GEF-6 PROJECT IDENTIFICATION FORM (PIF)
PROJECT TYPE: Medium-sized Project
TYPE OF TRUST FUND: GEF Trust Fund

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PART I: Project Information

Project Title:	Large-scale Assessment of Land Degradation to guide future investment in SLM in the Great Green Wall countries		
Country(ies):	Regional	GEF Project ID:[1]	9825
GEF Agency(ies):	UNEP	GEF Agency Project ID:	01584
Other Executing Partner(s):	IUCN	Re-Submission Date:	June 6, 2017
GEF Focal Area(s):	Land Degradation	Project Duration (Months)	24
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of parent program:	NA	Agency Fee ($)	99,360

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

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	**Trust Fund**	**(in $)**	
		GEF Project Financing	**Co-financing**
LD-4 Program 5	GEFTF	1,045,890	6,000,000
Total Project Cost		**1,045,890**	**6,000,000**

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To assess available tools and methodology for scientific measurement of the ecological impacts of land degradation and SLM practices to guide future investment decisions in the GGWI region.

Project Components	**Financing Type[3]**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Co-financing**
1. Comprehensive analysis of LD processes and SLM practices and programs in selected countries in the GGWI region	TA	1.1: Sound analysis and mapping of land degradation by different stakeholders	1.1.1 - Mapping and analysis of land degradation trends using high definition imagery and available local-level indicators completed 1.1.2 - Comparative analyses of existing SLM practices published and disseminated 1.1.3 - Review of existing	GEFTF	550,809	3,514,757

[1] Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.
[2] When completing Table A, refer to the excerpts on GEF 6 Results Frameworks for GETF, LDCF and SCCF and CBIT guidelines.
[3] Financing type can be either investment or technical assistance.

			and planned SLM portfolios and analysis of critical gaps leading to identification of policy and investment options for scaling up SLM interventions			
2. Monitoring and knowledge management systems for LD and SLM in the selected GGWI countries	TA	2.1: Improved application of monitoring of land degradation processes and trends 2.2: Strengthened capacities to manage and disseminate knowledge and information on LD and SLM	2.1.1 - Platform for coordinated monitoring of LD processes/trends established in the 4 selected countries 2.2.1 - Capacity building of scientists and public servants 2.2.2 – Available communication materials, knowledge and proven technologies (e.g. GIS, mapping, cloud technology) to support SLM implementation at the country level are documented, tested, and disseminated 2.2.3 - Scientific Conference on the use of science in the GGWI	GEFTF	400,000	2,200,000
				Subtotal	950,809	5,714,757
				Project Management Cost (PMC)[4]	GEFTF	95,081	285,243
				Total Project Cost		**1,045,890**	**6,000,000**

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: (NA)

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
Donor Agency	NASA / USAID (SERVIR-WA)	Cash	5,000,000
Donor Agency	African Union / NEPAD / AFR 100	In-kind	200,000
Donor Agency	OSS	In-Kind	100,000
CSO	IUCN	In-kind	285,243
GEF Agency	UNEP Regional Office for Africa	In-Kind	100,000
Donor Agency	IRD	Unknown	100,000
Others	European Space Agency	In-Kind	214,757
Total Co-financing			6,000,000

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

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

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b)b)	Total (c)=a+b
UNEP	GEFTF	Regional – Africa	Land Degradation	NA	1,045,890	99,360	1,145,250
Total GEF Resources					**1,045,890**	**99,360**	**1,145,250**

a) Refer to the Fee Policy for GEF Partner Agencies.

E. PROJECT PREPARATION GRANT (PPG)[5]

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: $ 50,000					**PPG Agency Fee:** 4,750		
GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee[6] (b)	Total (c)=a+b
UNEP	GEFTF	Regional – Africa	Land Degradation	NA	50,000	4,750	54,750
Total PPG Amount					**50,000**	**4,750**	**54,750**

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[7]

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*400 Ha*[8]

PART II: PROJECT JUSTIFICATION

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

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

The Great Green Wall for the Sahara and the Sahel Initiative (GGWI) is a pan-African programme launched in 2007 by the African Union (AU). Its goal is to reverse land degradation and desertification in the Sahel and Sahara, boost food security and support local communities to adapt to climate change. Initially proposed by former Nigerian president Olusegun

[5] PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to $50k for PF up to$2m (for MSP); up to $100k for PF up to $3m; $150k for PF up to $6m; $200k for PF up to $10m; and $300k for PF above $10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

[6] PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

[7] Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF, SCCF or CBIT.

[8] 100Ha of land under SLM will be targeted in each of the 4 pilot countries to be selected (100 Ha X4= 400Ha)

Obasanjo and then by Senegalese President Abdoulaye Wade, the African Union endorsed a joint Plan of Action in 2007. Since then, the European Union (EU), the Global Environment Facility (GEF) and the World Bank (WB), among others, have provided financing for a number of projects to implement the GGWI, notably including Fleuve, Action Against Desertification, the Sahel and West Africa Program in Support of the Great Green Wall Initiative (SAWAP/GGWI), and the Building Resilience through Innovation, Communication and Knowledge Services project (BRICKS)[9].

According to a 2015[10] report, desertification affects approximately 33 per cent of the global land surface, and that over the past 40 years erosion has removed nearly one-third of the world's arable land from production. The degradation of land and forest resources threatens the livelihoods of tens of millions of people globally who depend on them. Every year, some 12 million hectares of land are degraded, while another 7.6 million hectares of forest are converted to other uses or lost through natural causes (FAO, 2015). Land degradation entails significant costs for society as a whole; according to several studies (World Bank, 1989; Berry, Olson and Campbell, 2003; Morales et al., 2011, UNEP & ELD Initiative, 2015). These costs can range from 3 to 16 per cent of agricultural gross domestic product (GDP) in terms of impacts on soil fertility and productivity loss.

Africa is particularly vulnerable to land degradation and desertification and is the most severely affected continent; desertification affects around 45 per cent of Africa's land area, with 55 per cent of this area at high or very high risk of further degradation. Land degradation has been vastly detrimental to agricultural ecosystems and crop production in Africa, and has been an important impediment to achieving food security and improving livelihoods on the continent. Communities located in the dryland areas of the Sahel are frequently very poor and highly vulnerable to land degradation. Almost all of the Sahelian countries lie in the bottom quartile of the world in terms of per capita Gross Domestic Product, and the drier regions of those countries are the poorest areas. In these areas, food, water and energy security are major development barriers and communities are frequently exposed to environmental hazards, especially drought. The Sahel region is largely inhabited by farmers, pastoralists and forest dwelling communities whose traditional livelihoods heavily depend on the goods and services provided by forests, trees, shrublands and grazing lands. Forests in the arid zones of sub-Saharan Africa (including the circum-sahara and Sahel areas) are an extremely important but undervalued resource. They have significant roles in biodiversity conservation, providing habitat and essential ecosystem goods (such as fodder for livestock, fuel wood, wood, medicines and herbs, tradable goods such as resins and gums) as well as services (such as soil stabilization, water, erosion and desertification control).

Threats

Significant drivers of land degradation include changes in land use, unsustainable land management practices, increasing aridity, and infrastructure development. Major forms of land use change include conversion of rangelands, forest land and wetlands for crop cultivation, which may raise the total yield of one or two key provisioning services (notably food), but often result in declines in other ecosystem services combined with a loss of biodiversity, the release of greenhouse gasses, and declines in the resilience of socio-ecological systems. Unsustainable land management, including over-harvesting of forest or rangeland resources, leads to similar outcomes and often goes closely with land use change. Excessive exploitation of firewood and unsustainable practices including overharvesting and over-cultivation have in turn contributed to land degradation in the Sahel (Olsson et. al., 2015).

Root causes, or indirect drivers, of land degradation include population growth, economic development, policy failures, technology change, climate change, and cultural constraints. Some of these factors may also provide opportunities for reversing land degradation and for promoting more sustainable land use, such as technologies in support of sustainable land management, or economic growth that generates resources for investment in restoration.

