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Report

Suriname

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FAO has been monitoring the world's forests at 5 to 10 year intervals since 1946. The Global Forest Resources Assessments (FRA) are now produced every five years in an attempt to provide a consistent approach to describing the world's forests and how they are changing. The FRA is a country-driven process and the assessments are based on reports prepared by officially nominated National Correspondents. If a report is not available, the FRA Secretariat prepares a desk study using earlier reports, existing information and/or remote sensing based analysis.

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Introduction

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Introductory text

The Ministry of Physical Planning, Land and Forest Management (Min. of RGB) is the Ministry that is responsible for forest management in Suriname. Within this Ministry the Foundation for Forest Management and Production Control (SBB) is the institution which is responsible for sustainable forest management in the country. As a forestry institution, SBB has the responsibility to report to the Global Forest Resources Assessment (FRA) 2020. In order to complete this reporting it is necessary to consult other forestry related Ministries, Institutions and organizations that have the co-responsibility for good management of the forests in the country. It is very important to have insight in both, long- and short term national planning on macro level that can lead to deforestation and forest degradation.

With about 93% of the country still covered with natural tropical rainforest, Suriname is one of the most forested countries in the world. Suriname has a long history of sustainable forest management practices and forest protection. In this framework it can be noted that national efforts lead to adequate conservation and protection of the forest, and promotion of sustainable forest management in the country. The designation of 2.3 million ha of the country (14% of the total land area) as protected areas, and the development of the Celos Management System as a tool for the sustainable utilization of the 4 million ha forest designated for sustainable production of forest products, within the so called "Forest Belt" are evidence of the country's effort to keep the natural forest intact. In Suriname the so called Reduced Impact Logging (RIL) system is practiced and promoted in the production forest, minimizing the damages to the forest as a result that the forest cover remains intact even after timber has been harvested by allowing a natural regeneration. Nevertheless, the increased timber production has its challenges to monitor the application of this RIL-guidelines as mentioned in the draft Code Of Practice for SFM, which might lead to unforeseen forest degradation. Developments in other sectors, than the forestry sector leads to deforestation, for instance due to mainly planned and unplanned mining, mainly gold mining, a man-made hydropower lake, agriculture, infrastructure construction etc.

Catalyzed by the National REDD+ Readiness program and the regional ACTO-project 'Monitoring the forest cover of the Amazon region' the National Forest Monitoring System (NFMS) has been developed and further strengthened. This NFMS is composed of subcomponents: the Satellite Land Monitoring System (SLMS), the Near Real Time Monitoring System (NRTM), the National Forest Inventory (NFI), the Sustainable Forestry Information System Suriname (SFISS), a Community Based Monitoring component and a reporting component. First the Satellite Land Monitoring System (SLMS) has been developed. Within this system yearly data on deforestation, biannual data on land use/cover after deforestation and 5-yearly data on Land Use/ Land Cover is being produced using satellite images. The technology used, is based on the technology used by INPE in the PRODES program in Brazil. All data and maps produced within the SLMS are displayed on the geoportal www.gonini.org. Furthermore, a baseline study has been carried out in collaboration with the following Surinamese institutions; the SBB, the Center of Agricultural Research and Development Suriname (CELOS), the National Zoological Collection and an agricultural and forestry research institutions of Costa Rica; CATIE. Within this study a baseline of the best estimates of forest carbon stocks based on existing forest inventory plots was established. This study and the results of the SLMS are the basis for the calculation of the historical emissions caused by deforestation within the country's first Forest Reference Emission Level (FREL) submitted to the UNFCCC in 2018. With Support of the Global Climate Change Alliance (GCCA), steps have been taken to establish a National Forest Inventory for the mangrove forest and also to do an in-depth assessment of the occurrence of mangrove forest in the country. In the coming years, the SBB will further work on the development of an efficient NFI-design. The NRTM encompasses the continuous detection of currently unplanned logging activities, where after teams of forest guards are sent to the field. This could be easily expanded, by including the detection of unplanned deforestation or unplanned activities within the protected areas. All plans related to the NFMS are recorded in the NFMS-roadmap. Active participation of all forest-related rightholders and institutions is strongly encouraged throughout this process.

