GEF-8 PROJECT IDENTIFICATION FORM (PIF)

TABLE OF CONTENTS

General Project Information

Project Title
CSIDS SOILCARE Phase 2 - Caribbean Small Islands Developing States (SIDS) multi-country soil management initiative for integrated Landscape Restoration and climate-resilient food systems

Region	GEF Project ID
Regional	11390
Country(ies)	**Type of Project**
Regional Antigua and Barbuda Bahamas Barbados Belize Dominica Grenada Guyana Haiti Jamaica St. Kitts and Nevis St. Lucia St. Vincent and Grenadines Suriname Trinidad and Tobago	FSP
GEF Agency(ies):	**GEF Agency ID**
FAO	745187
Executing Partner	**Executing Partner Type**
PISLM	Others
GEF Focal Area (s)	**Submission Date**
Land Degradation	10/17/2023

Project Sector (CCM Only)

Taxonomy
Focal Areas, Land Degradation, Land Degradation Neutrality, Carbon stocks above or below ground, Land Productivity, Land Cover and Land cover change, Strengthen institutional capacity and decision-making, Influencing models, Stakeholders, Private Sector, Individuals/Entrepreneurs, SMEs, Beneficiaries, Indigenous Peoples, Civil Society, Academia, Community Based Organization, Non-Governmental Organization, Trade Unions and Workers Unions, Local Communities, Communications, Education, Strategic Communications, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Gender results

areas, Capacity Development, Awareness Raising, Access and control over natural resources, Knowledge Generation, Capacity, Knowledge and Research, Theory of change, Learning, Knowledge Exchange, Innovation

Type of Trust Fund	Project Duration (Months)
GET	60
GEF Project Grant: (a)	GEF Project Non-Grant: (b)
17,968,099.00	0.00
Agency Fee(s) Grant: (c)	Agency Fee(s) Non-Grant (d)
1,617,117.00	0.00
Total GEF Financing: (a+b+c+d)	Total Co-financing
19,585,216.00	26,500,000.00
PPG Amount: (e)	PPG Agency Fee(s): (f)
299,995.00	26,990.00
PPG total amount: (e+f)	Total GEF Resources: (a+b+c+d+e+f)
326,985.00	19,912,201.00

Project Tags

CBIT: No NGI: No SGP: No Innovation: No

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”.(max. 250 words, approximately 1/2 page)

Land and soil degradation continues to be a major environmental concern and issue in Caribbean Small Island Developing States (CSIDS), hence these countries commitment to honouring their obligations under the UNCCD Convention, including their endorsement of the vehicle—Land Degradation Neutrality (LDN)—agreed to by the international community at the UNCCD COP 12 in Ankara, Turkey, 12 – 23 October, 2015, for contributing to the achievement of SDG 15.3. Closely related is the issue of food security which was underscored as a major area of concern by the COVID-19 pandemic. This concern is independent of the impact of climate and the need to embrace and apply scientific and technological options to address land and soil degradation in CSIDS.

SOILCARE Phase I provides the basic but solid foundation for enhancing CSIDS capability to address land and soil degradation, including setting the basis for operationalizing Land Degradation Neutrality; SOILCARE Phase II will extend its scope to include the other CSIDS not involved in Phase I, so that all CSIDS are brought on par with each other. In so doing, CSIDS SOILCARE Phase II will have the following objectives:

i. The Updating of Soil Information and Data as a Basis of Strengthening Sustainable Soil Management (SSM), Sustainable Land Management (SLM) and Land Degradation Neutrality (LDN) in Caribbean Small Island Developing States (CSIDS).

ii. The design and implementation of strategic interventions in CSIDS for addressing the rehabilitation of Degraded Lands in Support of the Attainment of Land Degradation Neutrality (LDN).
iii. Strengthening Capability of CSIDS to manage Soil, Land and Land Resources and Water to combat Drought and Flood through Land Degradation Neutrality.
iv. Undertake the baseline work for the preparation of a Regional LDN Transformative Initiative
v. Strengthening the Scientific and Technical Infrastructure and Capacity of CSIDS to enhance sustainable and climate resilient soil and land management for LDN and food security.

CSIDS-SOILCARE Phase II will be implemented in the fourteen GEF-eligible English/French CARICOM countries and will be multi sectoral in scope. The program will (i) restore 28,000 ha of croplands, rangelands and forests in the target countries, (ii) improve management of nearly 70,000 ha of land under improved practices, including in productive landscapes, and (iii) benefit at least 6,900 famers directly (including 2,760 women). It is intended to be both innovative and transformative, through a multiscale approach that combines regional aspects with a range of sub-national characteristics, providing multiplied paths for impact. Its transformative vocation is evident from its strong knowledge sharing component, designed to reach a wider cross-section of stakeholders across multiple scales, aiming to foster behavioural change towards SSM and SLM. Regional policy spheres are also targeted, improving the enabling environment for wide implementation of SSM and SLM for LDN, while encouraging the elimination of incentives to unsustainable management. The transformative character of CSIDS-SOILCARE Phase II is also seen in the aim to improve the financial environment for a widespread adoption of SSM and SLM.

Indicative Project Overview

Project Objective

To improve livelihoods, increase climate resilience of food systems and effectively restore lands in the Caribbean by applying principles of sustainable soil and land management

Project Components

1. Updating soil information and data as basis for a strengthened decision making on LDN and resilience to climate change impacts

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
1,145,372.00	1,799,000.00

Outcome:

1.1 Caribbean countries have improved capacity to monitor and report on LDN, including the use of soil data to make informed decisions and contribute to regional and global soil and climate knowledge systems

Indicators:

- Number of countries using the Decision Support System for land use planning and reporting

Output:

1.1.1 For countries not included in SOILCARE I, National Soil Laboratories assessed and strengthened in accordance with GLOSOLAN standards and integrated as part of the Caribbean Soil Laboratory Network (CARLAN),

1.1.2 For countries not included in SOILCARE I, National soil data, including soil organic carbon, reviewed and updated, supported by integrated field sampling, laboratory analysis and digital soil mapping, and available for local, national and regional decision making and international reporting

1.1.3 SOILCARE II countries integrated within Regional and Global Soil Information Systems (CARSIS, SISLAC and GLOSIS)

1.1.4 Land monitoring and information Decision Support System incorporating soil information developed for all SOILCARE II countries in order to support decision-making at all levels

2. Rehabilitation of degraded lands prioritized through national land degradation neutrality target setting process (LDN-TSP) to achieve land degradation neutrality (LDN):

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
6,872,237.00	10,793,000.00

Outcome:

2.1 Small scale farmers & other stakeholders in Caribbean countries implement selected proven interventions to avoid, reduce and reverse land degradation to achieve LDN

Indicators

- CI3. 28,000 ha of croplands, rangelands and forests restored

- CI4: 70,000 ha of landscapes under improved practices

-CI11: 6,900 direct beneficiaries from GEF interventions

Output:

2.1.1 SSM and SLM best practices piloted in forest, rangeland and cropland demonstration sites of the implementation areas, in support of soil health and LDN

2.1.2 Agricultural inputs (fertilizers and pesticides) optimized (minimized) in the project's demonstration sites, including the use of recycled/reused sources of fertilizers

2.1.3 Participatory gender-inclusive, and context-specific strategic land management plans produced for the implementation areas and integrated into national Decision Support Systems (DSS)

3. Strengthening CSIDS capability to combat flooding and drought through soil, land, and water management for LDN

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
4,308,805.00	6,296,000.00

Outcome:

3.1. Enhanced integrated land planning strategies based on SLM and SSM to reduce flood and drought risks and for mitigation are available to Governments and stakeholders in Caribbean countries

Indicators

- Number of hectares with improved drought/flood management capacity

Output:

3.1.1. Caribbean Drought and Precipitation Monitoring Network (CDPMN) strengthened, including gender considerations

3.1.2. Capability to Develop and Grow Drought-tolerant Landraces for selected crops enhanced

3.1.3. Drought and flood risk reduced and resilience increased through soil recarbonization in the six Pilot Landscape and Watershed Areas (PLWA).

3.1.4. Capacity for national scale land planning for drought and flood risk reduction strengthened and plans piloted at six Pilot Landscape and Watershed Areas (PLWA)

3.1.5. Sub-regional Drought and Flood Smart Land Management Strategy (DF-SLMS) designed, including the strengthening of the forecasting and Early Warning Systems at national and regional scales

4. Enhancing Food Systems and Alternative Livelihoods supported by transformative financial systems that involves the private sector

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
2,290,745.00	3,597,000.00

Outcome:

4.1. Governments and stakeholders in Caribbean countries leverage innovative financing of SSM and SLM based production for LDN and climate resilience through the development of LDN Transformative Mechanism

Indicator

- Funds mobilized and allocated to the LDN-TFM

- Number of beneficiaries (disaggregated by gender) that receive funds from the LDN-TFM, per year

Output:

4.1.1. LDN Transformative Funding Mechanism to promote SSM and SLM practices among farmers capitalized

4.1.2. Investments in SSM, value chain improvement and alternative livelihood initiatives piloted, specifically focused on youth and with gender perspective

4.1.3. Investment plans, including context-specific participatory approaches and youth focused initiatives, formulated

5. Enhancing scientific and technical capacities, strengthening knowledge management and mainstreaming SSM/SLM in policy in support of LDN

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
2,168,447.00	2,158,000.00

Outcome:

5.1. The scientific, technical and knowledge-transfer capacity of CSIDS for SSM and SLM-based innovations in agriculture is enhanced in support of LDN at the national and regional scales

Indicator

- Knowledge Management program supports effective program implementation

5.2. The LDN approach is mainstreamed in relevant regional policy frameworks as a cross-cutting intersectorial principle

Indicator

-Number of regional policies integrating SSM/SLM

Output:

5.1.1. Innovations in Agriculture Systems essayed by the RAC/NAT Facility

5.1.2. Capacity development program for LDN-focused and SSM/SLM based innovations in agriculture targeting producers, extension services, all educational and academic levels, scientific and technical staff and policy makers in Caribbean countries, designed (including gender dimensions) and implemented

5.1.3. Youth Innovation Agricultural Development Initiative Designed and Operational

5.1.4. Knowledge and information management improved through networks established in phase I and collaboration with the SIDS- SIDS Green-Blue Economy Knowledge Transfer Hub enhanced

5.2.1. Caribbean Soil Support Group for SSM/SLM expanded to Include all SOILCARE Phase II countries and collaboration enhanced with the Latin American and Caribbean Soil Partnership (ASLAC) and UNCCD focal points

5.2.2. Consensus reached at the regional-level policy spheres on the integration of the LDN framework and related SSM and SLM in relevant policy and normative frameworks.

5.2.3. SSM and SLM integrated into key regional policies and programmes

M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
378,965.00	595,000.00

Outcome:

Output:

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
1. Updating soil information and data as basis for a strengthened decision making on LDN and resilience to climate change impacts	1,145,372.00	1,799,000.00
2. Rehabilitation of degraded lands prioritized through national land degradation neutrality target setting process (LDN-TSP) to achieve land degradation neutrality (LDN):	6,872,237.00	10,793,000.00
3. Strengthening CSIDS capability to combat flooding and drought through soil, land, and water management for LDN	4,308,805.00	6,296,000.00
4. Enhancing Food Systems and Alternative Livelihoods supported by transformative financial systems that involves the private sector	2,290,745.00	3,597,000.00
5. Enhancing scientific and technical capacities, strengthening knowledge management and mainstreaming SSM/SLM in policy in support of LDN	2,168,447.00	2,158,000.00
M&E	378,965.00	595,000.00
Subtotal	**17,164,571.00**	**25,238,000.00**
Project Management Cost	803,528.00	1,262,000.00
Total Project Cost ($)	**17,968,099.00**	**26,500,000.00**

Please provide justification

None required

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Global environmental and/or adaptation problems, root causes and barriers

1. Small Island Developing States (SIDS) are a special case both for environment and development (Agenda 21, 17G). They are ecologically fragile and vulnerable. Caribbean SIDS (CSIDS) are no exception. Critical environmental issues faced by these countries include, inter alia; land and soil degradation. Land degradation, which varies in scope and extent from country to country and within each country, notwithstanding the similarities in the main causes. An important driver influencing land and soil management decision in the participating countries is the impact of extreme events, including those associated with global climate change; particularly, hydro-meteorological disasters (e.g., hurricanes, tropical storms and the consequential flooding issues, drought etc.) that pose a moderate to high potential risk to project activities because of their potential increase in frequency and intensity.

2. With respect to drought, CSIDS have re-occurring periods of prolonged shortages in rainfall which have caused significant distress to populations and damage to the economy of several of the participating countries. With droughts becoming more frequent in the Caribbean, agriculture will be one of the sectors seriously impacted, since most of the crop production is rainfed and livestock production dependent on rainfall for forage production and animal sustenance.

3. Within the overall goal of assisting CSIDS to creating an enabling environment for their transformation to achieving LDN, SOILCARE II will build on the infrastructure established by SOILCARE I, on the one hand, while addressing the concerns of Non-SOILCARE I participating countries, on the other hand, to ensure that all CSIDS by the end of the implementation of SOILCARE II are on the same sustainable land and soil development trajectory. It also includes the use of sustainable, resource efficient, low external input techniques and the promotion of climate resilient varieties to enhance agricultural production, thereby contributing to the region's food security situation, which have become a serious area of concern, post COVID-19. The application of smart, integrated land and water management provides a cost-effective, long-term solution to water scarcity, drought and pollution. These sustainable land –based approaches, when coupled with ecological farming practices, will help create soils rich in organic matter, with better capacity to conserve water in the root zone and increased water use efficiency.

4. One of the weaknesses which were highlighted during the COVID-19 pandemic is the fragility of CSIDS food security provisions. This in turn has underscored the need for the better use of land and land resources in CSIDS to address this issue. Decision 8 on the Environmental Dimension of the Sustainable Development of Small Island Developing States (SIDS) of the XXII Meeting of the Forum of Minister for Latin America and the

Caribbean calls for "[…] the development of a Caribbean SIDS COVID-19 Recovery Response to address issues relevant to the economic health of Caribbean SIDS, including, inter alia, protocols to support sustainable tourism recovery; and enhancing food security through the sustainable use of land and marine resources."

5. The issue of food security was also addressed by the Thirty-Second Intersessional Meeting of the Conference of Heads of Government of the Caribbean Community (CARICOM) held virtually on 24-25 February 2021 which acknowledged that the situation of food security in the Caribbean Community remained a major challenge, now exacerbated by the COVID-19 pandemic. They noted issues with accessibility to healthy foods, disruptions in production and productivity and to global supply chains, as well as vulnerability to climate change and barriers to intra-regional trade. They also noted that the Region's food import bill continued to rise and called for more investment in agriculture and food production as well as endorsed the development of the agri-food system strategy through strategic partnership with regional private sector bodies to promote commercialization of the sector and supported the implementation of policy recommendations, in this regard. The concerns about the region's food security subsequently led to the agreement of the Head of Government of the Caribbean Community to launch the 25% by 2025 Initiative, a strategy aimed at reducing the Region's large food import bill.

6. To address issues relating to land and soil degradation in CSIDS requires a comprehensive and integrative investment programme, for which CSIDS have conceptualised the GEF intervention entitled "Caribbean Small Island Developing States (SIDS) Multicounty Soil Management Initiative for Integrated Landscape Restoration and Sustainable Food Systems" of which this project represents, Phase II (CSIDS-SOILCARE Phase II). Closely associated is also the need for the integration of climate resilience in Sustainable Soil Management (SSM) and Sustainable Land Management (SLM) and by extension all land management interventions. So is, as well is the need to develop climate resilient adaptation technologies for application, particularly, by small farmers in CSIDS.

7. Six Caribbean Small Island Developing States (CSIDS)—Antigua and Barbuda, Barbados, Grenada, Haiti, Jamaica and Saint Lucia, together with Guyana and Belize (mainland states) committing to implementing LDN under the guidance of the Partnership Initiative on Sustainable Land Management (PISLM) for Caribbean SIDS High Level Ministerial Body (PISLM/HLMB), approached the implementation of SDG 15.3 using allocations from their respective countries GEF-7 STAR allocation under the project - *Caribbean Small Island Developing States (SIDS) Multicountry Soil Management Initiative for Integrated Landscape Restoration and Sustainable Food Systems: Phase 1 (CSIDS-SOILCARE Phase 1)*. The countries in CSIDS-SOILCARE Phase 1, reconfirmed their commitment to Sustainable Soil Management (SSM) and Sustainable Land Management (SLM) and committed to engage in further work using their GEF-8 STAR allocation while six other countries of CARICOM, Bahamas, Commonwealth of Dominica, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, formally endorsed the initiative and agreed to also allocate part of their GEF-8 STAR allocation.

8. Target 15.3 stipulates that *by 2030 combat desertification, restore degraded lands and soil, including land affected by desertification, drought and floods and strive to achieve a land degradation-neutral world.* Target 15.3 therefore places SSM, SLM at the heart of consideration of climate change mitigation and

adaptation, biodiversity conservation, ecosystem restoration, food and water security, disaster risk reduction and poverty reduction. The vehicle for achieving Target 15.3 is the promotion of Land Degradation Neutrality (LDN), a process which CSIDS have taken very seriously as exemplified by the fact that all CSIDS have completed their Land Degradation Neutrality Target Setting Programme (LDN-TSP).

9. LDN is a relatively new concept, which like other Member States of the Conference of the Parties (COPs) United Nations Convention to Combat Desertification (UNCCD), CSIDS have adopted as the conceptual framework for addressing land degradation. It is designed to be flexible, and as such, is applicable to all land uses, including land managed for production (agriculture, forestry); land managed for conservation (protected areas) and land occupied by human settlements and infrastructure. However, the integration of LDN in national and regional policy frameworks requires specific information on several parameters (e.g., soil organic carbon etc.). Despite establishing their voluntary LDN targets, the process in CSIDS has been constrained, to some extent, with the lack of availability of information on soil organic carbon, a critical parameter for LDN.