Barriers to sustainable land management

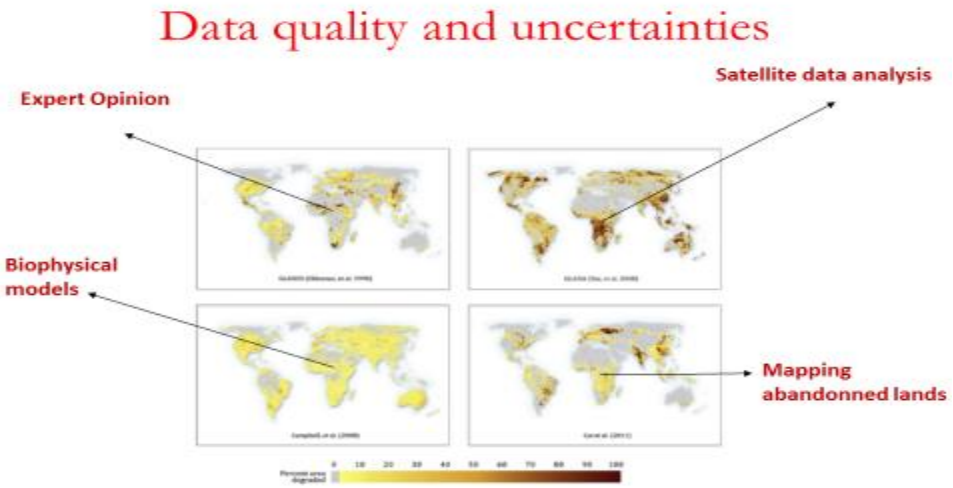
Considering the breadth of direct and indirect drivers of land degradation there are unsurprisingly a great range of barriers to sustainable land management in the Sahel region. The long-term solution to address the threats and drivers will, in general terms, be to, at a regional scale, address land degradation though the implementation of sustainable land management options. However, to ensure efficiency and effectiveness of such an initiative, a large scale assessment of the

[9] See http://www.greatgreenwallinitiative.org/projects for details

[10] The Economics of Land Degradation in Africa: The Benefits of Action Outweigh the costs, ELD Initiative Report 2015.

region is required in order to monitor and evaluate sustainable land management practices as well as the land degradation conditions and trends in the region over time. This is necessary to ensure the best informed decisions are made both at a policy/regulation front and investment angle. Two barriers for implementing such a large scale assessment exist, as described below:

Inadequate data that is not based on scientifically valid assessments of land degradation: Models for assessing land degradation are highly varied and frequently in conflict (see figure below). Consequently, concrete scientific evidence on the extent, severity and drivers of land degradation is typically weak. Analyses often rely on assumptions or fallacious arguments (e.g. desertification in the Sahel is spreading from north to south at a rate of 10 km per year), crude large-scale assessments using out-dated technologies, weak integration of data from different sources, inadequate consultation and inputs from local stakeholders, and low capacity to interpret data according in the context of the ecological conditions and management objectives of dryland areas. In addition, much of the literature on land degradation in Africa lacks empirical underpinnings, such as the quantification of soil losses or assessments of the costs and benefits of action (and inaction) against land degradation. The lack of adequate information and the limited capacity to interpret and use information are major impediments to identifying policies and investments that work to halt and reverse land degradation, and also hamper efforts to learn from past investments in order to identify what works, what is cost effective, and where to allocate future investments for scaling up.



Maps of lands areas affected by degradation base on each data collection/assessment approach

Insufficient SLM Knowledge development and dissemination: According to the United Nations Economic Commission for Africa (UNECA), even where data, methods, models, and institutional and technical strategies exist to address land degradation processes and to improve land restoration in Africa, their potential to guide policies, programs, and investment needs is undermined by a number of important factors. First, information is widely scattered and information-sharing mechanisms within and between countries are weak. Therefore, land degradation monitoring and assessment will benefit from incorporating multiple sources of knowledge, using a variety of methods at different scales, including the perspectives of researchers, land managers and other stakeholders (Reed, M.S. et. al., 2001). To achieve this, a central repository of information and agreed methods are needed. Current challenges in achieving such include (i) knowledge and methods dispersed across individuals and organisations, (ii) lack of capacity in setting up such a system and its use; (iii) lack of collaboration and sharing or information across governments; and (iv) lack of agreed methods and criteria used to collect and verify data, among others. In addition, the scientific foundation for sustainable land management is absent in many countries, including significant technical gaps in understanding and using scientific information on land degradation conditions and trends and sustainable land management options, as well as inadequate institutional commitments to use science to improve decision-making. There is a clear need to address the capacity of scientists and public servants in the field as well as wide dissemination and easily accessibility of knowledge and proven technology on sustainable land management options and land degradation conditions and trends.

The baseline scenario or any associated baseline projects

Policy Baseline

SDG Target 15.3 of Agenda 2030 sets out a new global ambition: "By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world". In order to quantify Indicator 15.3.1, "Proportion of land that is degraded over total land area", a Working Group was established to define relevant indicators for monitoring progress toward LDN target. The working group has agreed on three main sub-indicators to track land degradation and to derive the spatial extent and thus the percentage of total land that is degraded: i) land cover and land cover change, ii) land productivity, and iii) carbon stocks, above and below ground, which can be used for monitoring and reporting progress towards SDG target 15.3, as well as other relevant targets and commitments including the GGWI.

The ***3rd African Drylands Conference*** organized in Windhoek, Namibia in August 2016 recommended that countries and international, regional and sub-regional organizations: (i) conduct large-scale assessment of tools, methodologies and knowledge in support of drylands initiatives monitoring; (ii) develop policy briefs and knowledge products accessible to end users; and (iii) create platforms to promote synergies and South-South Cooperation. To that effect, the AU, in collaboration with partners, is requested to create a committee in charge of overseeing the capitalization of tools, methodologies and knowledge related to monitoring Drylands Activities and development of policy briefs accessible to end-users.

The ***United Nations Environmental Assembly (UNEA)*** adopted a resolution in May 2016 on land degradation and sustainable pastoralism, which calls for Member States to increase efforts to invest in programmes that address problems of desertification, deforestation, drought, biodiversity loss, degradation of rangelands, invasion of alien species, and water scarcity, in order to maintain and improve the productivity and sustainable management of land, through national development policies, strategies and programmes developed in consultation and/or in cooperation with key stakeholders, as appropriate.

The ***Windhoek Declaration for Enhancing Resilience to Drought in Africa*** adopted in August 2016 committed to establish a continent-wide African Network with national institutions for Drought Monitoring and Early Warning Systems (EWS), and to strengthen existing regional, sub-regional, and national EWSs, with a view to facilitate timely drought information, vulnerability and impact evaluation, and mitigation measures at the country, regional and continental levels.

Project Baseline

UNEP Desert Atlas for Africa: UNEP through its Regional Office for Africa (ROA) Early Warning and Assessment Sub-Programme, is working to produce an illustrated atlas to educate people on the extent and importance of Africa's deserts in terms of ecosystem goods and services[11], and to alert them to the changes taking place in these deserts. Major benefits expected will include: (i) strengthening the availability of data on Africa's deserts and related management issues through data visualization to support national and regional planning and decision making at all stakeholder levels; and (ii) optimizing access to information on Africa's deserts with short and concise descriptions of key issues and opportunities at national, sub-regional and regional levels, accompanied by visual support from satellite images, maps and photographs. UNEP/ROA expertise and work on this initiative will be made available to the proposed UNEP/GEF project, thus representing important institutional co-financing.

In Africa, the most significant SLM investment portfolio is in support of the *"**Great Green Wall for the Sahara and Sahel Initiative" (GGWI)***, which is funded by governments with support from a number of donors, including the EU, GEF and WB. Projects under the GGWI umbrella include: Fleuve; Action Against Desertification; Sahel and West Africa Program to Support the GGWI (SAWAP); Building Resilience, Information Knowledge Services (BRICKS); and Closing the Gaps in the Great Green Wall. Since GEF 5, a number of partners (e.g. GEF, WB, EU, FAO, IRD, universities, and NGOs) have supported the GGWI initiative to implement sustainable land, forest, and water management actions, while other international and sub-regional entities (e.g. OSS, CILSS and IUCN) have provided support in other areas depending on their mandate and experiences.