Within a period of 10 years the national timber production in Suriname has increased from 200,000 m3 per annum to 860,000 m3 per annum. The current database in operation "the LogPro" is outdated because of the recent development, including the increased timber production and timber export. SBB is in a process with the technical assistance of CATIE and financial assistance of the IDB/GEF, the national REDD+ programme and the government of Suriname, to develop a new forest product registration database, the Sustainable Forestry Information System Suriname "the SFISS". The SFISS will be an important tool to further improve the logtracking system, in the process of strengthening sustainable forest management in the country. To further strengthen the forest monitoring and service to the private sector, a reorganization process has been started to adjust the current organization structure of the SBB. This will result in an organization adequate to perform, based on the current national and international development within the forest sector. Also, on a regular basis capacity building on all levels, as well technical as administrative, including the crew of forest guards, takes place within the SBB. To guarantee the physical presence of the forest guards in the field, the necessary infrastructure including forest guard stations are in place on strategic locations in the forest. One of the objectives of the national forest policy is to increase the contribution of the timber sector to the national economy. In this context, efforts have been made and the national timber production and earnings from the timber export has been doubled compared with two years ago.

In the framework of institutional strengthening within the forest sector, recently an important process has been started. The Minister of RGB has installed a commission to startup and proceed with the process that was stopped due to several reasons, towards a forest management authority, the "BOSNAS". It can be noted that the SBB was established as a vehicle towards the establishment of a full fledged forest management authority "BOSNAS". The commission is currently reviewing and updating the documents that were formulated in the previous process in this regard. When this process is finalized, a forest management authority will be in place, based on regulations ensuring that the operational cost of the

authority can be financed with earnings from the forest sector. Furthermore there will be no scattered forest and nature management in the country, all forest and nature institutions responsible for protection and management of the forest, including The Forest Service (LBB), The Nature Conservation Division of LBB, STINASU and SBB will be merged into this new authority "BOSNAS".

1 Forest extent, characteristics and changes

1a Extent of forest and other wooded land

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	National Development Plan 2017 - 2021	National planning	2017-2021	Multi-annual national planning document, within this document a 5 year planning of the government is incorporated, with the indication of possibly forest areas that will be converted into other type of land use.
2	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the methods used for produce the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
3	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference Emission Level for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB) in collaboration with other national and international partners (e.g. CELOS).
4	National Geoportal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonini" is a National geoportal, that provides all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparency and accessibility of the forest related data towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed with the REDD+ Readiness program. Based on the production of new national data the geoportal is constantly being updated.
5	NFMS Roadmap: Status and Plans for Surinames National Forest Monitoring System	Planning	2017	Roadmap showing all planned activities to establish the NFMS

National classification and definitions

National class	Definition	Source
Forest	<p>Land covered primarily by trees, but also often containing shrubs, palms, bamboo, herbs, grass and climbers, with a minimum tree crown cover of 30% (or equivalent stocking level), with the potential to reach a minimum canopy height at maturity in situ of 5 meters, and a minimum area of 1.0 ha. The forest definition in Suriname excludes:</p> <ol style="list-style-type: none"> 1. Tree cover from trees, including palm trees, planted for agricultural purposes (such as coconut, citrus, oil palm etc); 2. Tree cover in areas that are predominantly under urban or agricultural use. <p>It should be noted that shifting cultivation (slash and burn agriculture) is included as forest, as long as it is done in a traditional way so that the forest gets the chance to regenerate after harvest.</p>	
Shifting cultivation	<p>Shifting cultivation is the traditional use of the forest by indigenous and tribal peoples (ITPs). It is composed of a mosaic of small deforested pieces of land combined with fallow land at different stages of regeneration of the forest. On the Landsat images it is recognizable as a combination of small deforested patches embedded in an area of secondary forest (light green on the image). Shifting cultivation is mainly found the surrounding of the villages of indigenous and tribal communities, in the vicinity of rivers and/or roads. The forest dependent communities clearly indicate that shifting cultivation is a traditional and sustainable use of the forest (Gomes-Poma, A. & Kaus A., (1992).</p> <p>Shifting cultivation (included in the definition of forest): The patches that are deforested are mostly smaller than the minimum area of forest and the Minimum Mapping Unit (1 hectare) of the deforestation maps. There is a remaining tree cover and the area will recover after it is left to regenerate. The conversion from natural forest to shifting cultivation is seen as forest degradation.</p>	<p>Technical report: Forest cover monitoring in Suriname using remote sensing techniques. (SBB, 2017)</p> <p>Forest reference emission level for Suriname's REDD+ programme. (SBB, 2018)</p>
Non-forest	Land areas not covered with forest in the reference year 2000	
Deforestation	Deforestation is defined as the direct and/or induced conversion of forest cover to another type of land cover after the year 2000 in a given timeframe (DeFries et al., 2006; GOFC-GOLD, 2009).	Technical report: Forest cover monitoring in Suriname using