10. Comprehensive available soil data for the Caribbean is restricted to the 1950-70s soil surveys, with only a few countries having digitized or updated this information using georeferenced samples, and as such, that supporting analytical data cannot be readily used. Analytical data supporting geospatial distribution of soils is also outdated rendering it practically unusable. This is a significant limitation to national planning processes as well as international commitments to conventions and agreements. Soil organic C is an indicator of soil quality, land quality and climate change for the Global Soil Partnership (GSP), UNCCD and UNFCC processes respectively. Activities involving soil C mapping in the Caribbean that were organized by the GSP in 2017-18 to prepare a first global soil carbon map with country inputs resorted largely on the use of global datasets and modeling to categorize these SIDS due to lack of accessible data. Similarly, the LDN-TSP process also relied on Tier 1 global data to establish baseline changes in SOC, which does not in most cases present a true picture of the actual situation in the region. The methodologies required for country analysis and mapping and for the definition of NDCs in the countries include both total SOC and SOC sequestration potential, to provide a more accurate picture for LDN assessment and monitoring.

11. Although a significant amount of research and development has been conducted on soils of the Caribbean, a large part of it has been project driven, resulting in fragmentation and low accessibility. In addition, Caribbean countries are limited in their capacity to manage a transformation from degrading land use systems to sustainable soil and land management at scale, by the absence of a guiding soil policy. A robust policy framework on soils as well as monitoring and evaluation tools are required by each country as a basis for LDN implementation. Furthermore, institutional technical capacity is very limited; most countries do not have a qualified soil scientist/ physical land management expert within the public service, which limits national programme development.

Land Degradation Status and Trends

12. Land degradation is an ongoing phenomenon in each of the participating countries, though its scope and extent vary, from country to country and within each country, notwithstanding there are similarities in the main causes among the countries. Drivers of land degradation and barriers to SLM in the region include overexploitation of forest resources and expansion of agriculture in accessible areas; improper use of fertilizers and other agro-chemicals; inadequate soil and water management at a scale for sustaining soil functions and related ecosystem services; unsustainable forestry and agricultural systems, including logging, cropping and livestock management practices, as well as mining, and settlement expansion. Belize for example has lost more than 770,000 acres of forest since 1980 with an average deforestation rate of 0.6% per year. In the period 1980 – 2010 and between 2010 and 2012 increased to close to 1% per year (CATHALAC and University of Belize Environmental Research Institute, 2012). There is a direct risk of erosion, soil structure deterioration, soil fertility loss, hydrological impacts, as well as loss of biodiversity and forest resources, from deforestation and other land cover conversions. The main causes of degradation include: farming on land classified as marginal or unsuitable for agricultural activity which is estimated to be about a third of the 1 million acres of agricultural land, most of which more than 33% is on acidic soils particularly sensitive to land degradation; almost 10% is on steep slopes prone to erosion – mainly in central Belize (e.g. along Hummingbird Highway); with 4% is located in areas at extreme risk of erosion and leaching of nutrients during intense rainfall events. In Antigua and Barbuda, Grenada and Saint Lucia due to the abandonment of former agricultural lands, most of the land is left fallow, leaving these open to threat from urban expansion and squatting. These lands fall victim to unsustainable farming practices, poor watershed management, soil and sand mining, uncontrolled grazing by livestock, the competition for, and allocation of beach front land, particularly for tourism development and bush fires. Degradation of these lands are further exacerbated by the adverse impacts of climate change including re-occurring drought, intense rains and storms which further affect agriculture productivity and increase the risk of natural disasters.

13. According to the United Nations Development Programme, and based on the first comprehensive assessment of the consequences of projected Sea Level Rise (SLR) and storm surge leading to coastal inundation (+1m to +6m) for the people and economies of the 15 CARICOM nations; it is concluded that Caribbean will be affected more seriously by SLR than most areas of the world; SLR in the northern Caribbean may exceed the global average by up to 25%. In addition, the impacts of tropical storms and hurricanes on coastal areas, even at present intensity and frequency, will be compounded by SLR. The impacts of SLR will not be uniform among the CARICOM nations, with some projected to experience severe impacts from a 1 metre SLR. In nations where low lying-land is extensive and who are therefore more exposed to the impacts of SLR and storm surge, concerns are of damage to agriculture, industry and infrastructure as well as saltwater penetration into the groundwater reservoirs. In nations with steep sloped coasts fronted by only a narrow strip of low-lying land, the main concerns are landslides, beach erosion and disruption to infrastructure that is concentrated in limited flat land areas. Damage to mangroves and seagrass beds is of concern, especially since these areas are of importance in coastal protection as well as fishery resources. These impacts also contribute to reduced water retention in the soil and poor water quality from high sediment load and pollution by agrochemicals used in modern agriculture. As a result, it is common in the region, for as much as a mile seaward of the shoreline coastal waters being discoloured by sediment after intense, short showers. These impacts and changes mean that much more needs to be done in terms of coastal protection and in the planning of coastal development. Addressing climate and mainstreaming climate resilience in the project activities is therefore a priority for all the participating countries.

14. With respect to hydro-meteorological disasters, they are expected to increase in frequency and intensity. These hydro-meteorological disasters include hurricanes, tropical storms and the consequential flooding issues. In terms of hurricanes, apart from Guyana, Suriname and Trinidad and Tobago all other participating countries in the project have a high probability of being affected annually by hurricanes and tropical storms. Haiti because of its location in the Caribbean Sea coupled with its fragile and denuded landscape makes it highly vulnerable to torrential rains. This was the case on May 23-24, 2004, where extensive flooding was experienced which, washed away entire villages resulting in a death toll of approximately 2,400 people (University of Fondwa, 2018) and forced tens of thousands of people to abandon their homes. In September of the same year (2004), Haiti again was affected by two hurricanes, Ivan and Jeanne, which caused significant damage. On October 3rd and 4th 2016, Haiti was struck by Hurricane Matthew, a Category 4 hurricane, the strongest storm to hit Haiti since 1964, which caused a catastrophic amount of damage to the country's infrastructure and agricultural industry, while killing over 600 people (some estimates are over 1,000) and displacing tens of thousands and causing an estimated damage of US $1.9 billion. Between August and September of 2008, Haiti was repeatedly hit by several tropical storms and hurricanes—Fey, Gustav, Hanna, and Ike—each system compounding the damage left by the previous one. Hurricane Ike which impacted the western coastline of Haiti, causing heavy rains and flooding, killed approximately 800 people and caused an estimated property damage of US$8 billion, excluding the extensive agricultural damage experienced throughout the country.

15. With reference to drought, the Caribbean region has also been particularly vulnerable to this hazard. Over the past several years, the region has experienced re-occurring periods of prolonged shortages in rainfall which have caused significant distress to populations and damage to the economy of several of the participating countries. According to the Food and Agriculture Organization (FAO), the Caribbean accounts for seven of the world's top 36 water-stressed countries of which Barbados is in the top ten. FAO defines countries like Barbados, Antigua and Barbuda, and St. Kitts and Nevis as water-scarce with less than 1000 m^3 freshwater resources per capita. With droughts becoming more frequent in the Caribbean, agriculture will be one of the sectors seriously impacted, since most of the crop production is rainfed and livestock production dependent on rainfall for forage production and animal sustenance. This will indeed impact negatively on the livelihoods of farmers and socioeconomically on farming communities. The ongoing transformation of agricultural production from rainfed to the use of irrigation will in many instances increase demand and thus competition amongst agricultural, industrial and domestic users for this limited resource.

16. The rural poor are disproportionally affected by these issues due to difficulty accessing water and by the consequential higher agri-food prices. The recent drought of 2015-2017 affected approximately 200,000 families (1 million people) in Haiti, especially in Sud-Est, Nord-Ouest and Artibonite regions. Expensive, desalinated water resources account for as much as 70 percent of drinking water in Antigua and Barbuda. Even in Guyana, a country renowned for its water resources, the damage from the 1997/1998 drought was estimated to be approximately US$ 29 million due to decreased outputs in the agricultural sector: rice production decreasing by 37 percent and sugar by 7 percent and 40 percent in the mining sector as result of the unavailability or limited sources of water. Drought like conditions were again experienced in Guyana from May 2009 to February 2010; from September 2012 to January 2013 and most recently from early 2015 into 2016. The possibility for disasters occurring places increasing strain on the limited national and regional technical and financial resources and the region's ability to respond in an effective manner to the needs resulting therefrom.

17. CSIDS-SOILCARE Phase 1 was designed to address these challenges: the lack of up-to-date information on soil resources and the inability to locate existing information on soils; the limited awareness and technical capacity in sustainable soil and land management; and the lack of supporting legal and institutional structures for LDN, in 8 Caribbean countries.

18. Building on that, CSIDS-SOILCARE Phase 2 will bring 6 new Caribbean countries to the initiative, which will participate in activities to address the barriers identified in Phase I. In addition, CSIDS-SOILCARE Phase 2 is aimed at addressing climate challenges from an LDN approach, this way taking and integrative strategy that considers a system's perspective for halting land degradation and implementing measures for facilitating its uptake.

19. Barriers to be addressed under this project are:

- *Limited Soil Information and Data Fragmentation:* In most Phase II countries this is a major constraint which hinders LDN target setting and decision-making for sustainable, climate resilient land use, the assessment of soil carbon sequestration and CO2 mitigation (UNFCCC) as well as the Aichi targets (CBD) in relation to soil biodiversity. Knowledge of soil characteristics and properties (agricultural and engineering) are key inputs for assessing watershed behavior, land use suitability, erosion and landslide risk analysis, however, in most of the participating countries, soil information is seriously lacking and is hindering data to guide long and short-term development and investment decisions. In most of the participating countries comprehensive soil surveys were last conducted in the 1950's and 1960's. In addition, most of the information on land aspects is not publicly available, not digitized, existing databases are not harmonized, and information does not flow between them, thus hindering meaningful decision making.

- *Limited adoption of SSM/SLM and low capability for implementation and integrated land planning for LDN:* Recognising that LDN is not the simple implementation of sustainable land management practices, but rather provides a framework for a balanced approach which considers trade-offs and anticipates new degradation, planning is needed a bridge between land policies and healthy land, in order to for achieve no net loss of land-based natural capital. While, in the Caribbean countries, there is some level of familiarity with planning aspects among technical specialists who are working with farmers and stakeholders in the field, their technical capacity is not adequate. Closely related is the general lack of technical knowledge on how to transition current agricultural systems to incorporate non-technology based SLM and be more resilient to climate change. Protocols, technical resources and methodologies to avoid, reduce and reverse land degradation, including the incorporation of nature-based solutions, are mostly unavailable and seldom applied. Demonstration of SSM/SLM approaches within integrated land planning are needed to provide those capacities, as well as in terms of fostering behavioural change among stakeholders towards the adoption of sustainable practices, through multi-stakeholder gender and age-sensitive participatory processes. Indigenous technologies for agriculture and the management of natural resource need to be considered in the planning processes.

- *Weak Capability to Address the Climate Hazards of Flooding and Drought and Related Land Degradation:* The hazard, severity and impacts of flood and drought are exacerbated by different forms of land

degradation including, deforestation, and unsustainable water and soil management. The application of the LDN approach at the landscape level under this project will allow drought and flood risk management to be addressed from the angle of natural resources management, with an emphasis on reducing risk (to people, economies and the environment) and on building resilience, seeking opportunities to work with natural processes and promote multiple benefits across a range of sectors. In addition, this is aligned with the priorities of the Sendai Framework for DRR, namely: understanding risk; strengthening governance to manage risk.; investing in risk reduction for resilience; and enhancing preparedness for effective response. The projects' LDN based approach to climate risks also contributes to environmental benefits in other focal areas.

- *Lack of and economic context and financial instruments that encourage and incentivize the adoption of SSM/SLM, including proactive planning to address changes in the international trading regime and its implications in the productive landscape*: This area remains extremely weak in the participating countries. The removal of preferential access by Caribbean SIDS to protected European markets over the past fifteen or so years has had significant economic and social impacts as well as on the scale and extent of the character of the productive landscape. This is particularly evident with productive lands which were once used for sugar and banana cultivation. These once productive lands are under threat from a number of sources including abandonment and land degradation, unplanned conversion into human settlement and lack of effective use and management. The adoption of SSM and SLM practices can be onerous in the short-term, particularly for smallholder farmers. Therefore, strategies that encourage investment from stakeholders and reduce the risk of adoption must be put in place in order to upscale the LDN approach at national and regional scales. The youth is particularly vulnerable to financial strains, so specific actions must be addressed to them, at the same time enhancing the generational renewal in agriculture.

- *Limited enabling environment:* One of the key barriers to addressing land degradation effectively at a regional scale is the inadequate enabling environment for the generalized adoption of SSM and SLM and implementation of the LDN approach, from the perspective of weak institutional frameworks, lack of cross-cutting integration of LDN —and, subsidiarily, of SSM and SLM— in policy and legal frameworks, limited knowledge management infrastructures and networks and insufficient human capacity for technical and innovation:

  - *Weak and Fragmented Institutional and Legal Frameworks for LDN at the national level:* The fragmentation which exists between government agencies—agriculture, forestry, mining, and the environment—whose mandated activities have direct and indirect impacts on land and soil use and its management, results in inconsistencies in policies, regulations, programs and actions on the ground. There is, therefore, a need for the development of a common strategic SLM vision and agenda across the various sectors such as agriculture, land survey and planning, water, forest, environment, health sectors as well as private sector investors and NGOs for sustaining soil resources and associated ecosystem services for future generations. In this regard, there is growing recognition that the synergetic implementation of the Rio Conventions—Desertification, Climate Change and Biological Diversity—is necessary for maximum and effective delivery of outputs, particularly with respect to their mainstreaming into the productive sectors, poverty reduction programmes and integrated food security and development strategies for rural and urban populations.

  - *Lack of sufficient integration of SLM issues practices and processes in the Caribbean Community Policy and decision making frameworks:* A major barrier confronting the

participating countries is the lack of sufficient appreciation of the importance of SLM including soil management to national and regional development and their integration into national and in particular, Regional Policy (e.g. Draft Community Environment and Natural Policy Framework, Community Agricultural Policy etc.) and Decision making Organs (e.g. The Conference of the Heads of Government, Council on Trade and Economic Development (COTED) etc.), whose Decisions reflect the will of the Community. This project will continue to support PISLM and its High-Level Ministerial Body and the Decision-Making Organs of the Community.

– *Insufficient trained human resources in key areas, such as Soil Science and Agriculture Innovation for Climate Smart and Sustainable Agriculture:* In terms of human resources, there is a paucity of practising soil scientists as well as being trained and/or working in soil science and management in the participating countries and the region as a whole. Yet soil is a critical resource for food, fodder and pasture and tree crops and forestry. Soil and water management expertise is critical in sustaining soil health and productivity through managing soil constraints and addressing climate change and variability, for coping with unreliable rainfall, drought and excess rainfall, sequestering carbon and reducing GHG emissions. There is also growing recognition that in the advent of changing climate, the need exists to equip resources users (e.g. farmers etc.) with tools and methods to enable the adoption of Climate Smart Agricultural practices—defined by FAO as agriculture that sustainably increases productivity, enhances resilience (adaptation), reduces/removes GHGs (mitigation) where possible, and enhances achievement of national food security and development goals," as well as to enhance the sustainable supply chain with regard to production, processing, and demand for key agricultural products produced by Climate Smart Agriculture.

– *Lack of integration of SSM/SLM aspects and their Importance to National and Regional Development in Public Education*: here is not a sustained Public Education programme to enlighten policy makers, resource managers, and the general public in the individual participating countries, and regionally, of ecological processes and their links to socio-economic wellbeing, in particular, with respect to food security. This project will continue to support these issues.

20. Caribbean Small Island Developing States (SIDS) Multicountry Soil Management Initiative for Integrated Landscape Restoration and Sustainable Food Systems: Phase 2 (CSIDS-SOILCARE Phase 2) will therefore focus on:

i. The Updating of Soil Information and Data as a Basis of Strengthening Sustainable Soil Management (SSM), Sustainable Land Management (SLM) and Land Degradation Neutrality (LDN) in Caribbean Small Island Developing States (CSIDS).
ii. The design and implementation of strategic interventions in CSIDS for addressing the rehabilitation of Degraded Lands in Support of the Attainment of Land Degradation Neutrality (LDN).
iii. Strengthening Capability of CSIDS to manage Soil, Land and Land Resources and Water to combat Drought and Flood through Land Degradation Neutrality.
iv. Undertake the baseline work for the preparation of a Regional LDN Transformative Initiative
v. Strengthening the Scientific and Technical Infrastructure and Capacity of CSIDS to enhance sustainable and climate resilient soil and land management for LDN and food security.