[11] Existing products focus on desertification as an undesirable process, but not on the intrinsic value of African deserts in their own right as important biomes.

The ***Sahara and Sahel Observatory (OSS)*** has developed environmental monitoring methods and tools that combine local (in-situ) and spatial observation techniques. Local observation is based on field data collection in order to calculate and track ecological and socioeconomic indicators, while spatial observation is based on the use of Earth Observation data to extract relevant parameters for the monitoring of natural resources. OSS has developed a methodology for mapping land cover based on the processing of freely available and multi-date high-resolution imagery and optimizing data processing time and costs while maintaining high overall quality. The mapping workflow is composed of two main steps: 1) automatic classification of images, and 2) photo-interpretation in order to regroup initial results and reconstitute land cover classes pre-identified in consultation with national partners and in line with LCCS/FAO standards. A validation phase is conducted based on participatory approaches involving national institutions and experts. Dissemination of map products at national and regional levels is ensured using web map services (geoportals) and thematic Atlases. The project will build on these OSS analyses and will take it further to conduct necessary agreed innovation including comparison between different methods at scale.

Monitoring for Environment and Security in Africa (MESA) is an EU-funded regional program implemented by the Agrometeorology, Hydrology, Meteorology Regional Center (AGRHYMET) that aims at improving the capacities of regional and national institutions in the ECOWAS region (as well as Mauritania and Chad) that carry out environmental monitoring, in particular to improve the use of earth observation data for more effective management of water, agriculture and animal breeding. The programme will improve and set up three information services based on earth observation that will enable decision-makers in the sub-region to take more effective action.

The ***Africa Resilient Landscapes Initiative (ARLI)*** is a foundation for building resilient landscapes by bringing agriculture, agroforestry and rangeland management together. The ARLI was endorsed by the African Union at its October 2015 Scientific and Technical Committee meeting. The New Partnership for Africa's Development (NEPAD) will act as the interim secretariat for this initiative as well as related initiatives such as African Forest Landscape Restoration Initiative (AFR100) and Bonn Challenge, and will be taking action in 27 countries. The initiative will be implemented through forest and ecosystem restoration, biodiversity conservation, climate smart agriculture, and rangeland management. The World Bank Group and World Resources Institute will, as main partners, support the mobilization of financial and technical resources from multiple sources to design and implement country-specific strategies.

The ***African Forest Landscape Restoration Initiative (AFR100)*** is a country-led effort to bring 100 million hectares of degraded and deforested land in Africa into restoration by 2030. The initiative was launched formally at COP 21 in Paris and will support the Bonn Challenge, the New York Declaration on Forests and the ARLI, to promote integrated landscape management and restoration with the goal of adapting to and mitigating climate change.

The goal of the ***TerrAfrica Resilient Landscape Initiative*** is to achieve the restoration of 30 million hectares of land by 30 million households in African landscapes. This objective is to be aligned with ARLI. In this regard, there is need to raise at least US$30 million in funds for TerrAfrica leveraging activities, and targets to develop 30 projects, 30 Country Strategic Investment Frameworks (CSIFs) in Sub Saharan Africa (SSA) and increase participation to 30 active country members and 30 active partners. The TerrAfrica Business Plan 2016-2020 is the first five years of this long-term vision.

The GEF Independent Evaluation Office's report **"The Value for Money of Land Degradation Projects of the GEF"** represents an operationalization of the objective to link the GEF Land Degradation Focal Area Strategy and the UNCCD Ten-year Strategy specifically in terms of outcomes, impacts and associated indicators. The analysis brought together economists, computer scientists and geographers with expertise in remote sensing and impact evaluation to apply a value for money (VFM) assessment to the case of GEF Land Degradation (LD) projects. Leveraging methodological approaches to causal identification that have not previously been applied to the study of Land Degradation, this report explicitly quantified (1) the causally identified impact attributable to GEF LD project locations using three indicators (capturing vegetation productivity, forest fragmentation, and forest cover change), and (2) the VFM resultant from these impacts of GEF LD projects in terms of carbon sequestration. A six step procedure was applied, in which (a) precise geospatial data on GEF LD project locations (i.e., every site at which a project operated) was generated in compliance with the International Aid Transparency Initiative (IATI) standard, (b) satellite information was used to derived long-term measurements of each of the three outcomes being assessed at each geographic location [following UNCCD 2015 guidance on indicator selection] and GEF STAP guidance on measurement], (c) the data generated in steps a and b was integrated with a wide set of geographically-varying ancillary data (i.e., nighttime lights, population, distances to roads and rivers) to enable the match of GEF LD project locations to "control" locations where no intervention occurred, (d) a novel propensity score matching approach, Causal Trees (CT), was employed to examine the impact of GEF LD project locations on each

indicator of interest, (e) observed patterns between these indicators and carbon sequestration were used to estimate the contribution of each project location in terms of tons of carbon sequestered, and (f) a value transfer approach is applied alongside an interactive, online, prototype tool to enable users to valuate individual project locations alongside a presentation of reference values found in the literature (http://labs.aiddata.org/gef). The novel methodology leveraged in this approach more regularly applied in other industries –enable recommendations regarding the spatial contexts in which GEF LD projects result in positive outcomes. This is resultant from the combination of GIS methods – which enable long-term data from satellite sensors; econometric methods –which enable causal inference and identification of impacts; and computer science methods – which enable the detection of heterogeneity in impacts across different spatial contexts. In the context of the current project, the methods and the resources from this study may help in analyzing the whole portfolio of a country.

ELD-UNEP: Building on the methodology developed in the Economics of Land Degradation (ELD) Africa report, ELD will carry out studies on the economics of land degradation that will assess the costs of action vs. costs of inaction with regard to land degradation, with a strong policy and socioeconomic focus. The ELD studies will consider multiple ecosystems, biomes beyond political boundaries, and ecosystem services, instead of concentrating only on topsoil and nutrient from croplands. Thus, in addition to croplands, the study may assess forests and grazing lands, as these ecosystems store significant carbon and are at the risk of being degraded. The objective is to prepare a report on the state of knowledge on land degradation and natural capital for countries, clearly showing a comparison of benefits and costs of action with regard to land degradation and possible SLM interventions.

The ***European Space Agency (ESA) initiative EO4SD - Earth Observation for Sustainable Development*** is designed to achieve a steep increase in the uptake of satellite based information in the regional and global programs of International Funding Institutions (IFIs), aiming to develop a more systematic data user approach in order to meet long-term strategic geospatial information needs in developing countries as well as international and regional development organizations. Since 2008, the European Space Agency has worked together with IFIs and client countries to harness the benefit of Earth Observation in their operations and resources management. Project activities will be implemented from 2016-2018, with phase I (2016) dedicated to stakeholder engagement and consolidation of requirements, and phase II (2017-2018) focusing on information delivery and capacity building.

NASA Initiative in the Great Green Wall Countries: NASA has a repository of high definition images of the region of the Great Green Wall, and is currently running the Amazon Calculation Centre to manage all these images.

Lund University Centre for Sustainability Studies (LUCSUS) is a platform for education, research and cooperation inside and outside academia on questions related to sustainable development. Research is conducted often in international cooperation for example under the EU framework programmes. Since 2008, LUCSUS has coordinated the Linnaeus program LUCID (Lund University Centre of Excellence for Integration of Social and Natural Dimensions of Sustainability). LUCSUS has a strong international research profile through involvement in the new Earth System Governance core research project under Future Earth and by the appointment as a Right Livelihood College. LUCSUS is also involved in collaboration with GEF/STAP and NASA on the use of normalized difference vegetation index (NDVI) to assess land degradation status and trends. It also has experience with SLM assessments using the World Overview of Conservation Approaches and Technologies (WOCAT) tools, as well as with assessment of mechanisms for scaling up investments in SLM programmes, such as the PRC-GEF Land Degradation Partnership.