		remote sensing techniques. (SBB, 2017)
	In the context of this FREL submission, deforestation is defined as “the direct and/or induced conversion of forest cover to another type of land cover in a given timeframe”.	
	Explanatory notes: This excludes areas that are in a status of a temporarily loss of the forest cover, such as: <input type="checkbox"/> Shifting cultivation (included in the definition of forest): The patches that are deforested are mostly smaller than the minimum area of forest and the Minimum Mapping Unit of our deforestation maps. There is a remaining tree cover and the area will recover after it is left to regenerate. The conversion from natural forest to shifting cultivation is seen as forest degradation. <input type="checkbox"/> Natural deforestation where the forest cover will recover naturally such as small areas where wind break or unplanned fires took place.	Source: Forest reference emission level for Suriname's REDD+ programme. (SBB, 2018)

Original data

Within the framework of the ACTO project "Monitoring Deforestation, Land Use Change and Logging in the PanAmazon Forest", the Forest Cover Monitoring Unit (FCMU) was established within the Foundation for Forest Management and Production Control (SBB). One of the activities within the FCMU is creating deforestation maps of Suriname, as a part of teh Satellite Land Monitoring System (SLMS)-subsystem of the NFMS. Up to now the following maps has been produced: Basemap 2000 and Deforestation maps for the periods: 2000-2009, 2009-2013, 2013-2014, 2014-2015, 2015-2016. Recently the deforestation map for 2016-2017 was finalized. The method used for the production of these map is about the same as the one in Brazil, using Landsat images and TerraAmzon, a freeware distributed by the Brazilian Institute for Space Research (INPE). Furthermore, Quality Assessment/ Quality Control (QA/QC) were performed on the Deforestation map 2000-2015 and Deforestation map 2015-2016 based on the methodology developed by Olofsson (2014). The results of these assessment are shown in the table below.

Table. QA/QC results for the Deforestation map 2000-2015 and Deforestation map 2015-2016.

Class	Map area (ha)	Stratified estimated area (ha)	Confidence interval (ha)
Hydrography	331,239	335,084	30,891
Non forest	777,139	717,346	56,163
Shifting cultivation 2000	190,734	172,374	14,007
Forest 2015	14,963,593	15,044,605	48,089
Forest 2016	15,162,300	15,164,995	1,587
Shifting cultivation 2000-2009	14,334	13,158	6,783
Shifting cultivation 2009-2015	4,639	6,366	5,086
Deforestation 2000-2009	24,784	33,051	5,361
Deforestation 2009-2013	30,833	32,071	2,388
Deforestation 2009-2014	17,222	15,757	2,082
Deforestation 2014-2015	12,308	9,442	1,620
Deforestation 2015-2016	10,990	11,387	1,886

Note: The stratified estimated areas were used for further calculation in order to fill in Table 1a.

[want to add Deforestation map 2015-2016, but not possible. Please some support in this]

Analysis and processing of national data

Estimation and forecasting

Change of Forest area

Taking into consideration long term national planning, forested areas will be converted to other types of land use, with the possibility of forest loss and the decline of the forest cover as a result.

Main projects and project ideas that are expected, leading to forest loss in the longer term are:

Infrastructure: National Infrastructure Plan indicate that the existing road network will be expanded, with further integration and expansion of the east-west connection road and the north-south connection road. Also is planned, the construction of a railway from the Bakhuis area to Apura and from Apura further to Paranam, to facilitate the transportation of bauxite, gas, aluminum and timber. The estimated length of this railway is 300 km. The implementation of this project will most probably lead to forest loss.

Mining: According to the Multi-annual Development Plan, the government of Suriname has the intention to initiate more large scale mining projects in collaboration with multi-national companies. Two large scale gold mining projects are planned, one in the central part and another one in the eastern part of Suriname. A bauxite mining project together with a hydropower project is planned in the western part of the country. These projects will lead to deforestation. A lot of illegal gold mining is taking place within the forest that leads to small patches of forest loss.

