

Republic of Suriname

Suriname Competitiveness and Sector Diversification Project (SCSD)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

(P166187)

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Executive Summary

The World Bank's program supporting development in Suriname is grounded in the Country Partnership Strategy (CPS) established between the World Bank Group (WBG) and the Government of Suriname in 2015. The strategy has the overarching goal of promoting sustainable, inclusive, and diversified growth in Suriname. Underpinning the CPS is a focus on strengthening environmental and social standards and impact management.

In an effort to further harness its natural and cultural capital to generate economic opportunities, the Government of Suriname (GOS) plans to diversify economic activity through an increase in private investment. The government's 2012-16 and 2017-21 'National Development Plans' and its 2016-18 'Stabilization and Recovery Plan' following the economic crisis, all highlight the need to diversify economic activity, including through an increase in private investment. The GOS has taken important steps to improve its ability to facilitate private sector growth and investment, such as the establishment of a Competitiveness Unit Suriname (CUS) in 2014 and the recent operationalization of InvestSur as the national investment promotion agency.

The Suriname Competitiveness and Sector Diversification (SCSD) Project is a specific lending operation being prepared under the World Bank's CPS to address these challenges and contribute to the National Development Plans. The development objective of SCSD is support sector governance improvements and increase competitiveness in targeted industries in Suriname, through three Project Components (PCs) of which PC 2 aims at supporting value chains and Small and Medium size Enterprises (SMEs). This PC will address constraints and strengthen targeted value chains, with a specific focus on promoting growth and diversification within agribusiness, tourism and other emerging sectors in Suriname. Foreseen activities under PC 2 include:

- The establishment of a SME support fund, financing business development services and matching grants for firm-level investments and competitive upgrading. This fund would provide direct support to SMEs that apply and are competitively selected. SMEs engaged in agribusiness or tourism activities will be targeted, but those engaged in other sectors would not be excluded. This fund will also finance matching grants to groups of firms working in a value chain for shared assets to increase value chain competitiveness. Support is expected to average US\$50k per SME, through business development services or matching grant co-investments targeting a total of 160 firms, and US\$250k in co-investments for group beneficiaries, targeting ten to twelve groups.
- Support for investment climate and institutional reforms. This activity will finance technical assistance and capacity support for the government to improve the investment climate for tourism and agribusiness and implement cross-cutting business environment reforms.

The SCSD Project is classified by the WBG as Category B, meaning that the potential adverse environmental impacts on human populations or environmentally important areas are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed. As it is anticipated that the activities under PC 2 - of which exact locations and impacts are not yet known - trigger the World Bank's Environmental Assessment Policy (OP.4.01), the *Environmental and Social Management Framework (ESMF)* is considered the most appropriate environmental and social management instrument and will be applicable throughout the duration of this SCSD Project, aiming to:

1. integrate environmental and social aspects into the pre-feasibility and feasibility analysis of potential sub-projects under PC 2 at the preparation and planning stages;
2. promote transparency through the use of stakeholder consultations and disclosure procedures;

3. consider possible uses of strategic environmental and social analyses;
4. encourage consideration of technical alternatives based on possible environmental and social impacts; and
5. Strengthen environmental and social management capacities within the national institutions and the project stakeholders.

The Project has designed safeguard frameworks for environmental protection and social rights to which all activities and business development under the SCSD Project must comply. These frameworks will assess, expose and analyse the potential environmental and social impacts of all activities of the Project. The Project has developed two primary safeguard instruments: this Environmental and Social Management Framework (ESMF), including a Resettlement Policy Framework (RPF), as well as an Indigenous and Tribal Peoples Planning Framework (ITPPF), including a Grievance Redress Mechanism (GRM), presented in a separate document. Decision-making on SCSD Project support activities, both public and private, will be based on the degree of compliance with these social and environmental safeguards.

Sections 3, 4 and 5 of this document successively provide a comprehensive baseline description of Suriname's legal, regulatory and policy framework; the country's environmental and social baseline; and deal with land use and land ownership.

Activities under PC 2 aim to increase private investment in value chains, especially in agribusiness and tourism, through individual SME and value chain group 'matching grant support' to improve tourism and agribusiness development and the competitiveness of value chains. The environmental and social management tools and checklists that have been developed under this ESMF apply for sub-project proposals when assessing the environmental and social impacts of proposed and future investments. They also apply in case service provider(s) are contracted for the deliverance of constructions and additional services. **Section 6** of this document provides an assessment of possible risks and impacts of potential sub-project proposals and an illustrative list of risks and impacts to be considered. For all identified potential impacts with a substantial to moderate significance, mitigating actions are required. A screening tool for the identification of potential impacts is included in Annex 1.

The proposed mitigating actions and the monitoring of the actions' effectiveness in eliminating or reducing the negative impacts of proposed sub-project activities must be addressed in an 'Environmental and Social Management Plan' (ESMP). This ESMP as described **Section 7** of this document, aims to identify feasible and cost-effective mitigating measures that may reduce potentially significant adverse environmental and social impacts to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient. Specifically, the ESMP:

- a. identifies and summarizes all anticipated significant adverse environmental impacts (including those involving indigenous people or involuntary resettlement);
- b. describes each mitigation measure, including the type of impact to which it relates and the conditions under which it is required, together with designs, equipment descriptions, and operating procedures, as appropriate;
- c. estimates any potential environmental (positive) impacts of these measures; and
- d. provides linkage with any other mitigation plans (e.g., for Involuntary Resettlement, Indigenous Peoples, or Cultural Property) required for the project.

Additionally, the ESMP clearly describes the design and implementing responsibilities of all proposed mitigating measures, including the monitoring and reporting on the effectiveness of these.

All proposed mitigation measures will be based on the World Bank's Mitigation Hierarchy which is considered crucial for all sub-project's activities aiming to achieve no overall adverse impact on biodiversity. Additional to the WBG Operational Policies on Environmental Management and

Suriname's national legal requirements, internationally recognised 'Best Practice' guidelines are proposed regarding (i) the collection and processing of Non-Timber Forest Products (NTFPs), (ii) sustainable fishery and (iii) aiming at sustainable tourism development.

To support the understanding of the ESMF and the use of the ESMP, elaborating on the abovementioned list of risks and impacts, **Section 7** provides examples of possible mitigating measures that may eliminate or reduce potentially adverse environmental and social impacts to acceptable levels. In agriculture, the introduction of Integrated Pest Management, aiming at the reduction of the use of hazardous and persistent agrochemicals, is described in **Section 8**.

Section 9 of this document deals with the capacity needs for implementing the ESMF. Representatives of the ministries of Natural Resources (MNR) and Trade, Industry and Tourism (MTIT) who will oversee the future SCSD Project Implementation Units (PIUs), realize there is a need to establish a functional system of environmental and social (E&S) management, likely including the hiring of both a social and an environmental expert to screen sub-project applications, identify social and environmental impacts, and report on them as needed. Additional to this, the PIUs consider contracting one or more E&S junior specialists who will closely cooperate with SCSD grant applicants (both public and private) to provide support in the grant application procedure. Furthermore, the PIUs will consider hiring a qualified consultation expert - as required - to support and oversee the public consultation processes at the sub-project level.

The MNR and MTIT do not have departments specifically dealing with environmental and social impact issues. Within the scope of the SCSD Project these capacities need to be developed. The PIU Project staff, as well as counterparts from NIMOS and other relevant officers within MTIT and MNR will undergo training on how to apply the ESMF and other safeguard frameworks. During Project implementation, the SCSD grant awardees, which also includes SMEs and private entrepreneurs, will be sensitized to strengthen social and environmental awareness, aiming at a better understanding and acceptance of the use of these safeguard frameworks and the identification, implementation and monitoring of mitigation measures, including IPM where relevant.

Nederlandstalige Samenvatting

Het ontwikkelingsprogramma van de Wereldbank (World Bank Group: WBG) in Suriname is wederzijds vastgelegd in de Partnerschap Strategie (Country Partnership Strategy: CPS) zoals overeengekomen met de regering van Suriname in 2015. De strategie heeft als overkoepelend doel het stimuleren van duurzame, inclusieve en een gediversifieerde groei van private bedrijvigheid in Suriname. Het partnerschap heeft hierbij een nadrukkelijke focus op het versterken van milieu- en sociale standaarden en impact management.

In haar voornemen tot een verdere benutting van het natuurlijk en cultureel kapitaal ten behoeve van economische ontwikkeling, streeft Suriname naar een verdere diversificatie van economische activiteit door het stimuleren van private investeringen. Dit voornemen is achtereenvolgens verwoord in het Nationaal Ontwikkelingsplan 2012-16 en 2017-21, en in het Stabilisatie en Herstelplan 2016-18. Al deze plannen onderkennen de noodzaak van economische diversificatie en het belang van private investeringen om dit te realiseren. Inmiddels heeft de regering van Suriname belangrijke stappen gezet om dit te stimuleren en te faciliteren, waaronder de instelling van de afdeling 'stimulering concurrentievermogen' binnen het ministerie van Handel, Industrie en Toerisme (Competitiveness Unit Suriname: CUS) en de recente operationalisering van InvestSur, het nationaal agentschap ter promotie van private investeringen.

Het Project Suriname 'Concurrentievermogen en Sector-Diversificatie' (Competitiveness and Sector Diversification: SCSD) dat momenteel wordt voorbereid als onderdeel van de CPS heeft als doel een concrete bijdrage te leveren aan de Nationale Ontwikkelingsplannen van Suriname. Doel van dit Project is het verbeteren van de governance van de ondersteunende sector en het vergroten van het concurrentievermogen in specifieke industrieën in Suriname. Het Project kent drie componenten waarvan Project Component 2 (PC 2) de volgende activiteiten kent:

- Een fonds voor Midden- en Klein Bedrijf (Small and Medium size Enterprises: SMEs), ter financiering van bedrijfsontwikkeling en cofinanciering van fysieke investeringen in productiegoederen. Dit zal 160 individuele bedrijven ten goede komen, met gemiddeld 50.000 steun per bedrijf. Dit fonds financiert ook vergelijkbare subsidies aan groepen bedrijven die werken in een waardeketen voor gedeelde activa om het concurrentievermogen van de waardeketen te vergroten, met een gemiddelde van US \$ 250.000 in co-investeringen voor groepsbegunstigden, gericht op tien voor twaalf groepen.
- Het financieren van overheidsinitiatief die bijdragen aan het verbeteren van het algehele investeringsklimaat en de hiervoor noodzakelijke institutionele hervormingen, met name voor het toerisme en de agribusiness.

Het SCSD Project is door de WBG geclassificeerd als een Categorie B Project, wat betekent dat de potentiële negatieve effecten of mens en milieu locatie-specifiek zijn en dat al tijdens de ontwerpfasen van de verschillende activiteiten mitigerende maatregelen geïdentificeerd kunnen worden, en uitgevoerd worden tijdens de uitvoering en verdere duur van het project. Om dit te kunnen waarborgen, is de uitvoering van het project gehouden van de richtlijnen zoals verwoord in de WBG uitvoeringsrichtlijn 4.01 (WBG Operational Policy: OP 4.01): Milieu Effecten Beoordeling (Environmental Assessment Policy). Deze richtlijn verplicht tot het ontwikkelen en uitvoeren van een zogenaamd 'Milieu en Sociaal Management Kader' (Environmental and Social Management Framework: ESMF) dat gedurende de gehele uitvoeringstermijn van het SCSD Project van kracht zal zijn. Doel van het ESMF is:

1. Het overwegen van potentiële milieu effecten en sociale impact in haalbaarheidsstudies van geplande Project activiteiten en deze integreren in de voorbereiding en planningsfase van deze activiteiten;

2. Het stimuleren en bevorderen van volledige transparantie van activiteiten middels het betrekken van belanghebbenden, consultaties en openbaarheid van plannen en initiatieven;
3. In relatie tot de omvang en aard van geplande Project activiteiten, het (laten) uitvoeren van milieu en sociale effecten studies en analyses;
4. Gebaseerd op de resultaten van dergelijke impact studies, het overwegen van technische alternatieven voor de uitvoering van geplande Project activiteiten;
5. Het vergroten van kennis en kunde van betrokkenen - zowel privaat en publiek - bij de uitvoering van milieu- en sociale effecten studies en rapportages.

Behalve het bovengenoemde ESMF zijn in de context van het SCSD Project ook nog de volgende uitvoeringsrichtlijnen (Project Safeguard Documents) ontwikkeld: i) hervestiging / transmigratie richtlijn (Resettlement Policy Framework: RPF) en het ii) tribale volken planning kader (Indigenous and Tribal Peoples Planning Framework: ITPPF), waaronder ook het procedure voor behandeling van klachten en bezwaar is ontwikkeld (Grievance Redress Mechanism: GRM). Al deze beleidskaders zijn van kracht gedurende de gehele uitvoeringstermijn van het SCSD Project en de beoordeling en selectie van Project activiteiten zal mede gebaseerd worden op de mate van 'naleving' van deze richtlijnen.

In de hoofdstukken 3, 4 en 5 van dit document wordt achtereenvolgens een uitvoerige beschrijving gegeven van (i) de Surinaamse wet- en regelgeving en het institutioneel kader; (ii) een beschrijving van land, natuur en culture rijkdommen en diversiteit en; (iii) het landgebruik en de vormen van landeigendom.

Hoewel op dit moment van SCSD Project voorbereiding zowel de aard van activiteiten en de locaties hiervan hier niet bekend zijn, is het ESMF en de hiervoor ontwikkelde 'tools en checklists' van toepassing op alle potentiële activiteiten. Dit betreft niet alleen de directe activiteiten die (mede) gefinancierd worden vanuit het Infrastructuurfonds (de overheid) en het SME fonds, maar ook alle activiteiten die in dit kader worden uitgevoerd door (onder-) aannemers en overige dienstverleners. Hoofdstuk 6 van het ESMF document biedt een overzicht van potentiële risico's en (de mate van) impacts van deze activiteiten en geeft concrete voorbeelden hiervan. Bijlage 1 beschrijft het 'screening tool' en een checklist voor de beoordeling van potentiële Project voorstellen. In alle gevallen waarbij de potentiële impact als gemiddeld of hoger wordt gekwalificeerd, moeten mitigerende maatregelen worden geïdentificeerd.

Alle voorgestelde mitigerende maatregelen en het hiervan verwachte effect in het elimineren of reduceren van negatieve effecten op mens en milieu moeten worden beschreven in het zogenaamde Milieu en Sociaal Management Plan (Environmental and Social Management Plan: ESMP). De te volgen stappen om te komen tot een ESMP zijn beschreven in hoofdstuk 7 van dit document. Alle hierin voorgestelde mitigerende maatregelen moeten realistisch, uitvoerbaar en kosten-efficiënt zijn en resulteren in een aanvaardbaar impact niveau. Waar dit niet mogelijk of onvoldoende is, moeten compenserende maatregelen worden getroffen.

Samengevat beschrijft het ESMP:

- a. Een uiteenzetting van alle geïdentificeerde negatieve effecten op mens en milieu, inclusief de potentiële impacts op tribale gemeenschappen en onvrijwillige hervestiging/migratie;
- b. Een opsomming van alle voorgestelde mitigerende maatregelen in relatie tot de specifieke impacts, en de wijze en het moment van uitvoering ervan;
- c. Een indicatie van het te verwachten positieve effect van deze mitigerende maatregelen;
- d. Een beschrijving van de relatie(s) met overige 'safeguard policies' zoals het RPF en het ITPPF (indien van toepassing).

Aanvullend wordt in het ESMP duidelijk vastgelegd wie verantwoordelijk zijn voor het vaststellen en uitvoeren van alle in het plan genoemde mitigerende maatregelen, inclusief de monitoring en rapportage betreffende het effect van deze voorgestelde maatregelen (en voorgestelde corrigerende maatregelen).

Alle mitigerende maatregelen zijn gebaseerd op de WBG 'Mitigation Hierarchy' welke bepalend is voor de prioritering van maatregelen: vermijden, verminderen, mitigeren en compenseren. Daarnaast zijn een aantal internationaal erkende 'best practice' richtlijnen beschreven in relatie duurzame oogst van niet-hout bosproducten, duurzame visserij en verantwoord natuurtoerisme.

Voor een beter begrip van het ESMF en het ESMP en in aanvulling op de eerder genoemde lijst van voorbeelden van potentiële risico's en de (mate van) effecten hiervan op mens en natuur, wordt hoofdstuk 7 afgesloten met dezelfde lijst, nu aangevuld met voorbeelden van mogelijke mitigerende maatregelen. Met betrekking tot potentiële activiteiten in de agrarische sectoren zal hierbij ook de introductie van alternatieve bestrijding van ziekten en plagen (Integrated Pest Management: IPM) overwogen moeten worden, gericht op het minimaliseren van het gebruik van landbouw-chemicaliën. Het concept van IPM wordt nader beschreven in hoofdstuk 8 van dit ESMF document.

Hoofdstuk 9 is geheel gewijd aan de capaciteitsbehoefte voor een adequate uitvoering van het ESMF. Vertegenwoordigers van de ministeries van Handel, Industrie en Toerisme (MHIT), van Natuurlijke Hulpbronnen (MNH) en de binnen deze beide ministeries onder te brengen Project Bureaus (Project Implementation Units: PIUs) beseffen dat er een goed functionerende structuur opgezet moet worden waarin de juiste kennis en ervaring samengebracht wordt voor het adequaat uitvoeren van het ESMF. Deze kennis zal in beginsel van buiten moeten worden ingehuurd, dit betreft zowel een sociaal- als een milieudeskundige. Daarnaast overwegen de PIUs om één of meerdere junior experts te contracteren, deze zullen de projectaanvragers assisteren bij het opstellen en indienen van het projectvoorstel. Daarnaast zal - naar behoefte - een communicatie / consultatie expert worden gecontracteerd. De noodzakelijke kwalificaties van deze deskundigen is beschreven in hoofdstuk 9. Alle betrokkenen binnen de ministeries van MHIT en NH (en de PIUs) worden getraind in het gebruik van het ESMF en overige kader documenten (RPF en ITPPF). Waar gewenst zullen ook medewerkers van NIMOS en overige instituten hierin participeren. Tenslotte, project uitvoerders en overige belanghebbenden zullen worden voorgelicht over het belang van deze 'safeguard framework documents' en het gebruik hiervan, inclusief de introductie van IPM.