The French National Research Institute for Sustainable Development (IRD) has been involved in several research projects connected with the GGWI on agroforestry implementation, soil erosion assessment and alleviation, and sustainable fertility management. IRD has also developed innovative and scalable tools for soil characterization, including infrared spectroscopy. Long-term partnerships in the form of Joint International Laboratories (LMIs) with African institutions have been established, including LMI IESOL and LAPSE, which focus respectively on ecological intensification of soil functioning and on plant adaptation towards environmental stress. Also relevant to this proposal, IRD supports and co-animates research networks on soil carbon and fertility status such as Carbon for Sustainable Agriculture in Africa (CASA) network and the 4p1000 initiative, as well as a research network on promotion of sustainable development projects in Africa through satellite imagery (GeoDEV).

The program ***SERVIR West Africa: Connecting Space to village*** (2016-2021) supported by the U.S. Agency for International Development (USAID) and the U.S. National Aeronautics and Space Administration (NASA), is a consortium of national and regional organizations including AGRHYMET, the Center for Remote Sensing and Geographic

Information Services (CERSGIS), the Centre de Suivi Ecologique (CSE), the Regional Center for Training in Aerospace Surveys (RECTAS), the African Centre of Meteorological Applications for Development (ACMAD), and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). SERVIR West Africa is designed to increase the ability of AGRHYMET, the technical arm of CILSS, and other institutions in the region to apply geospatial technologies and analyses to improve the resilience of the region to the impacts of climate change and to ensure that land use management is both sustainable and reduces greenhouse gas emissions.

The United Nations Economic Commission for Africa (ECA) is providing regional focus and leadership to develop information and knowledge resources, applications and services that improve the availability and use of spatially-enabled information for development at the national, regional and sub-regional levels. In the context of the ECA's new paradigm of transformative development in a renascent Africa, all activities in the field of geospatial information in Africa have been designed around the concept of Spatial Data Infrastructure (SDI) with synergistic integration of statistical information and geospatial components for sound decision-making, with the goal of developing African holistic purpose-oriented geospatial information resources linking global to local, but based on prevailing social, economic and technological realities in the continent. Core features of the strategy include: advancing holistic geospatial information policies; establishing authoritative repository of development data; and encouraging comprehensive, holistic, vision-driven, long-term transformative development of capacities.

The ***UNEP Global Environment Outlook (GEO-6)*** assessment, expected to be launched in mid-2017, will build upon regional assessment processes and create a comprehensive picture of the environmental factors contributing to human well-being, accompanied by an analysis of policies leading to greater attainment of global environmental objectives and goals. The Global Environment Outlook (GEO) is a consultative and participatory process that builds capacity for conducting integrated environmental assessments and reporting on the state, trends and outlooks of the environment, as well as a series of products that informs environmental decision-making and aims to facilitate the interaction between science and policy. GEO-6 will provide the first integrative baseline in light of global megatrends supported by open access to data, with due consideration given to gender, indigenous knowledge and cultural dimensions. GEO also supports multi-stakeholder networking and intra and inter-regional cooperation to identify and assess key priority environmental issues at the regional levels.

UN Environment-China Cooperation: Following UN Environment facilitation at the request of member states of the GGWI, the Government of China is positively considering setting up a regional centre in Mauritania to support countries on monitoring land degradation control measures through satellite imagery, GIS, and ground truth-ing. If this effort materialized, it will be an interesting development in term of building countries capacity for land degradation monitoring and the outcome of the current project will be providing as necessary tools and expertise to support this South –South Cooperation effort.

Even though the process is not much advanced, it is worth to mention that during the Head of States Summit of the Great Green Wall initiative in 2016, decision was taken to establish of carbon bank to mobilize resources for investment in the Great Green Wall countries. The current project will contribute in identifying key areas for investment to generate carbon benefit for sale on international carbon market.

2) The proposed alternative scenario, GEF focal area[12] strategies, with a brief description of expected outcomes and components of the project

The aim of conducting the large scale assessment is to draw on data from the national and regional levels to a) improve SLM interventions b) determine success, and c) provide feedback to relevant stakeholders (field staff, scientific community, CSO, Private sector, policy makers and the community) for future investments. The proposed project will assess available tools and methodology for scientific measurement of the ecological and socioeconomic impacts of land degradation and SLM practices to guide future investment decisions in the GGWI region. The identified partners indicated in the baseline section will be used as scientific group who will contribute in validation of scientific information as these will influence awareness raising, development of standards, establishment of necessary institutions, governance issues, and policy frameworks that govern land management and which will help to achieve transformational changes that ensure the

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

sustainability of production systems. The project will focus on the mobilization of existing data, methodologies and assessments previously conducted and will build the capacity of key stakeholders to make use of these resources. Some countries from the GGWI will be selected to test and promote applications of innovative tools and practices validated by the scientific committee. This pilot testing in selected countries will also valorise the experience acquired in the LD portfolio, including on gender issues. The outcome of the assessment and pilot testing will provide background information and resources for an international Scientific Conference the use of science in the GGWI.

The project will delivered the expected results through the components described below:

Component 1: Comprehensive analysis of LD processes and SLM practices and programs in four selected countries in the GGWI region

Restoring and sustainably managing land requires a broad base of investments, including in human capital, infrastructure, and in market access and market engagement. However, development interventions carry an inherent risk of environmental degradation, and whilst there is urgent demand to rapidly accelerate development in the region, measures must also be taken to ensure that development is done sustainably and will safeguard the natural environment upon which human development is dependent.

Outcome 1.1: Sound analysis and mapping of land degradation by different stakeholders

Output 1.1.1 - Mapping and analysis of land degradation trends using high definition imagery and available local-level indicators completed: The European Space Agency's Earth Observation for Sustainable Development and NASA's Earth Observatory provide a wealth of high resolution data that can give increasingly reliable estimates of land degradation. Regional assessment capacity and resources also exist at the Observatoire of Sahara and Sahel (OSS), Aghrymet, Conservation International's "Vital Signs", and others. Other, broader initiatives for environmental assessment can also contribute to monitoring progress in the GGWI, including the IUCN Red list of Ecosystems, the global Forest Landscape Restoration initiative under the Bonn Challenge (monitored through the FLR Barometer), and FAO initiatives such as Land Degradation Assessment in Drylands (LADA). The project will compare the different methods, technologies, data and information sources of the existing programs and initiatives particularly from NASA and ESA. The outcome of this comparative analysis will allow the stakeholders to agree on the most appropriate approach or tools to be adopted for measuring ecological changes in the whole GGWI area using the 2010 as the baseline year. The comparison will also lead to a peer review article to be published. Scientific partners in the selected countries will serve as pilot actors who will help to verify and confirm the observations through ground-truthing and apply the adopted approach. Validation of the mapping / assessments will be through a combination of expert consultations, public dissemination, and peer reviewed publication.

Output 1.1.2 - Analysis of ecological (especially soils) and socio-economic conditions related to land degradation issues completed: The project will complement the on-going work by using both NASA and ESA data to develop Land Degradation Neutrality (LDN) targets by carrying out an analysis of land degradation in the region over the past 10-20 years and transferring the analysis to the countries covering the whole GGWI area. Selected thematic analyses will be conducted on priority knowledge gaps (for instance on carbon sequestration, or on the linkages between soil health, productivity, livelihood, and food security). This work will provide a full picture of land degradation conditions in the GGWI area and their evolution over a 5-year period (2013-2018), and will also establish a valuable baseline for longer term monitoring after the project ends.

Output 1.1.3 - Comparative analyses of existing SLM practices published and disseminated: The project will document different science and technology-based tools and then use them to conduct a comparative analysis of the effectiveness of existing SLM practices (e.g. tree plantations, farmer managed natural regeneration, etc.) and to quantify the impacts of those practices in the GGWI region, including their impact on gender related issues. The suitability of SLM approaches also will be evaluated on their contribution to supporting community resilience to climate related risks, for example by increasing soil fertility and soil moisture. Scientific publications on effective SLM practices, and on the multiple benefits of SLM interventions, will be published and made available to key partners in the GGWI and other initiatives (LDN, AFR100, etc.). In addition, as noted in the baseline, significant investments are in place from different partners to address land degradation issues in the region. However, there is no land degradation monitoring platform or tools at national level (e.g. observatory) which acts as national mandated institution in charge of regular monitoring of the status and trends of land degradation. As there are no sufficient resources at the moment to create these observatories in all the countries and also no leading institution on this process, the current project will set the basis for these medium and long-term objectives

of having national land degradation monitoring platforms by conducting an assessment of existing methods and other available tools for land degradation monitoring.