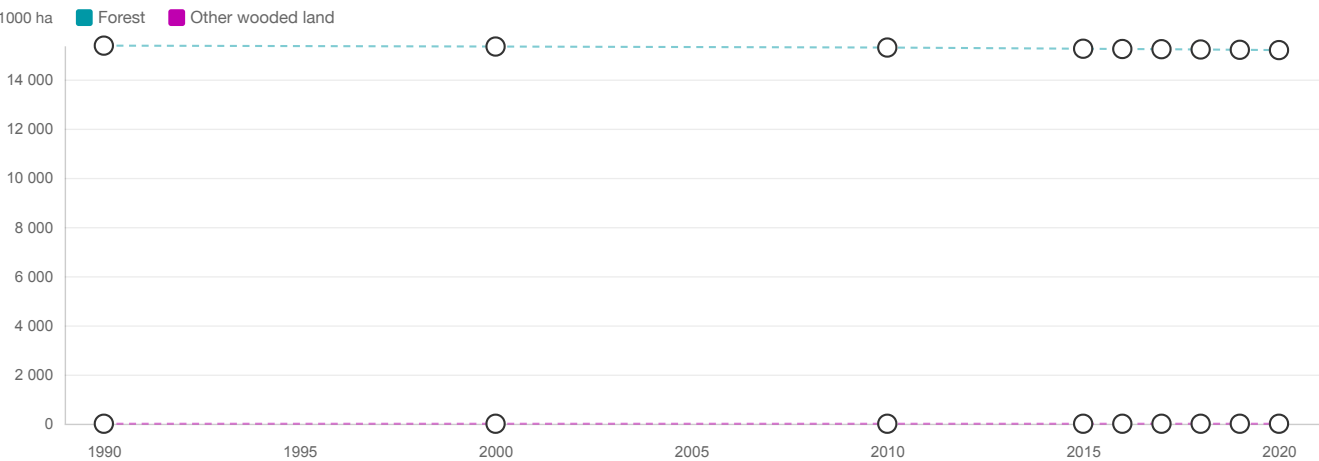
Palm oil: In 2004 the government of Suriname signed an agreement with a Chinese investor to develop a palm oil project in the eastern part of the country with an area of 50,000 ha. Due to social reasons it was not possible to execute this project. At this moment some activities of this project is being implemented. The investor has logging agreement with members of the local community in parts of this project area. Furthermore it can be noted that an area of 32 ha is deforested for the setup of a nursery. There is no indication when deforestation will take place according to the presented business plan to plant the palm trees.

Non traditional agriculture: The National Agricultural Plan indicates that, a cacao plantation will be developed on an area of 3,000 ha. On an area of 2,000 ha grass will be cultivated for the generation of bio-energy and a coconut plantation will be developed on an area of 5,000 ha. Furthermore a project will be initiated for the cultivation of bamboo. For these projects a part of natural forest will be converted into agriculture land.

Reclassification into FRA 2020 categories

The reclassification of the National classes to the FRA categories are shown in the table below.

Classification and definitions	FRA classes		
National Class	Forest	Other wooded land	Other land
Forest	100%	0%	0%
Shifting cultivation	100%	0%	0%
Non-forest	0%	0%	100%
Deforestation	0%	0%	100%



FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest (a)	15 377.63	15 340.87	15 299.86	15 251.67	15 240.32	15 233.02	15 220.78	15 208.53	15 196.29
Other wooded land (a)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other land (c-a-b)	222.37	259.13	300.14	348.33	359.68	366.98	379.22	391.47	403.71
Total land area (c)	15 600.00	15 600.00	15 600.00	15 600.00	15 600.00	15 600.00	15 600.00	15 600.00	15 600.00

The FAOSTAT land area figure for the year 2015 is used for all reference years

Climatic domain	% of forest area 2015	Override value
Boreal	0.00	
Temperate	0.00	
Sub-tropical	0.00	
Tropical	100.00	

Comments

The Forest areas of 1990, 2000, 2010 and 2015 does not match figures mentioned in FRA 2015. This because the maps have been updated recently. Based on previous analyses, Deforestation maps consist of the class Cloud (inclusive cloud shadow), which mean no data. This class has been filled in with other images before and after the period when deforestation were identified and classified. Also a conversion matrix was used in order to reclassify the Cloud polygon to another class. Thus, if a specific area, classified as cloud in year 2014, and is Forest in 2013 and 2015, then this Cloud polygon in 2014 was reclassified as forest. Based on these updates the forest areas reported in FRA 2020 could differ with the ones reported in FRA 2015.