B. PROJECT DESCRIPTION

Project description

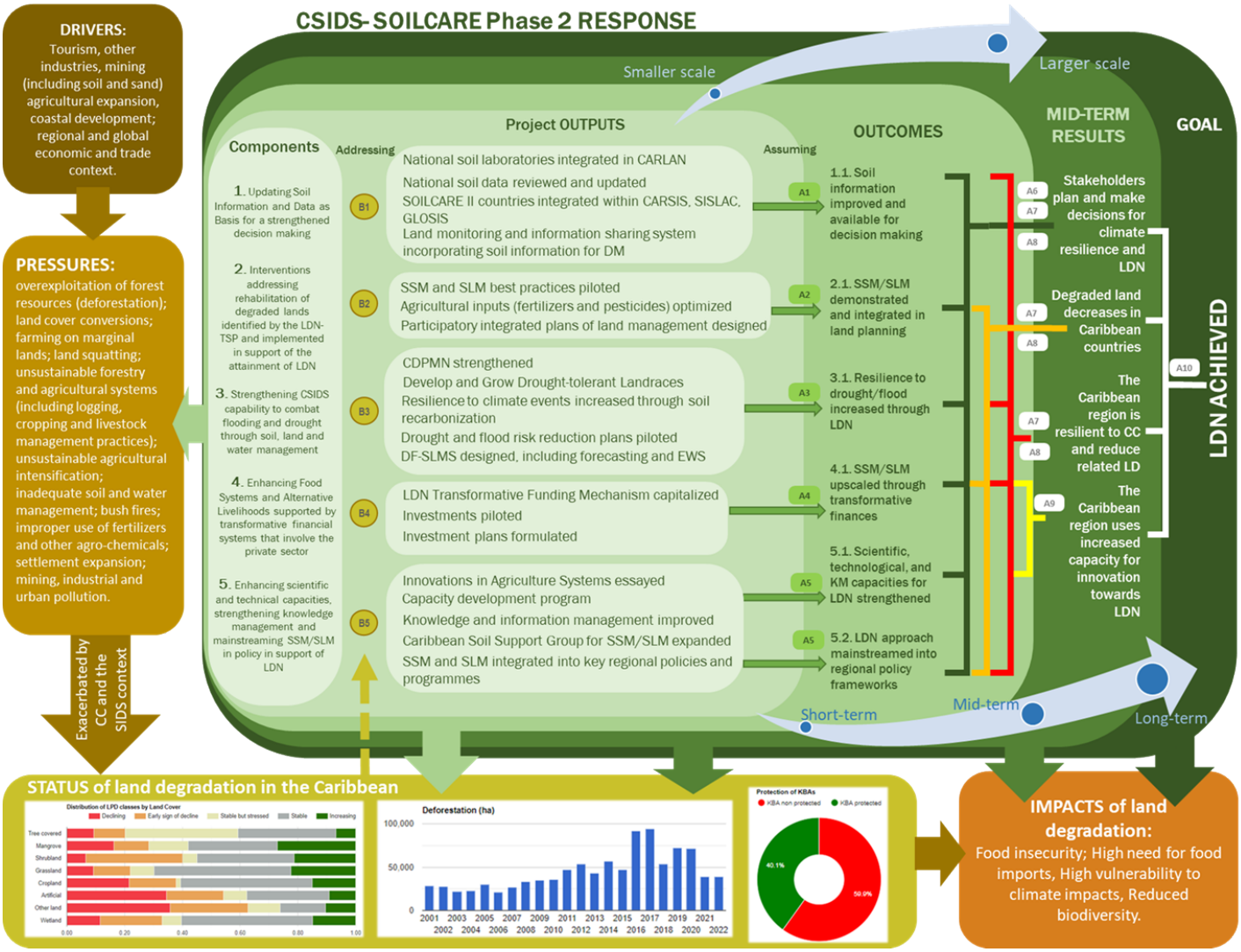
This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

Theory of change

21. The project's Theory of Change (ToC, figure 1) is framed under the DPSIR approach. It outlines a set of 5 key and interlinked causal pathways that drive the project activities. They are designed to effectively address the key barriers to achieving LDN as identified in the Project Rationale, through 5 Components, each of them delivered through a set of outputs that act on the Pressures and Status of the system. Upon delivery, the outputs will result, if the specified project level assumptions are met, in an immediate outcome from each component, that influence the Status and Impact components of the DPSIR system. The causal connections for the projection of the mid- and long-term project results are also shown towards the final goal of LDN. These results will have an effect both on the status and trends of land degradation and on its related socioeconomic and biophysical aspects and will be achieved through the combined effect of the project outcomes, given several impact-level assumptions that are also highlighted.

22. ***Causal pathway 1***: Caribbean countries use up to date and accurate soil information for planning and decision making at all levels. The Causal Pathway 1 directly addresses Barrier 1: *Limited Soil Information to support decision-making processes on LDN and Data Fragmentation*. It will improve the available soil information in the project parties, currently deficient, to enable an informed decision making, and deliver a decision support system (DSS) for managing and cross-referencing the soil information with other biophysical (in particular, the three indicators and related metrics of the LDN framework) and socio-economic data. Principle 15 of the LDN framework on making use of the three land-based indicators and associated metrics: land cover (assessed as land cover change), land productivity (assessed as Net Primary Production) and carbon stocks (assessed as Soil Organic Carbon), is directly addressed by this Casual Pathway, as well as Principles 16-19 on monitoring.

Figure 1. Project Theory of Change



Barriers:

B.1.Limited Soil Information to support decision-making processes on LDN and Data Fragmentation.

B.2. Limited adoption of SSM/SLM and low capability for implementation and land planning for LDN.

B.3. Weak Capability to Address the Climate Hazards of Flooding and Drought and Related Land Degradation

B.4. Lack of economic instruments that encourage and incentivize the adoption of SSM/SLM

B.5. Limited enabling environment

Project Level Assumptions:

A.1. There is willingness of key ministries and other institutions to collaborate and share information

A.2. Project stakeholders are aware of the LD problem and are committed to improvement.

A.3. Project stakeholders see benefits in increasing land resilience to climate impact

A.4. Project support is sufficient to trigger and incentivize private entities investment.

A.5. There is political will to enhance innovation and to mainstream LDN in legal frameworks at national and regional levels

Impact level Assumptions:

A.6. The Behaviour of a wide range of stakeholders changes towards SSM/SLM for LD

A.7. The private sector realizes of the value of building the value-chain linkages that integrate SSM/SLM and continues to make investments that lead to sustainable post-project financing.

A.8. Necessary policies and legal instruments are in place to enable upscaling of SSM/SLM for LDN to the regional scale.

A.9. Innovation for LDN becomes mainstream into productive sectors

A.10. Sustained high-level commitment to SSM and SLM for LDN and climate resilience from parties and stakeholders

23. ***Causal Pathway 2***: The benefits of SSM/SLM for LDN are demonstrated and become the basis of land use and management plans. This Causal Pathway addresses Barrier 2: *Limited adoption of SSM/SLM and low capability for implementation and land planning for LDN*. Together with Causal pathway 3 and 4, it is a powerful tool to encourage systemic behavioural change towards LDN, by providing empirical evidence of the benefits of SSM and SLM at a local scale and providing a roadmap for the upscaling of that gains to the landscape level. Multi-stakeholder engagement including existing local and national governance structures, will ensure that vulnerable communities are not displaced when land is targeted for restoration, as well as an enduring engagement of the beneficiaries. Principle 1 of the LDN framework on maintaining or enhancing land-based natural capital, and Principles 6, 12, 13 and 14 on integrated and participatory land planning and good governance are essential to this process.

24. ***Causal Pathway 3***: The capacity of SSM/SLM for reducing exposure and vulnerability to climate impacts is demonstrated and the LDN framework is integrated into climate risk reduction programs, addressing Barrier 3: *Weak Capability to Address the Climate Hazards of Flooding and Drought and Related Land Degradation*. This Causal Pathway relies on the improved climate resilience that will be produced through the simultaneous action on different system components: vegetation, soils and technological elements, and through enhanced preparedness for meteorological extreme events, which are currently of high impact both in terms of land degradation and in socio-economic aspects. Like the above, Casual Pathway 4 is based on Principle 1 of the LDN framework on maintaining or enhancing land-based natural capital, and Principles 6, 13 and 14 on integrated and participatory land planning and good governance

25. ***Causal pathway 4***: SSM/SLM implementation is expanded, encouraged by transformative finance systems that ease the short-term economic burden of adoption, addressing Barrier 4: *Lack of an economic context that encourages and incentivizes the adoption of SSM/SLM*. This Casual Pathway recognizes the potential short-term economic burdens that the adoption of SSM and SLM may bring, particularly to farmers, and creates a financial environment that makes it less onerous, through the design of innovative and transformative financial instruments. In addition, since market-based instruments define the system's scope and boundaries and thus are key leverage points towards achieving LDN, this casual pathway aims to reinforce existing livelihood resilience by improving value chains and to create new livelihood options for mitigation of impacts. This will in addition set the baseline for the preparation of a Regional Transformative Initiative on LDN, that will provide continuity to SOILCARE II efforts. This Casual Pathway is directly related to Principle 10 of the LDN framework on a balanced economic, social and environmental sustainability and to Principle 14 on good governance.

26. ***Causal pathway 5***: Stable educational and research programs and improved policy frameworks and knowledge management will improve the conditions for a strengthened LDN implementation at the regional level in the long term, which is vital for larger and long-lasting improvements in the land degradation trends. This Casual Pathway directly addresses Barrier 5: *Limited enabling environment and* will be achieved through the delivery of 2 outcomes.

- Outcome 5.1 will increase the regional technical capacities through actions addressed to build SSM, SLM and the LDN concept and approach into educational and research systems at the regional scale. As an essential aspect of this Casual Pathway, all the capacity building project activities, as well as other designed *ad hoc,* will be organized and coordinated under a structured and long-sighted institutionalized program on agricultural innovations for LDN. Innovation and knowledge management will be improved at a regional scale in synergy with current and planned networks and institutions, to facilitate technological transfer and evidence sharing. The particular focus on youth will help reverse the population aging trend in agriculture and in other productive sectors, thus setting the basis for sustainable effects. Principle 18 on local knowledge and knowledge sharing and 19 on learning and capacity building.

- Outcome 5.2 will improve the policy framework for LDN at a regional scale, enabling increased SLM adoption and higher co-benefits for broader impacts. It will be achieved through: i) a strengthened Caribbean Soil Support Group, with wider geographic scope, and multiplied links with the wider regional soil community and with the UNCCD; and ii) the pursue of regional political consensus on the further integration of SSM, SLM and the LDN approach into sectorial policies and normative frameworks as a cross cutting issue, so encouraging parties to eliminate perverse subsidies and discouraging unsustainable practices, and iii) the incorporation of SSM, SLM and LDN into the regional initiative for 25% Reduction in the Food Import Bill by2025 and the Community Environmental and Natural Resources Policy Framework. Principle 18 on local knowledge and knowledge sharing underpins this casual pathway, as well as Principle 14 on good governance and the general understanding that local and national actions must be framed under an overall regional coordination and backed up by regional governance.

27. The desired mid-term impact, upon the successful accomplishment of the project activities and from their combined effects, is the reduction of the amount of degraded land in the Caribbean through the generalized implementation of nature positive SSM and SLM practices, producing climate resilient systems that are underpinned by innovation. This expectation is subject to the assumption that a behaviour change is indeed realized from the project activities and is based on the reinforced enabling environment. Further assuming that the interest from parties and stakeholders is sustained over time, LDN will ultimately be accomplished as the long-term project impact.

28. SOILCARE 2 will in addition deliver benefits in terms of contributions to the Caribbean countries' commitments to UFCCC through the sequestration of carbon in restored vegetation and recarbonized soils, and to CBD through agricultural diversification, promotion of drought-tolerant landraces for agriculture and reforestation, and improved ecosystem services that enhance biodiversity. The project will also contribute to wider development objectives and socio-economic and cultural co-benefits such through the consideration of traditional knowledge and indigenous technologies; the diversification of livelihoods; greater empowerment and access to land resources to local communities, particularly to women and youth, with gender and age-sensitive strategies cross-cutting all the project activities; and reduced poverty and food insecurity, by providing improved and resilient production systems and value chains, with synergies created between the production sector and other industries, thereby contributing to SDG targets for each country, and in meeting Principle 2 of the LDN framework on protecting human rights and enhancing human well-being.

Overall program objective

The objective of the program is to **strengthen Caribbean SIDS with the necessary tools for adopting and implementing measures, policies, and legal and institutional frameworks to achieve Land Degradation Neutrality LDN and Climate Resilience**

Detailed program description

COMPONENT 1: UPDATING SOIL INFORMATION AND DATA AS BASIS FOR A STRENGTHENED DECISION MAKING ON LDN AND RESILIENCE TO CLIMATE CHANGE IMPACTS.

29. Component 1 of SOILCARE II will allow countries not included in Phase I to implement baseline activities needed to operationalize Land Degradation Neutrality in each country, including laboratory assessments and national soil surveys. The new participating countries will build on the tools and approaches developed and field tested by SOILCARE 1 countries to ensure that by the end of Phase 2 all participating countries have completed their baseline assessments, allowing them to design and implement strategic interventions for addressing the rehabilitation of degraded lands in support of the attainment of LDN under components 2, 3 and 4. These baseline data will also will also strengthen the capability of CSIDS to manage soil, land and land resources and water to combat drought and flood through LDN; and promoting the adoption of validated approaches and technologies to combat LDN.

30. Like the participating countries in SOILCARE Phase I; the additional countries participating in SOILCARE Phase II, with the exception of Trinidad and Tobago face a similar situation of not having their soil information and data upgraded since the 1970's or earlier; thus resulting in a huge gap in terms of decision making at all levels, including land planning, agronomic decisions, managing land for resilience to climate impacts and, importantly given the requirement of LDN to have data on Soil Carbon, below and above ground. This Component will therefore enable those countries to update their soil data and information so that all the participating counties in SOILCARE I and II will be on the same level. This will result in **CSIDS data on soils**, particularly soil carbon, but also nutrients and physical properties available. The information produced for SOILCARE II countries will be fed into the **Caribbean Soil Information System (CARSIS)** which has been established under SOILCARE I and integrated with Regional and Global Soil Information Systems (SISLAC and GLOSIS). CARSIS will be, in addition, integrated in a newly created **Caribbean decision support system (CDSS) for LDN**, land planning, and drought and flood risk reduction, of which it will be an essential part.

31. In addition, the capacity of the SOILCARE II countries for producing soil data will be strengthened by upgrading soil laboratories up to the standards of the Global Soil Laboratory Network (GLOSOLAN). The upgraded laboratories will be integrated as part of the **Caribbean Soil Laboratory Network (CARLAN)**, also established under SOILCARE I. The laboratories assessed under CSIDS-SOILCARE Phase I which have reached the requirements will be certified using EcoCanada standards, and so will the laboratories of Phase II.

Outcome 1.1. Caribbean countries have improved capacity to monitor and report on LDN, including the use of soil data to make informed decisions and contribute to regional and global soil and climate knowledge systems.

Output 1.1.1. National soil laboratories in SOILCARE II countries assessed and strengthened in accordance with GLOSOLAN standards and integrated as part of the Caribbean Soil Laboratory Network (CARLAN):

32. An assessment of the soil analytical capability of the SOILCARE II participating countries undertaken to determine their analytical capability as well as what role they can realistically play in contributing to the analytical needs of the project. Where sufficient capability exists, additional strengthening will be provided with the view of enhancing the quantity and quality of soil data (e.g. chemical, physical and biological parameters). Focus will be placed on data generation, analytical procedures, validation, reporting, QC/QA procedures and integration in the sub-regional and regional infrastructures. This process will have additional support from the Latin American network of soil laboratories (LATSOLAN) and the Global Soil Laboratory Network (GLOSOLAN) in the form of assistance for the harmonization and standardization of procedures, technical support for procurement process, and capacity development. Laboratories which have been assessed and reach the required standards will be certified using EcoCanada's system.

Output 1.1.2. National soil data in SOILCARE II Countries, including soil organic carbon, reviewed and updated, supported by integrated field sampling, laboratory analysis and digital soil mapping, and available for local, national and regional decision making and international reporting:

33. This output will target SOILCARE II countries as well as those SOILCARE I countries which did not participate in Component 1. As in under SOILCARE I, focus will be placed on (i) the digitalization, harmonization and georeferencing of soil legacy data and other environmental datasets that can be useful to understand and map soil properties; (ii) production of new data, including soil surveys and digital mapping of soil properties such as SOC, potential for SOC sequestration and soil nutrient status, as a basis for LDN implementation and in support of NDCs (mitigation) and (iii) provide accessibility to soil data and information so it can be integrated into the participating countries environmental and development planning processes. The output resulting, therefrom, will assist SOILCARE II participating countries in meeting their LDN Targets by providing the data necessary for reliable assessment and monitoring of their LDN targets on the ground.

34. During the PPG Phase emphasis will be placed on the collection of legacy data and environmental information for each of SOILCARE II countries. This will include the circulation to SOILCARE II countries an Information Questionnaire for the purpose of collecting and compilation of all relevant data. This information, as it did for SOILCARE I countries, will provide the baseline for reviewing and updating national soil data.

Output 1.1.3. SOILCARE II countries integrated within Regional and Global Soil Information Systems (CARSIS, SISLAC and GLOSIS):

35. The soil information and data generated by SOILCARE II countries will be processed and entered into the Caribbean Soil Information System, which is hosted by the UWI, and integrated with the Soil Information System for Latin America and the Caribbean (SISLAC) and the Global Soil Information System (GLOSIS). The CARSIS will be made accessible to a wider audience by its integration with the SIDS Sustainable Development Knowledge Platform SIDS-SDKP) of the SIDS-SIDS Green-Blue Economy Knowledge Transfer Hub hosted by the UWI-Cave Hill Campus, and for which the PISLM-UWI-Trinidad-SOILCARE Office serves as a Subsidiary Node of the Knowledge Transfer Hub (KTH).

Output 1.1.4. *Land monitoring and information sharing system incorporating soil information developed in order to support decision making at all levels*

36. The achievement of the Land Degradation Neutrality target requires the systematic collection of up-to-date information regarding current land state, natural and anthropic degradation factors and existing threats. In order to accomplish that, information on three LDN indicators - land cover, and land productivity, and carbon stocks, as well as on other land and soil variables informing on degradation processes, must be gathered and computed for producing the indicator 'Degraded Land Area to Total Land Area' used for measuring progress in achieving the Sustainable Development Goal (SDG) 15.3 target on Land Degradation Neutrality.

37. Under this Output, data will be collected and processed using national Decision Support Systems (DSS) specifically designed for that, according to each country's biophysical characteristics and national priorities. The DSS will integrate data at local and national scales, including soil, water and biodiversity information, and will form an integral component of the monitoring and LDN reporting process. The DSS will be designed to widen the range of potential users of geographical/environmental information, including every level of the decision-making process. For that, the DSS will be designed in such a way that end users will not require knowledge or expertise in GIS, which, at the same time, will contribute to creating awareness and empowering stakeholders.

38. Advanced technologies, such as geographical information systems and remote sensing techniques will be employed for data collection and harmonization within the DSS, in order to enable that geographically explicit land degradation status and other environmental information can be correctly and quickly communicated to governments and other stakeholders. A capacity development and training program on the development, management and maintenance of DSS will be implemented, in order to ensure its sustainability in the long run.