Abbreviations and Acronyms

BSO	Business Support Organisation
CARICOM	Caribbean Community
CPS	Country Partnership Strategy
CSNR	Central Suriname Nature Reserve (Centraal Suriname Natuur Reservaat)
CUS	Competitiveness Unit Suriname
EITI	Extractive Industries Transparency Initiative
ESMF	Environmental and Social Management Framework
ESIA	Environmental and Social Impact Assessments
FAO	Food and Agriculture Organization of the United Nations
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GOS	Government of Suriname
GRM	Grievance Redress Mechanism
GSTC	Global Sustainable Tourism Council
Ha	Hectare
HCV	High Conservation Values
HFLD	High Forest cover, Low Deforestation rate
IDB	Inter-American Development Bank
IDCS	Investment and Development Corporation Suriname (till April 2018)
IFC	International Finance Corporation
InvestSur	Institute for Promotion and Support of Investment in Suriname (since April 2018)
ISDS	Integrated Safeguards Data Sheet
IP	Indigenous People
I(T)PPF	Indigenous (and Tribal) Peoples Planning Framework
IPM	Integrated Pest Management
LAC	Latin America and the Caribbean region
MAAF	Ministry of Agriculture, Animal Husbandry and Fisheries (Ministerie van Landbouw, Veeteelt en Visserij)
MF	Ministry of Finance (Ministerie van Financien)
MNR	Ministry of Natural Resources (Ministerie van Natuurlijke Hulpbronnen)
MRD	Ministry of Regional Development (Ministerie van Regionale Ontwikkeling)
MSC	Marine Stewardship Council
MSL	Mean Sea Level
MTIT	Ministry of Trade, Industry and Tourism (Ministerie van Handel, Industrie en Toerisme)
MUMA	Multiple-Use Management Areas
NIMOS	National Institute for Environment and Development in Suriname (Nationaal Instituut voor Mileu en Ontwikkeling in Suriname)
NGO	Non-Governmental Organisation
NMR	National Council for the Environment (Nationale Mileuraad)
NR	Nature Reserve
MOP	Multi-annual Development Plan (Nationaal Ontwikkelingsplan)
NP	Nature Park
NTFP	Non-Timber Forest Product
OP	Operational Policy (World Bank)
OSH	Occupational Safety and Health
PA	Protected Area
PAP	Project Affected Person
PC	Project Component
PDO	Project Development Objective
PID	Project Information Document
PIU	Project Implementation Unit (established within MTIT)

POP	Persistent Organic Pollutants
RPF	Resettlement Policy Framework
RSA	Rapid Social Assessment
SBB	Foundation for Forest Management and Production Control (Stichting voor Bosbeheer en Bostoezicht)
SCF	Suriname Conservation Fund
SCSD	Suriname Competitiveness and Sector Diversification
SESA	Strategic Environmental and Social Assessment
SFM	Sustainable Forest Management
SME	Small and Medium scale Enterprise
SOE	State Owned Enterprise
TOR	Terms of Reference
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollars
WB(G)	World Bank (Group)
WDI	World Development Indicators
WHO	World Health Organisation of the United Nations
WRI	World Resources Institute
WTO	World Tourism Organisation of the United Nations
WWF	World Wildlife Fund

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Section 1 Background, Context and Description of the Project

The World Bank's program supporting development in Suriname is grounded in the Country Partnership Strategy (CPS) established between the World Bank Group (WBG) and the Government of Suriname in 2015. This CPS represents the first WBG strategy and engagement with Suriname for nearly 30 years. The strategy has the overarching goal of promoting sustainable, inclusive, and diversified growth in Suriname through two areas of engagement: creating a conducive environment for private sector development and reducing vulnerability to climate change related floods. Underpinning the CPS is a focus on strengthening environmental and social standards and impact management.

This CPS is grounded in the economic context of Suriname being a small economy dependent on extractive industries. The extraction and processing of gold, oil, and bauxite have historically accounted directly for around 30 percent of the Gross Domestic Product (GDP) and as much as 90 percent of its exports. Agriculture is a historically important sector, but currently only accounts for about 10 percent of GDP, tourism has potential but is currently only a nascent industry. This dependence on commodities and limited diversification of the economy create macro-economic and sustainability risks for Suriname.

The reliance on commodity extraction also threatens depletion of Suriname's natural assets, which include substantial pristine forest coverage and rich reserves of natural fresh water. Suriname lacks a comprehensive legal framework to manage the environmental and social impacts of its main economic activities, and there are limited plans to mitigate the impact of climate change - such as increased flooding - on economic activities along the coastal plain, creating risks for sustainable growth.

New private investment is needed to catalyse economic activity and increase resilience to shocks in the future. As in other small Caribbean economies, Suriname's concentrated exports and vulnerability to shocks reflect the need for economic diversification, including within the country's two leading export-oriented sectors, extractives and agriculture. Strengthening governance, improving competitiveness, and facilitating new private investment is needed to create private sector job opportunities and strengthen economic resilience in Suriname.

There is significant competitive potential for increased growth and diversification within the established mining and agriculture sectors, as well as in emerging sectors such as tourism. A recent Sector Competitiveness Analysis¹ identified opportunities for private investment and diversification within these sectors, as well as constraints to such growth. Policy research on diversification in small economies like Suriname's indicates that diversification over time into new products and markets within established sectors such as mining and agriculture, is likely to be more feasible than targeting new sectors.

With abundant land and water resources, Suriname has a comparative advantage in agricultural production in the Caribbean region. Agriculture already accounts for 10 percent of GDP, and Suriname has preferential market access to the Caribbean through CARICOM and historical export connections to Europe through the Netherlands. Rice, bananas, fish and shrimp are important export products, accounting for around 6 percent of total exports. Current export markets for these products are very concentrated however. Fish and shrimp export markets are more diversified, and there is potential for upgrading into higher-value products within these subsectors. There is also significant potential for increased production of new products for export markets.

¹ World Bank (2017), Suriname Sector Competitiveness; Analysis Identifying Opportunities and Constraints to Investment and Diversification in the Agribusiness and Extractives Sectors

The current amount of land under production is only about 20 percent of the historic maximum. Sector analysis identified potential for increased production and export especially of high-value fruit and vegetable products, as well as competitive potential of high-value meat products. In addition to the existing commercial agribusiness operations, both private and publicly owned, there are around 10,000 smallholder farmers, with some examples of out grower schemes around a nucleus farm that link small farmers into export-oriented value chains.

Suriname's mineral potential is also underexploited. Suriname is located on the Guiana Shield geological formation that has similar high mineral potential as Guyana and French Guiana. One main bauxite extraction operation has dominated the sector for the past 100 years, but operations ended in 2015 after accessible reserves were exhausted. Two new gold mine operations were established in the past decade. Previous geological studies have shown evidence of high potential for a range of minerals, including additional gold extraction, diamonds, and other minerals such as kaolin and rare earth elements. In addition to existing large-scale commercial extractive operations, there are significant informal artisanal and small-scale mining operations in Suriname as well as domestic enterprises supplying goods and services to these operations.

Suriname has immense natural beauty and rich cultural heritage, but its tourism potential is underdeveloped. Suriname offers a unique eco- and heritage tourism product. Total international tourist arrivals are small, at 278,000 in 2017; but that led to tourism directly contributing \$49 million to GDP, and arrivals have grown an average of 8 percent per year over the past ten years. Sector development has been largely led by small and medium private enterprises, with little coordination or investment from the public sector, and the government seeks to increase tourism development as a source of diversified export revenue.

In an effort to further harness its natural and cultural capital to generate economic opportunities, the Government of Suriname (GOS) plans to diversify economic activity through an increase in private investment. The government's 2012-16 and 2017-21 National Development Plans as well as the 2016-18 Stabilization and Recovery Plan following the economic crisis, all highlight the need to diversify economic activity, including through an increase in private investment. The GOS has taken important steps to improve its ability to facilitate private sector growth and investment, such as the establishment of a Competitiveness Unit Suriname (CUS) in 2014 that is now integrated into the Ministry of Trade, Industry & Tourism (MTIT) and the recent operationalization of InvestSur as the national investment promotion agency. Additional plans include promoting investments, privatizing State-Owned Enterprises (SOEs) and developing mining, agroindustry, and tourism as priority sectors.

The Suriname Competitiveness and Sector Diversification (SCSD) Project is a specific lending operation being prepared under the Bank's CPS to address these challenges and contribute to National Development Plans. The development objective of SCSD is to facilitate private investment and strengthen value chains in targeted industries in Suriname, through three project components:

Component 1: **Strengthening the mining sector governance, transparency, accountability, and administration,** financing technical assistance to improve the legal, regulatory, and institutional framework governing mining in Suriname. This will include financing a Strategic Environmental and Social Assessment (SESA) to inform future decision-making around investments (including mapping of risk areas, identification of issues and corresponding strategies, etc).

Component 2: **Supporting value chains and SMEs especially in agribusiness and tourism.** This Project Component will address constraints and strengthen targeted value chains, with a specific focus on promoting growth and diversification within agribusiness, tourism and other emerging sectors in Suriname. Foreseen activities under Component include:

- SME support fund, financing business development services and matching grants for equipment or other firm-level investments. This fund would provide direct support to SMEs that apply and are competitively selected. SMEs engaged in agribusiness or tourism activities will be targeted, but those engaged in other sectors would not be excluded for technical design reasons. The support would include business development services, to help firms improve their business plans and identify constraints in their operations; as well as co-financing for firm-level investments. Funds will also be available to groups of firms that apply as a value chain group, for shared assets to increase value chain competitiveness. These investments could illustratively include equipment for quality upgrading; small-scale on-site storage facility to enable increased purchases from farmers/suppliers; upgrades to fishing vessels to improve quality storage capacity; website upgrades to improve marketing; upgrades to boat vessels for river cruises; etc. Support is expected to average \$50k per SME, through business development services or matching grant co-investments targeting about 160 beneficiaries, and average \$250k for group projects, targeting ten to twelve value chain groups.
- Support for investment climate and institutional reforms. This activity would finance technical assistance and capacity support for regulatory and institutional reforms to improve the business environment for tourism, agribusiness, and private sector growth across sectors of the economy.

Component 3: **Project management and evaluation.** This component will fund all Project management, operational, monitoring and evaluation, and communication costs. This will include support to strengthen GOS capacity in the design and implementation of environmental and social safeguards policies under the proposed Project.

Targeted Project beneficiaries include SMEs and workers that take advantage of new employment opportunities in Suriname’s private sector. Including the informal sector, mining and agriculture together already account for an estimated 40 percent of total employment in Suriname, and new private investment in these sectors will create new private sector jobs. New investment and strengthened value chains will also create opportunities for linkages to small-scale agricultural producers, tourism operators, and other SMEs that operate in these value chains. SMEs in these and other sectors will also benefit from increased access to finance, facilitating enterprise growth and job creation.

As specific investments in SMEs and value chains will be selected and financed as sub-projects during implementation, exact locations of project activities are not currently known, but the general expected locations will be in the coastal zone where most of the country’s population lives. Business opportunities in tourism and sustainable harvesting and processing of non-timber forest products (NTFP) may as well be located in the country’s interior.

Section 2 Social and Environmental Safeguards

Proposed Project activities could imply potential medium to high level risks and impacts to environment and social settings in the future. As the environmental and social legal framework in Suriname has few legal requirements, including due to an absence of a comprehensive environmental law, this limits the legal obligation for compliance with national environmental and social frameworks and standards by the beneficiaries of this Project. This reality classifies this Project with a substantial social and environmental risk level, and justifies the preparation and implementation of an environmental and social managerial framework by the Government of Suriname for the purposes of this project. This ESMF also further aligns the SCSD project to the National Development Plan, with regard to Pillar 4, Utilization and Protection of the Environment, ensuring that project activities also contribute to environmental sustainability development goals.

Decision-making on SCSD Project support activities to SME development will be based on the degree of compliance with the social and environmental safeguards. The Project has designed safeguard frameworks for environmental protection and social rights to which all activities and (new) business development under the SCSD Project must comply. These frameworks will assess, expose and analyse the potential environmental and social impacts of all activities (including possible land acquisition and/or involuntary resettlement) of the Project. In view that the locations of specific investments and developments are not known in advance, the Project has developed two primary safeguard instruments: this Environmental and Social Management Framework (ESMF), including a Resettlement Policy Framework, as well as an Indigenous and Tribal Peoples Planning Framework (ITPPF) presented in a separate document.

Component 1 of the Project will focus on mining, seeking to strengthen mining sector governance, transparency, accountability, and administration. Activities under this Component are purely technical assistance and will not directly impact the social and natural environment. As future private investments could have consequences for Suriname, the project will finance a Strategic Environmental and Social Assessment (SESA) under this Component to strengthen government capacity specifically in this area. Activities under this Component thus fall outside the scope of the ESMF.

Component 2 financing will result in some physical developments through co-investment in SME upgrading and shared value chain assets. The public investments in high-potential value chains will seek to increase the export competitiveness of current and future investments in the targeted industries. In addition to the matching grant support for SME co-financing, project interventions will also seek to stimulate longer-term SME access to finance for agribusinesses and others. While the potential social and environmental impacts of such activities (and the potential risk of involuntary resettlement) are expected to be minor and reversible, appropriate safeguard instruments must be applied to ensure that all activities under this Component meet the requirements of all relevant national legislation and international conventions to which Suriname is signatory, as well as the World Bank environmental and social safeguard policies.

All work undertaken under the Project must comply with applicable Suriname's laws and regulations (both national legislation and international conventions) and consider the World Bank environmental and social operational procedures:

- World Bank (WB) social and environmental safeguard policies, as enumerated in Table 1 below;
- WBG Environmental Health and Safety Guidelines on agribusiness relevant to the project (such as Annual Crop Production; Aquaculture; Fish Processing; Food and Beverage Processing; Perennial Crop Production; Ports and Harbours (as may be relevant for boat landings); etc.²

² See https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

- WB guidance on the conduct of public consultations with Project Affected Peoples (PAPs);
- Additional WB guidance provided for Consultation, Social Assessments, ESIA and other topics as determined during the design and preparation phase of the Project.

Word Bank Safeguard Operational Policies³ (OPs) that are triggered by the potential project activities under Component 2 are presented in table 1.

Table 1: WBG Operational Policies triggered by the SCSD Project

OP 4.01 Environmental Assessment	OP 4.01 covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources. Social aspects (involuntary resettlement, indigenous peoples) as well as natural habitats, forests and pest management are covered by separate policies with their own requirements and procedures.	Considering the nature of potential activities under Component 2 OP 4.01 is triggered. To inform activities, an Environmental and Social Management Framework (ESMF) will be prepared. This also includes an Indigenous and Tribal People Planning Framework (ITPPF), as there might be indigenous communities in the vicinity of sites that may be supported by value chain interventions ⁴ .
OP 4.04 Natural Habitats	The WB supports the protection, maintenance, and rehabilitation of natural habitats and their functions. The conservation of natural habitats is essential for long term sustainable development. Natural habitats are land and water areas where (i) the ecosystems' biodiversity is formed largely by native plant and animal species, and (ii) human activity has not essentially modified the area's primary ecological functions.	Considering the characteristics of the natural setting in Suriname, based on policy 4.04, the ESMF integrates natural habitats considerations in exclusion criteria, as appropriate for the selection of specific sites for interventions.
OP 4.36 Forests	The objective of this policy is to assist borrowers to harness the potential of forests in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services of forests.	This policy is triggered given the potential to support investments that may impact forests negatively such as support to NTFP business development and agribusiness. The ESMF considers the potential impacts on forests and mangroves.
OP 4.09 Pest Management	For agricultural projects that will involve pest management, the WB assesses the capacity of the country's regulatory framework and institutions to promote and support safe, effective, and environmentally sound pest management strategies that promote use of biological or environmental control methods and reduce reliance to synthetic chemical pesticides.	Policy 4.09 is triggered given the focus on agribusiness value chains. Activities financed by the project will consider approved pest management policy provisions, which are incorporated into the ESMF
OP 4.11 Physical Cultural Resources	This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological,	Although the project is not expected to have direct negative impacts on cultural property, 'chance finds' during implementation of activities could be possible. 'Chance finds' procedures are incorporated into the ESMF, including

³ <https://policies.worldbank.org/sites/ppf3/Pages/Manuals/Operational%20Manual.aspx>

⁴ The development of the ITPPF will also be informed by the Social Assessment that will be conducted. Longer-term environmental and social considerations related to agribusiness growth are included under the SESA.

	historical, architectural, religious, aesthetic, or other cultural significance.	procedures to identify PCRs and address potential impacts.
OP 4.10 Indigenous Peoples	These are defined to be a distinct, vulnerable, social and cultural group possessing a number of characteristics including collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories.	This policy is triggered given the potential presence of indigenous people (IP) near areas where economical, agribusiness and mining activities occur in Suriname. Additional to, but not within the scope of the ESMF, a Social Assessment will be conducted, including consultation with IP representatives to inform the preparation of the SESA and the IPPF as part of the ESMF ⁵ . (See also the ITPPF safeguard Document)
OP 4.12 Involuntary Resettlement	This policy aims to address and mitigate risks of physical relocation, loss of land and other assets, sources of incomes and means of livelihood by local people due to proposed projects. The policy also applies to the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons.	This policy is triggered, as social issues related to involuntary resettlement are essentially covered by the SESA. Regarding project investments in value chains, it is not expected that there will be any involuntary resettlement. However, as potential impacts such as small-scale land acquisition cannot be ruled out, a Resettlement Policy Framework is also developed. (See RPF safeguard Document)

As mentioned, the OP 4.01 is triggered by the potential project's activities. In this case, the World Bank system classifies Projects into one of four categories, depending on the type, location, sensitivity, and scale of the Project and the nature and magnitude of its potential social and environmental impacts. **This SCSD Project is classified as Category B.**

A proposed Project is classified as Category B if the potential adverse environmental impacts on human populations or environmentally important areas are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed. Considering the nature and magnitude of potential sub-project activities under the SCSD Project, the Project is classified as such.

As it is anticipated that the sub-projects under Component 2 - of which exact locations and impacts are not yet known - trigger the Environmental Assessment Policy (OP.4.01), this justified the development of an **Environmental and Social Management Framework (ESMF)** as the most appropriate management instrument.

The ESMF will be applicable throughout the duration of this SCSD Project. Special attention will be given to the sub-projects and activities under Component 2 for which appropriate safeguards instruments have been prepared, taking into consideration the type of activities and their potential impacts. Amongst other safeguard instruments, the ESMF of this Project has been prepared to:

6. integrate environmental and social aspects into the pre-feasibility and feasibility analysis of potential sub-projects under Component 2 at the preparation and planning stages;
7. promote transparency through the use of stakeholder consultations and disclosure procedures;
8. consider possible uses of strategic environmental and social analyses;
9. encourage consideration of technical alternatives based on possible environmental and social impacts; and

⁵ The SESA will include an impact assessment to estimate and/or model the total potential impact to indigenous peoples and vulnerable groups in all the sectors identified and will include detailed analysis of potential benefits, impacts and risks concerning indigenous peoples of potential sector specific investments and policy reforms.

10. strengthen environmental and social management capacities within the national institutions and the project stakeholders.

The ESMF will assist the project staff, in-country counterparts, and other stakeholders in identifying and mitigating the potential negative environmental and social impacts of sub-projects during the pre-feasibility, feasibility and design studies. It also includes provisions for training existing staff with the aim to strengthen the environmental management capacity of Suriname. This ESMF has been prepared as a reference manual for use by key stakeholders to be involved in the implementation of the SCSD Project. As a reference material, the ESMF will be useful to the following partners and stakeholders: the SCSD project staff; line ministries; NIMOS; SMEs, NGOs and Community Based Organizations (CBOs), and contractors.

Section 3 Legal, Regulatory and Policy Framework

The Constitution of the Republic of Suriname (1987) supports the creation and improvement of “conditions necessary for the protection of nature and for the preservation of the ecological balance.” As such, it provides the legal foundation for a national environmental policy. Legislation at the national level is exercised through Laws or Acts of Parliament (*Wet*, also called *Verordening* and *Landsverordening* prior to 1975), Decrees (*Decreet*), Government Decrees (*Staatsbesluit*), Presidential Decrees (*Resolutie*), Presidential Orders (*Presidentieel Besluit*) or Ministerial Orders (*Ministeriële Beschikking*) targeting various sectors, including industry, mining, agriculture, tourism and nature conservation.

Suriname has several legal instruments dealing with (often very specific) aspects of environmental and/or natural resource management, however, these are often outdated, and no national framework law on environmental management and protection exists. There is a substantial body of laws dating back to the pre-independence (1975) period and is focused on nature conservation rather than environmental management. This regards amongst others the Nature Conservation Act (1954), Game Law (1954) and Fisheries Act (1961). After independence in 1975, a number of new laws were promulgated with the aim to regulate exploitation of the country’s natural resources. Examples are the Mining Act of 1986 and the Forest Management Act of 1992. However, till present, the legislation regarding environmental and natural resource management is fragmented and dispersed over different pieces of legislation and institutions, resulting in weak coordination and enforcement.

There are several recent government policies that concern sustainable development and environmental governance, including the Government Declaration 2015-2020 (GOS 2015) and the Multi-annual Development Plan 2017-2021 (GOS 2017). Goals of the Government Declaration include establishing sustainable development practices through the development of a national environmental policy and integrating the environmental policy into sectoral development policies. It also advocates the promotion of environmental awareness and sustainable production. However, in the absence of comprehensive national environmental legislation, the responsibility for environmental and social issues remains widely spread - and poorly enforced - between a number of agencies and departments in various ministries.