Within the Forest Cover Monitoring Unit (FCMU), an Area of Interest (AOI) with a total surface of 16,367 x 1000 ha is used for forest cover monitoring in Suriname. While the country area presented by the FAO is 16,382 x1000 ha and the Land area presented on the platform is 15,600 x 1000 ha.

Based on the figures from FCMU and FAO stats the calculations for Table 1a were executed as followed:

- (1) A calibration factor was calculated based on the total country area used by FAO and the total AOI of FCMU. The areas of the National Classes were then multiplied with this factor in order to calibrate the areas of these mentioned classes with the FAO stats. (Equation: Calibration factor= Total country area of FAO / Total country area of FCMU)

(2) The Land area was then calculated based on the calibrated National classes for the year 2015. Therefore the National classes: Forest+ Shifting cultivation + Non forest + Deforestation, were added up (16,059 x 1000 ha).

(3) Forest areas for the following years 1990, 2000, 2010, 2015, 2020 were then calculated, by extracting the calibrated Non forest and Deforestation (Other Land), from the Land area (16,059 x 1000 ha). These figures of forest areas were then filled in Table 1a.

(4) In table 1a from the platform, where already the FAO land area (15,600 x 1000ha) is pre-filled, the area of Other land is calculated by extracting the Forest area (of step 3) from the pre-filled land area of the platform (15,600 x 1000 ha).

It can be mentioned that the results of the Other land do not represent the exact figures of this category in Suriname (Non forest and Deforestation) (see Table in Original data). For future reporting (FRA 2025), the intention is to adjust the total land areas presented by the FAO stats.

Category	Comments related to data, definitions, etc.

Other wooded land	No data are available on the exact coverage of other wooded land, but this class is not assumed to be insignificant, therefore it is filled with 0 (zero) in Table 1a.
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1b Forest characteristics

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	National Forest Policy of Suriname	Policy	2005	National Forest Policy of Suriname, this document indicates the policy on which the development of the total forest sector is based. It was established in a participatory way.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference Emission Level for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB) in collaboration with other national and international partners (e.g. CELOS).
3	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
4	Protocol for the preparation of the Land Use Land Cover map 2015	LULC classes	2015	Whitin the Cross Cutting Capacity Development (CCCD) project, the National Land Use Land Cover map for 2015 was produced in close collaboration with national stakeholders and a international consultant. This report consists of the applied methodology, the class discription and the results (areas in ha) of the different LULC classes.

National classification and definitions

National class	Definition	Source
Shifting cultivation	Shifting cultivation is the traditional use of the forest by indigenous and tribal peoples (ITPs). It is composed of a mosaic of small deforested pieces of land combined with fallow land at different stages of regeneration of the forest. On the Landsat images it is recognizable as a combination of small deforested patches embedded in an area of secondary forest (light green on the image). Shifting cultivation is mainly found close to the villages of indigenous and tribal communities, in the vicinity of rivers and/or roads. The forest dependent communities clearly indicate that shifting cultivation is a traditional and sustainable use of the forest (Gomes-Poma, A. & Kaus A., (1992)).	Technical report: Forest cover monitoring in Suriname using remote sensing techniques. (SBB, 2017)
	Shifting cultivation (included in the definition of forest): The patches that are deforested are mostly smaller than the minimum area of forest and the Minimum Mapping Unit of our deforestation maps. There is a remaining tree cover and the area will recover after it is left to regenerate. The conversion from natural forest to shifting cultivation is seen as forest degradation.	Forest reference emission level for Suriname's REDD+ programme (SBB, 2018)

Original data

Besides the Deforestation maps, Post-deforestation Land Use Land Cover (LULC) maps are produced in close collaboration with different stakeholders such as Governmental institutions, University and National Planning office of Suriname. Three Post- Deforestation LULC maps were produced for the following periods: 2000-2009, 2000-2013, and 2000-2015. The Post- Deforestation LULC 2000-2017 is already finalized but still need to be validated in the field.