COMPONENT 2: REHABILITATION OF DEGRADED LANDS PRIORITIZED THROUGH NATIONAL LAND DEGRADATION NEUTRALITY TARGET SETTING PROCESS (LDN-TSP) TO ACHIEVE LAND DEGRADATION NEUTRALITY (LDN):

39. Building on the baselines established in SOILCARE I, including interventions defined through the LDN-TSP, will be elaborated to provide the basis for the Regional LDN Transformative Project. Overall, this project will seek to sustain and improve the stocks of land-based natural capital and the associated flows of ecosystem services in the participating countries to support future prosperity and food security. This project will be designed with the aim to deliver multiple benefits, building on high-impact good practices, enhancing national and regional capacities, while featuring innovation in terms of locally adapted technologies, practices and leveraging innovative finance. It will also seek to generate and sustain fundamental and sustainable positive changes in the coupled human-environmental system where interventions are targeted. Emphasis will be placed on interventions at the landscape and/or national level scale that fundamentally change the trajectory of way land is managed in the targeted areas. More specifically this project will contribute to maintaining and/or improving the sustainable delivery of ecosystem services; maintain and improve productivity, to enhance food security; contribute to increasing resilience of the land and land resources and populations dependent on the land; and provide synergies with other social, economic and environmental objectives.

40. Specific **combinations of SSM/SLM practices will be tested in demonstration sites** of the project implementation areas. The aims will be improving soil productivity; enhancing the ability of these systems to provide ecosystem services within landscapes more efficiently and the adoption of new and innovative approaches for protecting and restoring the natural ecosystems and soils on which they depend. In particular, and based on the potential negative externalities of their inappropriate use, **the optimization of the use of agrochemicals (fertilizers and pesticides)** will be piloted.

41. In addition, an important part of the pilot activities will be the identification of alternative livelihood options for the communities as a means of easing the pressure being exerted on the natural resource base of the area. The creation of these opportunities, as well as the improvements in value chains will be addressed after detailed evaluation of the specific socio-economic context and funded through the investments foreseen under Component 4 of this project. The use of climate resilient technologies, methods and approaches will be in all cases promoted as part of the rehabilitation process.

42. Multivariate assessments of the implementation areas will be carried out using the DSS infrastructure from Component 1 to produce land use and crop suitability maps for the implementation areas. The results of this assessment will be the basis for **participatory and context-specific strategic plans of land management** based on the principles of Integrated Land Use Planning.

The pilot areas were selected using the following criteria: (i) priority areas identified through the LDN Target Setting process, (ii) multi-activities protected landscapes in which productive activities are being undertaken and contributing to significant land degradation, and (iii) land which been degraded through unstainable economic activities (e.g. unsustainable agricultural practices, small scale mining activities etc.) and are in need of rehabilitation and or restoration.

43. The project will place special emphasis on improving the lives of women, youth, and indigenous peoples where applicable. When selecting beneficiaries, the project will dedicate at least half of the funding available for livelihood improvement interventions and value chain interventions to (i) women farmers and women-led cooperatives as well as young farmers to prevent their migration to cities. Young males are particularly vulnerable in several countries in the Caribbean. The project will dedicate resources to improve their skills and ensure they are brought back to be productive members of society.

44. Similarly, the proposed project will build on recent efforts in the Caribbean to improve the lives of indigenous Peoples. Through SOILCARE Phase 1, PISLM has established the PISLM Indigenous Peoples Forum on SLM/SSM. Also, CARICOM recently recognition of the Caribbean Organization of Indigenous Peoples (COIP), formed by national organizations from Belize, Dominica (the only country in the sub-region to have ratified Convention 169), Guyana, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago Is an important milestone towards recognizing the rights of a key set of actors that have an important role in the fight against poverty and hunger and that have important contributions towards the fulfillment of the Sustainable Development Goals and the 2030 Agenda for Sustainable Development. They are also recognized by FAO as key stakeholders in the goal to achieve more inclusive, efficient, resilient, and sustainable agrifood systems. During project design, the project will work with interested national governments to ensure that an important share of resources is dedicated to improving Indigenous Peoples livelihoods.

Outcome 2.1. Small scale farmers & other stakeholders in Caribbean countries implement selected proven interventions to avoid, reduce and reverse land degradation to achieve LDN.

Output 2.1.1. SSM and SLM best practices piloted in forest, rangeland and cropland demonstration sites of the implementation areas, in support of soil health and LDN.

45. Best practices to improve soil health, fine-tuned to the local specific characteristics will be implemented and monitored in support of the LDN process, which will be achieved only under the conditions of a neutral or positive balance of organic matter in soils. The implemented strategies will include: i) adequate management of Soil Organic Carbon (SOC); ii) improvement of water management and of soil physical properties including water storage capacity; iii). phyto- and agrotechnical measures to improve the soil nutrient status, and to prevent and combat other soil threats such as soil erosion.

46. The SSM monitoring methodologies at the demonstration site scale will follow the FAO's Protocol for the assessment of Sustainable Soil Management (FAO 2023) and will include the acquisition of accurate and standardized data on soils through harmonized methods to verify that the practices implemented fulfill the criteria drawn in the VGSSM. The information on the demonstration sites will be added to the DSS, and implemented practices will be recorded in international and publicly available databases (WOCAT, GSP) including quantitative performance indicators.

47. Capacity development actions at grassroots level will consist in gender and age-sensitive community-based capacity building program, e.g., farmer-to-farmer initiatives for increasing awareness and technical knowledge on soil health and sustainable soil management and its monitoring. To ensure the sustainability of the selected practices, a gender approach will be taken in implementation, and differences in logistical and substantive needs of men and women will be considered, including single-headed households and other vulnerable groups, particularly the young.

Output 2.1.2. *Agricultural inputs (fertilizers and pesticides) optimized (minimized) in the project's demonstration sites, including the use of recycled/reused sources of fertilizers.*

48. Following the principles for an adequate use of fertilizers set in the International Code of Conduct for the Sustainable Use and Management of Fertilizers (Fertilizer Code, FAO 2019), Integrated Soil Fertility Management (ISFM) strategies will be used in the pilot sites under this component. ISFM requires careful consideration of the crop nutrient needs and the soil type and condition. The natural nutrient dynamics of biological fixation and biomass decomposition need to be considered, to achieve an efficient and environmentally friendly use of fertilizers. Phyto- and agro-technical measures for improving soil nutritional status and enhancing nutrient budgets, such as the balanced combination of organic and mineral fertilizers, crop rotations, and green manures, will be implemented in demonstration sites including the use of nutrients from reused and recycled locally available sources such as crop residues, composted organic wastes, etc., in line with circular economy and lower carbon footprint approaches.

49. In addition, the use of biostimulants and biofertilizers will be piloted, as it can contribute to enhanced plant nutrition while optimizing fertilizer use. Biostimulants are substances of natural or synthetic origin that, when applied to soil or plants, have the effect of boosting nutrient uptake efficiency, abiotic stress tolerance and/or crop quality traits. They can have a variety of chemical formulations, many times including humic substances, hormones and amino acids, but also microbiological mixtures, typically fungi and plant growth-promoting rhizobacteria. These latter products are known as biofertilizers: products containing living microorganisms that promote plant development through an improved nutrient supply and can contribute to increase the micronutrients concentration in the edible parts of crops.

50. The judicious joint use of fertilizers together with biofertilizers and biostimulants, has the capacity of allowing a reduction of the fertilizers imports to the Caribbean, in line with the Regional initiative of 25% by 2025 Reduction of the Food Imports to the Caribbean. Technological developments underpinning the application of biofertilizers and biostimulants will be addressed by the RAC/NAT Facility under Component 5 and possibilities for upscaling the results of the pilots will be considered under Component 4.

51. It is essential that the composition of fertilizers and sources of recycled nutrients is assessed and that they are compliant with quality and safety standards, to know the amounts of nutrients they contain and consequently being able to provide the needed amount of nutrients while avoiding potential toxicity and

pollution issues. For that, the composition of the fertilizers used in the pilots under this component will be evaluated based on the analytical capacities of CARLAN (Output 1.3).

52. SSM-based approaches for minimizing the need of pesticides will be also essayed. By acting on soil biotic (microbiological) and abiotic (physical and chemical) properties, the incidence and effects of crops diseases and pests can be diminished. This is called Soil Disease Suppression and is defined as the reduction in the incidence of soil-borne diseases even in the presence of a host plant and inoculum in the soil (Jayaraman et al., 2021). Approaches to this end will be chosen and implemented in close coordination with the activities and developments from the RAC/NAT facility on the topic (see component 4).

53. Capacity development actions at grassroots level will consist in gender and age-sensitive community-based capacity building programs, e.g., farmer-to-farmer initiatives for increasing awareness and technical knowledge on fertilizer use and risks of misuse of fertilizers. Technical sessions will be addressed to extension staff on fertilizer recommendations for soil health and on SSM for decreasing soil borne diseases and other pests.

Output 2.1.3. *Participatory, gender inclusive, and context-specific strategic land management plans produced for the implementation areas and integrated into national Decision Support Systems (DSS)*

54. Plans for addressing land degradation in the implementation areas will be developed with recommendations and measures to avoid reduce and reverse land degradation in forests, rangelands and croplands currently under sub-optimal use and management. The principles of FAO's Voluntary Guidelines for Sustainable Soil Management (FAO, 2017) and of the International Code of Conduct for Fertilizer management (FAO, 2019) will be observed.

55. The appraisal of land degradation drivers and the evaluation of the effects of SLM will be based on remote sensing measurements as well as expert surveys, such as the High Nature Value Index (HNVI) Participatory Assessment of Land Degradation and Sustainable Land management in Grassland and Pastoral Systems (PRAGA), the Land Degradation Assessment in Drylands (LADA), or the WOCAT method, adapted to local context and area size, also aiming to collect data for the LDN process. A better understanding of degradation processes, including identifying thresholds and tipping points, will be an essential aspect. These activities will include significant input from local stakeholders and land users.

56. The information obtained from the monitoring process will be incorporated into the DSS and, upon integration with other environmental and socio-economic variables, will be used to build crop-specific land suitability maps and models for the implementation areas; to identify threats and risks of degradation; and for the identification of the most suitable sites for different types of interventions, thus enabling the

continuous optimization of the strategies to reverse, reduce and avoid land degradation while improving livelihoods.

57. Capacity development sessions on the use and maintenance of DSS will be designed focusing on technical staff from governmental departments and agencies, as well as other stakeholders, considering gender aspects.

COMPONENT 3: STRENGTHENING CSIDS CAPABILITY TO COMBAT FLOODING AND DROUGHT THROUGH SOIL, LAND AND WATER MANAGEMENT FOR LDN.

58. This component of the project approaches drought and flood under the LDN framework. The concept of LDN is useful not only because it encourages the adoption of a broad range of measures to avoid, reduce or reverse land degradation, but also allows for the consideration of water management and measures to combat and adapt to increasing drought and flooding conditions which are associated with global climate change. Indeed, drought and flood are incardinated in target SDG 15.3, which specifically aims to "combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world" by 2030.

59. Despite the disruptions caused by flooding, its effects and macroeconomic impacts have not been consistently measured, as normally these are localized events as compared to hurricanes and storms which tend to have greater national implications and receive more international attention. Of the 119 flooding events recorded in the region in the period from 1990-2018 only 23 have been assessed in terms of damage. While data on damage related to flooding have not been systematically measured, flood events have been reported every year, with economic figures only available for certain years[2][1]. Within the Caribbean, flooding, like other types of hydro-meteorological events, has been exacerbated by developmental change and urbanization patterns. Loss of protective vegetation caused by bush fires, indiscriminate clearing and degradation of forests are key drivers combined with bad agricultural practices such cultivation on steep slopes, "slash and burn" and poor watershed management, these all contribute to soil erosion and increased sediment yields in rivers and canals that cause changes in the distribution of the total basin runoff over peak flows and baseflows.

60. Building on existing monitoring tools (Regional Precipitation Outlook currently produced by the Caribbean Institute for Meteorology and Hydrology (CIMH), and the Caribbean Drought and Precipitation Monitoring Network (CDPMN) and the Caribbean Water Initiative (CARIWIN), this project proposes to advance towards an **integrated multi-hazard (drought and flood) monitoring system.** At the sub regional scale, drought monitoring through drought indexes will contribute to the region's effort to move from a response-driven approach towards a strategic approach focused on prevention and mitigation. This will be

complemented with in situ measurements of soil properties that will inform on the soil water holding capacity and the water availability to plants, thus on hydrological and agronomical drought conditions. Regarding flood, since flood risk depends very much on physiographical variables, usually remote sensing-based tools cannot provide sufficient risk monitoring resolution, so an in situ and indicator-based monitoring approach will be taken.

61. **Vulnerability and risk assessments** will be produced for the project pilot areas, with the indicators of vulnerability selected based on the specific impacts. The assessments will be used as basis of **Integrated Land Use Planning for LDN based flood-drought risk reduction**, including SSM and SLM based measures to build resilience, such as the use of **drought-tolerant landraces**, drought-smart land and water management, soil conservation practices (i.e. terracing, contour bunds etc.), as well as technologies for increased capacity for water harvesting and groundwater recharge. The context of SIDS calls for innovative technological solutions, beyond the common thinking of traditional measures, such as mobile and flexible technologies for drought and flood preparedness and mitigation (e.g., elevated tanks, plug-in desalination units, etc.), that can be fit for purpose, effective and inexpensive. The combination of technologies used will be site specific, but, in all cases, the capacity of the soils for hydrological regulation will be considered. An essential part of the risk reduction strategy will thus be the **recarbonization of soils through SSM**, to improve soil physical properties for increasing water infiltration and retention capacity, while contributing to atmospheric C sequestration and to sustainable agricultural production.

62. A systematized approach to land planning that considers biophysical as well as socio-economic variables will be promoted and piloted in selected **Pilot Landscape and Watershed Areas (PLWA),** for which specific plans will be designed including a site-specific combination of practices, with local stakeholders engaging through participatory processes.

63. The results and lessons learnt from these pilots, together with the rest of the outputs from this component, will serve as inputs for proposing a Sub-Regional Drought and Flood Smart Land Management Strategy that will also include improved **national scale early warning systems** that deliver timely information about the onset of drought or the flood hazard at a local scale that help preparedness and serve to initiate actions that mitigate the impacts of drought and flood.

64. As cross-cutting issues, **capacity development, awareness raising and knowledge transfer** activities will be implemented at different levels and involving a range of stakeholders, aimed at strengthening local communities' resilience to climate change through sustainable nature-based solutions that optimize environmental, economic and social outcomes. This will be coordinated, implemented and monitored under the RAC/NAT Facility and linked with the LDN Knowledge Hub and the SIDS-SIDS Knowledge Hub under component 5 of this project.

Outcome 3.1. Enhanced integrated land planning strategies based on SLM and SSM to reduce flood and drought risks and for mitigation are available to Governments and stakeholders in Caribbean countries.

Output 3.1.1. Caribbean Drought and Precipitation Monitoring Network (CDPMN) strengthened, including gender considerations

65. Given the potential consequences of future climate events, the incorporation of climate risk management into decision-making is imperative. Monitoring is fundamental to that end, to provide governments and communities with the information needed to plan for and respond effectively to the challenges of climate-related events. Launched under the Caribbean Water Initiative (**CARIWIN**), in 2009 the CDPMN was born out of the need to mitigate and respond to the creeping phenomenon, drought. This system involves the investigation of a number of precipitation indices, namely— Standardized Precipitation Index (SPI); The Palmer Drought Severity Index (PDSI); and the Crop Moisture Index, (CMI)—which, by their values express different severities of drought and above average water; and other indicators—namely, water levels, state of vegetation and ecosystems—as a basis for monitoring drought the Caribbean. These indices also provide information on periods of above normal rainfall, allowing the monitoring of both extremes – drought and flood.

66. This system will form the basis of a more comprehensive system that includes flood monitoring. Adding flood indicators to precipitation indices is needed because the flood probability in a specific area depends on its biophysical variables. This output will thus deliver an improved country-specific monitoring system that combines drought indices and flood indicators. The monitoring system will be calibrated based on existing platforms (e.g. ASIS of FAO, or Drought and Flood Portal, etc.) and will include in-situ measurements at key points as an essential element to ensure an adequate resolution and the ground truthing of the forecasts, because operating in SIDS means that satellite information has not enough resolution to precisely monitor and assess drought/flood.

67. Risk and vulnerability assessments will be produced using current drought indices/flood indicators data and corresponding sub-datasets as starting point, and including environmental covariates, as well as socio-economic aspects. The information produced will be publicly and transparently available, including vulnerability maps, as part of the DSS designed under component 1, for improved decision-making.

Output 3.1.2. Capability to Develop and Grow Drought-tolerant Landraces for selected crops enhanced.

68. Small farming agricultural production plays an important role in CSIDS economy, contributes to food security and rural livelihood as well as to crop diversification with the subsequent ecological benefits. One of the most devastating aspects of small-scale agriculture production is drought. When it occurs, its impact is felt immediately and is exemplified by reduced crop yield, desiccation of farmlands, crop losses and by extension loss of income. With the prognosis that changing climate patterns in the region will result in an increase in temperature and drought,

which is anticipated to be more frequent and intense; the region ought to be proactive in designing and implementing drought mitigation and adaptation measures, and to plan for this eventuality. Drought tolerance is an important quantitative trait, which is regulated by hundreds of genes in crop plants and is usually accompanied by a low water footprint and low requirements of pesticides and inorganic fertilizers, hence they have a smaller carbon footprint. In recent decades, scientists have made considerable progress to uncover the genetic and molecular mechanisms of drought tolerance, especially in model plants. Previous works from focused on these aspects within the region will form a scientific and technical basis on which to build, and the project will liaise with relevant institutions (CARDI, CGIAR) during PPG to that end, under the coordination of the PISLM/SOILCARE Regional Research, Advisory and Capacity Building on New Adaptation Technologies (RAC-NAT) Facility (see component 4).