The National Council for the Environment (NMR - Nationale Milieuraad) was established in 1997 with a mandate to advise the GOS on the development and implementation of national environmental policies. The NMR consists of a chairperson and 5-10 members representing government, private sector, Amerindian and Maroon communities, labour unions, consumer rights, and other Non-Governmental Organizations (NGOs). The NMR is currently not operational, its tasks have essentially been adopted by the Environmental Coordination Unit in the President’s Cabinet⁶.

Development and implementation of Suriname’s environmental regulations is executed by the National Institute for Environment and Development in Suriname (NIMOS - Nationaal Instituut voor Milieu en Ontwikkeling in Suriname). NIMOS was established in 1998 by Presidential Decree as an entity subordinate to the President’s office, and formally reports to the NMR. Current practice is that NIMOS acts as the executive body for the Environmental Coordination Unit.

In 2002, NIMOS proposed the Environmental Framework Act, defining the rules for environmental conservation, management, and protection while promoting sustainable development. The provisions of the Act include guidance for Environmental and Social Impact Assessments (ESIAs) and pollution control regulations. However, these were never promulgated⁷.

⁶ Oral Communication BDD: Ms. Marci Gompers-Small of “MC unit” at Cabinet explained that this de-facto situation will soon be formalised.

⁷ Anticipating on the promulgation of the Environmental Framework Act and based on its latest draft version (June 2017), during a national workshop held on October 4th 2018 NIMOS presented the draft texts of decrees

Since 2005, NIMOS publishes several Guidelines for (voluntary) Environmental Impact Assessment (including social aspects) in Suriname, and project developers are expected to comply with the spirit of these guidelines. Guidelines cover generic issues (Volume I) and social impact assessments (Volume IV), specific guidelines are available for proposed developments in mining (Volume II), agriculture (Volume VII) and roads (Volume VIII).

Over recent years, several documents have been compiled and released by NIMOS, providing accurate overviews of existing national environmental laws and regulations. In 2004, with the support of World Wildlife Fund (WWF) Guianas, the publication “Environment Related Legislation in Suriname⁸” became available; in 2013, supported by the Suriname Conservation Foundation (SCF), the “Framework National Environmental Legislation⁹” was published.

The abovementioned NIMOS publication “Environment Related Legislation in Suriname” provides a clear and easy to access summary of national legislation that contain environmental measures. Part 2 of this document is structured by addressing the following thematic areas:

- Soil
- Water
- Air
- Natural Resources
- Nature Conservation
- Physical Planning / Land Use Planning
- Working conditions (including (OSH) Occupational Safety and Health)
- Health (including OSH)
- Culture
- Noise
- Waste

Both the thematic areas and the related national laws frequently overlap and/or refer to the same legislation. E.g. issues related to the (potential) pollution of land, water and air all refer to the Nuisance Act¹⁰. However, when enforced in combination with the Law on the Authorisation of Business Establishment¹¹ potential sources of environmental pollution can be prevented.

An overview of all national (environmental) legislation can also be found on the website <http://www.milieuwetten.com> and the official Suriname government website: <http://dna.sr/wetgeving>.

Suriname is signatory to a wide range of international environmental conventions. Concerning the preservation of the country’s impressive richness of biodiversity, the UN Convention on Biological Diversity (CBD), ratified in 1996, is of paramount importance. Much of the country’s national policies and action plans have emerged from this partnership. Under the UN Framework Convention on Climate Change (FCCC), Suriname ratified the Kyoto Protocol in 2006, the GOS committed to maintain its status as a ‘carbon negative country’ and maintain a forest cover of 93%.

on (i) the establishment of a national Environment Fund, (ii) the performance of an Environmental Impact Assessment, (iii) Environmental pollution and (iv) hazardous materials.

⁸ NIMOS (2004), Milieu gerelateerde Wetgeving in Suriname.

⁹ Schurman Advocaten (2013), Raamwerk Nationale Milieuwetgeving, wettelijk kader, beleidskader, institutioneel kader.

¹⁰ Hinderwet (1927)

¹¹ Wet Vergunningplichtige bedrijven en beroepen (2017)

In 2011 Suriname ratified the Stockholm Convention on Persistent Organic Pollutants (POPs), aiming at the elimination of production and use of a selected list of POPs and the controlled disposal of related waste. POPs include pesticides / insecticides that are widely used in agriculture.

On 2 August 2018, Suriname became the 95th Party to the Minamata Convention. The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury. The Convention draws attention to a metal that, while naturally occurring, has broad uses in everyday objects and is released to the atmosphere, soil and water from a variety of sources. Controlling the anthropogenic releases of mercury throughout its lifecycle has been a key factor in shaping the obligations under the Convention. In Suriname, mercury is still widely used in small-scale artisanal gold mining practices.

An overview of all international treaties and conventions to which Suriname is signatory can be found on the website of NIMOS <http://www.nimos.org> or at <http://www.milieuwetten.com> and on the official Suriname government website: <http://dna.sr/wetgeving>.

Section 4 Environmental and Social Baseline

The Republic of Suriname is located on the north-eastern coast of the South American continent between 2° and 6° north latitude and 54° and 58° west longitude. A coastline with a length of about 370 km forms the northern border with the Atlantic Ocean. Suriname borders the Republic of Guyana in the west, the Federative Republic of Brazil in the south, and the French Département Guyane in the east. These borders are historically established in the east and the west by the Marowijne and Corantijn Rivers, respectively, and in the south by the mountain ridge formed by the Acarai, Tumukhumak and the Grens Gebergte. The land area of Suriname is about 166,000 km².

Suriname has a tropical climate with abundant but seasonal rainfall, and fairly constant high temperature and high humidity. The amount of precipitation varies across the country. On average, Paramaribo receives 2,210 mm rainfall annually, Coronie and Nieuw Nickerie (north-western coast) respectively 1,561 mm/year and 1808 mm/year, Kwamalasamutu (south Suriname) 2,109 mm/year and Stoelmanseiland (central east Suriname) 2,445 mm/year. Variation in monthly rainfall results in two wet and two dry seasons for the northern and central part of Suriname. In the southern part only one wet and one dry season is distinguished. The average daily temperature in the coastal region is 27.4° Celsius (°C), with a daily variation of 5°C. The difference between day and night temperatures in the coastal region can be on average 6-7°C. There is relatively little variation in temperature between the seasons. January is the coldest month (average 26.6°C) and October the warmest (average 28.5°C). Annual variation of the average temperature is 2-3°C. The Interior has relatively similar figures, although variation of daily temperature can be larger (10-12°C).¹²

LAND and WATER; Suriname's Physical Environment

Over 80 percent of Suriname consists of the Precambrian Guiana Shield, the deeply weathered, rainforest-covered hill and mountain land stretching east and south to the Amazon River in Brazil and west to the Orinoco River in Venezuela. Eroded material from the Guiana Shield and the Amazon basin, transported by rivers and the sea, is deposited in the subsiding coastal area at the northern margin of the Guiana Shield, at the centre of which Suriname is located.

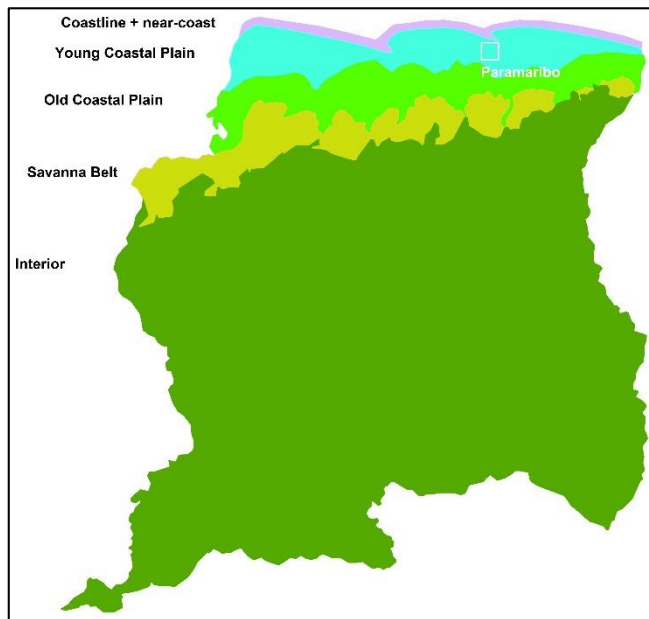
The oldest outcropping sediments in Suriname's coastal area have been deposited during three distinct periods, resulting in what is considered three different formations (from older to younger):

- The Zanderij Formation, consisting of medium to coarse sands to sandy clays, which have been deposited by braided rivers at the foot of the Guiana Shield in the form of alluvial fans;
- The Coropina Formation, consisting of fine sandy to clayey marine sediments, which have been deposited north of (and on top of) the sediments of the Zanderij Formation. The marine clays were deposited as extensive clay flats and the marine sands as ridges, which were later severely eroded. The remaining surface deposits of this formation are found as 'islands' surrounded by the sediments of the Mara Formation (see next);
- The Mara and Coronie Formations. The Mara Formation consists of marine clays and peat that were deposited in the eroded areas in between the remnants of the Coropina Formation, and in gullies that had been cut into the former Old Coastal Plain. The Coronie Formation in the coastal plain is predominantly of marine origin, but along the main river's sediments have been deposited in fluvial and estuarine environments. The deposits consist of mudflats of marine clays and ridges ("cheniers") of sands and shells.

¹² The introduction of this section is in part based on the 'Second National Communication to the United Nations Framework Convention on Climate Change' (GOS, March 2016)

The above-mentioned formations resulted in the division of Suriname in four or five main geographic regions which can be identified from north to south as follows¹³:

- the Near-coastal zone and the Coastline, formed by extensive marine mud flats and sandy shell beaches, which are exposed at least during low tide; when they become more stable and vegetated, they are in fact considered part of the Young Coastal Plain);
- the Young Coastal Plain, ranging in width from about 20 km in the east to about 100 km in the west with variations in height of 0-4 m above mean sea level (MSL);
- the Old Coastal Plain, formed on remnants of ridges, gullies and mud flats, with variations in heights of 4-10 m above MSL;
- the Savanna Belt (Cover Landscape, Zanderij Belt), consisting of coarse bleached white sand and yellowish-brown sands to clay loams, ranging from 10-100 m above MSL;
- and the Crystalline Shield or Interior, which includes lowland and upland regions (in Suriname mostly 20 m above MSL or higher), with highly weathered Precambrian formations.



The highest mountain of Suriname reaches a height of about 1,250 m. Most of the country consists of a hilly landscape types, reaching heights of 50-500 meters above MSL. The coastal zone however is a very low-lying flat area, with many swamps of which some form open waters. All local rivers flow in a general south-north direction, ultimately discharging their water into the Atlantic Ocean; natural creeks and smaller rivers deflect to the west in the coastal zone to join larger rivers.

The country is endowed with many natural resources including soil, water, forests and minerals. The fertile soil of the Young Coastal Plain, combined with the large freshwater swamps and rivers in the north are favourable for large scale agriculture. However, the largest part of the country (88 percent of total land area) still consists of tropical rainforest that is only marginally used by local people for non-timber forest products. Only 8 percent of the total land area is cultivated, whilst the remaining 4 percent consists of other non-forested natural areas (savannas, swamps and wetlands).

Suriname is identified as a country with a High Forest cover, and Low Deforestation rate (HFLD). The total deforestation in Suriname between 2000 and 2015 amounted to 85,147 ha or an average of 5,676 ha/year, which is equivalent to an annual deforestation rate of 0.04 percent. Between 2000 and 2009, the annual deforestation rate was estimated at 0.02 percent, equivalent to an average 2,754 ha/yr. Between 2009 and 2015, the deforestation rate more than tripled to 0.07 percent average annual deforestation rate of 10,060 ha/year¹⁴.

The Young Coastal Plain (consisting of marine clays, peat, sands and shells) is the most fertile zone of Suriname, and has served the development of large-scale agricultural activities. The soils of the Old Coastal Plain (composed of clay, sandy-clay or clayey-sand) offer good opportunities for agricultural development. The Savanna Belt consists of non-bleached sands to clay loams and

¹³ Map Geographic Regions: copyright Bart De Dijn (2018)

¹⁴ Unique Forestry and Land Use GmbH, (2016), Multi-Perspective Analysis of Drivers of Deforestation, Forest Degradation and Barriers to REDD+ Activities.

bleached coarse sand, which have high infiltration and percolation rates and are less fertile. Agricultural activities are therefore limited to the cultivation of some small-scale dry crops and an - over recent years - increasing cultivation of pineapple. However, this area plays an important role in the maintenance of drinking water reserves, because the greatest proportion of rainfall percolates into the ground here, recharging the freshwater aquifers. These aquifers are the main resource for potable water in the coastal areas.

The Interior is more mountainous, mainly composed of weathered and eroded Precambrian rocks with a generally moderately thick regolith layer ('soft', chemically eroded rock). Agriculture in this area is mainly limited to shifting cultivation. Human activities, such as selective logging, shifting cultivation, exploitation of other natural resources easily leads to the degradation of the relatively poor and vulnerable soils.

Exploitation of crude oil, sand and shells is taking place in the northern part of the Young Coastal Plain. Although the Interior of the country is mineral-rich containing a number of important deposits of bauxite, beryl, copper, diamond, gold, platinum, iron ore, manganese, pegmatite and tin, exploitation of minerals mainly concentrates on bauxite and gold. Historically, extraction activities of mineral ores mainly occurred in the northern parts of the Interior but mining activities have increasingly been moving further south over the last decennia.

NATURE; Suriname's Natural Environment

The main fresh water source is the abundant annual rainfall, which, together with the topography, soil types and land cover has resulted in many streams and large wetlands. Seven main rivers, originating in the Interior of the country, annually discharge about 4,800 m³ per second of fresh water into the Atlantic Ocean, which is about 30 percent of the annual rainfall. The Marowijne and the Corantijn Rivers contribute 70 percent to the total discharge. Of the remaining rainfall, the largest part evaporates and only a small part percolates to the aquifers, recharging ground water reserves.

The terrestrial ecosystems of Suriname¹⁵ can be characterized as follows:

- In the north, from the coastline till some 5-20 km south of it, lies a very dynamic area where ecosystems are impacted by the sea; it is ecologically very productive and diverse, and is known as the **Estuarine Zone**. In the northernmost part and along the main rivers, it consists of extensive **mangrove forests** on clay soil; these depend on tidal flooding with brackish water. At the coastline, there are extensive shell and sand **beaches** with typical sparse or at least low vegetation. Further inland - because the Suriname coast is a long-term accreting coast ('growing' towards the north) - there are scattered "**cheniers**", remnants of old sand and shell beach ridges on which mixed marsh or dryland forest has developed. Locally there are open water "**lagoons**" behind the coastline in depressions with brackish water (may become very salty in the dry season); shallower parts where salt is strongly concentrated have a low vegetation of salt-loving succulent plants (**hypersaline marshes**). Extensive **brackish herbaceous swamps** in the southernmost part of the estuarine zone mark the transition from mangroves to the more extensive freshwater areas further to the south (see below). The mangrove forests offer considerable protection to the coastline and riverbanks from the erosive force of the sea, and in combination with cheniers are considered natural coastal defences. The mangroves are nursery grounds for many species of marine fish and shrimp, and have an abundant flora and fauna that is very different from that in other parts of Suriname. The estuarine zone of Suriname is a wetland of international importance, as it contains the feeding and nesting sites for Caribbean coastal birds and feeding grounds for migratory shorebirds (the bulk are migrants from Canada). Along the eastern coastline, the current sand

¹⁵ This (ecosystem) and next section (diversity) updated based on: *De Dijn, B.P.E. (editor). 2018. Natural History and Ecology of Suriname. LM Publishers, Volendam, The Netherlands.*

and shell beaches are nesting places of international importance for four species of marine turtles, including the globally endangered Leatherback.

- To the south of the Estuarine Zone, **herbaceous freshwater swamps** and **swamp forests** (perennially flooded forest) dominate the Young Coastal Plain and the low-lying part of the Old Coastal Plain. These wetlands play an important role in supplying freshwater to the estuarine zone, thus contributing to the maintenance of brackish conditions there. They are inundated or at least waterlogged throughout the year, which allows for a peat layer to accumulate on top of the mineral soil. The swamp forests include low swamp forest a.k.a. swamp wood (“low” refers to tree stature and canopy height), which is quite varied and includes palm swamp forest. If no forest fires occur, most of it develops into high swamp forest, but if peat fires destroy the forest during extremely dry years, herbaceous swamp develops that gradually develop further into swamp forest. Swamp forest is thus climax vegetation, the end-point of ecological succession in wet areas with fresh water year-round.
- **Marsh forests** (seasonally flooded forest), is found on poorly drained soils that nevertheless dry out superficially during the dry season. During part of the rainy season, the soil is typically inundated. No peat layer or thick dry litter layer is formed, which means that these forests are stable since they do not burn easily. Species diversity is intermediate between that of the high swamp forests, and the high dryland forests (see below). Marsh forests are usually rich in palms.
- Forests similar to swamp and marsh forest, known as **riparian forest** and **creek forests**, are found along rivers and creeks throughout most of Suriname, they are typically enriched by a large number of tree species from the surrounding high dryland forest, and by tree species that disperse their seeds via flowing water or the fishes that live in it.
- The largest part of Suriname, about 80 percent, is covered by **high dryland forest** a.k.a. **terra firme forest** which is found from sea level up to 400-600 m. These are forests that occur on soils that are neither flooded, nor suffer from severe seasonal water depletion. They have a high and dense canopy at 25-45 m, and emergent trees up to 50-60 m. Tree species diversity is very high (typically between 50-150 species per hectare), as is plant diversity in general. High dryland forest is very stable since it does not easily burn (no thick peat or litter layer). It is a key habitat for an extremely diverse set of rainforest mammal, bird, amphibian and reptile species, as well as insects and other invertebrate animal species. Most of the terrestrial species of Suriname reside in and depend on this *terra firme* forest. High dryland forest is often mapped as a single unit on maps of Suriname; this may be considered an artefact, a reflection of the very limited exploration of Suriname’s *terra firme* and limited data on differences in forest composition and factors determining it and allowing it to be mapped properly.
- In areas where water availability in the soil is (seasonally) more limited, **savanna forests** a.k.a. **dry forests** occur. This type of forest commonly grows on excessively drained soils and on shallow, permeable soils resting on impermeable subsoils, hard pans and rocks. As a result, there are intermittent water shortages, or at least a prolonged water shortage in the soil during the dry season. Some savanna forests develop a thick litter layer over time, and are fire prone in the dry season. Savanna forests occur throughout Suriname, mostly the Savanna Belt and Interior, but are patchy and variable in stature and composition. A typical feature is the dominance of plants with tough, often small leaves in the understory.
- Open **savanna** is a typically grass (and sedge) dominated vegetation that occurs in areas where the soil alternates between extreme saturation with fresh water (up to shallow flooding) and severe water deficiency. This alternation is at the very least seasonal, and determined by climate and local soil conditions. Conditions resulting in savanna are similar to those resulting in savanna forest, i.e. “bad soil” conditions, but more extreme or with the added disturbance

by fire. Savanna vegetation is fire prone in the dry season because of the fuel provided by dry litter and by the dying off of the above-ground parts of grasses during prolonged dry periods. Fire in the modern Suriname context almost invariably means burning by people. Savanna also seems to develop in areas with better soil conditions, where one would expect *terra firme* or marsh forest, when these areas are repeatedly burnt over long periods of time. Many savannas in Suriname are considered remnants, presently maintained by fire, of more extensive Pleistocene savanna that originally developed under a dryer, more seasonal climate. Suriname's largest savanna, the Sipaliwini savanna at the border with Brazil is an example. Savannas may have been the dominant type of vegetation in Suriname during parts of the Pleistocene (also early Holocene). At least ten different types of savanna are distinguished in Suriname, ranging from dense grassy savanna, with or without scattered shrubs or trees, to sparse or dense shrubby savanna. Savannas occur throughout Suriname in a very patchy manner; most of the patches occur in the Savanna Belt, but the largest one in the Interior. So-called "**rock savanna**" vegetation (*campo rupestre*) and vegetation at or near **rapids**, largely on exposed rocks (superficially weathered) or duricrust, is similar to savanna vegetation. Ecosystems of rocky substrates away from rapids, at Inselbergs or residual plateaus, and at/near rapids are however distinct in terms of physical conditions and many flora and fauna elements.