Output 1.1.4 - Review of existing and planned SLM portfolios and analysis of critical gaps leading to identification of policy and investment options for scaling up SLM interventions: The project will undertake a review of the SLM portfolios including GEF financed projects (existing and planned SLM programs and projects) in four to-be-selected countries. UNEP in collaboration with project partners will use such criteria like existence of a strong SLM portfolio, lack of science based knowledge, lack of country based analysis, The final list of countries will be defined during the PPG. At CEO approval, UNEP will provide letters of endorsement from the selected countries to show their commitment to participate in the process. The analysis in the selected countries will help to identify gaps in SLM programming, particularly in relation to National Voluntary Targets for LDN and the associated LD investment strategies, and to enable governments and their partners to redirect funding to address key LD issues that are not being sufficiently covered. The evaluation of past SLM investments, and identification of policy and investment options, will also enable these stakeholders to more effectively scale-up SLM interventions, and an agreed evaluation framework will be rolled out, based on different available frameworks including the SLM Evaluation conducted in China in 2013 (Tengberg et al., 2014). Other approached or ideas will be explored based on outcome of scientific consultation with partners (e.g. IRD, CIRAD, CGIAR, etc.). The idea is to take the opportunity of the current project to develop scientific partnerships with different international and national universities and research centers mentioned above. The framework to be agreed upon will help to lead to peer-review article The framework will also help to scale-up SLM interventions as it should provide a biophysical baseline at landscape level, and a monitoring and evaluation framework for assessing processes of land degradation and the effectiveness of rehabilitation measures (recovery) over time. The framework should furthermore provide field protocols for measuring indicators of the "health" of an ecosystem, including vegetation cover, structure and floristic composition, historic land use, visible signs of soil degradation, and soil physical characteristics. In addition to the framework, output 1.1.4 will be used to ensure that, the portfolio analysis will be doubled with a mapped analysis for quantified results.

Component 2: Monitoring and knowledge management systems for LD and SLM in the selected GGWI countries

Sustainable development requires close attention to the state and trends of land degradation, improved diagnosis of problems, identification of appropriate restoration and sustainable land management solutions, and development of policies and investments that enable scaling up. As detailed above, there is a significant baseline of existing policies and programs addressing land degradation issues in the region. However, none of these existing initiatives is focused specifically on monitoring progress on land degradation issues in the GGWI, on evaluating the impacts of long-term investments in SLM, or on using data and assessments to guide SLM policies and investments. To achieve these goals will require improved integration of data sets, more focused selection of indicators, improved availability and access to data, stronger capacity to use and interpret data at national and sub national levels, and stronger public sector commitment to sustaining the use of data for informed decision-making. Under Component 2, the project will target 4 countries (to be selected during the PPG based on agreed criteria) to establish the coordinating mechanisms, technical capacities, and information dissemination strategies to ensure that the information developed under Component 1 on land degradation processes and trends and sustainable land management practices and investment portfolios is effectively shared among stakeholders in the region, in the 4 targeted countries and used to influence policy and investment decisions at the local, national and regional levels.

Outcome 2.1: Improved application of monitoring of land degradation processes and trends

Output 2.1.1 - Platform for coordinated monitoring of LD processes/trends established in the 4 selected countries: The project will establish a data/information sharing platform of key institutions and partners, including global leaders in Satellite Earth observation and scientific institutions specialized in the area of earth monitoring, modelling and data analysis (in particular for dryland regions) to support countries to increase access and take ownership of tools and methodologies in these technical areas. The platform is also intended to connect field researchers with satellite earth observation centres by providing the necessary interface in order to develop a coordinated approach for monitoring and evaluation of land degradation processes and trends in the 4 target GGWI countries and the region. This process will be conducted in technical partnership with key institutions like NASA, Lund University, OSS, GM LDN Lead Scientist, and others, and with existing initiatives for environmental assessment in the GGWI (e.g. IUCN Red list of Ecosystems, global Forest Landscape Restoration initiative, Land Degradation Assessment in Drylands, OSS, Aghrymet, CI's "Vital Signs", etc.). The benefits of the monitoring platform for the countries is evident as it will bring the science into decision-making at a lower cost since it will be readily available as national body easy to mobilize and with no additional cost of paying the expertise. During the PPG phase, consultations will be conducted with national stakeholders to agree on the appropriate

national institution to host the platform and sustainable funding modality to keep the platform running in the selected countries will be identified and negotiated. Furthermore, CSO, NGO, research Centres and training institutions that will help in in country analysis will be clearly identified during the PPG and their choice will be done on country by country basis is very well noted an will be considered.Most of the GGWI countries are already investing important national budget resources earmarked for the initiative and the long term sustainability of the platform can be linked to these national resources together with identified other innovative funding windows or mechanisms. Multi-stakeholders involvement mechanism will also be discussed and agreed upon.

Outcome 2.2: Strengthened capacities to manage and disseminate knowledge and information on LD and SLM

Output 2.2.1 - Capacity building of scientists and public servants: The project will support technical training and other capacity building measures for scientists and public servants on the uses of Earth Observation Data (e.g. how to interpret and analyse data), GIS mapping, and cloud technology. A comprehensive capacity gap analysis of scientist and public servants will be undertaken during the PPG phase and the most appropriate mechanisms to deliver such training developed for project implementation.

Output 2.2.2 – Available communication materials, knowledge and proven technologies (e.g. GIS, mapping, cloud technology) to support SLM implementation at the country level are documented and disseminated: Building on the knowledge management initiated with the BRICKS and the SAWAP projects and considering the evidence-based SLM options developed under Output 1.2.1, the project will support the comparison between different methods at scale and the dissemination of those proven methodologies and results related to SLM implementation within stakeholders including governments, practitioners, policy makers, investors, and donors, in the 4 participating countries. Innovative tools will be tested and developed to make the outputs available to the different countries taking in to considering the weak Internet connections in many of these countries. There will be no duplication with the BRICKS project, rather BRICKS developed tools and methodologies will be capitalized to ensure complementarity and means for experts' dialogue and exchange of experience. This dialogue may (i) generate new tools, methodologies and/or approaches; and/or (ii) suggest adoption of proven existing tools, methodologies and/or approaches; and/or (iii) build/improve on existing tools, methodologies and/or approaches to increase their scientific vigour and operability for easy use by stakeholders. The BRICKS key stakeholders including IUCN and OSS are key actors in this MSP. It is also anticipated that within the available resources, the current project will create condition to maintain the annual experts meeting initiated by the BRICKS project.

Output 2.2.3 - Scientific Conference on the use of science in the GGWI: An international conference will be organized to refine the methodology and expand the approach to additional countries. Based on the outputs obtained in Component 1 and the piloting in the 4 countries, substantive materials and information will be gathered which will serve the basis for a scientific conference on the use of advanced knowledge and technologies in decision making on the implementation of SLM options in the countries. The conference will review the tools and the methodologies and the outcome of piloting in the 4 countries to come up with recommended options and approaches related to SLM implementation including priorities actions and areas for future investment. The proposed conference for instance may be a substitute to the annual SAWAP and BRICKS conferences which is being organized every year as part of the SAWAP and BRICKS projects activities.

During the PPG phase, various preparatory activities will take place to further refine the Alternative Scenario described below, including: an assessment of various tools for measuring land degradation processes, conditions and trends in the GGWI; identification of national and regional universities and research institutions for establishing scientific partnerships; and a review of the current SLM portfolios of countries (e.g. SIP projects in Senegal and Niger, CPP and SILEM in Burkina Faso, WB, IFAD, and UNDP projects in Ethiopia) to identify existing data collection, management and dissemination initiatives.

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

Scenario without GEF Investment: Investments are already being made in SLM in the countries of the GGWI region, although SLM investments as a proportion of total national agricultural investment remains low.