69. Building on the infrastructure of the RAC-NAT Facility, a Drought-Tolerant Landraces Programme (DTLP) will be established. An essential part of the DTPL will be an analysis of traditional Caribbean crop landraces. After an extensive review of the available literature and of the analysis of data from national and global databases that cross-checks the yields of specific crops with meteorological data, the varieties showing a best performance will be subject to further testing of their tolerance to changing climate patterns and, in particular, to drought. Selected landraces will then form the basis for the piloting of a Small Farmers Drought Pilot Scheme (SFDPS) in which emphasis is placed on the growing of these landraces in different micro-environments throughout CSIDS, under real-life conditions. The SFDPS will be designed with a strong livelihood option (to be upscaled with investments under Component 4), implemented together with other measures for drought risk reduction (as per the rest of outputs of this component) in demonstration sites in the Pilot Landscape and Watershed Areas (PLWA), in synergy with the implementation of the plans included in Output 3.3 of this component.

Output 3.1.3. *Drought and flood risk reduced and resilience increased through soil recarbonization in the six Pilot Landscape and Watershed Areas (PLWA).*

70. The soil, coupled with the landscape topography and its vegetation is responsible for the distribution of all rainwater falling upon it and thus plays a key role with respect to the water cycle and supply. In fact, the water stored in soil serves as the source for 90 percent of the world's agricultural production and represents about 65 percent of global fresh water (Amundson et al., 2015). This means that soils are the cornerstone for buffering the installation of an agronomic, hydrological and socio-economic drought after the onset of a meteorological drought. In addition, a stable, well-aggregated soil structure that resists surface sealing and continues to infiltrate water during intense rainfall events will decrease the potential for downstream flooding.

71. Increasing soil organic matter provides an effective means of enhancing water hydrological capacities. Practices of soil recarbonization such as minimizing disturbance (for example, till the soil as little as possible); maximizing biodiversity (for example, integrating livestock and grow as many different species of plants as possible through rotations and a diverse mixture of cover crops); maximizing living roots (for example, by keeping living crops and cover crops in the soil as long as possible); maximizing soil cover (for example, by

keeping the soil surface covered with residue year round); and using manure or compost instead of or together with chemical fertilizer, improve soil structure and porosity (size, shape and continuity), consequently enhancing the capacity of the soil to retain water and control the water flows through the soil. Soil physical properties can also be improved by avoiding the inadequate use of heavy machinery and of excessive grazing that are frequent causes of soil compaction.

72. This Output focuses on demonstration sites of the six PLWA. It consists in the selection and implementation of soil and site specific recarbonization practices for enhancing the water infiltration, so water can easily percolate to deeper layers, increasing the soil water holding capacity and reducing evaporation. After the preliminary modeling of the long-term impacts of management and of agricultural practices in soil water and groundwater recharge (trough e.g. SWAT model) and of estimations of the potential SOC sequestration and the biophysical conditions of SOC saturation, including analysis of scenarios of C inputs and SSM and estimation of future SOC stocks, soil recarbonization practices will be selected through participatory approaches involving stakeholders at all levels, and considering socio-cultural and economic aspects, as well as biophysical. Vulnerability aspects will be incorporated through crop diversification strategies, which will benefit from the Drought-Tolerant Landraces Programme (DTLP), and through other agronomic strategies as early planting, that will be specifically tested within the Small Farmers Drought Pilot Scheme (SFDPS) under Output 3.3.

73. A comprehensive capacity development program on soil management for climate resilience will be put in place, targeting farmers in synergy with the Small Farmers Drought Pilot Scheme (SFDPS), but also agricultural extension officers and government staff, thus fostering the long term sustainability of the actions taken and providing the grounds for the upscaling of sustainable soil management for climate resilience and for mainstreaming it into daily practice and at a policy level.

Output 3.1.4. *Capacity for national scale land planning for drought and flood risk reduction strengthened and plans piloted at six Pilot Landscape and Watershed Areas (PLWA)*

74. This Output will place particular focus on the relationships of the broad multi-faceted nature of land degradation with drought and flood, including the socio-economic and ecological context. A systematic protocol for clearly defining LDN based approaches for flood-drought management will be designed, using a comprehensive landscape perspective that considers the bio-physical and socio-economic conditions, including information produced by component 1 and output 3.1, integrated with socio-economic variables through the DSS. The engagement of stakeholders will be fostered through participatory processes for choosing and combining drought-smart management practices and site-specific flood technologies.

75. The systematized protocol will be used for formulating and piloting landscape-specific plans for climate resilience at each of the PLWA. A series of actions will be undertaken, including, *inter alia*; the preparation of integrated land use plans and drought and water management plans for increasing resilience to changing climate by avoiding and reducing and reversing land degradation. A range of SSM/SLM practices

will be considered for implementation in the PLWA, including, *inter alia*: agro-ecological methods and approaches including conservation agriculture and agroforestry, the promotion of community-based natural resource management; integrated watershed management, SSM practices that increase soil organic matter and ecosystem services, integrated pest management approaches, and the promotion of drought resistant indigenous crops varieties, in synergy with the Outputs 3.2 and 3.3 of this component.

Output 3.1.5. *Sub-regional Drought and Flood Smart Land Management Strategy (DF-SLMS) designed, including the strengthening of the forecasting and Early Warning Systems at national and regional scales*

76. The information and learnings obtained from Outputs 3.1 to 3.4 will provide the basis to identify the characteristics of a Drought and Flood Smart Sustainable Land Management Strategy (DF-SLMS) for SIDS that provides a shared framework for guiding land management decisions and contributes to production systems that are resilient to climate impacts in the Caribbean.

77. The design of DF-SLMS will be accompanied by the improvement of existing forecasting and early warning systems for flood and drought as a coordinated effort between multiple stakeholders and based on a thorough understanding of stakeholder vulnerabilities, needs and capacities. It must also include provisions for implementing the Common Alert Protocol for issuing and communicating alerts to various stakeholders across multiple sectors.

78. Currently, the CDPMN, combined with the Precipitation Outlook currently produced by CIMH, provide the capacity for delivering drought and precipitation projections for up to at least three months. Flood forecasting is, however, not generalized in the Caribbean, but is only available for some territories and, usually, little consideration is given to the physical state of the watershed, which is a critical factor controlling flood development. This Output will thus contribute enhanced forecasting and early warning capacities, widening the geographical and technical scope of current systems, and creating the adequate networks for timely communications.

79. The implementation of the system will be accompanied by a specific capacity development program, to ensure that appropriate capacity to respond is available at all levels of decision making. Gender aspects will be considered as per the recommendations of the the Caribbean Regional Comprehensive Disaster Management (CDM) Strategy and Results Framework 2014–2024, developed by the Caribbean Disaster Emergency Management Agency (CDEMA)

COMPONENT 4: Enhancing Food Systems and Alternative Livelihoods supported by transformative financial systems that involves the private sector

80. Existing technological, policy and institutional risk management measures need to be strengthened and integrated to avoid, reduce and reverse land degradation and to manage climate risk and impacts for vulnerable households and risk prone areas. A proactive approach that combines tested technological measures, strengthened institutional frameworks and focused policy solutions to manage the risks is considered to be the way forward within SOILCARE 2. That is the *ex-ante* approach proposed in SOILCARE 2 (as well as in SOILCARE 1). Acknowledging that it can be costly for farmers in terms of forgone opportunities for short-term income gains, and recognizing that the upscaling of these measures will require strategic investments and policy support in a continuous basis, Component 4 of the project addresses the necessary financial aspects for facilitating a broad adoption of climate resilient agricultural measures that avoid, reduce and reverse land degradation through the operation of the LDN Transformative Financial Mechanism created under SOILCARE 1.

81. Pursuant to Component 5 of SOILCARE 1, a feasibility study of the LDN Transformative Financial Mechanism was commissioned, which concluded that the LDN Transformative Financial Mechanism "is necessary to ensure that resources are available to stakeholders in particular, small farmers, to incorporate SLM and Climate Smart approaches and methods into their farming system and to maintain and support livelihood options as well as contribute to the achievement of LDN targets". Furthermore, based on the analysis undertaken it was concluded that the LDN Funding Mechanism is feasible and should be developed immediately. The feasibility study also considered and explored, in addition to GEF resources, different innovative financing mechanisms and models such as PES, the Caribbean Biodiversity Fund, and other domestic and regional resource mobilization options.

82. This component focuses on the complete operationalization, capitalization and deployment of the **LDN Transformative Funding Mechanism** as a means for leveraging finances towards SSM and SLM for increasing the resilience of production systems to climate impacts, while contributing to achieve LDN in the Caribbean. Context-specific investment plans for upscaling proven best practices will be prepared under this component, after investment strategies are piloted in the project implementation areas. Particular focus will be placed on the **improvement of value chains and on the creation of alternative livelihood** and initiatives for economic diversification, and a range of strategies will be essayed, such as Payments for Ecosystem Services (PES), incentives for catalyzing the engagement of private entities and risk transfer approaches, in order to facilitate wider adoption of SSM/SLM and avoid disadoption. Landscape specific **investment plans** will be designed for upscaling best practices and proven approaches to wider geographical scales within the implementation sites.

OUTCOME 4.1. Governments and stakeholders in Caribbean countries leverage innovative financing of SSM and SLM *based* production for LDN and climate resilience through the development of LDN Transformative Mechanism.

Output 4.1.1. *LDN Transformative Funding Mechanism to promote SSM and SLM practices among farmers capitalized*

83. Sufficient and reliable financial resources are central to ensuring countries can achieve their LDN commitments. During SOILCARE I, under component 4, the program is expected to produce a detailed structure and operational modality to turn the LDN Transformative Funding Mechanism into a reality. The expectation is that during SOILCARE II, this funding mechanism will be capitalized and become operational, resulting in the financing of sustainable land management interventions.

84. Resources from the project will be a seed money that will serve to catalyze the fund's capitalization from other sources (aimed at 80%), which will be invested in the upscaling and mainstreaming of the results piloted in comp 2 and 3, thus serving as vehicle for enhanced collaborations with private entities for LDN and climate resilience.

85. The feasibility study done under SOILCARE Phase 1 outlined a number of sources to be explored for financial input, including GEF resources. In this regard, as part of this proposal, the participating countries have all agreed, via *Decision 7 of the PISLM High-Level Forum* (a Ministerial Forum for Caribbean Ministers responsible for UNCCD), to allocate STAR resources to the capitalization of the fund, as outlined in their endorsement letters. To complement the participating country's contribution, a request is being made in this project document for a contribution from the GEF Non-Grant Instrument of a ratio of three times the contribution of the participating countries.

86. Further resources are being requested through this project to enable and support the preparatory work which must be undertaken to develop the LDN Transformative Funding Mechanism including, *inter alia*, consultations with targeted potential contributors to the Financial Mechanism, legal services for its registration and various legal agreement; with potential fund management companies which will be selected to manage and invest the resources of the Financial Mechanism between the participating countries and organizations as well as the implementation of the resources mobilization strategies for the capitalization of Financial Mechanisms. To capitalize the Funding Mechanism, the project will carry out financial assessment and other baseline studies needed to mobilize resources from mechanisms such as the Green Climate Fund, the LDN Fund, or other regional and local development banks.

Output 4.2.1 *Investments in SSM, value chain improvement and alternative livelihood initiatives piloted, specifically focused on youth and with gender perspective*

87. Investment initiatives will be piloted as part of the SSM/SLM demonstration sites of Component 2 and the Drought Pilot Scheme and Soil Recarbonization of Component 3. Different market strategies and risk reduction options will be tested, which can include, *inter alia:*

- Improvements of agricultural value chains after analysis of opportunities. Since women play critical roles in the agricultural value chain including the availability, access, marketing and utilization of food, specific focus will be placed in the development of the gender sensitive marketing strategies.

- Creation of livelihood options for the participating communities that provide opportunities to ensure strategic and formalized coping strategies These include the diversification of agriculture, complementary opportunities for group marketing and for value-adding through the development of cottage industries, and the search for synergies with other economic sectors such as tourism and eco-tourism. Innovations in agriculture will be supported by the RAC/NAT facility. Formalization strategies can take the form of community-private sector partnerships (CPPs) combining private sector's access to finance, technology and professional knowledge with local communities' ownership of land and natural resources, and their ability to mobilize local support and provide labor; the formalization of women's cooperatives that help women achieve greater access to financial and non-financial services for productive projects, improving their economic autonomy; and others.

- The RECSOIL program will be considered as a possibility for incentivizing SSM. It consists of financial incentives to the adoption of SSM practices of soil recarbonization, with the continuity of the incentives subject to the compliance with the VGSSM, which is monitored using the FAO's Protocol for the assessment of SSM (FAO 2023). Additional and multiple benefits can be achieved such as an increase in yields, enhanced biotic and abiotic resilience of crops, a higher soil resilience to climate stresses, and recovered ecosystem services lost through traditional farming.

- Incentive Schemes for encouraging private sector investment in SSM and SLM.

- Risk Transfer strategies, including insurance, bearing in mind the special needs of small farmers, foresters and agro-processors as per Article 57.1 (b) of the Revised Treaty. Options such as weather index insurance products –linked to e.g., rainfall, temperature, humidity or crop yields, rather than actual loss–, can be considered, to enhance response and recovery from climate impacts, and to offset financial losses.

88. The pilot investment projects will be overseen directly by the PISLM/SOILCARE Regional Research, Advisory and Capacity Building Facility on New Adaptation Technologies (RAC/NAT).

Output 4.3.1 *Investment plans, including context-specific participatory approaches and Indigenous People focused initiatives, formulated*

89. The approaches piloted under Output 4.2, as well as other proven investment strategies, will be considered for the formulation of landscape scale plans for reducing vulnerability and increasing resilience to climate related and other impacts, while contributing to achieve LDN.

90. In the design of the specific plans, the environmental benefits (both expected and potential, for example, using scenario analysis), the socioeconomic and cultural benefits aimed, the known risks and the anticipated medium to long-term return will be considered. The data and tools (e.g., DSS) generated in Components 1, 2, and 3, will make an important input for the investment planning process. In addition, since gender-based inequalities in accessing labor, financial capital, technology and market information make

women less equipped to invest in strategies that include SSM and SLM for LDN, gender issues will be specifically acted upon within investment plans.

91. Furthermore, as an integral part of the LDN Target Setting Process in the Caribbean, an LDN Transformative Project will be prepared, which will have as a major target group the Indigenous People Community of CSIDS. In the context of SIDS this will be done on a regional basis. Resources will be made available to ensure that CSIDs can fully incorporate into that Regional Proposal the features which are fundamental to the Transformative Project and programmes in,

- Employing a landscape approach.
- Creation of linkages to multiple SDGs.
- Promotion of responsible and inclusive governance such as safeguarding land rights of local land users.
- Promote the scale out and up of what works, such as employing science based and local and indigenous knowledge.
- Enhance ownership by undertaking capacity development initiatives (e.g. education, capacity development etc.)
- Leverage innovative finances (especially private sector) by preparation of an investment component that leverage private sector mobilization

92. Funds under this component will be also used for designing an investment plan for the RAC/NAT Facility, that ensures its financial sustainability.

COMPONENT 5: Enhancing scientific and technical capacities, strengthening knowledge management and mainstreaming SSM/SLM in policy in support of LDN

93. An important aspect for CSIDS to respond to the effects of climate change as a means of enhancing SSM, SLM and effecting LDN is the strengthening of these countries' scientific and technical infrastructure. This will include addressing a number of critical issues including, *inter alia*, further development, testing and applying of sustainable SM & LM technology to increase resilience to climate impacts; the development of capacity to use those technologies, particularly by small farmers, and vulnerable groups such as women and youth; the development, processing and application of knowledge and the development of mechanisms to increase access to that knowledge, particularly by small farmers, together with the strengthening of mechanisms, processes and actions to support the implementation of LDN.

94. Under SOILCARE 1, the PISLM/SOILCARE **Regional Research, Advisory and Capacity Building Facility on New Adaptation Technologies (RAC/NAT)** was designed and operationalized. It is an infrastructure to

promote and build climate smart and climate resilient agricultural systems in CSIDS as well as to develop and test new adaptation technologies which can inform SSM, SLM and support the attainment of LDN in CSIDS. The RAC/NAT Facility will also have the capacity of providing advice for science-based policy development to facilitate the mainstreaming of the latest developments in innovative agricultural technologies for LDN into the national and regional policy making process. Specific research on **indigenous peoples' technologies for agriculture and natural resources management** and their sustainability will be carried out, as means for incorporating ancestral legacy values within innovative agricultural systems and as a lever of behavioural change, for the durability of outcomes.

95. The RAC/NAT will also contribute to the design and coordination of **training and capacity development programme** with modules and technical sessions targeted at a diversity of audiences, namely: primary and secondary education, extension services and planning departments, Grassroots levels, academy and science sectors, private sector, and policy makers. The topics to be included can include, *inter alia*, soil health, SSM and SLM, development and use of drought-tolerant landraces, sustainable agriculture and innovations in agriculture for LDN and resilience, and LDN target setting and reporting.

96. The results coming out from SOILCARE 2 and from the activities of the RAC/NAT Facility will be shared and available to the general public through the **SIDS-SIDS Green Blue Economy Knowledge Transfer Knowledge Hub (SIDS-SIDS KTH)**. All knowledge management activities will be gender mainstreamed, including the integration of gender dimensions into publications, for instance, presenting sex-disaggregated data, using gender sensitive language in publications and photos that show both women and men and avoid presenting stereotypes. The project will ensure that women, men, youth and indigenous peoples have access to and benefit from the knowledge created by the project, to facilitate gender sensitivity and equality. Youth will be particularly targeted through the implementation of the **Youth Innovation Agricultural Development Initiative**, which will serve as catalyzer of entrepreneurial endeavors based in agriculture innovation for the young and create opportunities for the promotion of science and technology and digital technology in agriculture.

97. Recognizing that the long-term effectiveness of all the measures and approaches on SSM/SLM for LDN will require strategic policy support on a continuous basis, this component seeks to further enshrine **SSM & SLD into the regional policy frameworks**. Particular focus will be placed on the Community Environmental and Natural Resources Policy Framework and the 25% by 2025 Reduction in the Regional Food Bill.