- Above 400-600 m elevation, **upland** a.k.a. **montane ecosystems** occur. These are as varied in soil composition, hydrology and vegetation as the lowland ecosystems described above (of course excluding those of the Estuarine Zone) and are often referred to with the same names with the prefix "mountain". They are poorly known and either subtly or very obviously different in composition from their lowland counterparts. At higher elevations climatic conditions differ from those in the lowlands: it is colder and more humid, mainly due to clouds forming or lingering at hills and plateaus ("mountains"). As a consequence, epiphytes are typically very abundant and diverse. One of the better-known types of montane ecosystems in Suriname is **mountain savanna forest**, similar to savanna forest in the lowlands, but with an often very distinct composition, locally with high species diversity and/or very rare species. Some extremely restricted range endemic species are associated with montane ecosystems in Suriname.

The diversity of biological species in Suriname is high. The number of species which have been recorded as occurring in Suriname, or estimated to occur there, are:

- Approximately 5,100 plant species;
- Several 10,000 species of insects (an estimate; maybe an order of magnitude more);
- Some 400 freshwater fish species, and approximately as many marine fish species;
- 123 amphibian species (mainly frogs and toads);
- 180 reptile species (lizards, snakes, turtles and caimans);
- 726 bird species from the coast, the savannas and closed rainforests;
- 196 mammal species in the sea (dolphins and whales), in freshwater (manatee, otters) and terrestrial (deer, cats, monkeys, bats, etc.).

Suriname has three types of Protected Areas (PAs): i) Multiple Use Management Areas (MUMA's), in which economic activities are allowed as long specific protection goals are not threatened, ii) Nature Parks (NP), in which light forms of exploitation (mainly recreation) are allowed, and iii) Nature Reserves (NR), in which specific species or ecosystems are protected, and human activities are only allowed to a limited extent.

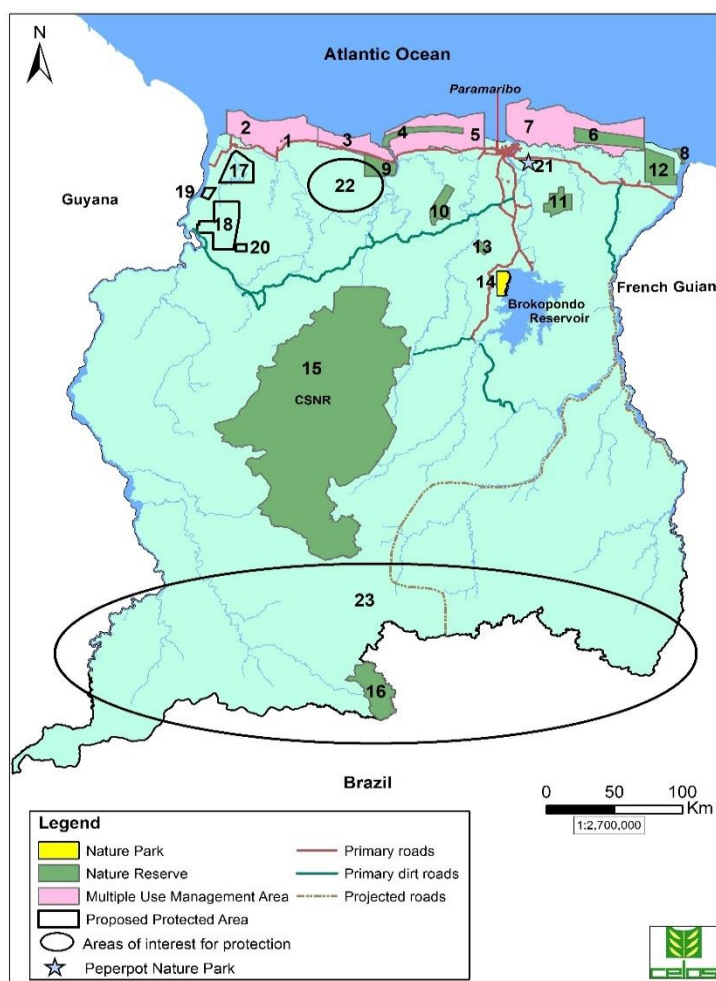
Table 2: Formally recognized, informal and proposed protected areas (PAs) in Suriname

#	Name	Type	Area in km ²
Formal PAs in brackish-freshwater part Coastal Zone			
1	Hertenrits	NR	1

2	Bigi Pan	MUMA	679
3	North Coronie	MUMA	272
4	Coppename-monding	NR	120
5	North Saramacca	MUMA	884
6	Wia-Wia	NR	360
7	North Commewijne-Marowijne	MUMA	615
8	Galibi	NR	40
Formal PAs in strictly freshwater part Coastal Zone			
9	Peruvia	NR	310
10	Boven Coesewijne	NR	270
11	Copi	NR	280
12	Wane Creek	NR	450
Formal PAs in Interior (Precambrian basement)			
13	Brinckheuvel	NR	60
14	Brownsberg	NP	120
15	Centraal Suriname	NR	15920
16	Sipaliwini	NR	1000
Previously proposed protected areas (not effective)			
17	Nani	PP	540
18	Kaburi Creek	PP	680
19	Mac Clemen	PP	60
20	Snake Creek	PP	40
Private protected areas (informal)			
21	Peperpot	NP	26
Areas recently proposed for protection (not effective)			
22	Coronie Swamp	PP	Unknown
23	South Suriname Conservation Corridor	?	Unknown

MUMA = multiple-use management area, NP = nature park, NR = nature reserve, PP = proposed PA.

The currently established Protected Areas cover approximately 13 percent of the land surface of Suriname (excluding “not effective” and “informal”; cf. Table above). Almost the entire coastal area is protected by means of MUMA’s for the protection of e.g. endangered shore birds and sea turtles. Furthermore, representative terrestrial and aquatic (fresh water) ecosystems including the endangered species that live in these areas are protected in Nature Reserves (NRs) and Nature Parks (NPs) across the country. The Central Suriname Nature Reserve (CSNR), a near 1.6 million ha of pristine rainforest in the centre of Suriname, is preserved and listed as a World Heritage site by UNESCO. Despite the considerable extent of established protected area, establishing additional protected areas has been and is being considered (cf. “not effective” in Table above), e.g. to protect freshwater and native biological resources. Establishing strict protected areas in the



the Greenstone Belt, which is increasingly impacted by mining, is additionally proposed by academic experts, given high biodiversity in general in this area (ecosystems and species) and in particular high numbers of rare and restricted range endemic species; this is given very little serious consideration outside academia given the economic and management issues at play.

PEOPLE; Suriname’s Social and Cultural Environment

In 2017, Suriname had a total population of 591,919 (2017 est.), largely concentrated in Paramaribo (2014: 234,000), the capital of the country. Population growth rate is estimated at 1.02 percent. Life expectancy at birth for the overall population is 72.5 years: for males 70.1 years and for females 75.1 years. The urban population accounts for 67 percent of total population (2017), the annual rate of urbanization is estimated to be 0.75 percent (2015-20 est.)¹⁶.

Suriname’s colonial history has played a major role in the multi-ethnic composition of its population. Until the abolition of slavery in 1863, Western Europeans imported slaves from the African west coast. After abolition of slavery, migrants were brought in from China, India, and Indonesia to work on the plantations. Nowadays, Suriname is both a mosaic and a melting pot of the many ethnic groups, its present population is composed of people from the Netherlands, India, Africa, China and Indonesia, as well as indigenous peoples who lived in the area, before the arrival of European settlers. About 90% of people established in Suriname have ancestors who came from other countries and regions. As a result, Surinamese culture is very diverse and dynamic, and has strong Asian, African and European influences.

¹⁶ https://www.indexmundi.com/suriname/demographics_profile.html

Suriname's official language is Dutch. Sranan Tongo, the lingua franca, and English are widely spoken as well. Most of the ethnic groups also use their own languages. Because of this ethnic diversity, religion in Suriname is characterized by a wide range of beliefs and practices.

About 67 percent of Suriname's total population is concentrated in the capital area, and 20 percent in the other coastal districts. The remaining 14 percent is concentrated in small (mainly) tribal communities along rivers in the Interior. The overall population density is 3.0 people per km², which makes Suriname a very low populated country. The most densely populated districts are Paramaribo and Wanica with a population of 1,335 and 194 people per km² respectively.

The rate of population growth over the last 20 years has remained fairly constant, shifting between 1.0 and 1.5 percent. There are slightly more men than women below the age of 55, while the age category above 55 is dominated by women. Almost 62 percent of the population is between the ages of 15 and 59 years, whilst 29 percent is younger than 15 and 9 percent is 60 or older.

UNESCO listed two of Suriname's monuments on its World Heritage list. In 2000, the Central Suriname Nature Reserve (CSNR) was listed as a Nature Heritage Site for its pristine tropical rainforest ecosystem. CSNR was created in 1998 by Conservation International and the GOS from the fusion of three existing nature reserves: Ralleighvallen, Tafelberg and Eilerts de Haan gebergte, thus covering a total of 16,000 square kilometres of both montane and lowland primary tropical forest including sections of the Guyana Highlands. In 2002, the historic inner city of Paramaribo was listed as a Cultural Heritage Site because of its well conserved "gradual fusion of European architecture and construction techniques with indigenous South America materials and crafts".

The former settlement of Joden Savanne (Jew's Savanne) and the cemetery at Cassipora are listed as a UNESCO 'tentative Cultural Heritage Site' since 1998. The site is located at about 50 km South of Paramaribo, on the Suriname River. This Jewish settlement was founded in 1665, its synagogue was inaugurated in 1685. After a great fire in 1832 the settlement was left desolate, and the Jewish community relocated to the capital of Paramaribo. The location marks an important stage in the European colonization of the Western Hemisphere. The synagogue at Joden Savanne, of which a ruin remains, is the oldest still present in the Americas. It is a reminder of pioneers of American Judaism.

In the vicinity of the Joden Savanne lay the military supply post 'Post Gelderland', part of the defence line 'Cordonpad'. This line, which started at Joden Savanne and ran all the way to the Atlantic coast, was constructed in 1765 to protect the plantations from attacks of maroons, i.e. runaway slaves. It consisted of a wide bridle path with military posts at regular intervals of which still many remains can be found. In the Northern part of the settlement remaining brick foundations most likely represent the military stronghold 'Post Jodensavanne' (later on mentioned as 'Post Gelderland') at the beginning of the defence line.

Furthermore, apart from the historical inner city of Paramaribo, Suriname's cultural heritage from colonial times covers some former plantation landscapes that are worth to be protected and conserved. Some examples are the former plantations of Peperpot, Baki and Frederiksdorp, all located in the district of Commewijne. Protection of these sites may well go 'hand in hand' with a way of tourism development and exploitation.

Werehpai, discovered in 1998, is an archaeological site consisting of several 'caves' (in fact they are hills/rocky peaks) containing petroglyphs of pre-Columbian origin. The site is located about 400 km south of Paramaribo, 10 km from the village of Kwamalasamutu. With 313 identified petroglyphs, Werehpai is by far the largest pre-Columbian petroglyph site known in Suriname, and perhaps the largest in all of the Guianas.

Section 5 Land Use and Ownership

Of the total 16.4 million ha of land in Suriname, 1.5 million ha is considered suitable for agriculture.

The coastal plain area is characterized by low-lying land (0-4 m above MSL) with a flat topography and fertile heavy clay soils interspersed with sand and shell ridges (cheniers). As the Dutch discovered during the colonial period, when well drained, many locations in the coastal plain are very suitable for agricultural production. Regarding the Savanna Belt, although mainly consisting of infertile white sands, but also more fertile sandy-loamy soils, these are nevertheless used for agriculture, e.g. planting of pine apples. The soils of the interior, on the other hand, have a shallow humus layer, are less fertile and access is difficult and costly. The interior is the setting for shifting cultivation practices by the Indigenous and Maroon communities. Sound information on land utilization in the interior, where root crops, dry land rice, pine apple and oranges are cultivated, is not available. Although no exact figures for the areas under cultivation and the amount of fallow land on reserve are available, along the Suriname River alone shifting cultivation may account for 50,000 ha or more¹⁷.

According to the fifth Agricultural Census (2010)¹⁸ close to 64,000 ha was registered as ‘cultivated land’ of which 43,000 ha was classified as agricultural land. Annual crops covered a total of 16,500 ha, semi-annual crops amount for about 6,000 ha. Fallow accounted for 6,600 ha while grassland, both cultivated and natural, added up to about 14,000 ha. This situation has changed dramatically: these figures are about half of what was recorded during the fourth Agricultural Census (1981) when approx. 120,000 ha was under cultivation in the coastal plain of which 65,000 ha was earmarked for annual crops, almost all for the cultivation of rice. National agricultural statistics over the period 2010-2015 show again an increase of the cultivated area by approx. 11%, mainly of annual crops, especially paddy (in: Unique Forestry and Land Use GmbH (2016), Agricultural statistical data 2010-2015).

There are five types of valid title by which rights to own land have been issued by the government: allodial ownership, absolute (freehold) ownership, lease hold, land lease and simple rent.

- Allodial ownership and inheritable property: this title was issued by the Dutch during the colonial period under the conditions that the land would be developed and kept in cultivation. The owner also had the responsibility to contribute to other services that would promote the welfare of the nation, including security. Land not cultivated could be returned to the domain of the State. Allodial title is treated today as absolute ownership even though this may not be legally accurate.
- Absolute ownership (freehold under civil law): This is the most complete title to land available in Suriname. There are no limitations imposed by the State, the owner has full and unlimited enjoyment of the land within the context of the law. Only a limited amount of land was issued under this title, due to the fear that the land would be used for speculation or would be left uncultivated.
- Leasehold (Erfpacht): This was the most common title issued between 1937 and 1982. The term was for a period of 75 years and the owner had to pay an annual fee. Separate leasehold titles were issued for agricultural land. In 1938 several Javanese communities in the coastal area, but also four Indigenous villages in District Para were issued communal leasehold titles. These titles could not be alienated or mortgaged and thus differed from the standard leasehold title. In 1981 the Village Communities Act was repealed and these titles were automatically terminated.
- Land lease (Grondhuur): This is the only title that can be issued after the 1982 and it is issued for land to be used for habitation, agriculture and animal husbandry, industrial purposes and

¹⁷ Anonymous (2003), Land and Policy, Administration and Management: The Case of Suriname, Paper Prepared for the Workshop, Port of Spain, Trinidad and Tobago, 19-21 March 2003

¹⁸ Ministry of Agriculture, Animal Husbandry and Fisheries (2010), Eindrapport van de Vijfde Landbouwtelling 2008-2009

for special purposes. The nature of the use is specified in the title and permission must be obtained from the government to alter the intended use of the land.

- **Simple rent:** A transitional title issued by the government to individuals for land in areas of which the zoning destination has not been determined yet. Simple rent is also issued in anticipation of completion of the administrative procedure to obtain a land lease title as that the holder can begin to conduct agricultural or other commercial activities. The title is not transferable.

Figures indicate that ‘in terms of gross magnitude of land per capita’, Suriname has an abundant supply of land. On the other hand, land that is appropriate for housing and agriculture in the coastal area is limited. In the urban and peri-urban areas, where population pressure is high, most available building lots are low-lying and require substantial fill with sand before construction can take place. Most agricultural lots require irrigation schemes with dikes and sluices to control the water supply in the dry and rainy seasons.

While the expected Project locations will be concentrated in the coastal zone, land tenure arrangements in both the Savanna Belt and the interior of Suriname can be complex. The southern 80 percent of the Suriname land area is covered with dense evergreen tropical rainforest. In general, soils of the interior have a shallow humus layer, are less fertile and are considered less suitable for agricultural development. However, some economic activities in sustainable harvesting and processing of NTFP are located in the country’s interior.

Land use arrangement for the exploitation of natural resources are legally set by the granting of (concession) licenses. For timber harvesting concessions, strict procedures for obtaining these harvesting rights and safeguards for sustainable logging are based on the Forest Management Act (1992) and enforced by the Foundation for Forest Management and Production Control (SBB: Stichting Bosbeheer en Bostoezicht). Based on the SBB statistics, by the end of 2016, a total of 220 licences were issued through which holders was granted timber harvesting rights over a total area of 2,925,168 ha¹⁹.

Table 3: Timber Harvesting Titles 2016: numbers and areas

License / Title	Number	Total Area (Ha)
Forestry Concessions	115	1,624,589
Community Forests	97	775,760
Incidental Cutting Licenses	4	174,178
Exploration Permits	4	350,641
TOTAL	220	2,925,168

The core of Suriname’s national land tenure system is the ‘domain principle’. This principle was laid down in the L-Decrees of 1982, which state that: “All land to which the right of ownership cannot be proven by other parties, is property of the State”. Indigenous peoples and Maroons never obtained personal, real, or collective titles to the lands they inhabit and use. Hence, they do not have any formal rights to these lands and related resources, which subsequently are all state property. The Rapid Social Assessment (RSA)²⁰ offers a more extensive discussion of the legal status of Indigenous Peoples and Maroons, the position of their traditional authorities within Suriname’s governance structures, and their rights to land and resources.

Despite the lack of formal title under the current Suriname legal system, various legal instruments stipulate that the customary land use rights of Indigenous peoples and Maroons must be taken into account. The historic rights of Indigenous and Maroon groups to inhabit and use certain territories are not included in the Suriname’s legal framework. Nevertheless, certain national laws do include clauses

¹⁹ SBB (2017) Suriname Forestry Sector Review 2016

²⁰ Draft Document prepared under the SCSD Project (November 2018)

that call for protection of the customary land rights of Maroons and Indigenous peoples. The level of that protection, however, remains undefined. Within the 1982 L-Decrees this principle is formulated as such: “In the disposal of government land, the rights of the tribal communities of Bush-negroes and Amerindians to their villages, settlements and subsistence plots will be respected, in so far as this is not contrary to the general interest”. The 1992 Forestry Act uses similar phrasing, in stating that customary land and resource rights need to be respected ‘as far as possible’. These customary rights are subordinate to vaguely defined ‘public interests’. In other legal instruments, such as the Mining Decree 1986, customary rights are not mentioned²¹. The RSA provides a more in-depth discussion of the extent to which customary land rights of Indigenous Peoples and Maroons are protected in Suriname laws and regulations.

²¹ Amazon Conservation Team (ACT) Suriname (2010), Land Rights, Tenure and Use of Indigenous Peoples
Environmental and Social Management Framework – Suriname

Section 6 Assessment of Environmental and Social Risks and Impacts

The SCSD Project will provide technical assistance, public support for SMEs, and some site-specific investments (matching grants support) in the agribusiness, tourism, and mining sectors, aiming at strengthening governance and creating a conducive enabling environment for competitiveness.

Impacts, both positive and negative, associated with the activities under the various Project Components, can be both direct as well as indirect. **Limited knowledge and capacities, both in the public and private domain, are considered an overarching risk in assessing, reducing and monitoring the potential environmental and social impacts of these future investments.**

Activities under Component 1 aim to strengthen mining sector governance, transparency, accountability, and administration by supporting improvements to the legal, regulatory, and institutional framework governing mining in Suriname. This includes support with regard to environmental and social impact of activities in the mining sector.

RISK: Future mining investment activities could take place in a regulatory environment supported by the Project that does not adequately manage environmental and social issues.

