. The aim is have a comprehensive use of the current use of natural resources at local level in order to identify the private initiatives that could benefit from an integrated management of the riverine forests. The involvement of private sector will build on already existing activities, like private nurseries. FNC is managing a nursery for producing seedling of *Acacia nilotica* for plantation in the forest reserves and agroforestry activities in the surrounding areas. The involvement of private nurseries can enhance the awareness about the current status of forest reserves and at the same time increase the interest of local private sector representative.

Another collaboration with the private sector can be established with the Sudan Charcoal Producers Association that was initially started to negotiate with the government on behalf of traders. Charcoal obtained from *Acacia nilotica* is considered an high quality products and the interest of Sudan Charcoal Producers Association can be raised while enhancing the sustainable production of charcoal in sustainably managed riverine forest reserves and surrounding areas. Sudan has already proven that charcoal can be produced in a planned and sustainable manner and best practices and lessons learnt could be also shared at state level, in the context of a landscape approach applied to riverine forest landscapes.

Further collaboration with the private sector will be explored in the pilot sites, with possible out-scaling and replication in other forest reserves along the Nile river.

## 5. Risks

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

Identified Risks	Level of impact	Probability	Mitigation measures
Limited awareness and capacities to enable adoption of landscape approach	Medium	Low	<p>Strong awareness strategy to be developed and implemented.</p> <p>It will create awareness within targeted groups through comprehensive stakeholder consultation, community mobilization and participation in the design, implementation and monitoring of the project.</p> <p>The project will also establish close linkages across relevant Ministries and related departments including forestry, agriculture, environment land and water</p>
Political instability paralyses the government apparatus, which are project partners essential to deliver project results	High	Medium-High	Institutional arrangements will delegate as much as possible the execution to the grassroots level, involving CSOs/NGOs, making the project less sensitive to political and social instability in the capital. FNC has decentralized services, and these will be activated to the extent possible in order to bridge episodes of political/social unrest.
Shortage in government fund may affect the sustainability of different project activities	Medium	Medium	<p>FNC is a self-financed corporation. Funds for project activities will include income from the management of sunut forests (e.g. final felling in mature stands) and will be adequate to sustain the project outcomes. The forest management will be also facilitated by the participation from local communities the will generate income from their work.</p> <p>Additional opportunities for raising fund will be created through awareness-raising initiatives among the decision-makers and donors.</p>
Project partners do not cash the estimated co-financing	High	Medium	In addition to the co-financing letters, required by GEF, partners will also sign agreements or partnership contracts, detailing their obligations as co-financing partners.
Short term economical revenue from riverin	Medium	Low	Income generation activities other than income for wood pro

e forests will take longer time to fulfill the short term rural people livelihood requirements			ducts will be developed by the project. Some of these activities include vegetables production from agroforestry, seeds collection, seedling production. These diversification of income will support short term economical revenue
Climate change may lead to increased threats such as drought and increase the risk of land degradation, agricultural production and associated livelihoods	Medium/high	Low	Enhanced resilience and adaptation to climate is an objective of the project activities. In addition the situation will be monitored and the project approach adapted as necessary.



## 6. Coordination

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

**GEF-financed initiatives.** The project will build on the work, coordinate and establish linkages with the following projects and initiatives:

- Sudan Sustainable Natural Resource Management Project (SSNRMP). This project is implemented by the World Bank with a USD 33 million funding under the biodiversity and land degradation focal area. The project aims to increase the adoption of sustainable land and water management (SLWM) practices in targeted landscapes through: i) adoption of improved soil and water management practices; ii) forested ecosystem rehabilitation and rangeland management; iii) creation of sustainable alternative livelihood activities related to natural resource management; and iv) strengthened capacity to implement SLWM and biodiversity conservation. Common topics with this project are represented by biodiversity conservation, rehabilitation and sustainable management of forest ecosystems and rangelands and enhanced community participation in sustainable management. In particular, lessons learnt from community participation will be essential to avoid duplication and develop activities of components 1 and 2.
- Strengthened Protected Areas System and Integrated Ecosystem Management in Sudan. This project is implemented by UNDP (2018-2023) with USD 21.5 million funding from biodiversity and land degradation focal areas. The objective of the the project is to strengthen the national protected area (PA) system and promote integrated ecosystem management in adjacent areas so as to reduce threats to biodiversity, mitigate land degradation, sustain ecosystem services, and improves people's livelihoods. Despite this FAO project is not focusing on protected areas, the two projects share the objective of enhancing sustainable management of natural resources in the area surrounding the PAs, for UNDP, and the sunut forest reserves, for FAO. Restoration of degraded lands through a combination of government-driven and community-based SLM and integrated natural resources management intervention, integrated conservation and restoration of natural resources and ecosystem functions in the periphery of targeted protected areas are overlapping thematics that will be useful for the development of activities under component 2.