OUTCOME 5.1: The scientific, technical and knowledge-transfer capacity of CSIDS for SSM and SLM-based innovations in agriculture is enhanced in support of LDN at the national and regional scales

Output 5.1.1. Innovations in Agriculture Systems essayed by the RAC/NAT Facility:

98. SOILCARE 1 partnered with UWI for the establishment of the PISLM/SOILCARE Regional RAC/NAT Facility. Considerable progress has been made in its establishment and operationalization up to date. Under

SOILCARE 2 additional financial assistance is required to enable it to continue developing forefront research, working with farmers (with special emphasis on women and women-led cooperatives, youth and indigenous peoples) towards the adoption of new adaptation technologies, strengthening its target demonstrative capacity and capability as a means of showing farmers the utility of these new technologies, and building strategic linkages with stakeholders in:

- Producing knowledge products and technological developments for SSM and SLM within the LDN approach and for climate risk management in agriculture, including cost-benefit analyses. Fields to be researched may include: innovative technologies for improving soil nutritional status and plant nutrition and health that allow to reduce the amount of external inputs, such as the development and use of biofertilizers and biostimulants, as well as research on disease suppressive soils; biofortification and SSM for nutritional sensitive agriculture; indigenous knowledge natural resource management and traditional agriculture, the economic quantification of the costs of land degradation, and others.
- Overseeing and managing the investment pilots under Component 4, including the specific task of ensuring the technical and scientific soundness of the actions implemented and the transparent funds allocation.
- Advising stakeholders on agricultural innovations, including policy spheres, thus acting as a science-policy interface.
- Seeking areas of collaboration with other projects (GEF-funded and from other donors)
- Coordinating and executing capacity building activities and formal training.

99. The knowledge and technologies developed by the RAC/NAT will be made available to a global audience through a diversity of means, including the infrastructure of the SIDS-SIDS Green Blue Economy Knowledge Transfer Knowledge Hub (SIDS-SIDS KTH). Where necessary, the facility will address the identification of areas which offer potential for patenting the climate resilient technologies developed by the Facility, and for other stakeholders on demand.

Output 5.1.2. Capacity development program for LDN-focused and SSM/SLM based innovations in agriculture targeting producers, extension services, all educational and academic levels, scientific and technical staff and policy makers in Caribbean countries, designed and implemented:

100. In continuing with the view on sustained capacity building on SSM/SLM and LDN in the Caribbean, SOILCARE 2 is designed with a strong capacity development component, which is both a vehicle for achieving the project outcomes and an outcome in itself. The capacity development program will pay special attention to women, youth, and IP participation). From this latter perspective it is important to ensure that the capacities gained remain after the project ends and also that they are accessible to stakeholders and the general population, as part of the long-term results of the project.

101. For achieving that, the capacity building activities under SOILCARE 2 will take the form of an institutionalized, structured and coordinated training program on LDN target setting and implementation, soils and SSM/SLM for LDN and climate risks, including training modules aimed at at all levels (from grassroots to Government staff, and academia), as a framework for all the training and capacity development activities specified within the project components 1 to 4 which, crucially, will also include the design for primary and secondary education and universities. This comprehensive program will be designed and coordinated by the RAC/NAT Facility, building on, and widening, the capacities gained from SOILCARE Phase 1 and targeting the following audiences:

- Farmers, e.g., in the form of community based, farmer-to-farmer capacity development programs
- Agricultural Extension Officers of respective ministries of agriculture, in the form of thematic technical sessions, and using educational platforms such as FAO's EduSoils.
- Technical staff of land planning Departments, through ad hoc technical sessions
- Primary and secondary education, with modules designed and included in the curricula, as well as programs for awareness raising activities.
- University students and postgraduates. Seminars and thematic sessions to be included in the graduate and postgraduate curricula of universities in the region, to ensure that the region keeps generating specialized technical and expert capacity in SSM/SLM and LDN. Resources will be allocated to cover the costs of six postgraduate students.
- Technical staff/scientists responsible for undertaking soil analysis and for recording the data and information in subjects as field training, monitoring tools (SSM Protocol, DSS) organized and/or coordinated by the RAC/NAT
- Policy makers, through thematic sessions, briefings.
- Private sector, including agro-dealers, industries, etc. through dedicated sessions.

Output 5.1.3. *Youth Innovation Agricultural Development Initiative Designed and Operational:*

102. Developed as one of the key elements of the broader **CSIDS Programme on** ***Green and Blue MSME Entrepreneurial Opportunity Enhancement for Youth,*** [3][2] the **Youth Innovation Agricultural Development Initiative (YIADI**) will target between 10,000 and 15,000 youth from the fourteen participating CSIDS to provide training in a wide range of areas including *inter alia*; development of agribusiness skills, create and supporting the creation of youth-led small-to-medium enterprises (SMEs), as well as contribute to the establishment of youth led public-private development and business partnership. This Initiative will be

spearheaded by the RAC/NAT Facility. In addition to contributing to efforts aimed at job creation for CSIDS youth, primarily through agribusiness and entrepreneurship development, this Initiative would also contribute to reversing the farmer population aging which is a characteristic of agriculture in CSIDS. It will create opportunities for the promotion of science and technology and digital technology in agriculture.

Output 5.1.4. *Knowledge and information management improved through networks established in phase I and collaboration with the SIDS- SIDS Green-Blue Economy Knowledge Transfer Hub enhanced*

103. In recognizing that knowledge gained but not shared is of little use to the advancement of society, during SOILCARE Phase 1, funds were allocated to the establishment of a basic SOILCARE knowledge management Hub to facilitate the preparation of the Caribbean Soil Outlook, create awareness and mainstream SSM and SLM for LDN and enhance policy dialogue with the Caribbean Community in that topics. Subsequently the UWI-Care Hill Campus with funding from the GEF established a SIDS-SIDS Green Blue Economy Knowledge Transfer Knowledge Hub (SIDS-SIDS KTH) of which the PISLM/SOILCARE performs the role of a subsidiary node. In addition, the KTH has established a working group with the PISLM to explore and ensure synergies between the two entities as well as to work out a form for further strengthening its portfolio extending to all GEF projects implemented in CSIDS. This has enabled SIDS in general and other stakeholders to more easily access the results of SOILCARE Phase 1.

104. Within SOILCARE Phase 2, resources will be allocated to increase accessibility with a wider stakeholder group as well as integrate the knowledge components relating to SSM, SLM, and LDN into the SIDS-SIDS KTH. In this regard more knowledge base information will be collected on various aspects of SSM, SLM and LDN processes in SIDS. For example, the Soil Outlook will be upgraded to a journal of SIDS sustainable development to service the SIDS community not only in CSIDS by SIDS-Global. This will enable the building of scientific and technical cooperation between SIDS globally, particularly in SSM and SLM, and in the LDN process.

OUTCOME 5.2: The LDN approach is mainstreamed in relevant regional policy frameworks as a cross-cutting intersectorial principle

Output 5.2.1. *Caribbean Soil Support Group for SSM/SLM expanded to Include all SOILCARE Phase II countries and collaboration enhanced with the Latin American and Caribbean Soil Partnership (ASLAC) and UNCCD focal points:*

105. During SOILCARE I the Global Soil Partnership Focal Points and the Focal Points for the UNCCD were brought together to form the Caribbean Soil Support Group (CSSG). The CSSG has the mission of working towards ensuring that soils and soil health are adequately considered in the LDN process in the Caribbean, as well as science-policy interface and advisory capacities regarding subregional scale land management

strategies and agronomic matters, and to the task to discuss and agree on soil-related viewpoints and priorities at the sub-regional level which will be communicated to ASLAC and can be conveyed to the GSP General Assembly by its Parties. The new SOILCARE II countries will become members of the Caribbean Soil Support Group. Project activities include:

- Review of each country existing LDN Targets to being them more in line with current needs.
- Assessment of each country's status in achieving LDN targets to address bearing in mind the 2030 goal.

Output 5.2.2. Consensus reached at the regional-level policy spheres on the integration of the LDN framework and related SSM and SLM in relevant policy and normative frameworks.

106. National and subregional scale policy briefs will be produced and shared within policy-making spheres, summarizing the main SOILCARE 2 findings on the approaches, implemented practices and results, based on the results of the Pilot Projects implemented under components 2 and 3, and the financial upscaling approaches under component 4, in order to support the mainstreaming of SSM/SLM aspects in environmental, agricultural and land planning policies. In particular, the project results on SSM/SLM based improved productivity, crop diversification and reduction of agricultural input needs (fertilizers and pesticides) will be made available to support and underpin the mainstreaming of the LDN framework into the 25 by 2025 Food Importation Reduction Initiative. Proposed activities include:

- A Review of existing Land policies to determine if policy coherence is required. (Belize is reviewing their National land policy under Phase 1 to include LDN, SSM, SLM).
- Development of a Model Regional LDN Policy (SSM, SLM) and draft legislation that countries can use as a template to develop their own policies.
- Presentation of the draft to regional Soil Support Group for review and approval
- Ratification at COTED of Draft Framework and Policy.

Output 5.2.3. SSM and SLM integrated into key regional policies and programmes

107. Since the approval of SOILCARE 1 the Heads of Government have adopted several relevant policy instruments, namely the Community Environmental and Natural Resources Policy Framework and the 25 by 2025 Food Importation Reduction Initiatives. Notably these policy instruments do not make specific reference to LDN, hence a key strategy during SOILCARE 2 will be to bring LDN as a central element of the implementation of these policy instruments.

108. The Partnership Initiative for Sustainable Land Management (PISLM) for Caribbean SIDS, as the inter-governmental convening mechanism for the Caribbean SIDS participation in the UNCCD will be in charge of the necessary outreach and advocacy process, and support the integration of the SSM, SLM and LDN technical aspects in regulatory frameworks. Proposed activities under this output include:

-
  - Support 6-8 countries to develop national land policies
  - Training in writing national drought plans.
  - Support countries to develop National Drought Plans and policies including obtaining Cabinet approval.

Global Environmental Benefits

109. The project will contribute to global benefits, as a direct contribution to the attainment of SDG Target 15.3 in doing so it will also contribute to the attainment of a number of SDGs including SDG 1 "No Poverty," SDG 2 "Zero Hunger," SDG 6 "Water and Sanitation," SDG 8 "Decent Work and Economic Growth," SDG 13 "Climate Action". It will also contribute to "Reduce Inequality" as reflected in SDG 10 and "Gender" SDG 5. The project will also foster the CSIDS contribution to the implementation of the Global Soil Partnership. In doing so it will contribute to improving soil information in CSIDS, in particular, on soil carbon as an important element for implementing LDN. The project will also contribute to addressing global climate change in several ways, by reducing land degradation including the degradation of soil carbon, the promotion of Climate Smart Agriculture and the reduction of greenhouse gases through the promotion of regeneration of degraded lands and the promotion and application of climate resilient adaption technologies and processes.

110. Relevant shareholders and their contributions to project development and implication and contribution to the Attachment of Global Benefits. The project will engage a wide spectrum of stakeholders including policymakers who must approve the broad parameters of the project, to the technical personnel whose function is to ensure the technical soundness of the various interventions, to farmers including women and youth and the communities in which they live who are some of the key benefactors of the project. The role of farmers, resource users, and their communities are critical to the implementation of the project activities and hence the attainment of the global benefits which will result from the project's implementation.

Incremental reasoning

111. As described above, SOILCARE II will build strongly on the tools and approaches developed under Phase I currently under implementation. Under Component 1, GEF resources will be used to implement baseline activities (laboratory assessments, national surveys) in the countries that were not part of Phase 1 to ensure that all Caribbean countries have good quality soil data to support the implementation of their LDN commitments. These countries will also be included into the CARSIS and the CARLAN established under Phase I. GEF Resources will also be used to develop a Decision

Support System (Output 1.1.4) that all SOILCARE countries can use to support decision-making. This DSS will build on the Google Earth Engine Applications developed by FAO and WOCAT and applied in other GEF-funded project in Latin America.

112. Under Component 2, GEF resources will be used to test and upscale SLM/SSM practices in the target countries to improve soil productivity, improve ecosystem services, and to restore soils. In coordination with the ISLANDS Program, GEF resources will also support pilot activities to optimize the use of agrochemicals. This Component will build on practices tested under Phase 1, including those tested in the RAC/NAT facility. In order to support the transformation of productive systems, Component 4 will support the mobilization of financial resources and the private sector. GEF resources will be used to capitalize and operationalize the LDN Transformative Fund Mechanism being designed under Phase 1. Special investment will be designed for youth and women target groups.

113. Component 3 focuses on drought and flood management. GEF resources will be used to advance towards an integrated multi-hazard (drought and flood) monitoring system and to develop vulnerability and risk assessments for six pilot landscape and watershed areas. These activities will build on and help improve existing national early warning systems. This component will involve all SOILARE countries as Phase I is not addressing drought and floods directly.

114. Finally, GEF resources under component 5 will be used to advance investments done under Phase 1. Specifically, the Phase II resources will be used to expand the reach of the RAC/NAT facility. In terms of capacity building needs, special attention will be paid to women, youth, and Indigenous Peoples, including the design and operation of the Youth Innovation Agricultural Development Initiative. GEF resources will also be used to review LDN targets in all countries and support the development of national land policies in new SOILCARE countries.

Policy Coherence

115. The project will contribute to and address the voluntary targets established by the LDN Target Setting Process as part of the countries commitment to achieving a land degradation neutral world. It will also contribute to the enhancement of national and regional policies on sustainable soil management, LDN, and to the promotion and application of climate resilient techniques and practices.

Innovation and potential to scale up

116. The project is both transformative and innovative. In the case of the former, the project, like its forerunner SOILCARE 1, continues the way of sustainable Land Management in CSIDS with an innovative design as it combines regional aspects with a range of sub-national characteristics. This provides opportunities for multi-scale cross-fertilization and horizontal and vertical learning across partners and from national to regional level and back respectively. The project has a transformative vocation by putting in place effective knowledge transfer dissemination strategies to reach a wider cross-section of stakeholders across multiple scales, that are expected to foster behavioural changes towards SSM and SLM. By targeting regional policy spheres, it is enabled an improvement of the institutional and legislation frameworks that will encourage the implementation of the LDN approach and subsidiary SSM and SLM practices, while removing subsidies and incentives to unsustainable management. The transformative character of CSIDS-SOILCARE Phase II is also evident in the aim to improve the financial environment through the establishment of transformative funding mechanisms to increase financial resource access for a widespread adoption of SSM and SLM

[2] L. Fontes de Meira and W. Phillips. “An economic analysis of flooding in the Caribbean: the case of Jamaica and Trinidad and Tobago”, Studies and Perspectives series-ECLAC subregional headquarters for the Caribbean, No. 78 (LC/TS.2019/55-LC/CAR/TS.2019/1), Santiago, Economic Commission for Latin America and the Caribbean ECLAC), 2019.

[3] This is one of the Initiatives proposed to be implemented under the GEF funded project entitled “**Demonstration of a Caribbean Mechanism Toward Establishment of a SIDS-SIDS Green-Blue Economy Knowledge Transfer Hub.”**

Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

Yes

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

117. As in the case of SOILCARE 1, the proposed project will be executed by PISLM. At the request of the countries (see LOEs), FAO may play a minor role (not more than 2 or 3 percent of project resources) in project execution. This FAO execution will be limited to activities leading to the transfer of capacity to national experts and institutions on the application of relevant tools such as the LDN Decision Support System, NEXT, RECSOIL or the Climate Risk Toolbox.

118. In terms of cooperation with ongoing initiatives and projects including the potential for co-location and/or the sharing of expertise/staffing, SOILCARE 2, which will not only require the expansion of SOILCARE 1 institutional structure but will require the introduction of new structures (e.g., the establishment and operationalization of the LDN Transformative Funding Mechanism etc.).

119. SOILCARE 2 will also build cooperative relations with the GEF funded project entitled “Demonstration of a Caribbean Mechanism Toward Establishment of a SIDS-SIDS Green-Blue Economy Knowledge Transfer Hub.” to facilitate this a work group has been established between the Executing Agency of the two project.

120. The project will build upon the achievements of the work done in the countries that have established Trust funds under the Caribbean Biodiversity Funds, Caribbean Challenge Initiative, and its own Transformative Fund which structure and operations modalities are being worked on. Specifically, SOILCARE II will pilot investments in SSM, value chain improvement and alternative livelihood initiatives with a specifically focus on youth and with gender perspective (Output 4.1.2) and design investment plans (Output 4.1.3). Lessons learned and experiences from approaches to capitalization, SOILCARE 11 and other investments, would be discussed and analyzed at regional forums to deduce a feasible approach for CSIDS.

121. Further, the work done in SOILCARE 1 focusing on LDN, Landscape Restorations, SSM, SLM supports and contributes to the work being done in the countries under the “20 by 20” Goal, to effectively conserve and manage at least 20% of the marine and coastal environment by 2020. The existing trust funds provide fully functioning financial mechanisms that provide reliable funding to conserve and sustainably manage the marine and coastal resources and the environment over the long term. SOILCARE II's work will complement these activities in the terrestrial environment.

Core Indicators

Indicator 3 Area of land and ecosystems under restoration

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
28000	0	0	0

Indicator 3.1 Area of degraded agricultural lands under restoration

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
Cropland	28,000.00			

Indicator 3.2 Area of forest and forest land under restoration

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

Indicator 3.3 Area of natural grass and woodland under restoration

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

Indicator 3.4 Area of wetlands (including estuaries, mangroves) under restoration

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

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
70000	0	0	0

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)

Indicator 4.2 Area of landscapes under third-party certification incorporating biodiversity considerations

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)
70,000.00			

Indicator 4.4 Area of High Conservation Value or other forest loss avoided

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

Indicator 4.5 Terrestrial OECMs supported

Name of the OECMs	WDPA-ID	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)

Documents (Document(s) that justifies the HCVF)

Title

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	2,760			
Male	4,140			
Total	**6,900**	**0**	0	**0**

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

The detailed assessment of target sites and their precise measurement (in areas) will be done during the project preparation phase (PPG phase). Budget limitations do not allow us to carry out field visits at this stage in each of the countries. Therefore, it was assumed that each country will restore, on average, at least 2,000 ha with GEF resources (including low-cost activities such as assisted natural regeneration aligned with avoiding and reducing degradation in the LDN hierarchy) and will sustainably manage on avegare 5,000 ha of productive lands (including areas for which management plans have been developed as per GEF policy). Given that it is not clear what type of intervention will be implemented at this stage, it is not possible to reliably calculate GHG emissions (Core Indicator 6). Nonetheless, this will be done during the PPG phase.