IMPACT: Vulnerable groups and landscapes with High Conservation Values²² (HCVs) may be negatively impacted by new mining investments in the future.²³ There will be no direct impact of Component 1 activities.

As this component will finance a Strategic Environmental and Social Assessment (SESA) to inform future decision-making around investments (to include mapping of risk areas, identification of issues and corresponding mitigation strategies, legal and institutional capacity reforms necessary, etc), the here-identified risk is considered to be sufficiently addressed, thus minimizing the potential adverse impacts. The need for building the required capacities, both at the individual and institutional level, is also addressed in Section 9 of this document.

Activities under Component 2 aim to increase private investment in value chains, especially in agribusiness and tourism, through public investment in SMEs and in shared value chain assets to enhance tourism and agribusiness development and the competitiveness of value chains. Although at this stage of Project preparation the exact locations of these public investments to support SME development is not yet known, most of it is to be expected to occur in the coastal zone. Associated potential risks and impacts may result from the public investments in shared assets or other public facilities.

²² HCVs are biological, ecological, social or cultural values which are outstandingly significant or critically important at the national, regional or global level. All-natural habitats possess inherent conservation values, including the presence of rare or endemic species, provision of ecosystem services, sacred sites, or resources harvested by local residents (www.hcvnetwork.org).

²³ To a considerable extent, industrial bauxite and gold mining continues to develop in Suriname without evaluating, at the feasibility study and planning stages, the feasibility and real cost of effective restoration, or alternatively of adequate rehabilitation in combination with offsets for residual impacts. Furthermore, the current industrial-scale gold mining sector in Suriname, at least in part, still draws cheap power from a hydropower project with a legacy of massive flooding of pristine forests and involuntary resettlement. Some plans for future development in at least the bauxite sector also hinge on this source of cheap power, even on the expansion of hydropower development in Suriname (associated with additional flooding and resettlement).

The ESMF tools and checklists that have been developed under this ESMF apply for all public sub-project activity proposals when assessing the environmental and social impacts of Project's and future investments²⁴.

RISK: As specific project investments in, and locations of activities are not yet known at the present stage, potential risks to consider are many and diverse. This, on the one hand, justifies a high level of abstraction of the ESMF tool, while, on the other hand, it explains the wide range of potential environmental and social issues listed in the ESMF Screening Checklist (see Annex 1).

IMPACT: Similarly, at this stage a wide range of potential impacts need to be considered; these are impacts of the different types of activities that may be implemented at different locations, activities in the context of tourism development, commercial agribusiness and related processing a/o manufacturing. They may include - but are not limited to - potential impacts on (i) the quality of water and soil (erosion, runoff, sedimentation and salination), (ii) generating chemical contamination from hazardous wastes and accidental spills or inappropriate disposal, (iii) solid waste and wastewater generation and its inappropriate disposal (iv) HCV alterations on the landscapes, habitats and biodiversity at or near project sites, (v) degradation of natural ecosystems, such as forests, and protected areas, (vi) destruction of cultural heritage; (vii) workers and community health and safety, and (xiii) socio-economic impacts on workers and on local communities.

Component 2 also includes SMEs 'matching grant support' to improve tourism and agribusiness development and the competitiveness of value chains. Similar to the above, at this stage of Project preparation the exact locations of these private investments is not yet known, most of it is expected to be in the coastal zone. Potential risks and impacts may result from the proposed private SME investments it supports. Therefore, **the ESMF tools and checklists also apply for all private sub-project proposals when assessing the environmental and social impacts of Project's and future investments**Error! Bookmark not defined..

RISK: Similar to the potential public investments, also here the specific project investments and locations of activities are not yet known, thus potential risks to consider might be many and diverse again. This explains the wide range of potential issues listed in the ESMF screening checklist (see Annex 1). Because SME development support will focus on the agricultural sector, a separate safeguard instrument regarding the responsible use of agrochemicals for pest and disease control is warranted (see Section 8 / Annex 2).

IMPACT: Also, similarly, a wide range of potential impacts of the different types of activities that may be implemented in different locations where tourism development, commercial agribusiness and related processing a/o manufacturing activities would take place must be considered. They again may include - but are not limited to - potential impacts on: (i) the quality of water and soil, (ii) chemical contamination from hazardous wastes and accidental spills or inappropriate disposal, (iii) solid waste and wastewater generation and inappropriate disposal, (iv) pest and disease control, (v) HCV alteration on the landscapes, habitats and biodiversity at or near project sites, (vi) natural ecosystems, such as forests, and PAs, (vii) cultural heritage; (viii) workers and

²⁴ ESMF tools and checklists also apply in case service provider(s) are contracted for the deliverance of additional services, such as hiring a logistics firm to provide transport service, hiring the airport management company to provide cold storage services, etc. (to be determined during project implementation) and should be an integral part of the service providers contracts.

community health and safety, including possible use of child labor, and (ix) socio-economic impacts on workers and on local communities.

One particular potential impact to be planned for is the clearing of land due to potential physical construction related to the ‘SME Support Fund’. These sub-components may finance activities such as the construction of last-mile roads, waterworks, boat landings, processing facilities, storage facilities, etc. Although potential impacts of such constructions are considered to be site-specific and the ESMF screening checklist (Annex 1) contains safeguards for the protection of biodiversity and cultural values, the clearing of land for development and the cutting of trees cannot always be avoided. This is especially the case as, with 15.2 million ha of forest cover (93% of its total area), Suriname is one of the most forested countries in the world. The total deforestation between 2000 and 2015 amounted to 85,147 ha or an average of 5,676 ha/year, which is equivalent to an annual deforestation rate of 0.04%. Due to these realities, apart from recent reforestation efforts in abandoned (bauxite) mining areas, there is no tradition of tree planting in Suriname. One specific risk management measure elaborated in the ESMP below is that **sub-project proposals that require significant clearing of primary (virgin) forest are excluded from the Project.**

Component 2 also aims at improved access to finance for SMEs through the financial sector - such as via innovative secured transactions - and at providing SME capacity support to improve their productivity and/or to implement new technologies that may have a pro-green effect on production, processing and handling.

RISK: Risks associated to these type of Project interventions are assumed to be negligible, indirect and remote, and are outside the scope of the ESMF.

IMPACT: The anticipated outcomes of Project activities related to improved access to finance for SMEs and SME capacity building will eventually result in positive impacts (in particular in the social domain).

Under Component 2 all types of agribusiness activities are considered and may include non-timber forest products (NTFPs), but is not expected to include activities with a deforestation / forest degradation impact.

RISK: SME development support may result in over-exploitation (depletion) of the natural (forest) resources if not managed in a sustainable manner. Improved infrastructure to support NTFP business logistics may result in intrusion of undesired activities like timber harvesting and hunting in these areas. In addition, any potential labor influx may create risks for increased incidence of gender-based violence against community members, and there could be use of child labor.

IMPACT: If not adequately managed, NTFP collection can have a negative impact on biodiversity and an adverse effect on traditional lifestyle integrity and social structures and livelihoods of local communities. Gender-based violence induced by labor influx or use of child labor could have harmful impacts and create tensions within the community that lead to conflict.

Also, under Component 2, sub-project activities aiming to support and enhance sustainable tourism²⁵ business development are eligible. Realising Suriname’s great and unique natural heritage and its rich cultural heritage, Project support to tourism development holds immense opportunities but, if not sustainably managed, hold equal risks of (negative) impact on both natural and cultural integrity.

²⁵ <http://www.gov.sr/ministerie-van-hi-t/actueel/standaarden-ontwikkelen-voor-toerisme-sector-1.aspx>

RISK: Potential risks relate to uncontrolled growth of tourism operations, including those that are community based, and increased pressure on both natural and cultural heritage and resources. If not well managed, increasing numbers of visitors to ‘hot spot’ locations and PAs, both in the coastal area and the interior, contain a serious risk of negatively impact on these values. Any potential labour influx may create risks for increased incidence of gender-based violence against community members.

IMPACT: Increasing numbers of visitors, and support infrastructures poses potential adverse impacts on fragile habitat, landscapes, vulnerable populations of plants and animals and on the traditional lifestyle of local peoples. Access to traditionally owned land and land use by local communities may become cause for dispute, if traditional land rights are disrespected. Associated waste issues may become nuisance and create environmental pollution. Gender-based violence induced by labour influx could have harmful impacts and create tensions within the community that lead to conflict.

Finally, under Component 2, legal and regulatory support will be provided to the government for improving the business environment.

RISK: Assuming that the anticipated legal and regulatory reform resulting from this type of support duly considers the inclusion of environmental and social safeguards, risks are negligible.

IMPACT: Improved legal and regulatory instruments in support of the business environment will eventually result in positive impacts.

Component 3 aims to fund all Project management, operational, monitoring and evaluation, and communication costs. This will include support to strengthen GOS capacity in the design and implementation of environmental and social safeguards policies under the proposed Project.

RISK: None, assuming a dedicated Project Implementation Unit (PIU).

IMPACT: All outcomes resulting from these Project interventions are expected to have positive impacts.

To summarize, based on the anticipated categories of SCSD Project interventions and support, the examples of potential (adverse) environmental and social impacts and the expected significance of impacts are listed in the table below.

Table 4: Examples of potential Risks and Impacts

Categories of SCSD Project interventions and support (SME support and shared value chain assets)	Potential Environmental and Social Impact	Expected Significance
Agribusiness development	Groundwater pollution	Substantial
	Surface water pollution	Substantial
	Alteration of hydrological regime	Low
	Destruction of flora and fauna habitat	Moderate
	Soil and land degradation	Moderate
	Excessive agrochemical use (pest / disease control)	Substantial
	Inadequate solid waste disposal	Moderate
	Air pollution	Low
	Noise pollution	Low
	Involuntary resettlement	Low
	Gender-based violence induced by labor influx	Low

	Child labor	Low
NTFP business development	Overexploitation	Low to Moderate
	Biodiversity loss	Low
	Intrusion of unintended activities	Low to Moderate
	Inadequate solid waste disposal	Low
	Waste water spill	Low
	Conflict over land use and resources	Substantial
	Gender-based violence induced by labor influx	Low
	Child labor	Low
Tourism development	Degradation of heritage sites	Low to Moderate
	Loss of biodiversity	Low
	Community 'lifestyle' disruption	Low
	Conflict over the land use and resources	Moderate
	Intrusion of unintended activities	Moderate
	Inadequate solid waste disposal	Substantial
	Poor sanitation / hygiene	Low
	Involuntary resettlement	Low
	Gender-based violence induced by labor influx	Low
	Child labor	Low
	(Last Mile) Access roads	Air and noise pollution
Water pollution		Low
Inadequate solid waste disposal		Moderate
Inadequate waste oil / fuel disposal		Moderate
Public health and safety		Low
Land take / Involuntary resettlement		Low to Moderate
Gender-based violence induced by labor influx		Low
Child labor		Low
(Last Mile) Power supply	Air and noise pollution	Low
	Water pollution	Low
	Inadequate solid waste disposal	Moderate
	Inadequate waste oil/ fuel disposal	Moderate
	Poor public health and safety	Low
	Land take / Involuntary resettlement	Low to Moderate
	Gender-based violence induced by labor influx	Low
	Child labor	Low
Cross-cutting social and cultural issues	Livelihood loss	Low to Moderate
	Community 'lifestyle' disruption	Low to Moderate
	Cultural heritage site destruction	Low to Moderate
	Loss of access to biodiversity resources	Low to Moderate
	Marginalization of local communities	Low
	Increased spreading of diseases	Low
	

For all identified potential social and environmental impacts resulting from sub-project activities with a potential Substantial / Moderate significance, mitigating actions are required. A screening tool for the identification of potential impacts is included in Annex 1.

The proposed mitigating strategic actions and the monitoring of the actions' effectiveness in eliminating or reducing the negative impacts of sub-project activities must be described in a 'Environmental and Social Management Plan' (ESMP). Strategic approaches and procedures of the ESMP are covered in the following Section (Section 7) of this document.

Section 7 Environmental and Social Management Plan

As mentioned, considering the nature and magnitude of potential sub-project activities under the SCSD Project, the Project is classified as Category B. Due to this OP 4.01 'Environmental Assessment' is triggered, consequently also triggering:

- OP 4.04 Natural Habitats
- OP 4.36 Forests
- OP 4.09 Pest Management
- OP 4.11 Physical Cultural Resources
- OP 4.10 Indigenous People
- OP 4.12 Involuntary Resettlement

The 'Environmental and Social Management Plan' (ESMP) under this ESMF, described below - together with capacity assessment for implementing this ESMF (Section 8) - is in line with annex C of OP 4.01. At this stage, and since sub-projects locations (and activities) are not yet known at the current stage of development of the Project, no budgetary estimates for implementing the ESMP can yet be made. All costs for implementing the ESMP will be covered by the SCSD Project either through general project management financing or the budgets for specific sub-projects.

For reasons to ensure compliance with the WB Safeguards Policies, the following implementation structure is proposed for this ESMP:

- **An Environmental Specialist and a Social Specialist will be appointed by MTIT for the duration of the SCSD Project.** The MTIT Project Implementation Unit (PIU), and in particular the Environmental Specialist and the Social Specialist (the 'Safeguards Team') will have responsibility for ESMP implementation. Their roles and obligations are to work together to ensure that the Project is carried out with due regard to the appropriate World Bank procedures as well as appropriate health, safety and environmental standards and practices, and in accordance with the Safeguard Instruments, in particular the Environmental and Social Management Framework (ESMF) and the Environmental and Social Management Plan (ESMP), the Resettlement Policy framework (RPF) and the Grievance Redress Mechanism (GRM). The GRM is established in the Resettlement Planning Framework and will also be utilized for general purposes and attend to any project issues as a whole, allowing the project to address and respond to any issues communities or individuals raise concerning the project. During the Project, proposed sub-projects and activities will be screened, scoped, and assessed by the Safeguards Team in line with the ESMF/ESMP and World Bank safeguard procedures, in close collaboration with World Bank safeguard specialists.
- The Safeguards Team will report technically to the MTIT PIU Component 2 Manager, under the coordination of the SCSD Project Coordinator, as they will also support MNR for the implementation of Component 1 (see the Project Appraisal Document for further details). Training and support in these roles will be provided by the Environmental and Social World Bank Specialists.
- The Safeguards Team will ensure that all works are implemented according to the World Bank Group policies and guidelines, in particular the Environmental, Health, and Safety Guidelines, and follow applicable good industry practice (e.g., ISO 9001 Quality Standards, ISO 14001 Environmental Standards, OHSAS 18001 Occupational Health and Safety Standards).
- The Safeguards Team will also ensure that the specified mitigation measures in the ESMP are appropriately implemented by the contractors; will monitor the effectiveness of the

implemented mitigating measures and will, if required, propose alterations in the mitigation plan.

The ESMF/ESMP describes the legal, regulatory and policy framework in Suriname and all World Bank's Safeguard policies. It contains provisions to minimize potential environmental impacts and risks with the objective to bring the Project into compliance with national environmental and social requirements and environmental and social policies of the World Bank.

The ESMP will be included in the bidding documents so that bidders can consider and incorporate their environmental responsibilities, thus the implementation of the ESMP, into their bid proposals. **The ESMP becomes an integral part of the contract for the provision of works and is binding for implementation.** Contractors will be engaged in two major stages of the sub-project, first for design/supervision and then for implementation/construction.

For design and prior to commencement of works, the contractor must prepare the corresponding and related thematic E&S management plans (that could be presented at the time of the sub-project identification).

Implementation and responsibilities: The ESMP will be updated by the contractor once the final detailed engineering designs for sub-projects are prepared during the project implementation. Appropriate environmental and social mitigation measures for these activities will be included and budgeted in the specific sub-projects ESMPs, once the sub-projects design and engineering details are known. **The PIU's Safeguards E&S specialists are responsible to supervise the updating processes of those ESMPs in concurrence with the WB Safeguard Specialist assigned to the project. The ESMP will be executed by the contractors with oversight by the PIUs E&S Safeguards Team.**

The ESMP should closely align with existing guidelines and procedures that are in place in Suriname. Although not embedded in national legislations, NIMOS has developed guidelines, both general and sectoral, for conducting (voluntary) Environmental and Social Impact Assessments (ESIAs) and includes mitigation and monitoring measures.

Steps to be taken to develop the ESMP are:

Step 1: Screening

As mentioned in Section 2, considering the nature and magnitude of potential sub-project activities under the SCSD Project, the entire Project is classified as Category B, meaning that the potential adverse environmental impacts on human populations or environmentally important areas are considered site-specific, to be reversible, and mitigation measures can be designed to avoid or reduce impacts to acceptable levels (residual impacts). Which sub-projects, from a range of potential ones described earlier, will materialise is not yet fully determined at present, but **sub-projects that would classify as Category A will not be eligible.**

A screening procedure will be used to determine to which Category sub-projects will be assigned, and, for sub-projects assigned to Category B, to determine the initial scope of environmental and social management plans to be developed in relation to specific sub-projects.

The screening procedure will be implemented by a MTIT/PIU Safeguards Team. The team will be provided, at the appropriate time, with sufficiently detailed descriptions of proposed sub-projects by the contractor(s). Based on this, they will produce a succinct report as to any likely environmental and social issues tied to each sub-project and the expected magnitude of impacts; they will also assign the sub-project to a Category, and in case of Category B, they will indicate which issues need to be addressed, at minimum, in the ESMP for a specific proposed

sub-project. A screening list (Annex 1: ESMF Screening Checklist) will be used by this team to aid them in their deliberations and reporting; it will serve as a template for the Screening Reports (one for each proposed sub-project) the team will produce. The sub-project description (provided by the contractor) will be attached to the Screening Report.

Step 2: Scoping and Initial Public Consultation

For Category B proposed sub-projects, likely significant environmental and social issues (identified during screening) must be discussed with the stakeholders, and based on this a final scope the ESMP must be developed.

The PIU's Safeguards Team will identify the stakeholders, based on the screening report (which contains the sub-project description and lists potentially significant risks and impacts) and the Team's thematic expertise and in-country experience.

A public scoping consultation will be held by the MTIT/PIU Safeguards Team at the site where the activities are planned and/or at nearby communities, as appropriate (also culturally, in terms of language and manner of communication) to ensure that (potential) stakeholders are informed of the proposed sub-project and get sufficient opportunity to voice points of concern, and generally express opposition or support. The result of the public meeting is a comprehensive Scoping Report, in which additional issues and impacts may be identified, based on stakeholders' input, that had not been identified as significant (Moderate or Substantial) earlier, in the Screening Report. The Scoping Report will describe the terms of reference for the subsequent assessment.

Step 3: Assessment

To assess the environmental and social baseline conditions, the MTIT/PIU Safeguards Team or additional capacity support hired by the government through the project will study environmental and social information sources. These will be pre-existing sources (publications, reports, maps, other available data) and, as appropriate if this data is considered insufficient, new data obtained via targeted field studies in relation to the expected impacts identified as significant in the Screening and Scoping Reports. This will include conducting stakeholder consultations as needed to inform the ESMP.

The results of this assessment will be laid down in a comprehensive Assessment Report; each proposed sub-project will result in a separate report. The Assessment Report will contain a description of the proposed sub-project, a description of the baseline work done, an assessment of expected impacts on the basis thereof, a description of impact reduction or compensation measures that are recommended, if any, and a description of monitoring that may be required as a consequence. The report should be concise, details of any baseline field studies are to be included in appendices. The Assessment Report must clearly describe any measures needed to prevent, minimize or mitigate adverse impacts, or to compensate for residual impacts; it must also describe monitoring action, if any is required, and can propose measures to improve overall environmental and social performance.

Step 4: Disclosure, Review and Decision Making

A public disclosure meeting will be held by the contractor (and the E&S expert) at the site where the activities are planned and/or at nearby communities, as appropriate to ensure that (potential) stakeholders are informed of any modification of the sub-project, the expected impacts, proposed impact reduction and compensation measures, and proposed monitoring action. The results of this public meeting are a comprehensive summary, by the contractor / E&S expert, of public remarks and responses at the meeting, and any comments after the

meeting by the contractor / E&S expert on the relevance / legitimacy of specific public remarks, and how these are addressed. This will be included as an appendix to the Assessment Report. If appropriate, the proposed sub-project and Assessment Report can be adjusted based on the outcome of the public disclosure meeting.