Without this GEF project, the monitoring and evaluation of Land Degradation will continue to be based on the tools developed in the framework of the Building Resilience through Innovations, Communication, and Knowledge Services (BRICKS) project namely i) the Construction of a spatial database related to the elaboration of baselines and the collection

of existing spatial and mapping data at the regional level; ii) Development of GIS products dedicated to national projects and related to geographic information databases on the administration, hydrology, agriculture/agronomy, climate, ecology, pedology, land use/cover and socioeconomics; iii) Elaboration of National Land Use Maps developed based on Landsat- 8 images (30m of resolution) dating to 2014 and 2015; iv) The geoportal which is a tool dedicated to the publication, storage and exchange of spatial data and resources elaborated and put online in October 2015; the Regional training and exchange workshops on Monitoring-evaluation and geographic information system, Utilization of EXACT tool for carbon balance estimation, Utilization and understanding of the GEF Tracking tools, and National Training Workshop on GIS and Remote Sensing in support to monitoring and evaluation).

The limitation of the current status is that the above tools and training are developed and conducted with the only purpose to serve the SAWAP project. Key barriers which include incomplete data and understanding of SLM practices and LD conditions, processes and trends; poor integration of data into policy-making; lack of LDN targets consideration will continue to persist as well land degradation which will continue to negatively affect millions of persons in the four countries, or important ecosystem services such as soil fertility, carbon sequestration and biodiversity will continue to decline. The BRICKS project has created an enabling environment for annual experts gathering to discuss progress of the SAWAP and GGW Initiative. As BRICKS project is coming to an end, it is likely that the annual meeting organised by BRICKS project will not continue due to possible lack of leading institution or project.

Scenario with GEF Investment: The GEF increment will allow assessment and comparison of available tools and methodology for scientific measurement of the ecological and socioeconomic impacts of land degradation and SLM practices. This review of existing knowledge and tools will help to guide future investment decisions on SLM in the GGWI region. The GEF support will allow to bring together scientific experts from the region and beyond to contribute in validation of scientific information which will influence awareness raising, development of standards, establishment of necessary institutions, governance issues, and policy frameworks that govern land management and which will help to achieve transformational changes that ensure the sustainability of production systems. Furthermore, the GEF increment will help to pilot test the adopted tools, methodology and approaches in selected countries of the GGWI. This pilot testing will contribute in generating knowledge including for monitoring land degradation which will feed the knowledge management strategy of GEF and partners agencies. The capacities of key actors will be strengthened and government institutions and other partners will have stronger capacity to make informed choices over scaling up SLM. The current project provide opportunity to take further the organization of annual meeting of the GGWI experts initiated by BRICKS project. In term of socioeconomic aspects, the project should contribute to stronger mainstreaming of SLM practices in core agricultural investment as well as better targeting of SLM actions. The project will also contribute to improved evaluation of the impacts of important investment that are currently spent on SLM in target countries.

4) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

The proposed project will produce a variety of global environmental benefits. The project will contribute to the sustainability of dryland production systems, to safeguarding agro-ecosystem services, to minimizing the risk of negative externalities from other development sectors, and to the scaling-up of proven SLM policies and investments in the GGWI and globally. In so doing, the project will contribute to combatting Desertification, Land Degradation and Drought (DLDD), which will reduce the vulnerability of dryland communities and increase food, water and energy security in the participating countries.

The adoption of SLM practices also contributes to conserving biodiversity in a number of direct and indirect ways. Most SLM practices contribute to the conservation of Soil Organic Carbon (SOC), which in turn consists of a vast array of biodiversity: soil microbes, invertebrates, root matter, decaying vegetation etc. Agroforestry and fallow practices usually include indigenous trees in agricultural systems and provide localized habitat for other wildlife, including migratory birds. Sustainable rangeland management not only creates habitat but also maintains connectivity between landscapes, enabling the dispersal and the adaptation of species. SLM practices frequently are based on the use of locally adapted crop and livestock breeds and therefore can play an important role in the conservation of agrobiodiversity. Furthermore SLM practices involve actions at the ecosystem and landscape level and are not limited to site-level interventions, and protecting components like wetlands or woodlands within larger agricultural landscapes is an essential part of protecting ecosystems and conserving biodiversity. Finally, by promoting the accumulation and protection of organic matter in soil (Soil Organic Carbon), and protecting natural woodlands and rangelands from conversion to crop farming, SLM practices can play an important role in reducing greenhouse gas emissions

5) Innovation, sustainability and potential for scaling up

The project is the first of its kind within the GEF partnership that intends to bring together tools and technology to increase understanding and measurement of SLM impacts in a large area covering the wider landscape of the Great Green Wall Initiative countries. The project will develop innovative mechanisms for multi-stakeholder planning and investments that will bring together diverse institutions and experts to collaborate on transformational changes related to the use of well advanced technologies and tools in monitoring land degradation, assessing the impacts of SLM interventions and the generation of knowledge at all levels. By adapting existing tools and approaches for assessment of land degradation processes and trends to the GGWI geographical context and subjecting it to more scientific appreciation and testing in pilot countries, the project will contribute in the knowledge management of LD FA. The project will alsoimprove information on the value of natural resources and ecosystem services in production landscapes by measuring the impacts of SLM intervention on ecological balance and livelihood of local communities. The new collaborative platforms at regional and national levels and the information generated by the strengthened assessment tools will greatly increase the effectiveness of decision-making on policies and investment in SLM.

The sustainability of the project will depend on how countries and development partners adopt improved large-scale assessment in their decision-making and reporting processes. The project will therefore focus on a combination of: improved dissemination of critical information (in both peer reviewed and practitioner-oriented formats); capacity building of key actors to develop and use the available information; and institutionalization of approaches through key partnerships between scientific communities and data and tools end users which include a large range of stakeholders from Government, local communities, private sector and Civil Society Organizations.

The project will focus on large-scale scientific assessment to validate policies and investments, and will provide concrete insights into the type of intervention that is working at a large scale and could be suitable for further scaling up. Based on this, the project will aim to have the large-scale assessment approach be adopted at the regional scale throughout the GGWI. Project lessons will be communicated to other regional inter-governmental bodies with a view to adoption in other regions outside of the GGWI. The country evaluations of SLM investments will be used to guide LDN national process which include the targets setting, the monitoring of key indicators and impacts over time. The project will examine financing options for conducting similar evaluations in other countries. The strengthened tools and methodologies, together with the large expertise and institutions that will come together in a collaborative platform, will favour scaling up of experiences.

2. Stakeholders. Will project design include the participation of relevant stakeholders from civil society organizations (yes ☒ /no☐) and indigenous peoples (yes ☐ /no☒)? If yes, identify key stakeholders and briefly describe how they will be engaged in project preparation.

The PPG phase will be used to conduct a comprehensive stakeholders mapping in the 4 target countries but also at regional level. In mean time, key stakeholders in the project can include participating governments, primarily through either their Ministries responsible for UNCCD related matters or their ministries responsible for the GGWI (in most countries this is the Ministry of Environment or its equivalent). However, responding to DLDD, and achieving LDN, is the responsibility of many different sectors and therefore secondary stakeholders will include a number of other ministries, such as agriculture and water. The National Great Green Wall Agencies in the 4 targets countries will be the key national project partners.

The African Union Great Green Wall Coordination has been extensively consulted during the design of this project which will consider the needs of these institutions in terms of monitoring of land degradation in GGWI countries. African Union GGWI coordination has develop a framework of indicators which will be consider in all the process of mapping, assessment of land degradation trends and suggested investment which will come up as recommendation of the analysis.

National universities and regional research centres also are stakeholders in the project, providing data and technical advice to governments on development or adoption of new methodologies. These stakeholders will also gain from the project outcome in terms of new technologies and tools for satellite imagery acquisition and use in their work related to SLM.

Development partners, including multilateral institutions, bilateral donors, international organizations, and development banks, are project stakeholders and will benefit by using the outcomes of large-scale assessments to evaluate and adapt their investment portfolios. Non-Governmental Organizations and Civil Society Organizations are also important development partners who will play a key role in ensuring the engagement of key community stakeholders within the limits

of the project. Although extensive local consultation may be impractical in a regional project, NGO / CSO stakeholders can strengthen the accountability of the project and act as a watchdog on the project implementation process.