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Substantial	The participating countries are prone to natural disasters including hurricanes and other tropical systems, flooding, as well as volcanoes and earthquakes, which if occur can pose a risk to achievement of the project outputs. In the case of hurricanes their intensity may be

		increasing because of climate change. Hurricanes may bring significant damage to the agriculture sector
Environmental and Social	Low	The project will promote sustainable soil, land, and water management and as such will help improve the living conditions of beneficiaries in the target areas. as well as drought management.
Political and Governance	Low	The project has been developed based on guidance provided by xxx to PISLM a request from the Government of Barbados. Hence, it is closely aligned with political will and directives.
INNOVATION		
Institutional and Policy		
Technological		
Financial and Business Model		
EXECUTION		
Capacity for Implementation	Moderate	SOILCARE I has started a process to enhance institutional capacity at the country level to implement LDN projects. The proposed project will build on these efforts, including allocating resources to ensure countries have enough people available with the adequate capacity to implement the project
Fiduciary	Low	The project will be executed by PISLM, an agency that is successfully implementing SOILCARE 1. PISLM was evaluated as a “low fiduciary risk agency” and has shown it has the capacity to deliver large projects, including financial management and procurement of goods and services. In its role as implementing agency, FAO will provide, as needed,

		guidance on financial management and procurement issues.
Stakeholder	Moderate	Participation of Indigenous Peoples in regional projects has been historically low. This project makes specific provision for activities to be undertaken in areas under the jurisdiction of indigenous peoples. Consequently, and following the approach established in SOILCARE !, indigenous peoples and their representatives will participate in the decision making instructional structures (e.g. National Advisory Groups etc.) designed for the implementation of the project. A second source of risk is the resistance of farmers to adopt new tools and technologies designed to improve their livelihoods. The proposed project will work in conjunction with the resources users and managers to not only introduce these practices theoretically but will also engage them in field application and training to show their potential
Other		
Overall Risk Rating	Moderate	

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

122. SOILCARE II aligns with Land Degradation Focal Area programming directions, particularly with Objectives 1 and 3. SOILCARE II is fully aligned with ***Objective 1. Avoid and reduce land degradation through sustainable land management (SLM)***, which promotes the wider application and scaling of SLM interventions that improve productivity and maintain or improve flow of agro-ecosystem services that underpin food production and livelihoods. More specifically, the proposed project promotes a number of strategies, including, **Climate Smart Agriculture (CSA)** which aims at transforming and reorienting agricultural systems to support food security while at the same time taking into

consideration climate change trends (e.g. rainfall, temperature patterns etc.), the potential for food market disruptions as well as the need for avoiding GHG emissions and sequestering carbon in agricultural land use systems while building the adaptive capacity and resilience of farmers and improves resource use efficiency of the production systems, being employed. It also promotes the **Drought-smart land management (D-SLM)** which characterizes land-based interventions for drought mitigation (e.g. interventions which improve the capacity of soil to accept, retain, release and transmit water and increase plant water use efficiency).

123. SOILCARE II is also aligned to ***Objective 3. Address desertification, land degradation, and drought (DLDD) issues,*** in particular, with a focus on the inter-linkages between land and land resources and drought mitigation. In this regard, emphasis is placed on building resilience to mitigate the effects of droughts and to prevent the aggravating effects of land degradation through comprehensive land-use planning taking drought risks into account; the implementation of drought-smart land management (D-SLM), the promotion of more indigenous drought resistant species and the promotion of strategies such as mixed land-uses and effective and participatory land and water governance as an important enabling environment for drought mitigation.

124. The proposed project will contribute to the following GBF targets, though their precise contribution will need to be evaluated during the PPG phase:

- The SOILCARE program will support participatory integrated biodiversity inclusive spatial planning and effective management processes addressing land use change, while respecting the rights of indigenous peoples and local communities (GBF Target 1). The key metric here will be in the cases where intensification and/or other sustainable practices are reducing conversion pressure on nearby high biodiversity areas.
- Under component 2, SOILCARE II will support restoration of degraded ecosystems, with benefits for biodiversity as well as for the provision of ecosystem services to food systems (GBF Target 2).
- Improved management practices along the length of the value chain (such as low external input agriculture and pollution-free processing) will reduce pollution risks and the negative impact of pollution (GBF Target 7).
- SOILCARE II will promote the increased application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, so that target areas (including those under agriculture, pastures and forestry) are managed sustainably (GBF Target 10).
- SOILCARE II will apply nature-based solutions and ecosystem-based approaches that restore, maintain and enhance nature's contributions to people, including ecosystem functions and services (GBF Target 11); the agricultural approaches promoted by the IP will for example benefit soil health and may also provide pollination benefits.

125. The Project will help the countries meet their objectives, responsibilities, and commitments under the UNCCD Convention, their respective LDN country commitments and associated national strategies. Specifically, the project directly addresses land degradation policies, plans and programs supporting the implementation of current initiatives to contribute to nationally determined contributions (NDCs) submissions, national action plans (NAPs), national drought plans (NDPs) and other international commitments of the target countries. For more details on how the project directly aligns with each of the 14 participating countries national policy priorities refer to the detailed annexed document.

126. The project, with the review of LDN targets and assessment and development of a draft regional model for LDN policies and legislation, will ensure that all countries are at the same level with regard to policy coherence. The review of national land and natural resources policies will include those that focus on Climate change, CBD, and the blue economy.

127. Through the expansion of the project and the inclusion of all SOILCARE Phase II countries, the Caribbean Soil Support Group for SSM/SLM will expand its support and contribute to reviewing and making recommendations on what actions will have the greatest impact at the national and sub-national level. It will also foster stronger collaboration with the Latin American and Caribbean Soil Partnership (ASLAC) and UNCCD focal points.

128. The work of the relevant frameworks and bodies will help to get consensus at the regional policy level in support of the integration of the LDN framework and related SSM and SLM in relevant policy and normative frameworks. This will include other bodies such as the Caribbean Soil Laboratory Network (CARSOLAN) which are critical for supporting actions at the farm and field level. The GSP Soils Doctors program will be a critical tool used by PISLM to achieve the consensus at farm and field level.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

Provide a brief summary and list of names and dates of consultations

Table 1. Stakeholder list and expected role during implementation

Stakeholders	Summary of Mandates	Roles in Project Implementation

The Caribbean Community and its Organs (e.g. the Conference of the Heads of Government, Council on Trade and Economic Development (COTED) etc.)	The Organs of the Community are its Decision-making bodies which reflect the will of the Community.	Provide overall guidance to the program and ensure the integration of the project Outputs into the various Policy Frameworks of the Community Provide the regional policy framework for the implementation of the various outcomes.
The PISLM High Level Ministerial Group	Policy directives and political support for strengthening Sub-Regional Land Management agenda and the Caribbean vision for SLM	The Minister who sits on the PISLM High Level Ministerial Meeting will have overall policy oversight for both SOILCARE I and II. Plays an important role in ensuring that the project outputs are integrated into the various Caribbean Community Policy Framework.
Partnership Initiative for Sustainable Land Management (PISLM)	PISLM was established based on a decision taken at the Caribbean Sub-Regional workshop on Land Degradation in February 2004. PISLM serves as a mechanism to facilitate exchange of good land management practices between participating countries, and serves as a mechanism for stimulating the replication of approaches, tools and methodologies throughout the region.	Executing agency for SOILCARE I and II Will host project management unit. Overall day-to-day responsibility for the execution of the program.
The PISLM Task Force	The main function of the PISLM Task Force is to provide operational policy guidance to the PISLM taking into consideration the policy directives which are provided by the various Ministerial and Inter-government Bodies.	Monitor the application of the resources of the recurrent and capital budgets of the PISLM in order to ensure that such resources are being employed in accordance with this Agreement and the Work Programme of the PISLM approved by the Task Force
Ministries of Environment and Agriculture in the participating countries.	Have the legal mandates for Environment and Agriculture, respectively.	The participating countries in the project will have multiple roles. At the Policy Level, The UNCCD Focal Points of the participating countries which will also serve as the Focal Point for this project, will be responsible for the overall management of the Project at the national level and ensuring effective participation in the regional activities being undertaken under the project. Will be key in defining the target sites under component 2 and 3.
	Indigenous Peoples are a major target group of this project, in particular, in those countries where specific	At the national levels in the participating countries, the competent Indigenous

Indigenous Peoples and their Organizations	activities are being undertaken with the participation of Indigenous peoples	Peoples organization, particularly, in those countries, which have a significant number of Indigenous Peoples will sit on the National Inter-Agency Advisory Group. One of the principal functions will be to ensure that the Executing Agency involves Indigenous Peoples, especially the youth in the various components of the project. Specific project activities involving indigenous peoples will be undertaken in Guyana.
Youth Organizations in the Participating Countries	A major target group for the project will be the youth of the participating countries, particularly under outputs 4.1.3 and 5.1.3.	At the national levels, the competent national organization for Youth and/or voluntary umbrella organization representing them will sit on the National Inter-Agency Advisory Group. One of the principal functions will be to ensure that the Executing Agency involves youth in the various components of the project. A strategic goal of various components, in particular, Component 3 is to attract youth involvement in agriculture
Women's Organizations in the Participating Countries	Women will be one of the major beneficiaries of the project and will participate in all aspects of the project. .	At the national levels, the competent national organization for the promotion of women's rights (e.g., Ministries or Bureaus of Women's Affairs etc.) and/or voluntary umbrella organization representing women's groups will sit on the National Inter-Agency Advisory Group. One of the principal functions will be to ensure that the Executing Agency works with communities and organizations, as may be necessary, to ensure gender equity in participation of women in project activities and to help ensure that the socioeconomic benefits resulting from project activities impact equally on the lives of woman.
Farmers organizations in the Participating countries	The farmers' organizations and their members in the participating countries are the downstream beneficiaries of the project.	Role in the Project: Farmers' organizations will participate by providing inputs on sustainable agricultural approaches that could be promoted by the project, and on the best delivery mechanisms for those approaches.
Academia, in particular, the University of the West Indies, St. Augustine	To Undertake Research and Training	The UIW will continue with the support provided to countries under SOILCARE 1 under component 1. It will ensure that new

Campus, Trinidad and Tobago, University of Guyana, Guyana and the University of Belize, Belize.		countries are brought up to date regarding soil data. Other universities, such as the University of Guyana or the University of Belize, will provide technical and scientific support to their governments in implementing its national project activities; sit on the Sub-regional Sustainable Soil Management (SSM) Framework Agreement Group as well as assist with the delivery of the training aspects of the project.
Caribbean Development Bank (CDB)	Assist Borrowing Member Countries in, but not limited to: optimise the use of their resources, developing their economies and expanding production and trade, promote private and public investment, encourage financial upturn in the Region and facilitate business activity and expansion provide technical assistance to its regional borrowing members support	Assist in mobilizing private and public funds for specific aspects of the project implementation, particularly under component 4. Provide technical assistance in structuring financial options for post project continuation within Caribbean SIDS.
Caribbean Agricultural and Research and Development Institute (CARDI	An Institution of the Caribbean Community charged with the responsibility of providing for the research and development needs of the agriculture of the region as identified in national plans and policies, as well as providing an appropriate research and development service to the agricultural sector of member countries.	CARDI will provide technical guidance and training in sustainable agricultural practices, as may be necessary as well as participate actively in the Sub-regional Sustainable Soil Management (SSM) Framework Agreement Group various Project Platforms
Inter-American Institute for Cooperation in Agriculture (IICA)	IICA supports member countries to improve the productivity and competitiveness of their agricultural sectors, including improving agriculture's capacity to mitigate and adapt to climate change. In Dominica, IICA provides technical support on rural livelihoods, women and youth in agriculture, apiculture, and agrotourism, and it supports the development of agricultural policy and strategic plans.	IICA will provide technical guidance and training in sustainable agricultural practices, as may be necessary as well as participate actively in the Sub-regional Sustainable Soil Management (SSM) Framework Agreement Group and the various Project Platforms.

Table 2. Summary of consultations

Date	Country Party Attendees	PISLM Attendees
20/07/2023	**Belize** – Michelle Alvarez (UNCCD Focal Point)	Lakeram Singh (CTO)
16/08/2023	**Suriname**- Jiechel Kasandiredjo (UNCCD Focal Point)	Calvin James (ED), Lakeram Singh (CTO)
02/10/2023	**Grenada**- Noel Joseph (UNCCD Focal Point), Peron Johnson (PS Environment), Aaron Francis (PS Agriculture), Allison Haynes (GSP Focal Point)	Calvin James, Lakeram Singh, Trevor Thompson (Project Manager)
08/08/2023	**St. Lucia**- Alwin Dornelly (UNCCD Focal Point)	Lakeram Singh, Trevor Thompson
17/07/2023	**St. Vincent and the Grenadines** - Janeel Miller-Findlay (GEF Focal Point), Shanae Browne, Kurt Dougan, Samantha Jagmohan, Brenton Quammie, Tyshana Thomas.	Calvin James, Lakeram Singh
06/09/2023	**Guyana** – Andrea Mahammad (Head of Planning, Guyana Lands and Surveys Commission), Roland Austin (National Project Assistant, CSIDS-SOILCARE Phase 1)	Lakeram Singh
10/10/2023	Andrea Mahammad and Roland Austin- **Guyana** Joseph Noel- **Grenada** Awin Dornelly- **St. Lucia** Eric Browne- **St. Kitts and Nevis** Edgar Hunter- **Dominica** Julius Smith- **Trinidad and Tobago** Eder Audate- **Haiti** Michelle Alvarez- **Belize** Oraine Nurse- **Antigua and Barbuda** Patrick Watson- **Jamaica**	Calvin James Lakeram Singh Trevor Thompson

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

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

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant($)	Agency Fee($)	Total GEF Financing ($)
FAO	GET	Antigua and Barbuda	Land Degradation	LD STAR Allocation: LD-1	Grant	335,616.00	30,205.00	365,821.00
FAO	GET	Bahamas	Land Degradation	LD STAR Allocation: LD-1	Grant	1,342,464.00	120,821.00	1,463,285.00
FAO	GET	Barbados	Land Degradation	LD STAR Allocation: LD-1	Grant	1,006,847.00	90,616.00	1,097,463.00
FAO	GET	Belize	Land Degradation	LD STAR Allocation: LD-1	Grant	82,308.00	7,407.00	89,715.00
FAO	GET	Dominica	Land Degradation	LD STAR Allocation: LD-1	Grant	1,342,464.00	120,821.00	1,463,285.00
FAO	GET	Grenada	Land Degradation	LD STAR Allocation: LD-1	Grant	1,006,849.00	90,616.00	1,097,465.00
FAO	GET	Guyana	Land Degradation	LD STAR Allocation: LD-1	Grant	1,006,847.00	90,616.00	1,097,463.00
FAO	GET	Haiti	Land Degradation	LD STAR Allocation: LD-1	Grant	401,690.00	36,152.00	437,842.00

FAO	GET	Jamaica	Land Degradation	LD STAR Allocation: LD-1	Grant	1,006,848.00	90,617.00	1,097,465.00
FAO	GET	St. Kitts and Nevis	Land Degradation	LD STAR Allocation: LD-1	Grant	1,342,465.00	120,822.00	1,463,287.00
FAO	GET	St. Lucia	Land Degradation	LD STAR Allocation: LD-1	Grant	1,006,848.00	90,617.00	1,097,465.00
FAO	GET	St. Vincent and Grenadines	Land Degradation	LD STAR Allocation: LD-1	Grant	1,006,848.00	90,617.00	1,097,465.00
FAO	GET	Suriname	Land Degradation	LD STAR Allocation: LD-1	Grant	671,233.00	60,411.00	731,644.00
FAO	GET	Trinidad and Tobago	Land Degradation	LD STAR Allocation: LD-1	Grant	1,005,967.00	90,538.00	1,096,505.00
FAO	GET	Antigua and Barbuda	Land Degradation	LD STAR Allocation: LD-3	Grant	115,088.00	10,358.00	125,446.00
FAO	GET	Bahamas	Land Degradation	LD STAR Allocation: LD-3	Grant	460,349.00	41,431.00	501,780.00
FAO	GET	Barbados	Land Degradation	LD STAR Allocation: LD-3	Grant	345,262.00	31,073.00	376,335.00
FAO	GET	Belize	Land Degradation	LD STAR Allocation: LD-3	Grant	28,225.00	2,540.00	30,765.00
FAO	GET	Dominica	Land Degradation	LD STAR Allocation: LD-3	Grant	460,349.00	41,431.00	501,780.00
FAO	GET	Grenada	Land Degradation	LD STAR Allocation: LD-3	Grant	345,262.00	31,073.00	376,335.00
FAO	GET	Guyana	Land Degradation	LD STAR Allocation: LD-3	Grant	345,262.00	31,073.00	376,335.00

FAO	GET	Haiti	Land Degradation	LD STAR Allocation: LD-3	Grant	137,744.00	12,396.00	150,140.00
FAO	GET	Jamaica	Land Degradation	LD STAR Allocation: LD-3	Grant	345,261.00	31,072.00	376,333.00
FAO	GET	St. Kitts and Nevis	Land Degradation	LD STAR Allocation: LD-3	Grant	460,348.00	41,430.00	501,778.00
FAO	GET	St. Lucia	Land Degradation	LD STAR Allocation: LD-3	Grant	345,261.00	31,072.00	376,333.00
FAO	GET	St. Vincent and Grenadines	Land Degradation	LD STAR Allocation: LD-3	Grant	345,261.00	31,072.00	376,333.00
FAO	GET	Suriname	Land Degradation	LD STAR Allocation: LD-3	Grant	230,174.00	20,715.00	250,889.00
FAO	GET	Trinidad and Tobago	Land Degradation	LD STAR Allocation: LD-3	Grant	344,959.00	31,045.00	376,004.00
FAO	GET	Regional	Land Degradation	LD Global/Regional Set-Aside	Grant	1,094,000.00	98,460.00	1,192,460.00
Total GEF Resources ($)						**17,968,099.00**	**1,617,117.00**	**19,585,216.00**