Complete Assessment Reports will be submitted to and reviewed by the MTIT/PIU's Safeguards Team. Upon initial submission these reports are considered drafts ('Draft Assessment Report'; which is how they must be described on the report cover page). The Safeguards Team will deliberate on the adequacy of the (draft) Assessment Report, on major shortcomings, if any, and on how these may be addressed. The results of these deliberation will be laid down by the Safeguards Team in a concise Initial Review Report.

If major shortcomings are identified by the MTIT/PIU's Safeguards Team these are to be addressed by the sub-project contractor / E&S expert. This means that changes in the proposed sub-project may be required and/or changes in the assessment of impacts and/or the way they are proposed to be addressed. An adjusted Second Draft Assessment Report must then be submitted to the PIU's Safeguards Team and will be processed similarly; changes vis-à-vis the original sub-project description and the (first) Draft Assessment Report must be summarily clarified in an accompanying note. If the identified shortcomings are considered to be addressed adequately, then the PIU's Safeguards Team releases a Final Review Report, and the Assessment Report is then considered 'final' and the sub-project is green-lighted for implementation. If shortcoming were not considered to be addressed adequately, the review process cycle is repeated. Additional repeats of the review process cycle may be required until the Assessment Report is considered adequate ('final') or the contractor abandons his planned activities. The contractor and E&S expert can be received for a meeting with the MTIT/PIU Safeguards Team during each review cycle to get / provide clarification.

Step 5: Monitoring

The contractor is required to implement the sub-project in line with its (modified) description in the Final Assessment Report, integrating all the necessary mitigating measures to reduce impacts and compensate for residual impact, if any, as recommended in this report.

The PIU's Safeguards Team will oversee the overall monitoring and supervision of the implementation of impact mitigating measures and their effectiveness. The Safeguards Team will also supervise implementation of the overall environment and social safeguards and review and monitor the specific social and environmental management plans. If monitoring reveals that impacts of the activities are more significantly adverse than initially predicted, then the sub-project activities must be adjusted to obtain impact reduction measures accordingly, and to keep the adverse impacts within acceptable limits. If, in an adaptive management context, this cannot be achieved, cessation of activities could be considered.

Updated Monitoring Reports need to be drafted bi-annually by the sub-project contractor (or the E&S expert) and submitted to the MTIT/PIU Safeguards Team for review. These reports must describe the monitoring that was proposed in the Final Assessment Report; the monitoring that was actually implemented; the results thereof, including an evaluation of acceptability of impacts, and a description of any measures that were taken in the context of adaptive management to make/keep impacts acceptable or are proposed for subsequent implementation (in the following year). The PIU's Safeguards Team will evaluate these reports and may require them to be upgraded; it may also suggest additional or alternative measures to be taken in case impacts exceed acceptable limits.

For the initial screening of proposed sub-projects and identification of potential social and environmental impacts of sub-project activities, a screening tool is designed (see Annex 1) of which

the screening outcomes provide the reference for the Environmental and Social Management Plan (ESMP).

The ESMP identifies feasible and cost-effective mitigating measures that may reduce potentially significant adverse environmental and social impacts to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient. Specifically, the ESMP:

- e. identifies and summarizes all anticipated significant adverse environmental impacts (including those involving indigenous people or involuntary resettlement);
- f. describes each mitigation measure, including the type of impact to which it relates and the conditions under which it is required, together with designs, equipment descriptions, and operating procedures, as appropriate;
- g. estimates any potential environmental (positive) impacts of these measures; and
- h. provides linkage with any other mitigation plans (e.g., for Involuntary Resettlement, Indigenous Peoples, or Cultural Property) required for the project.

All proposed mitigation measures will be based on the Mitigation Hierarchy²⁶ which is considered crucial for all sub-project's activities aiming to achieve no overall adverse impact on biodiversity.

The approach is based on a series of steps that must be taken throughout the project's life cycle in order to limit any negative impacts on biodiversity (see box below).

One specific mitigation measure has to do with the case the felling of trees. When site-specific deforestation or land clearing cannot be avoided, the following requirements apply:

- Land preparation involving the clearing of forest²⁷ should be limited to a maximum of 10 ha.;
- Land clearing should be preceded by a 'quick scan' biodiversity assessment, aiming to avoid the disturbance of nesting birds and breeding animals; in which case the land clearing needs to be temporarily postponed;
- In all cases, also within the area to be cleared, sacred trees and trees/plantings with significant cultural or ornamental values should be protected (see also ITPPF Safeguard document) or replaced after the sub-project construction phase;
- In case of tree felling in forest stands, directional felling should be applied, aiming to reduce damage to remaining trees and adjacent vegetation;
- All commercial trees to be felled should be brought to market (sawmills);
- In or close to urban areas, rural villages and compounds, remaining biomass after land clearing should not be burned;
- All remaining woody biomass after land clearing should be available for recycling (whenever feasible/ possible).

²⁶ <https://www.thebiodiversityconsultancy.com/approaches/mitigation-hierarchy>

²⁷ Defined as land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

The sequential steps of the WBG mitigation hierarchy

Anticipate and avoid risks and impacts:

The first step of the mitigation hierarchy comprises measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of infrastructure or disturbance. For example, placement of roads outside of rare habitats or key species' breeding grounds. Avoidance is often the easiest, cheapest and most effective way of reducing potential negative impacts, but it requires social and biodiversity related issues to be considered in the early stages of a project.

Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels

This includes measures taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided. Effective minimisation can eliminate some negative impacts. Examples include such measures as reducing noise and pollution, designing powerlines to reduce the likelihood of bird electrocutions, or building wildlife crossings on roads.

Once risks and impacts have been minimized or reduced, mitigate

This includes measures taken to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised. Mitigation/rehabilitation aims to restore basic ecological functions and/or ecosystem services (e.g. through planting trees to stabilise bare soil). Rehabilitation is frequently needed towards the end of a project's life-cycle, but may be possible in some areas during operation.

Collectively avoidance, minimisation and mitigation serve to reduce, as far as possible, the residual impacts that a project has. Typically, however, even after their effective application, additional steps will be required to achieve no overall negative impact or a net gain for biodiversity.

Offset:

This includes measures taken to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy. Biodiversity offsets are of two main types: 'restoration offsets' which aim to rehabilitate or restore degraded habitat, and 'averted loss offsets' which aim to reduce or stop biodiversity loss (e.g. future habitat degradation) in areas where this is predicted. Offsets are often complex and expensive, so attention to earlier steps in the mitigation hierarchy is usually preferable.

Additional to the World Bank Operational Policies on Environmental Management and Suriname's national legal requirements, several internationally recognised 'Best Practice' guidelines should be considered regarding (i) the collection and processing of NTFPs, (ii) sustainable fishery and (iii) aiming at sustainable tourism development.

In 2014, NEPC on launched its standard 'Global Non-Timber Forest Product Certification'²⁸ as an addendum to FSC²⁹ Sustainable Forest Management (SFM) certification, which now is widely used as a reference for sustainable NTFP harvesting. The intent of this standard is to outline requirements which pertain to non-timber forest products (NTFP) and complement the FSC certification principles and criteria for SFM. Although not meant to be used as a 'stand-alone' standard, the following principles are to be considered for NTFP value chain development projects under the SCSD Project:

PRINCIPLE # 2: Tenure and use rights and responsibilities

Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

PRINCIPLE # 3: Indigenous peoples rights

²⁸ <https://www.nepcon.org/library/standard/fsc-forest-management/nepcon-global-NTFP-certification>

²⁹ Forest Stewardship Council; <https://www.fsc.org>

The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognised and respected.

PRINCIPLE # 6: Environmental impact

NTFP collection shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

PRINCIPLE # 8: Monitoring and assessment

Monitoring shall be conducted - appropriate to the scale and intensity of NTFP management - to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

PRINCIPLE # 9: Maintenance of high conservation value forests

NTFP collection activities in high conservation value forests shall maintain or enhance the attributes, which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

Sustainable fishing means leaving enough fish in the ocean, respecting habitats and ensuring people who depend on fishing can maintain their livelihoods. Independent 'third party' assessment of sustainable fishery may be based on the MSC Fisheries Standard³⁰ which - in turn - is based on the UN FAO Code of Conduct for Responsible Fishing. This Code was established in 1995 as a framework for international efforts to encourage fishing activity that is sustainable and in harmony with the environment. It serves as an instrument of reference to help States to establish or to improve the legal and institutional framework required for responsible fisheries.

Because Suriname lacks formal policies and practices on 'stock management', sustainability of fisheries is hard to assess. Given these concerns, SCSD Project support will primarily focus on the value chain support activities e.g. improved (efficiency of) processing and fish product diversification, improved food safety and improved management. Project support towards increasing fish catch may be considered in case fishery companies engage in sustainable practices³¹. Although this full standard will not apply, proposed sub-activities in the fishery industry under the SCSD Project should comply with the 'spirit' of the following principles:

PRINCIPLE # 1: Sustainable target fish stock

Fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

PRINCIPLE # 2: Environmental impact of fishing

Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

PRINCIPLE # 3: Effective management

The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

³⁰ Marine Stewardship Council <https://www.msc.org>

³¹ At present, the only company who obtained MSC certification is Suriname Atlantic Seabob fishery, in 2011. It was the first tropical shrimp fishery worldwide to obtain the MSC certification for sustainable and well managed fisheries.

As more regions and countries develop their tourism industry, it produces significant impacts on natural resources, natural environments and social systems³². In 2000, the so called Mohonk Agreement was developed among most of the world's important certification programs at that time, and became the basis for the harmonization and development of a common baseline for sustainable tourism and ecotourism certification. It is the first consensus agreement that clearly differentiates between sustainable tourism, whose principles can be applied to any kind of tourism at any scale, and ecotourism, which is a subset of sustainable tourism with a clearly defined relationship with nature, conservation and local culture. It has since served as a fundamental reference for the World Tourism Organizations' (UN-WTO) indicators for certification and also forms the baseline criteria for the Global Sustainable Tourism Council.

The Global Sustainable Tourism Council (GSTC)³³ establishes and manages global sustainable tourism standards, known as the GSTC Criteria. There are two sets: Destination Criteria for public policy-makers and destination managers, and Industry Criteria for hotels and tour operators. These are the guiding principles and minimum requirements that any tourism business should aspire in order to protect and sustain the world's natural and cultural resources, while ensuring tourism meets its potential as a tool for conservation and poverty alleviation. proposed sub-projects in the tourism sector under the SCSD Project should comply with the 'spirit' of the following principles:

PRINCIPLE # 2 - SECTION B:

Maximize social and economic benefits to the local community and minimize negative impacts.

PRINCIPLE # 3 - SECTION C:

Maximize benefits to cultural heritage and minimize negative impacts.

PRINCIPLE # 4 - SECTION D:

Maximize benefits to the environment and minimize negative impacts.

D1 Conserving resources;

D2 Reducing pollution;

D3 Conserving biodiversity, ecosystems and landscapes.

Although all three abovementioned 'best practices' and certification schemes are voluntary based, all sub-project activities under the SCSD Project should be in the spirit of these guidelines. For the evaluation of sub-project proposals and the proposed mitigating and monitoring actions these principles will apply.

Related to OP 4.11 dealing with 'Physical Cultural Resources' a Chance Finds procedure is proposed. This procedure is included in Annex 3 of this document.

Related to OP 4.12 dealing with 'Involuntary Resettlement' a Resettlement Policy Framework (RPF) is proposed³⁴. This RPF has been prepared as a separate safeguard document³⁵.

Related to OP 4.10 dealing with 'Indigenous People' a separate Indigenous and Tribal Peoples Planning Framework (ITPPF) is proposed. This framework however is not within the scope of the ESMF; it is presented in an additional safeguards document.

Because the SCSD Project has a strong focus on supporting agricultural development related to and enhancing of private investments and sector diversification, **the WBG Operational Policy (OP) 4.09,**

³² <https://sustainabletourism.net>

³³ <https://www.gstccouncil.org>

³⁴ Annex A to this OP 4.11 describes the elements of a resettlement plan, an abbreviated resettlement plan, a resettlement policy framework, and a resettlement process framework.

³⁵ Draft Document prepared under the SCSD Project (November 2018)

dealing with Pest (and disease) Management in agriculture, requires specific attention; it will be dealt with in the following section of this document (Section 8).

Finally, workers and other persons that might be engaged in and affected by the works related to implementation, construction, maintenance and operations of SCSD sub-project activities should adhere to a pre-defined set of 'Safety and Health' regulations. These regulations all aim to eliminate or minimize the potential adverse impact of these works on human health and safety.

All proposed mitigating actions aiming at healthy and safe working conditions should be selected, prioritised and implemented according the Hierarchy of Controls.



Measures relating to Occupational Health and Safety (OHS) will be applied to the Project³⁶. The OHS measures applying to the Project and each sub-project under it, will be set out in the legal agreement as part of the bidding process. The OHS measures will be designed and implemented to address:

- a. Identification of potential hazards to project workers;
- b. Provision of preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances;
- c. Training of project workers and maintenance of training records;
- d. Documentation and reporting of occupational accidents, diseases and incidents;
- e. Emergency prevention and preparedness and response arrangements to emergency situations; and
- f. Remedies for adverse impacts such as occupational injuries, deaths, disability and disease.

Sub-project applicants / contractors who employ or engage workers will develop and implement procedures to establish and maintain a safe working environment, including that workplaces, machinery, equipment and processes under their control are safe and without risk to health. All parties will actively collaborate for implementation of OHS requirements, training on occupational safety and health, and provision and use of personal protective equipment without expense to the project workers.

A system for regular review of OSH performance and the working environment will be put in place and include identification of safety and health hazards and risks, implementation of effective methods for responding to identified hazards and risks, setting priorities for taking action, and evaluation of results. Bi-annual OSH performance reports will be prepared by the contractor and submitted for review and approval to the MTIT/PIU.

The MTIT/PIU will make reasonable efforts to ascertain that third parties who engage contracted workers are legitimate and reliable entities and have in place labour management procedures applicable to the Project and all envisioned sub-project activities that will allow them to operate in accordance with Suriname's legal requirements and the WBG standards on OSH. The Project will incorporate these OHS requirements into contractual agreements with contractors, together with appropriate non-compliance remedies.

³⁶ <https://www.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES>

In Table 5 all at this stage of SCSD Project preparation, for all identified categories of SCSD Project interventions and support, and associated potential environmental and social impacts at a Substantial / Moderate level, suggestions for mitigating actions are proposed, thus providing a kind of guidance for the design of the ESMP.

Table 5: Examples of Mitigating Actions

Categories of SCSD Project interventions and support	Potential Environmental and Social Impact	Expected Significance	Examples of possible impact reduction and compensation measures
Agribusiness development	Groundwater pollution	Substantial	install impermeable lining on/below soil
	Surface water pollution	Substantial	create containment basis at vulnerable spots
	Alteration of hydrological regime	Low	promote herbaceous plant cover of large areas of cleared soil, or cover bare soil with fibrous mats
	Destruction of flora and fauna habitat	Moderate	avoid pristine habitat, relocate to land with already converted or degraded habitat
	Soil and land degradation	Moderate	land contouring and slope stabilisation
	Excessive agrochemical use (pest / disease control)	Substantial	use only when necessary and switch to IPM (biological) alternatives (less toxic / more targeted)
	Inadequate solid waste disposal	Moderate	incorporate solid waste disposal procedures in work plans / procedures, incl. of contractors
	Air pollution	Low	use low-emission equipment
	Noise pollution	Low	use low-noise equipment
	Involuntary resettlement	Low	relocate activity to land that is not yet settled
	Operational Health and Safety issues for workers	Moderate	Machinery and equipment accidents.in processing and warehouses. First aid and OHS training
	Labor influx induced gender based violence	Low	Labor contractors will undergo training to identify and avoid GBV
	Child labor	Low	Include in the regulatory improvements rules on child labor.
NTFP business development	Overexploitation	Low to Moderate	Adjust harvest rate to replenishment / growth rates based on trials and monitoring
	Biodiversity loss	Low	Reduce collateral damage during harvest
	Intrusion of unintended activities	Low to Moderate	Limit access to sub-project location (guarded gate; blocking of alternative access routes)
	Inadequate solid waste disposal	Low	organise regular clean-up of most affected locations
	Waste water spill	Low	treat waste water before release
	Conflict over land use and resources	Substantial	negotiate a compensation with party affected
	Operational Health and Safety issues for workers	Moderate	Machinery and equipment accidents.in processing and warehouses. First aid and OHS training
	Labor influx induced gender based violence	Low	Labor contractors will undergo training to identify and avoid GBV
	Child labor	Low	Include in the regulatory improvements rules on child labor.
Tourism development	Degradation of heritage sites	Low to Moderate	relocate activity to avoid such sensitive site
	Loss of biodiversity	Low	compensate local loss by gain at other location
	Community 'lifestyle' disruption	Low	discuss with community ways to avoid or mitigate, and agree on adequate measures + monitoring
	Conflict over the land use and resources	Moderate	relocate or negotiate to identify an acceptable win-win solution, possibly a compensation
	Intrusion of unintended activities	Moderate	patrolling of sensitive area

Categories of SCSD Project interventions and support	Potential Environmental and Social Impact	Expected Significance	Examples of possible impact reduction and compensation measures
	Inadequate solid waste disposal	Substantial	develop and implement targeted awareness campaign
	Poor sanitation / hygiene	Low	inspection; incentivise cleanliness
	Involuntary resettlement	Low	negotiate voluntary resettlement based on compensation
	Operational Health and Safety issues for workers	Moderate	Machinery and equipment accidents during infrastructure constructions and operations. First aid and OHS training
	Labor influx induced gender based violence	Low	Labor contractors will undergo training to identify and avoid GBV
(Last Mile) Access roads	Air and noise pollution	Low	limit traffic speed
	Water pollution	Low	incorporate procedures in work to avoid such pollution
	Inadequate solid waste disposal	Moderate	contain / limit solid waste production to areas where it is easier to manage disposal
	Inadequate waste oil / fuel disposal	Moderate	place and service waste storage tanks at vehicle fuelling / maintenance sites
	Poor public health and safety	Low	enhance road safety infrastructure
	Land take / Involuntary resettlement	Low to Moderate	engage person(s) affected and negotiate and implement a compensation
	Operational Health and Safety issues for workers	Moderate	Machinery and equipment accidents during infrastructure constructions and operations. First aid and OHS training
	Labor influx induced gender based violence	Low	Labor contractors will undergo training to identify and avoid GBV
(Last Mile) Power supply	Air and noise pollution	Low	in residential areas, avoid major building activities outside office hours when residents are at home
	Water pollution	Low	implement work procedures to avoid spills
	Inadequate solid waste disposal	Moderate	incentivise proper waste disposal by staff
	Inadequate waste oil/ fuel disposal	Moderate	develop and implement an awareness campaign
	Poor public health and safety	Low	incorporate safety precautions in work procedures (e.g. signage, PPE, traffic rules & regulations)
	Land take / Involuntary resettlement	Low to Moderate	use different route to avoid the issue
	Operational Health and Safety issues for workers	Moderate	Machinery and equipment accidents during infrastructure constructions and operations. First aid and OHS training
	Labor influx induced gender based violence	Low	Labor contractors will undergo training to identify and avoid GBV
Cross-cutting social and cultural issues	Livelihood loss	Low to Moderate	engage person / community to negotiate and implement compensation
	Community 'lifestyle' disruption	Low to Moderate	engage to identify and implement measures to limit the disruption
	Cultural heritage site destruction	Low to Moderate	relocate to avoid the issue
	Loss of access to biodiversity resources	Low to Moderate	allow specific person / community affected privileged access
	Marginalization of local communities	Low	engage community to identify and implement ways to avoid this
	Increased spreading of diseases	Low	develop and implement procedures to avoid / counter this, and ensure that there is treatment

Section 8 Agricultural pest management plans

In assisting borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. For the SCSD Project this means that pest management issues are addressed in the context of the Project's environmental assessment (OP 4.01). As a consequence, given the focus on agribusiness value chains, the WBG Operational Policy (OP) 4.09 is triggered. Activities financed by the Project must consider approved pest management policy provisions and practices which are incorporated into this ESMF.