The International Union for Conservation of Nature (IUCN) will act Co-Executing Agency on behalf of UNEP. The UNEP Liaison Office in Addis Ababa will facilitate collaboration with African Union Great Green Wall coordination but also with the African Union other programmes on SLM including with Monitoring for Environment and Security in Africa (MESA) program and collaboration with the Economic Community for Africa (ECA).

The UNEP Programme Coordination of Early Warning and Assessment of Africa Office will take an important role in coordination of technical experts and institutions to build a strong partnership in conducting the large-scale assessment, which in the long run will be linked to UNEP's GEO process and long-term sustainability and advocacy.

Key specialized academic (Lund University), multilateral (OSS, ESA, etc.) and bilateral (e.g. NASA, IRD), private individual partners will be involved in the project either as consultants/contractors or as partner organizations to lead specific project activities including providing and interpretation of satellite and other types of imageries, supporting development of national and regional approaches to the monitoring of land degradation and support organization and follow of the procedings of the international scientific conference.

The Sahara and Sahel Observatory (OSS) with its experience and achievements in monitoring and evaluation will play an important role in the M&E activities. To that end, the methodologies and tools already developed by OSS in the framework of the BRICKS project will be adapted and valorised. Furthermore, OSS will contribute to capacity building by analysing the needs, identifying the support and organizing trainings and backstopping activities.

The French National Research Institute for Sustainable Development (IRD) is an internationally recognised multidisciplinary organisation working primarily in partnership with Mediterranean and inter-tropical countries. It is a French public establishment under the joint authority of the French Ministry of Higher Education and Research and the Ministry of Foreign Affairs and International Development. The IRD has been present in Africa for decades, where it collaborates with partner institutions on issues related with climate change, natural resources degradation/restoration including land and soil, health, fight against poverty, etc. In the framework of this project, IRD agreed to provide information and data collected in the past years in the region related to the status end evolution of natural resources. IRD will also be partner in developing appropriate tools for national assessment.

The Land Degradation Neutrality (LDN) Target Setting Programme is, through the UNCCD Secretariat and the Global Mechanism of the UNCCD, supporting interested countries in the national Land Degradation Neutrality target setting process, including the definition of national baselines, targets and associated measures to achieve LDN by 2030. Many GGWI countries are partaking in this programme and volunteering setting of targets for LDN and work is currently on-going. UN Environment will ensure that the proposed work within the framework of this project at regional and national levels will help in achieving the volunteer targets set for LDN. The Lead scientist in charge of LDN at the GM will be a partner member on the steering committee and he/she will be requested eventually to help in producing some analysis.

3. ***Gender Equality and Women's Empowerment.*** Are issues on gender equality and women's empowerment taken into account? (yes ☒ /no☐). If yes, briefly describe how it will be mainstreamed into project preparation (e.g. gender analysis), taking into account the differences, needs, roles and priorities of women and men

In Sustainable Land Management projects, it is of utmost importance to ensure an equitable representation of gender as well as ensuring the empowerment of women. This is because women farmers are responsible for 60 – 80 percent of the developing world's food production, in many countries women are the primary income producers, earning their livelihoods mainly from agriculture and other land-based activities (Howard 2003; Baumgartner and Högger 2004). Further, as pastoralists and agriculturists, women are disproportionately affected by land degradation (UNDP, 2007). Land degradation adds to the pressure on women to support their families under increasingly difficult physical, social, and economic conditions. Physically women, as bearers of children, are more vulnerable to lack of food or water. In social, economic, and political contexts, women's relatively weak status and busy schedules with household and fieldwork often leads to marginalization of their concerns and realities. Besides the direct impacts on agricultural livelihoods, land degradation also has indirect effects, which likewise tends to have a greater impact on women and girls. For instance, increased siltation of river waters due to land erosion and degradation often renders water unusable, forcing women and girls to spend more time and travel farther to fetch water. Studies have shown that involving women in participatory land management promotes

more sustainable land use, reversal of desertification, and improved socioeconomic conditions (Aswani and Weiant 2004; Nyssen et al. 2004). Women are the principal day-to-day decision-makers who determine land management practices. Women are also most directly impacted by public decisions, laws, and planning related to land management. Women often face formidable barriers in their efforts to claim an equitable role in decision-making concerning land resources. Some key constraints to engaging women in SLM are: i) Insecurity of tenure despite women's role in household food production, ii) Lack of 'value' assigned to labour and subsistence farming; and iii) Lack of credit.

In the context of this project all the assessment of tools and methodologies for monitoring SLM will give attention to the status of gender equality and specific women condition will be highlighted and suggested actions will be provided. The national level piloting will pay attention on how gender equality is considered and how best it promotion will be conducted within the framework of the project. The training and capacity building activities will give due attention to gender equality.

4. 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)

Risk	**Risk Level**	**Mitigation measure**
Data available within the region is not made available to the project	Medium	Data availability is part of the justification for the project and access to some data is expected to be restricted. The project is designed to ensure that large-scale assessment can be carried out based on data that is already in the public domain. Partnership development will be important to ensure that secondary data is available as required to strengthen interpretation and analysis of large-scale assessments.
Assessments generated by the project are not adopted by key stakeholders	Low	There is a risk that some countries may only use nationally generated assessments to guide government policy. Project partnerships will be developed with key target countries, where applicable, to ensure a higher level of buy-in to the methodology. Capacity building actions will ensure that government representatives are equipped to use improved assessment methodologies, which may lead to some countries strengthening their domestic assessment systems. The 4 countries targeted by the project were selected because they are advanced in implementation of SLM practices and the implementation of the GGWI and they are likely to use the assessments / data / tools developed by the project more than any other country in the region.
Investments are not leveraged	Low	There is a risk that other investment priorities will sideline SLM concerns, rendering improved assessments irrelevant. This may be a short-term risk, for example associated with major shocks like drought, but in the medium and long term LD issues are gaining recognition and generating steadily increasing public sector support. The project is designed to contribute to continued growth of investment in SLM.

5. Coordination. Outline the coordination with other relevant GEF-financed and other initiatives.

This project is designed to add value to existing (past and present) investments and policies for SLM and to guide future investments. For this reason it is important that the project closely coordinates with all relevant actors, as far as resources allow. As indicated in the baseline section, various bilateral and multilateral stakeholders are conducting separate initiatives on the use of technology and methods in assessment and evaluation of investments in natural resources and agricultural sector investments.

For instance, for the Large-Scale Assessment, the initiative will work closely with the official structures of the Great Green Wall in order to enable coordination between actors, particularly at the regional level. Existing formal and informal mechanisms for coordination of the GGWI will be used as a channel for the project to engage with a wide range of regional and national stakeholders, including GEF and non-GEF projects. The project will work closely with the :

- GEF-WB initiative SAWAP (Sahel and West Africa Program in Support of the Great Green Wall Initiative) and the supporting BRICKS project. As the coordinator of the BRICKS project's M&E component, OSS has established synergies with the SAWAP national projects and provided key M&E training and tools. The project will also take advantage of the REPSAHEL and ROSELT partners' network built by OSS in the Sahara and Sahel region. In

addition, capacities developed by IRD on soil fertility status diagnosis (LMI IESOL) and on satellite imagery processing and applications (GEODEV) constitute a basis for IRD's contribution to the project. As a valuable tool for large-scale soil status monitoring and ground truthing, IRD may communicate its expertise with the use of infrared spectroscopy which provides considerable gains in cost and time for soil C and N status assessments compared with standard chemical analyses. For the four national evaluations of SLM investments (Output 1.2.3), a consultative process will be established, headed by the national UNCCD focal point and engaging with a range of government, nongovernmental and private sector actors. Established mechanisms for UNCCD coordination will be used where they exist.