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount ($)

299995

PPG Agency Fee ($)

26990

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	PPG($)	Agency Fee($)	Total PPG Funding($)

FAO	GET	Antigua and Barbuda	Land Degradation	LD STAR Allocation: LD-1	Grant	8,012.00	721.00	8,733.00
FAO	GET	Bahamas	Land Degradation	LD STAR Allocation: LD-1	Grant	32,051.00	2,884.00	34,935.00
FAO	GET	Barbados	Land Degradation	LD STAR Allocation: LD-1	Grant	24,039.00	2,163.00	26,202.00
FAO	GET	Dominica	Land Degradation	LD STAR Allocation: LD-1	Grant	32,051.00	2,884.00	34,935.00
FAO	GET	Grenada	Land Degradation	LD STAR Allocation: LD-1	Grant	24,038.00	2,162.00	26,200.00
FAO	GET	Guyana	Land Degradation	LD STAR Allocation: LD-1	Grant	24,039.00	2,163.00	26,202.00
FAO	GET	Haiti	Land Degradation	LD STAR Allocation: LD-1	Grant	9,590.00	863.00	10,453.00
FAO	GET	Jamaica	Land Degradation	LD STAR Allocation: LD-1	Grant	24,039.00	2,163.00	26,202.00
FAO	GET	St. Kitts and Nevis	Land Degradation	LD STAR Allocation: LD-1	Grant	32,051.00	2,884.00	34,935.00
FAO	GET	St. Lucia	Land Degradation	LD STAR Allocation: LD-1	Grant	24,039.00	2,163.00	26,202.00
FAO	GET	St. Vincent and Grenadines	Land Degradation	LD STAR Allocation: LD-1	Grant	24,039.00	2,163.00	26,202.00
FAO	GET	Suriname	Land Degradation	LD STAR Allocation: LD-1	Grant	16,025.00	1,442.00	17,467.00
FAO	GET	Trinidad and Tobago	Land Degradation	LD STAR Allocation: LD-1	Grant	24,017.00	2,161.00	26,178.00
FAO	GET	Belize	Land Degradation	LD STAR Allocation: LD-1	Grant	1,965.00	174.00	2,139.00
Total PPG Amount ($)						**299,995.00**	**26,990.00**	**326,985.00**

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/	Focal Area	Sources of Funds	Total($)

		Regional/ Global			
FAO	GET	Antigua and Barbuda	Land Degradation	LD STAR Allocation	500,000.00
FAO	GET	Bahamas	Land Degradation	LD STAR Allocation	1,808,400.00
FAO	GET	Barbados	Land Degradation	LD STAR Allocation	1,500,000.00
FAO	GET	Dominica	Land Degradation	LD STAR Allocation	2,000,000.00
FAO	GET	Grenada	Land Degradation	LD STAR Allocation	800,000.00
FAO	GET	Guyana	Land Degradation	LD STAR Allocation	1,500,000.00
FAO	GET	Haiti	Biodiversity	BD STAR Allocation	598,435.00
FAO	GET	Jamaica	Land Degradation	LD STAR Allocation	1,500,000.00
FAO	GET	St. Kitts and Nevis	Land Degradation	LD STAR Allocation	2,000,000.00
FAO	GET	St. Lucia	Land Degradation	LD STAR Allocation	1,500,000.00
FAO	GET	St. Vincent and Grenadines	Land Degradation	LD STAR Allocation	1,500,000.00
FAO	GET	Suriname	Land Degradation	LD STAR Allocation	1,000,000.00
FAO	GET	Trinidad and Tobago	Land Degradation	LD STAR Allocation	1,498,687.00
FAO	GET	Bahamas	Biodiversity	BD STAR Allocation	191,600.00
FAO	GET	Belize	Land Degradation	LD STAR Allocation	40,873.00
FAO	GET	Belize	Biodiversity	BD STAR Allocation	40,874.00
FAO	GET	Belize	Climate Change	CC STAR Allocation	40,872.00
FAO	GET	Grenada	Biodiversity	BD STAR Allocation	700,000.00
Total GEF Resources					**18,719,741.00**

Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
LD-1	GET	13,659,294.00	23000000
LD-3	GET	4,308,805.00	3500000
Total Project Cost		**17,968,099.00**	**26,500,000.00**

Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Line ministries from every participating country	In-kind	Recurrent expenditures	21000000
Private Sector	Farmer groups	In-kind	Recurrent expenditures	3000000
Private Sector	Private sector	In-kind	Recurrent expenditures	1000000
Others	Academic institutions	In-kind	Recurrent expenditures	500000
GEF Agency	FAO	In-kind	Recurrent expenditures	1000000
Total Co-financing				**26,500,000.00**

Describe how any "Investment Mobilized" was identified

test

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	Mr. Jeffrey Griffin				Jeffrey.griffin@fao.org
Project Coordinator	Mr. Hernan Gonzalez				Hernan.gonzalez@fao.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)
Diann Black Layne	Director	Department of Environment - Antigua and Barbuda	11/15/2023
Yolande J. Howard	Permanent Secretary	Ministry of Environment and National Beautification, Green and Blue Economy - Barbados	11/15/2023
Dr. Kenrick Williams	Chief Executive Officer	Ministry of Sustainable Development, Climate Change and Disaster Risk Management Belize	11/17/2023

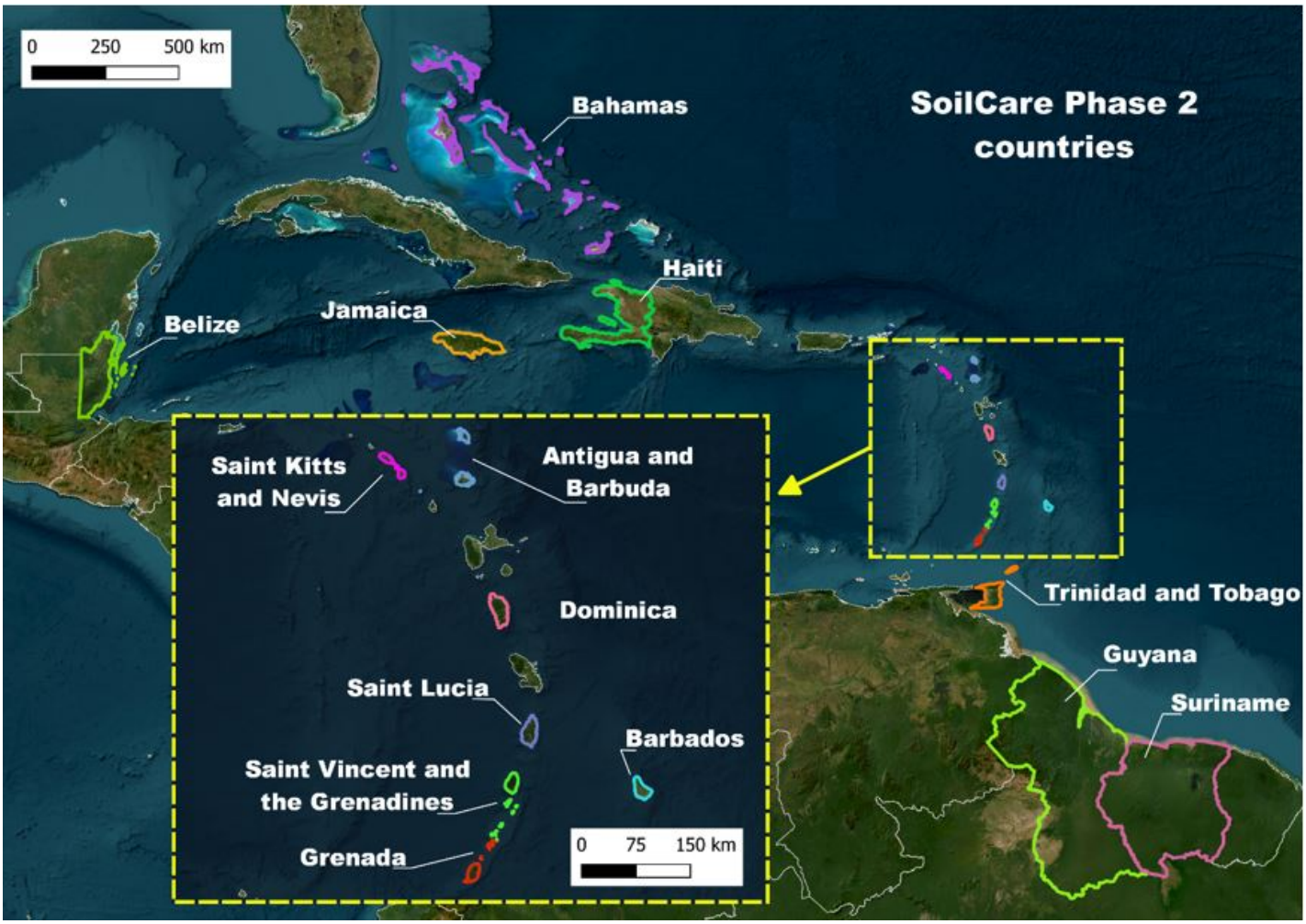
Ms. Kimisha Thomas	Senior Policy Advisor	Ministry of Environment, Rural Modernization and Kalinago Upliftment Dominica	10/30/2023
Mr. Kemraj Parsram	Executive Director	Environmental Protection Agency Guyana	11/7/2023
Mr. Joseph Astrel	General Director	Ministry of Environment Haiti	11/6/2023
Ms. Gillian Guthrie	Senior Director	Ministry of Water, Land, Environment and Climate Change - Jamaica	11/28/2023
Ms. Nerissa Williams	Permanent Secretary	Ministry of Environment, Climate Action, and Constituency Empowerment St Kitts and Nevis	11/23/2023
Ms. Justin Samanthia	Chief Technical Officer	Department of Sustainable Development Ministry of Education St. Lucia	11/14/2023
Mrs. Janeel Miller-Findlay	Director Sustainable Development Unit	Ministry of Tourism, Civil Aviation, Sustainable Development & Culture St Vincent and the Grenadines	11/13/2023
Ms. Vanuessa Gefferiee	Permanent Secretary for General and Financial Affairs	Ministry of Spatial Planning and Environment Suriname	11/15/2023
Mr. Hayden Romano	Managing Director	Environmental Management Authority Trinidad and Tobago	11/10/2023
Dr. Rhianna Neely-Murphy	Director	Department of Environmental Planning and Protection Bahamas	12/11/2023
Ms. Nicole Clarke	Permanent Secretary (AG)	Ministry of Mobilisation Implementation and Transformation - Grenada	3/1/2024

ANNEX C: PROJECT LOCATION

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

Geo-Coordinate for SoilCare Phase 2 Project

This is a Map showing the location of Countries that are part of the project from a regional perspective.



The geo-coordinates of each of the country area is as follows

Country Name	*Min Longitude*	*Min Latitude*	*Max Longitude*	*Max Latitude*	*Area hectares*
Antigua and Barbuda	-62.352	16.927	-61.659	17.729	44,322
Bahamas	-80.499	20.916	-72.712	27.232	1,334,098
Belize	-89.228	15.886	-87.490	18.496	2,215,121
Barbados	-59.649	13.040	-59.420	13.327	43,935
Dominica	-61.480	15.208	-61.241	15.639	75,125
	-61.800	11.992	-61.376	12.529	36,580

Grenada					
Guyana	-61.411	1.165	-56.477	8.548	21,153,758
Haiti	-74.480	18.022	-71.622	20.089	2,695,256
Jamaica	-78.367	17.704	-76.180	18.527	1,102,531
Saint Kitts and Nevis	-62.870	17.095	-62.543	17.420	27,577
Saint Lucia	-61.074	13.705	-60.874	14.103	61,740
Suriname	-58.050	1.831	-53.980	6.005	14,486,172
Trinidad and Tobago	-61.924	10.036	-60.490	11.338	518,117
Saint Vincent and the Grenadines	-61.459	12.530	-61.114	13.378	40,931

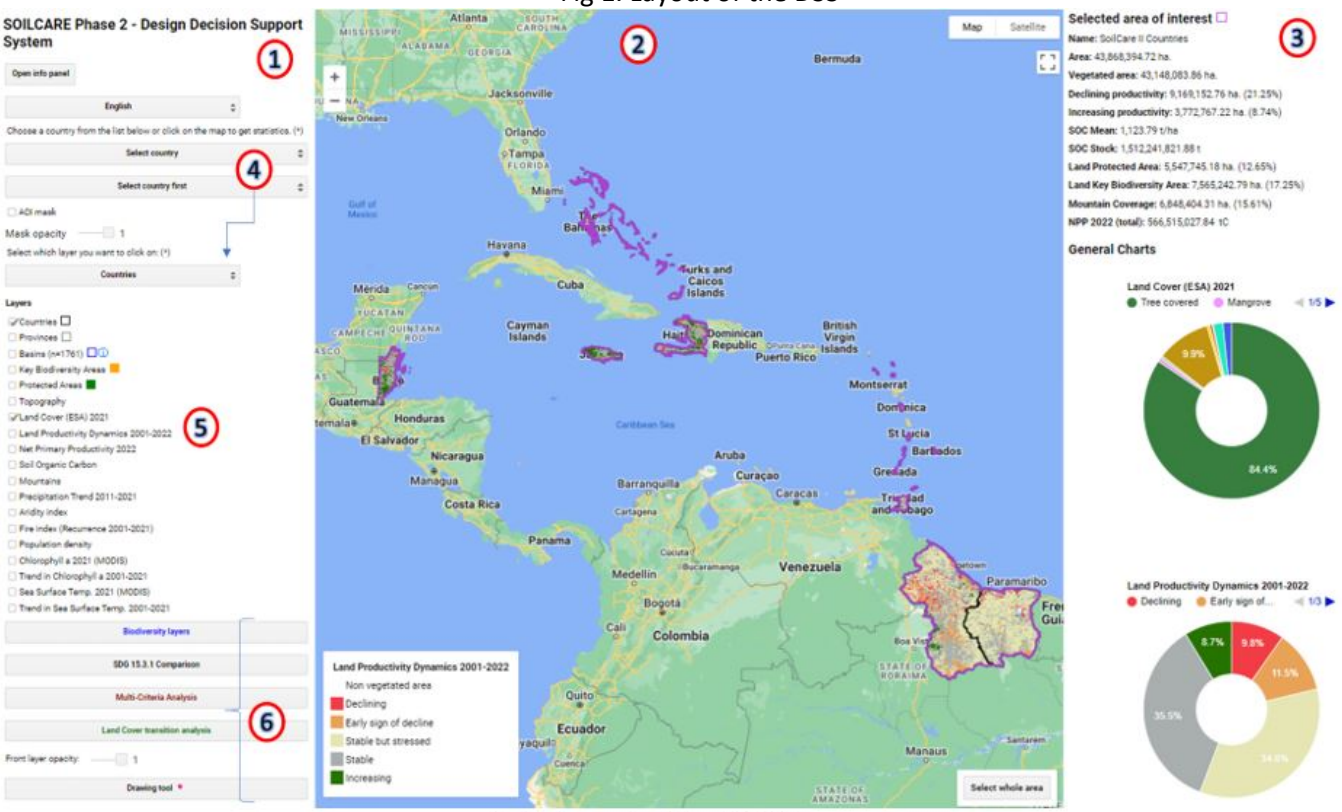
To better understand and present the Region of Interest for the Project and the information available to link indicators on LDN with biodiversity and climate a first draft of an interactive Decision Support System (DSS) was developed at the current phase. The DSS allows for context specific baseline establishment at the required scales, providing data at for different administrative and landscape units, with a set of spatial data layers, toolboxes and cross-analytical statistics. The tool is intended for experts and non-experts alike and is based on open source and free software, with all the code and data already open and available5. To access it please follow the link:

https://projectgeffao.users.earthengine.app/view/dss-soilcare

The current DSS the layout is presented in the next figure (Fig. 1). The system as 3 main panels: (1) Layer and Toolbox panel, where the user does most interactions, (2) Map view panel where cartographic responses are shown, (3) Statistic and Chart panel where information is updated according to the user choice of area of interest: Charts, Figures and Tables can be zoomed and downloaded together with their data. In the section (4) of the Tool panel, the user can choose how to query areas, either administrative areas from a list or using a specific layer to click on the map. The base layers are shown in section (5) for the user to choose, but extra layers can be found in toolboxes (6). The first toolbox is the **Biodiversity Layers** that contains some indicators related to biodiversity at different levels (species and landscape). The **SDG 15.3.1 Comparison Toolbox** allows the user to see LDN reporting products from different sources (UNCCD PRAIS 4 Defaults, Trends.Earth default and FAO-WOCAT defaults). The **Multi-Criteria Analysis** which allows to combine specific layers to find areas of interest (For example: Grasslands with decreasing productivity in non-mountain areas for restoration or cultivated with stable or improving productivity to protect or avoid degradation). Also, when this toolbox opens it provides statistic on the combination of three global LDN indicators: Land Cover, Soil Organic Carbon and Land Productivity

Dynamics, including reporting tables. The next toolbox is the **Land Cover Transition analysis** where users can choose to compare maps and obtain Gain/Loss from different initial years and products (ESA or Copernicus Maps). Finally, the system has a **Drawing tool** for participatory mapping, where users can create polygon layers and get stats to provide feedback or submit ideas i.e: mark areas of interest, sites undergoing important issues, map priority sites for specific SLM, etc.

Fig 1. Layout of the DSS



Fig·1.·Layout·of·the·DSS¶

Please also consider that each chart and table have in the top right corner an icon that allows you to download it in multiple formats including a data table. Layers also have a (i) which contains information on the source of the data. And below (4) you will find the **AOI Mask** button that improves visualization of the area of interest that you choose in order to screen capture maps.

ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title
SOILCARE Climate Risk Screening SOILCARE2_ESS_Screening

ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
No Contribution 0	No Contribution 0	No Contribution 0	Principal Objective 2

ANNEX F: TAXONOMY WORKSHEET

Please refer to system