In SCSD Project support to SME agriculture investments, pest populations are normally controlled through Integrated Pest Management (IPM)³⁷ approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest.

In Suriname, at a national level, integrated pest management policies are lacking and its legal and regulatory framework related to IPM is virtually limited to the following legislation, guidelines and standards:

- Plant Protection Act (1965)
- Pesticides Act G.B. 1972 no 151-last amended by S.B. 2005 no. 18
- State Order on Pesticides S.B. 2005 no. 21 (Implementation Regulation of the Pesticide Act)
- NIMOS ESIA Guideline Volume VII: Agricultural Projects (May 2013)
- SSB (MTIT) Good Agricultural Practice Standard (August 2018)³⁸
- 'Stockholm Convention on Persistent Organic Pollutants' (ratified in 2011)

As part of the country's commitment to the Stockholm Convention, adapted to the FAO List of prohibited chemicals and in accordance with the State Order on Pesticides (S.B.no 18, 2005), Suriname listed (agro-) pesticides prohibited to store, possess, sell and use³⁹.

While most of the above listed legislation, guidelines and standards mainly relate to (the limitation of the) use of pesticide in agriculture and the elimination of POPs, knowledge on the concept of IPM is virtually lacking and the practical implementation of IPM principles is limited to just a very few initiatives and some individual growers. Over recent years, some NGOs (e.g. d'ONS, STEPS) have been working on the promotion and introduction of the concepts of biological production practices in agriculture, mainly in horticulture. Also, the Ministry of AAF supports these promotional activities. All these initiatives include elements of IPM but the practical use of these concepts is still limited to a small group of commercial growers (e.g. Kwatta Farmers Association) and those engaged in small scale commercial agriculture and/or shifting cultivation in the interior. However, in shifting cultivation (slash and burn) the main focus is on increasing soil fertility and general growing conditions through the

³⁷ Integrated pest management (IPM) is an approach that integrates practices for economic control of pests. IPM aims to suppress pest populations below the economic injury level (EIL). The UN's Food and Agriculture Organization (FAO) defines IPM as "the careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment. IPM emphasizes the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms."

³⁸ The Bureau for Standards (SSB) under MTIT developed a 'Good Agricultural Practice (GAP) standard that became a formal National Standard in August 2018. The standard provides minimum requirements for sound agricultural practices and safeguards for food security and applies for all fruit- and vegetable production, regardless production area and volumes produced. <http://www.ssb.sr/standaard-goede-agrarische-praktijk-voor-landbouwgewassen-vastgesteld-als-nationale-standaard/>

³⁹ Ministry of Labour, Technological Development and Environment, Paramaribo, Suriname (July 2011), 'Suriname's National Implementation Plan to the Stockholm Convention on Persistent Organic Pollutants'.

introduction of biological farming concepts, including IPM principles, thus enlarging the cycle of 'slash and burn'. At a larger scale of operation, some SME in agriculture aim at biological production, including IPM, and since 2014, the Foundation d'ONS each year selects and awards the 'greenest' SME in agriculture. At a larger scale, only the Fruit Farm Group (FAI) Suriname is practicing 'regenerative farming methods' including IPM, and aiming at 'green certification'.

The lack of a consistent national policy on IPM and the limited knowledge of it contains a serious risk for sustainable agriculture and the related potential investments under the SCSD Project, asking for the design, implementation and enforcement of IPM safeguards. Promotion and capacity building is needed to fill this gap, both within the ministry of Agriculture (MAAF) and NIMOS, but also within SME as them being the potential practitioners of IPM in agriculture.

IPM is not a single pest control method but, rather, a series of pest management evaluations, decisions and controls. IPM is a principle that uses all possible control methods in a logical combination to minimize risk of pesticide exposure, safeguard the environment and human health, and maximize effectiveness. **An IPM plan focuses first on environmental management to reduce pest populations by eradicating their harbourage, food, and water sources.** Pesticide use is minimized. When pesticides must be used, the least harmful chemical for the environment and human health must be considered. Guidelines for Preparing an Integrated Pest Management Plan are presented in Annex 2 of this ESMF document. Main components of an IPM plan⁴⁰ include:

- **Monitoring and Identifying Pests:** Not all insects, weeds, and other living organisms require control. Many organisms are innocuous, and some are even beneficial. IPM plans work to monitor for pests and identify them accurately, so that appropriate control decisions can be made in conjunction with action thresholds. This monitoring and identification removes the possibility that pesticides will be used when they are not really needed or that the wrong kind of pesticide will be used.
- **Setting Action Thresholds:** Before taking any pest control action, IPM dictates first setting an action threshold, a point at which pest populations or environmental conditions indicate that pest control action must be taken. Sighting a single pest does not always mean control is needed. The level at which pests will either become an economic threat or a human health threat is critical to guide future pest control decisions.
- **Prevention:** As a first line of pest control, IPM plans work to manage crops to prevent pests from becoming a threat. IPM control methods can be very effective, cost-efficient, and present little to no risk to people or the environment.
- **Control:** Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, IPM plans then evaluate the proper control method both for effectiveness and risk. Effective, less risky pest controls are chosen first, including highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods would be employed, such as targeted spraying of pesticides. Broadcast spraying of non-specific pesticides are only a last resort.
- **Evaluation:** Regular follow-up to determine whether treatments are successful and what should be done next. Evaluation is one of the most critical components of an IPM plan.

In a project that involves pest management, the Bank assesses the capacity of the country's regulatory framework and institutional capacity on IPM and may incorporate in the project components to strengthen such capacity. **In Suriname, where the regulatory framework is weak and IPM related knowledge is only limited available, capacity building as is of utmost importance.** Additional to MAAF, NIMOS and SCSD PIU officers, awareness and capacity building in the adoption and use of IPM

⁴⁰ It should be noted that IPM plans do not only relate to agricultural field practices but may also be designed for processing facilities, thus contributing to improved food safety and public health.

should also become available for targeted SMEs in agriculture and other stakeholders. Capacity support to Suriname to assess pest management and support IPM and the safe use of agricultural pesticides should include components aiming at the adoption and use of IPM: the design of IPM plans, including its implementation, monitoring and evaluation, to safeguard sustainable agricultural practices under the SCSD Project.

According to the IPM principles, the use of highly hazardous pesticides should be avoided at any time, particularly by uncertified, untrained or inadequately equipped users. This includes:

- Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes 1a and 1b should be avoided in almost all cases, to be used only when no practical alternatives are available and where the handling and use of the products will be done in accordance with national laws by certified personnel in conjunction with health and environmental exposure monitoring;
- Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Class II should be avoided if the project host country lacks restrictions on distribution and use of these chemicals, or if they are likely to be accessible to personnel without proper training, equipment, and facilities to handle, store, apply, and dispose of these products properly;
- Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the convention and those subject to international bans or phaseouts;
- Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization's (FAO's) International Code of Conduct on the Distribution and Use of Pesticides;
- Use only pesticides that are labelled in accordance with international standards and norms, such as the FAO's Revised Guidelines for Good Labelling Practice for Pesticides;
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions;
- Maintain and calibrate pesticide application equipment in accordance with manufacturer's recommendations. Use application equipment that is registered in the country of use;
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources;
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

Section 9 Capacity Assessment

MNR and MTIT do not have departments specifically dealing with environmental and social impact issues. As implementing agencies, within the scope of the SCSD Project these capacities therefore need to be developed, and a functional system of environmental and social management needs to be established in the future SCSD Project Implementation Units (PIUs). This will include the hiring / designation of both a social and an environmental expert to screen sub-project applications, identify social and environmental impacts, and report on them as needed. The roles and responsibilities of these experts, the PIU's Safeguards Team, are in extent described in section 7 of this document.

Additional to this, the PIUs may also consider contracting one or more E&S junior specialists to support the implementation of the ESMF as required, and who will closely cooperate with SCSD grant applicants (both public and private) to provide support in the grant application procedure. Furthermore, the PIUs will consider hiring a qualified consultation expert - as required - to support and oversee the public consultation processes at the sub-project level. All these positions are expected to be directly financed by the project, given the limited safeguards capacity in MNR and MTIT.

It is expected that the environmental and social experts could be employed / hired at a 50% contract basis with flexible provision of services, depending the workload at various times. Contracting of the consultation expert will be based on 'demand as required'. The employment / hiring of one or more junior specialists to support grant applicants will be determined once project implementation is underway. To avoid 'isolation' when being stationed and working in one of these ministries, the relevant experts/specialists will need to closely work together with NIMOS staff, perhaps also including being based at least part time in NIMOS offices.

The PIU Project staff including the members of the Safeguards Team, as well as appropriate counterparts from NIMOS and other relevant officers within the ministries of MTIT and MNR will undergo training on how to apply the ESMF and other safeguard frameworks. This training may already start before the SCSD Project will be formally launched and put into practice. Direct training will be provided by the World Bank environmental and social specialists supervising the project. Additional training may be provided as well, the costs of which would be covered by the project. During Project implementation, the SCSD grant awardees, which also includes SMEs and private entrepreneurs, will be sensitized to strengthen social and environmental awareness, aiming at a better understanding and acceptance of the use of these safeguard frameworks and the identification, implementation and monitoring of mitigation measures, including IPM where relevant.

This technical assistance, capacity building and sensitization may be provided in the following areas during further SCSD Project design and outreach:

- Environmental and social impact screening process and using ESMF tools and checklists:
 - Screening process
 - Exclusion of high risk or ineligible project types
 - Rationale for using Environmental and Social Checklists
 - The importance of public consultations and participation of stakeholders and POPs in the screening and planning process
 - How to monitor ESMF implementation
- Safeguard policies, procedures and sectorial 'good practice guidelines':
 - Review and discussion of relevant environmental policies, procedures, and legislation
 - Review and discussion of the World Bank 's safeguard policies and IFC Environmental Health and Safety Guidelines
- Selected topics on environmental protection and social safeguards and IFC Environmental Health and Safety Guidelines for such topics as:
 - Air pollution / CO₂ mitigation
 - Water: pesticides and toxic chemical mitigation

- Soil pollution: pesticides and toxic chemical mitigation
- Health and Safety
- Waste management and disposal
- Natural resource utilization (e.g. NTFP)

For the employment / hiring of experts in support of the SCSD Project implementation, the following minimum qualifications will be considered:

Environmental expert:

Graduate qualification in Environmental Science or Natural Resource Management with at least 5 years of experience in environmental and social impact assessment (ESIA) studies preferably related to SME development projects. The specialist should have demonstrated experience in elaboration of ESIA studies and Environment and Social Management Plans (ESMP), both in the coastal area of Suriname and in the country's interior. Familiarity with World Bank or similar international environmental and social safeguards policies is a necessity.

Social expert:

Graduate qualification in social sciences (anthropology, sociology, social work), with at least 5 years of experience in preparing and implementing social impact assessments, the implementation of mitigating measures and compensation plans, both in the coastal area of Suriname and the country's interior. Familiarity with World Bank or similar international environmental and social safeguards policies is considered an asset.

Public consultation and participation expert:

Graduate qualification in social sciences and/or public administration, with at least 10 years of experience in designing and implementing public/stakeholder consultation and participation processes throughout Suriname.

Additionally to all three positions, the following qualifications apply:

- Proficiency in the Dutch language; Sranang tongo is considered an asset;
- Proficiency in English (C1), both in speaking and writing;
- Advanced reporting skills;
- Advanced skills in the use of computers and standard MS software.

The position of social expert and participation expert might be covered by the same person.

Section 10 Stakeholder Consultations

Consultations are required to inform stakeholders about the SCSD Project, the identification of its potential social and environmental impacts and mitigation, and how to involve them in developing and implementing the Project solutions and mitigation measures. Effective consultation is a two-way process that is based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful and easily accessible information in a format and language that the target group is most comfortable with.

Initial public and private sector stakeholder consultations were held for the draft environmental and social safeguard framework documents that were developed during SCSD Project preparation. These consultation sessions were organized by MTIT and MNR, with safeguards capacity support provided by the WBG. Lists of stakeholder attendance at the various sessions are included in Annex 4. These initial consultations aimed:

- to ensure there is a clear understanding of the SCSD Project and of the ESMF and other safeguard documents for further dissemination to other stakeholders;
- to ensure detailed consultations on the ESMF and other safeguard documents, providing opportunity to raise questions and doubts and how these might be addressed in the final versions of the safeguard instruments.

The first consultation session held on November 13, 2018 focused on public sector stakeholders.

These consultations included representatives of the ministries of Trade, Industry & Tourism; Natural Resources; Regional Development; and Agriculture, Livestock & Fisheries, as well as NIMOS. The MTIT and MNR project preparation teams hosted the sessions and were supported by WBG safeguards specialists to present the frameworks through PowerPoint Presentations. The participants gained an understanding of background, objectives, content, and practical implications of the ESMF and other instruments, and they broadly confirmed the value of the frameworks. Some minor issues for clarification were raised, which the GOS and WBG teams addressed. NIMOS expressed its willingness to cooperate in future developments of ESMPs during sub-project design and implementation. Questions were also posed about how community involvement would occur practically during the project, especially regarding indigenous and tribal communities, and the meeting discussed how consultations would be held with specific communities when particular subprojects and their scope of influence are identified.

The second consultation session held on November 15, 2018 focused on private and civil society stakeholders.

This session included representatives of the Trade and Industry Association, Association of Exporters of Agricultural Products, Chamber of Commerce, Economists Association of Suriname, and of the private sector in tourism, agricultural production, and livestock. As with the public sector consultation meeting, the MTIT and MNR project preparation teams hosted the session and were supported by WBG safeguards specialists to present the frameworks, and participants gained an understanding of background, objectives, content, and practical implications of the instruments. All participants confirmed the need for the safeguards plans, but raised concerns about threshold levels. The participants noted that levels of both environmental and social requirements should be appropriate in relation to the scope, size, and nature of potential sub-projects under the SCSD Project. SME representatives expressed concern about the additional administrative burden related to the safeguards requirements and requested for the inclusion of financial facilities through which the SCSD Project will cover the costs for the hiring of administrative and E&S support. The meeting acknowledged these concerns and discussed how project resources would be available to support the implementation of safeguards requirements during project implementation. This would include provision of capacity support of project environmental and social specialists through the MTIT PIU to work with project beneficiaries, and the eligibility of using grant resources to implement subproject environmental or social measures that are required for compliance or that enhance the sustainability of the subproject.

Following this initial round of consultations, all draft safeguard documents (ESMF, RPF, RSA, and ITPPF) and the PowerPoint Presentations that have been prepared in support of the initial consultations were distributed among the representatives of ministries and NIMOS and the participating private sector representative organizations. It was agreed that they will now further consult their staff on these policy frameworks aiming to raise and provide general support to these SCSD Projects' safeguards. This document distribution and review process will continue with other line ministry stakeholders, civil society organizations, and business support organizations, which may request MTIT and MNR for additional clarification or provide additional comments for consideration.

The primary next step to be taken in the further consultation and dissemination of the SCSD Project safeguard framework documents is public disclosure. Public disclosure of the SCSD Project safeguard documents will be done by placing these draft documents on the websites of (i) the Competitiveness Unit Suriname (CUS) (www.surinamecompete.org), (ii) the website of NIMOS (www.nimos.org) and (iii) the facebook page of MTIT <https://m.facebook.com/Ministerie-van-Handel-Industrie-en-Toerisme>, allowing civil society and potential stakeholders a period of 15 days to review and provide input on these safeguard policy frameworks. Disclosure of the of documents will also be conducted on the WBG public website.

During implementation of the SCSD Project and the sub-projects that will be supported by it, the stakeholder consultation processes and the engagement of Project Affected Peoples (PAPs) during the early design and implementation phases of the sub-project activities are firmly anchored in the ESMF, ITPPF, and RPF safeguard documents.

Appendices

Annex 1	Environmental and Social Risk Screening Tool
Annex 2	Guidelines for Preparing an Integrated Pest Management Plan
Annex 3	Chance Finds Procedure
Annex 4	ESMF Consultations: Stakeholder Attendance Lists
Annex 5	List of References

Annex 1: Environmental and Social Risk Screening Tool

This Environmental and Social Risk Screening Tool is designed to provide information to the decision-makers and reviewers so that potential risk and impacts of proposed sub-projects and activities under the SCSD Project can be detected during the early design and preparation phase. If any, the PIU/MTIT may request for further information, additional investigation, site visits and/or additional requirements for further social and environmental risk and impact analysis.

Under the responsibility of the PIU/MTIT, the Screening Tool should be filled by PIU designated person(s) (expert team) together with the (representative of) applicant and **applies for each proposed investment under the SME support, both individual and group projects, under Component 2 of the Project**⁴¹.

The 5-steps procedure on how to arrive at the required ESMP has in extend been described in Section 7 of this ESMF document. The Screening Tool described below supports the first two steps of this procure: Screening and Scoping (Permitting and initial Risk Assessment).

GENERAL INFORMATION

Name of sub-project:
Sector:
Name of the project location:
Name of Applicant / Entity:

Name, job title, and contact details of the person responsible for filling out this Screening Form:

On behalf of the Applicant:
Name:
Job title:
Telephone:
E-mail:

On behalf of the PIU/MTIT (or Expert Team Leader):
Name:
Job title:
Telephone:
E-mail:

Place and Date:

Signatures:

PART A: BRIEF DESCRIPTION OF THE PROPOSED SUB-PROJECT

⁴¹ Additional screenings tools may be used (e.g. NIMOS ESIA Generic Guidance Volume I). This may be the case, but not limited to, when proposed sub-project activities are outside the primary scope of the SCSD Project targeted sectors, but nevertheless considered for SCSD Project support.

Please provide information on the type and scale of the sub-project (area, required land, approximate size of total building floor area):

Please provide information about actions needed during the land development, construction of facilities including temporary support / ancillary structures and activities required to build it, e.g. need to quarry or excavate borrow materials, laying pipes/lines to connect to energy or water source, access road, etc.:

Please describe how the sub-project will operate including activities and resources required to operate it e.g. roads, disposal site, water supply, energy requirement, human resource, etc.:

PART B: SCREENING OF ELIGIBLE SUB-PROJECT ACTIVITIES UNDER THE SCSD PROJECT

STEP 1 - SCREENING: Exclusion Checklist

Within the scope of the targeted sectors under the SCSD Project, the following sub-project activities under Component 2 of the Project are NOT eligible for financing and support under SCSD Project:

- Activities that are illegal under Suriname national laws, regulations and/or ratified international conventions and agreements;
- Activities that would be classified as Category A under the World Bank OP/BP 4.01;
- Activities that would involve significant conversion or degradation of natural forests, HCV areas and/or critical natural habitats;
- Activities entailing agricultural or tourism development on government domain that is part of indigenous and tribal people customary lands, without explicit community consent;
- Activities that would have significant adverse impacts on known physical cultural heritage and/or resources;
- Activities that would involve the purchase, use or management of significant quantities of hazardous (agro)chemicals;
- Activities of any type of commercial timber harvesting (logging) from any type of forests;
- Activities of (community or small scale) commercial NTFP harvesting that include areas with HCVs and do not adhere to national forest management standards;
- Activities (including tourism visits) that would have significantly eroded the integrity of any type of Pas, or the lifestyle of indigenous and tribal peoples and their customary access to and use of natural and cultural resources;
- Wildlife or wildlife products regulated under national laws and/or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Activities involving any type of commercial wild fish harvest.