- The GEF-WB Building Resilience through Innovation Communication and Knowledge Services (BRICKS) project is a six-year regional knowledge and monitoring hub for a large US$1.1 billion regional program of 12 World Bank financed country operations plus related partner-supported activities that together contribute to the region's and clients' Great Green Wall Initiative (GGWI) priorities. BRICKS is implemented by three regional organizations recognized as centres of excellence: the Interstate Committee for Drought Control in the Sahel (CILSS), the Sahara and Sahel Observatory, (OSS) and West and Central Africa Office of the International Union for Conservation of Nature (IUCN). These organizations facilitate technical knowledge exchanges and monitoring services among the 12 country investment operations in the broader WB-GEF Sahel and West Africa Program (SAWAP). Of importance to this project, Component 2 (Program monitoring support) of the BRICKS project supports the monitoring, modelling and mapping of land and water resources and land use changes in the regional portfolio, including carbon modelling to help estimate the portfolio's contribution to climate change mitigation. This includes carbon storage in biomass and soil, as well as changes in GHG emissions due to land use change and management, using existing monitoring and geospatial tools. This activity also includes establishing an inter-agency Geographic Information System (GIS) services team and opportunities for networking and capacity building for project teams and regional actors, development of a regional digital atlas on land and water resources, greenhouse gas (GHG) fluxes from land use and management, and climate risks, and development of a regional data platform to provide near real-time remote sensing data and analyses in appropriate formats to country project teams on the ground. During the PPG, outcomes and outputs from the BRICKS and the role of OSS will be carefully analyzed so as to avoid duplication between the activities financed under the BRICKS and the current proposal.
- Just like in previous processes that included a Land Chapter, GEO process can be a way of developing a chapter or subchapter on the assessment, analysis and dissemination of land degradation, SLM data and methodology.
- Furthermore, UNEP with IUCN as Executing Agency is implementing a regional GEF project "Closing the Gaps in Great Green Wall: Linking Sectors and Stakeholders for Increased Synergy and Scaling-up" to enhance participation, particularly of CSOs, in the GGW initiative. This project will use the network of CSOs and national partners developed under that project to ensure the involvement of all stakeholders in the development of the knowledge platform.
- Within the GEF portfolio of LD projects, the project will maintain a close collaboration and exchange of experience but also complementarity with projects including the WB/GEF project "GGW Sahel and West Africa Program in Support of the Great Green Wall Initiative", the UNEP/GEF Closing the Gaps in the GGW project, and the GEF/IFAD IAP Program "Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa - An Integrated Approach". The project also will learn from and seek to develop complementarity with the GEF-CI project "Enabling the use of global data sources to assess and monitor land degradation at multiple scales", whose objective is to provide guidance, methods and a toolbox for assessing and monitoring status and trends in land degradation using remote sensing technology which can be employed to inform land management and investment decisions as well as to improve reporting to the UNCCD and the GEF. While the GEF/CI project will be focusing on remote sensing, the current project will be complementary as it will assess all available tools and methodologies and will consider findings from the CI project. The current project will therefore provide opportunity to go a step further by comparing tools and methodology and conduct testing of is or are recognised as promising ones in the context of the Great Green Wall. Furthermore, there is complementarity on geographical scope as the GEF/CI project, except for Senegal will be focusing on East Africa while the current project will focus on Sahel and Sahara. Senegal will be an interesting case as it is a member of the GGWI and its experience on remote sensing with CI will be shared with other GGWI countries who will be piloting different or complementary methodologies and tools. Together with CI project, this project will provide GEF opportunity for focal area learning which will feed future GEF investments on SLM.

The current project will assess all the variosu efforts related to information management and assessment of LD and SLM in Africa and in other parts of the world including Europe and USA. The project will favour emergence of scientific platforms on SLM and agreed approaches, tools and methodologies for monitoring progress on land degradation issues including evaluating the impacts of long-term investments in SLM, or on using data and assessments to guide SLM policies and investments. Some of the linkages of the baseline initiatives and the related outputs of the project that will collate and upscale the information is listed below:

Baseline Initiative	**Scope of Initiative**	**Relevant Project Outputs**
UNEP Desert Atlas for Africa	Mapping of African deserts and other information to help guide policy	1.1.1
The Building Resilience through Innovation Communication and Knowledge Services (BRICKS)	Knowledge sharing and monitoring services; mapping of land and water resources and changes; carbon modelling; inter-agency GIS, network and capacity building; regional data platform; etc.	1.1.1, 1.1.2, 2.1.1, 2.2.1, 2.2.2
The Sahara and Sahel Observatory (OSS)	Mapping of land cover, natural resources, etc. and dissemination of data through web portals and atlases	1.1.1, 2.2.2
Monitoring for Environment and Security in Africa (MESA)	Capacity building of institutions for environmental monitoring, and information services to improve decision-making	1.2.2, 2.1.1, 2.2.1
The African Forest Landscape Restoration Initiative (AFR100)	To bring 100 million hectares of land in Africa into restoration by 2030.	1.1.1, 1.2, 1.1.3,
The TerrAfrica Resilient Landscape Initiative	Support innovative solutions to sustain landscapes, address land and water degradation and adapt to a changing climate	1.1.1, 1.1.2, 1.1.3,
ELD-UNEP	Studies of costs/benefits of addressing LD, and on current status / trends for LD	1.1.2, 1.1.3
The European Space Agency (ESA) initiative EO4SD - Earth Observation for Sustainable Development	Training in use of satellite information	1.1.1, 2.2.1
NASA Initiative in the Great Green Wall Countries	Satellite imagery	1.1.1
The French National Research Institute for Sustainable Development (IRD)	Agriculture and LD research; satellite imagery	1.1.1, 1.1.3
The program SERVIR West Africa: Connecting Space to village	Geospatial information	1.1.1
The United Nations Economic Commission for Africa (ECA)	Geospatial information policies, capacity building and data repository	1.1.1
The UNEP Global Environment Outlook (GEO-6)	Environmental information management to support decision-making	1.1.3, 2.2.2

***6. Consistency with National Priorities*.** Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes ☒ /no☐). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The project will contribute in bridging the knowledge gaps and science priorities as established in National Action Programs to Combat Desertification and in National GGWI strategies, which are closely aligned with the 10-Year Strategy of the UNCCD. It will contribute to strengthening implementation of National voluntary LDN targets as established under the GEF-funded LDN Target Setting Initiative. The project also address also gaps related to lack of scientific monitoring tools of the Land Degradation identified at the first GGWI meeting in Dakar, 2016. The project will also contribute to understanding the potential synergies between the Rio conventions and will provide evidence to support identification of

low-cost options for simultaneously addressing concerns of land degradation, biodiversity conservation and climate change. Evidence generated by the project will be available to influence revision of LDN Voluntary National targets, NAPs, NAPAs and NBSAPs, as well as evolving GGWI strategies at the national and regional level.

7. 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 [13]GEF has been investing in specialized Knowledge and Learning Projects in several focal areas, developing knowledge hubs and platforms, communities of practice, distance learning and information sharing tools to facilitate learning and knowledge uptake globally. This project will be another contribution to the knowledge development and sharing. The project is collating information and setting up the necessary platforms for SLM tools and to guide future investments and monitor the impacts of those investment on ecological and socioeconomic conditions... The project will learn from the experience of the GEF financed BRICKS project as well ensuring complementarity with GEF/CI project on remote sensing for SLM. The project will capitalize on the achievements of the above mentioned projects through consideration of lessons learned and further consultations with the project teams. The focus of such extraction of lessons learnt will in particular be on the comparing tools and methodologies for assessing, monitoring and capacity building on SLM. The knowledge to be generated and managed by the project will respond to identified needs and demands, will comply with the capacities and resources of the participating stakeholders, to assess land degradation trends and impacts monitoring and the lessons learnt from countries' experiences.

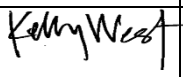
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT[14] OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this SGP OFP endorsement letter)

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
N/A	N/A	**N/A**	**N/A**

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies[15] and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date *(MM/dd/yyyy)*	Project Contact Person	Telephone	Email
Kelly West UN Environment/GEF Coordinator Portfolio Manager Corporate Services Division UN Environment		June 6, 2017	Adamou Bouhari Task Manager, Biodiversity / Land Degradation UN Environment West Africa Sub regional Office	+225 52 11 37 01	adamou.bouhari@unep.org

[13] https://www.thegef.org/topics/knowledge-learning

[14] For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

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

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required **GEF Project Agency Certification of Ceiling Information Template** to be attached as an annex to the PIF