**Non-GEF financed initiatives.** The project will build on the work, coordinate and establish linkages with the following projects and initiatives:

- Support for the design of the monitoring, reporting and verification (MRV) system in the framework of REDD+ Readiness in the Sudan. FAO launched in 2016 a two and half-year USD 3.3 million project to develop and implement a national monitoring and reporting system for Sudan's forests in the framework of REDD+ Readiness in Sudan. The project is providing technical assistance to the Government of Sudan to establish a national reference scenario and inventory of forest resources. In doing so, FAO is institutionalizing the use of an effective monitoring, reporting and verification (MRV) system and strengthening the capacity of key institutions to build the foundation needed for future: i) operationalization of Forest Monitoring System, ii) calculation of a national reference emission level (REL)/reference level (RL), and iii) generation of robust forest data feeding into the National Greenhouse Gas Inventory and National Communications/Biennial Updates to the United Nations Framework Convention on Climate Change (UNFCCC). The project supports data collection and measurement activities underpinning the Sudan Forest Monitoring System. In line with relevant UNFCCC decisions and IPCC guidelines, the project is supporting Sudan to use a combination of remote sensing and ground based forest carbon inventory approaches for estimating forest-related GHG emissions by sources and removals by sinks, forest carbon stocks and forest area changes. This project is a source of information for the assessment of land use changes in riverine forest landscape planned for component 1.

· The Great Green Wall for the Sahara and Sahel (GGW) Initiative is a program initiated in 2007 that links 20 countries from Africa's Sahel-Saharan region and aims to address desertification, land degradation and drought in the Sahara and Sahel. Sudan is part of this initiatives that will harness national and local capacities for land management to support local communities in sustainable management and use of forests, croplands, rangelands and water in dryland areas, as well as to protect biodiversity. The Initiative will also strengthen the resiliency of local communities by contributing to climate change mitigation and adaptation, with significant improvements to food and nutrition security and livelihoods for Sudanese communities. There are six intervention zones across the states of North Darfur, Northern Kordofan, Kassala, River Nile, Northern State and Khartoum State. The Plan contains 5 key components: Rehabilitation of degraded lands; forest and rangeland management; livelihood support for local communities; capacity building; and the development of an implementation framework. The Plan outlines a set of activities and outcomes for each component and intervention area, and provides a detailed provisional budget for each. Many of the activities outlined in the Plan will also generate income and create jobs for Sudanese households, especially those involved in food and livestock production. Despite the GGWI and this FAO project on riverine forest landscape will not have the same target areas, many lessons learnt can be shared bewteen the two projects, from the stakeholders involvement to the communication initiatives.

## 7. Consistency with National Priorities

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

Yes

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

The project is primarily aligned to the National Biodiversity Strategies and Action Plan (NBSAP). The NBSAP takes into consideration the national biodiversity priority needs in terms of conservation, sustainable use of its components and equitable sharing of benefits. The NBSAP will seek to establish awareness campaigns for stakeholders and produce awareness materials on the values of biodiversity and its importance for food security and sustainable development.

The NBSAP (2011-2020) addresses rehabilitation of degraded ecosystems and adopt climate-smart farming systems such as agro-forestry and agro-silvo pastoral systems that lead to natural regeneration of native species and rehabilitation of degraded and deforested areas. Perfectly aligned to these objectives, the activities implemented by this project will support Sudan's Government in the implementation of the NBSAP, contributing to the integration of the principles of sustainable development and biodiversity conservation into country policies and programs.

Furthermore, the project is consistent with the following strategies and plans:

- The 2007 National Adaptation Programme of Action (NAPA) proposes adaptation activities in the agriculture sector (including forests) aligned to the project's activities: i) community-based forest and rangeland management and rehabilitation; iii) protection and/or rehabilitation of rangelands iv) reduction of pressure on local forests; v) land use sustainable conversion; vi) afforestation degraded areas threatened by uncontrolled wood cutting. The NAPA demonstrates the willingness of the Government to address climate variability and sustainable management of natural resources within the context of the country's economic development priorities.
- The project is aligned to the National Action Plan (NAP) under the UNCCD, as it will implement priority activities including: i) rehabilitation of vegetation cover; ii) rehabilitation of rangelands; iii) conservation of biodiversity. Also geographically, with the NAP prioritizing the Nile system, alignment is made.
- Convention priorities are also embedded in the National Quarter-Century Strategy (2007-2031). The project contributes to some of its objectives, including: reconstructing and protecting forest ecological systems; increasing the tree belt; raising environmental awareness and developing the forest industry; and maintaining the ecological balance and biodiversity in production areas while consolidating the environmental factor in all the socioeconomic policies. The initiatives proposed by the project are aligned to these objectives and act as a bridge between all sectors and seeks the involvement of all stakeholders for the benefit of local communities, enhancing the transition to a more sustainable food and land-use system.

## 8. Knowledge Management

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

The project will generate and share lessons learnt that will be replicated beyond the project pilot sites. The focus of knowledge sharing will be sustainable land management practices that create income to local communities and the urgent need to conserve the unique biodiversity of riverine forest ecosystems. NCAA activities will apply international standards and this will further facilitate knowledge sharing. Furthermore, the project will facilitate information and knowledge sharing with projects with similar topics on forest and landscape management. The FAO (regional and global) networks will facilitate the dissemination of information.

Guidelines, technical reports and various project publications, included peer-reviewed and scientific papers, will be used to disseminate results and achievement of the initiatives.

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

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

<b>Name</b>	<b>Position</b>	<b>Ministry</b>	<b>Date</b>
Dr Nouredin Ahmed Abdalla	Secretary General	HIGHER COUNCIL FOR ENVIRONMENT AND NATURAL RESOURCES	12/11/2018

**ANNEX A: Project Map and Geographic Coordinates**

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

The project will focus on the riverine forest landscape in the Gezira, Northern and Karthoum States which includes 33 riverine forests (5 878 ha), over 200 villages and 45 000 ha of agricultural land.

In the map below the 33 riverine forests are indicated in yellow.

Coordinates:

- 30,500428E
- 19,375839N
- 33,600148E
- 13,771841N