And further, also excluded are all sub-project activities that include or relate to:

- Weapons and munitions;
- Tabaco and Alcoholic beverages (excluding wine and beer);
- Gambling, casinos and equivalent enterprises;
- Real estate speculation;
- Radioactive materials and unbounded asbestos fibres;
- Polychlorinated biphenyl compounds (PCBs);
- Pharmaceuticals subject to international phase outs or bans;
- Pesticides/herbicides subject to international phase outs or bans;
- Ozone depleting substances subject to international phase out or bans;
- Asbestos and mercury;
- Persistent Organic Pollutants (POPs).

And all sub-project activities that involve:

- Non-compliance with workers fundamental principles and rights at work, and
- Land acquisition that involves involuntary resettlement or land acquisition in which there is not a willing seller.

STEP 2 - PERMITTING: Environmental permits

Sub-project activities under Component 2 of the SCSD Project may require environmental permits under Suriname laws as described in Section 3 of this document. In cases where sub-project activities, both related to SME matching grant support and group value chain assets, require new permits to be obtained or existing permits to be amended, PIU/MTIT shall require evidence that applicants have begun that process and have provided a project conceptual plan to the PIU under MTIT for permitting guidance. PIU/MTIT shall require sufficient evidence that all applicable environment-related permits are in hand before shared investments and SME matching grants support is eligible. The list below will assist PIU/MTIT in their screening of whether or not an environmental permit would be required for the particular sub-project activities.

The environmental permitting procedure applies in case sub-project activities, both related individual and group SME matching grant support, relate to:

Public Infrastructure Investments

- Construction of new roads and interior road improvements projects
- Power generation plants, including hydro-electric plants and installation for the generation of wind and solar power for energy
- Electrical transmission lines
- Potable water supply lines

Port and Harbour Development

- Shipyards Marinas and Boatyards

Development projects (related to SCSD Project targeted sectors only)

- Hotel/resort complex of 10 rooms or more
- Airports and airfields, including runways and transport- and export facilities
- Water treatment facilities
- Sewage and industrial wastewater treatment facilities
- Irrigation and water management projects
- Land reclamation and drainage projects
- Solid waste treatment and disposal facilities, including recycling of such wastes
- Mining, quarrying and mineral processing

(Agri-) Business and value chain Projects (related to SCSD Project targeted sectors only)

- Aquaculture facilities and ponds and intensive fish farming
- Fish and meat processing
- Slaughterhouse and abattoirs
- Agriculture facilities, including land preparation for horticulture and animal breeding
- Introduction of new species of flora and fauna, including genetically modified organisms
- Tree crop (e.g. citrus, coffee, cocoa, coconut) establishment and processing factories
- Non-timber forest products collection and processing
- Manufacturing of edible fats, oils and associated processes, including the making of soap
- Agri-processing and processing of agricultural wastes
- Food processing plants
- Eco-tourism and nature tourism projects
- Chemical plants

PART C: RISK ASSESSMENT: EVALUATION OF ENVIRONMENTAL AND SOCIAL RISK

Some site-specific issues may present Category B environmental risks and impacts. The here provided tool for Risk Assessment should be used to identify sites that may present these concerns. Together with the conditions set under the two preceding Steps (Screening and Permitting) this final step will help the PIU/MTIT to identify the need for further investigation (e.g. field visits).

Similar to the preceding Part A and B of this screening tool, the checklist below should be filled out by the sub-project applicant and the PIU designated person(s) with - if required - assistance from NIMOS or otherwise, and included in the application for SCSD Project support.

	Environmental and Social Screening Checklist*	Unknown	N.A.	YES	NO
1	Are all planned activities under the proposed sub-project sufficiently and legally covered (or are in the process of obtaining) all required and valid operating permit, licenses and approvals.				
2	Do all planned activities under the proposed sub-project meet Suriname's Environmental Regulations regarding: <ul style="list-style-type: none"> • air, water and soil pollution • liquid and solid waste management 				
3	Does the applicant / implementing entity have any outstanding environmental issues, fines or penalties or any other environmental liabilities? Examples include: <ul style="list-style-type: none"> • lack of permits • legal claims against the company due to environmental or social issues • contaminated soil or areas stained with chemical releases • drums, waste pits, stockpiled chemicals • dead or stressed vegetation • contaminated waterways, canals or ditches 				
4	Have there been any complaints raised by locally affected groups or NGOs regarding (anticipated) conditions at the (proposed) facility? Examples include: <ul style="list-style-type: none"> • material complaints from the public over the last three (3) years related to environmental, social, or health and safety aspects • legal claims against the applicant due to environmental or social issues • significant accidents or deaths of workers or public • environmental incidents or accidents (spills, dust clouds, releases, etc.) 				
5	Will the sub-project generate water effluents that: <ul style="list-style-type: none"> • violate Suriname's effluent standards (?) • result in long term violation of Suriname's water quality standards (?) • contaminate public drinking water supply • contaminate underground water resources 				

	Environmental and Social Screening Checklist*	Unknown	N.A.	YES	NO
	<ul style="list-style-type: none"> • harm fish or aquatic ecosystems • contaminate a natural habitat or Protected Area • are difficult, expensive, or hard to control • alter downstream river basin characteristics are inconsistent with World Bank EHS Guidelines https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines				
6	Will the sub-project generate air emissions that: <ul style="list-style-type: none"> • violate Suriname’s air emission standards • result in a long term violation of Suriname’s air quality standards • release pollutants that affect downwind sensitive receptors (hospitals, schools, population centres, sensitive crops, etc.) • harm sensitive ecosystems (e.g. forests) • impact a natural habitat or Protected Area • are difficult, expensive, or hard to control are inconsistent with World Bank EHS Guidelines				
7	Will the sub-project generate noise levels that: <ul style="list-style-type: none"> • violate Suriname’s noise standards (?) • impact particularly sensitive receptors (natural habitats, hospitals, schools, local population centres, etc.) are inconsistent with World Bank EHS Guidelines				
8	8. Will the sub-project consume, store, produce or utilize hazardous materials that: <ul style="list-style-type: none"> • require special permits or licenses • require licensed or trained personnel • are outlawed or banned in EU or Western countries • are difficult, expensive, or hard to manage • have a high risk of explosion, fire, or danger to workers • are vulnerable to seismic, flood, terrorist attack, or other danger are inconsistent with World Bank EHS Guidelines				
9	Will the sub-project be located within or close to sensitive areas such as: <ul style="list-style-type: none"> • Protected Areas or areas under consideration by the Government for official protection status? • forested areas • coastlines, wetlands, or other bodies of water • river valleys where well-preserved vegetation still exists 				
10	Will the sub-project potentially impact areas of known local, regional or national cultural heritage significance? These may include: <ul style="list-style-type: none"> • historical structures • archaeological sites • buildings or areas not officially protected but recognized by the local population as significant 				
11	Will occupational health and safety be adequately addressed in the applicants (planned) day to day operations, and are the following routinely included: <ul style="list-style-type: none"> • identification of hazardous tasks and training as required? • use of personal protective equipment (dust masks, hard hats, work boots, etc.) as required? • first aid and emergency plans? • supervision and enforcement of rules and regulations regarding health and safety? • road safety, safe ingress and egress to the property for delivery and equipment? • accident and incident reporting, investigation and resolution? 				
12	Additional social safeguards screening information: <ul style="list-style-type: none"> • Will the sub project activities reduce other people’s access to their economic resources, like land, pasture, water, public services or other resources that they depend on? 				

Environmental and Social Screening Checklist*	Unknown	N.A.	YES	NO
<ul style="list-style-type: none"> • Will the project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development? • Will the project result in the temporary or permanent loss of crops, fruit trees and household infra-structure (such as granaries, outside toilets and kitchens, etc.)? • Might the project adversely affect vulnerable people and underserved groups (e.g., elderly poor pensioners, physically challenged, women, particularly head of households or widows, etc.) living in the area? • Will the project have specific protocols to manage gender-based violence risks? 				

**(In case the proposed sub-project triggers any of the above listed issues (answer is outside the 'green'), then the proposed sub-project may have potential significant environmental and/or social risk; further investigation and/or a site visit by the PIU designated person(s) is needed).*

The finding of further investigation will support the preliminary decision whether a particular proposed activity or sub-project has significant may expose compliance problems (significant environmental or social risks or impacts that cannot be adequately reduced or compensated for) resulting in:

- Exclusion from SCSD Project support;
- The need for an Environment and Social Management Plan (ESMP) of which the steps to be taken are described in in Section 7 of this ESMF document.

GENERAL

- 1 Provide background which would outline:**
 - the purpose of the Plan,
 - indicate the pest management authorities, and
 - describe the pest management program objective.
- 2 Responsibilities of individuals (e.g. Director, Pest Management Coordinator, Pest Management Personnel, etc.).**
- 3 General Information which should provide data on land use and soil, in the area where the pesticides are applied:**
 - Climate and Geo-morphology,
 - Settlements in the area of concern and Population,
 - Surface water, etc., and
 - an inventory of land use and layout of facilities.
- 4 Priority of Pest Management (e.g., undesirable vegetation, vertebrate pests, etc.).**

IPM PLAN

5 Integrated Pest Management

Principles of the Integrated Pest Management are:

- a) Mechanical and Physical Control. This type of control alters the environment in which a pest lives, traps and removes pests where they are not wanted, or excludes pests.
- b) Cultural Control. Strategies in this method involve manipulating environmental conditions to suppress or eliminate pests. For example, spreading manure from stables onto fields to dry prevents fly breeding. Elimination of food and water for pests through good sanitary practices may prevent pest populations from becoming established or from increasing.
- c) Biological Control. In this control strategy, predators, parasites or disease organisms are used to control pest populations. Sterile flies may be released to lower reproductivity. Viruses and bacteria may be used which control growth or otherwise kill insects. Parasitic wasps may be introduced to kill eggs, larvae or other life stages.
- d) Chemical Control. Pesticides kill living organisms, whether they will be plants or animals. In IPM the trend is to use pesticides which have limited residual action. While this has reduced human exposure and lessened environmental impact, the cost of chemical control has risen due to requirements for more frequent application. Since personal protection and special handling and storage requirements are necessary with the use of chemicals, the overall cost of using chemicals as a sole means of control can be quite costly when compared with non-chemical control methods.

5.1 Integrated Pest Management Outlines.

This chapter addresses each major pest or category of similar pests by site, in separate outlines, based on the above described IPM principles and hierarchy.

5.2 Annual Workload for Surveillance, Prevention, and Control.

In this chapter has to be indicated the number of man-hours expended for surveillance, prevention, and control of pests.

6 Health and Safety

This chapter should contain health and safety requirements as follows:

- Medical Surveillance of Pest Management Personnel. All personnel who apply pesticides have to be included in a medical surveillance program;
- Hazard Communication. Pest management personnel are given hazard communication training, to include hazardous materials in his workplace. Additional training is to be given to new employees or when new hazardous materials are introduced into the workplace;
- Personal Protective Equipment. Here has to be described approved masks, respirators, chemical resistant gloves and boots, and protective clothing (as specified by laws, regulations and/or the pesticide label) are provided to pesticide applicators. These items are used as required during the mixing and application of pesticides. Pesticide contaminated protective clothing is not be laundered at home but commercially. Severely contaminated clothing is not laundered, but is considered a pesticide-related waste and disposed, as applicable for hazardous waste;
- Fire Protection. The fire safety protection requirements has to be established; the pest management coordinator has to control implementation of measures to prevent fire.

7 Environmental Considerations

7.1 Protection of the Public. Precautions are taken during pesticide application to protect the public, on and off the field or installation. Pesticides should not be applied in the field when the wind speed exceeds 155 m/min. Whenever pesticides are applied, care is taken to make sure that any spray drift is kept away from individuals, including the applicator.

Pesticide application indoors is accomplished by individuals wearing the proper personal protective clothing and equipment. At no time are personnel permitted in a treatment area during pesticide application unless they have met the medical monitoring standards and are appropriately protected.

7.2 Sensitive Areas. No pesticides are applied directly to wetlands or water areas (lakes, rivers, etc.) unless use in such sites is specifically approved.

7.3 Endangered/Protected Species and Critical Habitats. The Pest Management Coordinator periodically evaluates ongoing pest control operations and evaluates all new pest control operations to ensure compliance with the list of endangered species. No pest management operations are conducted that are likely to have a negative impact on endangered or protected species or their habitats without prior approval from environmental authorities.

7.4 Environmental Documentation. An environmental assessment which specifically addresses the pesticide use program should be prepared. This plan is referenced in the assessment as documentation of pesticide use.

8 List of Prohibited Pesticides

Prohibited pesticides are listed below and include the WHO “dirty dozen” which are prohibited as well:

2,4,5,-T	Mirex
Aldicarb	Paraquat
Aldrin	Pentachlorophenol
Binapacryl	Toxaphene
Captafol	Monocrotophos
Chlordane	methamidophos
Chlordecone	Phosphamidon
Chlordimeform	Methyl parathion
Chlorobenzilate	Parathion
DDT	Alphahexachlorocyclohexane
Dieldrin	Beta-HCH
Dinoseb and dinoseb salts	Pentachlorobenzene
1,2-Dibromoethane (EDB)	
Endrin	
Fluoracetamide	
HCH (mixed isomers)	
Heptachlor	
Hexachlorobenzene	
lindane	
Mercury compounds	
2,4,5,-T	
Aldicarb	
Aldrin	
Binapacryl	

Annex 3: Chance Finds Procedure

Under the Safeguards triggered under this project is OP 4.11 Physical Cultural Resources. This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance.

Although the project is not expected to have direct negative impacts on cultural property, ‘chance finds’ during implementation of activities could be possible. ‘Chance finds’ procedures are incorporated into the ESMF, including procedures to identify PCRs and address potential impacts. Mapping efforts should seek to identify areas of important cultural heritage, including those of importance to Indigenous Peoples.

Areas of the proposed development activity are subject to heritage survey and assessment at the planning, preparation and implementation stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work. The Chance Finds Procedure (CFP) set out here covers the reporting and management of such finds. The Chance Finds Procedure covers the actions to be taken from the discovery of a heritage site or item, to its investigation and assessment by a trained expert (e.g. archaeologist) or another qualified person. The “chance finds” procedure is intended to ensure compliance with the Suriname’s Law on Protection and Conservation of Cultural (including historical and scientific) Heritage⁴².

The purpose of the procedure is:

- To avoid significant adverse impacts to cultural heritage;
- To describe the provisions for managing chance finds through a chance find process which will be applied in the event that cultural heritage is discovered.

During the preparation and implementation of any sub-project, the CFP will be used as follows:

1. Stop the construction activities in the area of the chance find;
2. Map and delineate the discovered site or area;
3. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible authorities take over responsibility;
4. Notify the supervising engineer who in turn will notify the responsible authorities and the MINOWC⁴³ immediately (within 24 hours or less);
5. Responsible authorities and the MINOWC would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the expert(s) of (or on behalf of) the MINOWC (within 72 hours). The significance and importance of the findings should be assessed according to the criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values;
6. Decisions on how to handle the finding shall be taken by the responsible authorities and the MINOWC. This could include changes in the layout (such as when finding irremovable remains of cultural or archaeological importance) conservation, restoration and salvage;
7. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the MINOWC; and
8. Construction work could resume only after permission is given from the responsible authorities concerning safeguard of the heritage.

⁴² Wet tot behoud van voorwerpen welke historische, culturele en wetenschappelijke waarde hebben (G.B. 1952 no. 14).

⁴³ Ministry of Education, Science and Culture (Ministerie van Onderwijs, Wetenschap en Cultuur)

Should human remains be found, the following actions will be required:

1. Apply the change find procedure as described above;
2. Schedule a field inspection with an expert to confirm that remains are human;
3. Advise and liaise with MINOWC and Police;
4. Remains will be recovered and removed either to the national forensic laboratory or the mortuary.

These procedures must be referred to as standard provisions in construction contracts, when applicable. During project supervision, the site engineer shall monitor the above regulations relating to the treatment if any 'chance find' is encountered / observed.

Annex 4: Safeguards Documents Consultations: Stakeholder Attendance

During the week of November 12 - 16, 2018, several stakeholder meetings were held to introduce, explain, discuss and consult on the draft versions of the SCSD Project safeguard documents, all facilitated by MTIT and MNR in Paramaribo. Consultations were attended by both representatives of the line ministries and those representing SMEs and Business Support Organisations (BSO). The below listed persons participated in the range of stakeholders' consultations throughout the week.

Tuesday November 13, 2018; 09:00 - 12:30 h. Location MTIT			
Consultation & Working sessions on the (i) Indigenous and Tribal Peoples Safeguards documents and (ii) the Environmental and Social Management Framework (all draft for consultation)			
SESSION 1: Indigenous and Tribal Peoples Policy Framework (ITPPF)			
1	Ajeremi	Inarda	Ministry of Regional Development (MRD)
2	Adraai	Consuela	MTIT-CUS
3	Monorath	Angela	Ministry of Natural Resources (MNR)
4	Tjon A Kon	Quan	National Institute for the Environment and Development in Suriname (NIMOS)
5	Kanape	Josifat Obed	MRD
6	Van Dijk	Sietze	ESS – WBG consultant
7	Renfurm	Jerrold	MTIT – PU
8	Anderson	John	WBG
9	Djasman	Jean	MTIT – PU
10	Gurcanlar	Tugba	WBG
11	Marbach	Vivian	MTIT- Industry
12	Heemskerk	Marieke	Social Solutions – WBG consultant
SESSION 2: Environmental and Social Management Framework (ESMF) Including the Resettlement Policy Framework (RPF) (as an annex to the ESMF)			
1	Nojodimedjo	Raymon	MAAF - PU
2	Tjon A Kon	Quan	NIMOS
3	Adraai	Consuela	MTIT - CUS
4	Motman	Clyde	MRD
5	Lila	Faridy	MTIT - Tourism Dept.
6	Marbach	Vivian	MTIT - Industry Dept.
7	Heemskerk	Marieke	Social Solutions – WBG consultant
8	Van Dijk	Sietze	ESS – WBG consultant
9	Monorath	Angela	MNR
10	Gurcanlar	Tugba	WBG
11	Anderson	John	WBG
12	Renfurm	Jerrold	MTIT - PU
13	Djasman	Jean	MTIT - PU
Thursday November 15, 2018; 09:00 - 11:30 h. Location MTIT			
Consultations with the SME representatives, BSOs, and additional civil society stakeholder representatives on the (i) Indigenous and Tribal Peoples Safeguards documents and (ii) the Environmental and Social Management Framework including RPF (all draft)			
SESSION: Consultation on the SCSD Project Environmental and Social Safeguards documents			
1	Gurcanlar	Tugba	WBG
2	Anderson	John	WBG
3	Renfurm	Jerrold	MTIT - PU
4	Heemskerk	Marieke	Social Solutions – WBG consultant
5	Van Dijk	Sietze	ESS – WBG consultant
6	Djasman	Jean	MTIT - PU
7	Mac Andrew	Steven	Suriname Trade & Industry Ass. (VSB)
8	Spek	Bas	Tourism Cluster Commewijne district

9	Autar	Nargies	SSB
10	Kanhai	Nemchand	Association Poultry Sector Suriname (APSS)
11	Boldewijn	Simona	MRD
12	Bodeutsch	Guillermo	National Commission for Tourism
13	Adraai	Consuela	MTIT - CUS
14	Taus	Umar	Association of Exporters of Agricultural Products Suriname (VEAPS)
15	Baboelal	Widjendra	Chamber of Commerce & Industry (KKF)
16	Tjon	Yves	United Tour Guides Suriname (UTGS)
17	Wolf	Donovan	UTGS
18	Boeddha	Rabin	Suriname Hospitality and Tourism Training Centre (SHTTC)
19	Ramautarsingh	Winston	Economists Association Suriname (VES)
20	Mormon	Sherida	Cassava Growers' Platform Para district (STOCPA)
21	Truideman	Merrill	MTIT - PU

Annex 5: List of References

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