Recently, a National LULC map for 2015 was produced within the Cross Cutting Capacity Development (CCCD) project with the same plaform of stakeholders from the Post-Deforestation LULC maps and support of an international consultant. See tables below.

Around 13,000 ha of forest plantations have been established in the period 1954-1977, with both pine (pinus caribaea) and broadleaf species (of which 7,000 ha pinus caribaea plantations). Source: Forest Service (LBB) plantation map.

The mining areas (gold and bauxite) are being rehabilitated by tree planting. About 1,150 ha of the mining areas has been rehabilitated. (Source: Country experts) An area of 1.5 ha of mangrove forest is planted in the coastal zone of the district of Coronie. This was done in the period 2010 and 2013.

Furthermore expansion of mangrove planted forest in the area of Weg naar Zee is being implemented, where an area of 1 ha is already finalized. Source: Professor Naipal of the Anton de Kom University of Suriname, 2018.

Table. Map areas of Shifting cultivation for the different periods

Area (ha)	2000	2000-2009	2009-2013	2013-2014	2014-2015	2015-2016	2016-2017
Shifting cultivation	193,056.75	207,493.20	208,520.55	209,755.26	209,707.92	210,264.03	210,398.49

Table. Map areas of the Post-Deforestation LULC classes for the following periods: 2000-2009, 2000-2013, 2000-2015

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	2000-2009		2000-2013		2000-2015	
	Area (ha)	Percentage	Sum of Area_ha	Percentage	Sum of Area_ha	Percentage
Agriculture	872	4%	1286	2%	2213	2.6%
Burned areas	243	1%	2052	4%	2502	2.9%
Infrastructure	2829	11%	7498	13%	12964	15.2%
Mining	19494	79%	41797	75%	62102	72.9%
Others	169	1%	101	0%	281	0.3%
Pasture	150	1%	228	0%	455	0.5%
Secondary vegetation	0	0%	940	2%	1205	1.4%
Urban	1027	4%	1714	3%	3424	4.0%

Table. Map areas of the National LULC map 2015

Class	Area (ha)
Abandoned B_plantation	59,178.79
Abandoned areas	129,568.09
Agriculture	103,392.14
Bare soil	61.64
Built area	34,270.94
Infrastructure	27,579.80
Lake	158,770.36
Mining	93,689.12
Open savannah	99,712.09
Open swamp	363,072.02
Planted forest	7,279.59
River/creek	174,467.26
Rock	8,983.83
Shifting Cultivation	209,709.45
Undisturbed forest	14,897,089.42

Analysis and processing of national data

Estimation and forecasting

Change of Forest area

Taking into consideration long term national planning, forested areas will be converted to other types of land use, resulting in the decline of the forest cover.

Main projects and project ideas that are expected to lead to forest loss in the longer term are:

Infrastructure: National Infrastructure Plan indicate that the existing road network will be expand, with further integration and expantion of the east-west connection road and the north-south connection road. Also is planned, the construction of a railway from the Bakhuis area to Apura and from Apura further to Paranam, to facilitate the transport of bauxiet, gas, aluminum and timber. The estimated length of this railway is 300 km. The implementation of this project will lead to forest loss.

Mining: According to the Muliti-annual Developent Plan the government of Suriname has the intention to initiate more large scale mining in collaboration with multi-national companies. Two large scale gold mining projects are planned, one in the central part of Suriname and another one in the eastern part of the country. A bauxite mining project together with a hydropower project is planned in the western part of the country. These projects wil lead to deforestation. A lot of illegal gold mining is taking place within the forest that leads to small patches of forest loss.

Palm oil: In 2004 the government of Suriname signed an agreement with a Chinese investor to develop a palm oil project in the eastern part of the country with an area of 50000 ha. Due to social reasons it was not possible to execute this project. At this moment some activities of this project is being implemented. The investor has logging agreement with members of the local community in parts of this project area. Furthermore it can be noted that an area of 32 ha is deforested for the setup of a nursery. There is no indication when deforestation will take place according to the presented business plan, to plant the palm trees.

Non traditional agriculture : The National Agricultural Plan indicates that, a cacao plantation will be developed on a area of 3000 ha. On a area of 2000 ha grass will be cultivate for the generation of bio-energy and a coconut plantation will be developend on an area of 5000 ha. Furthermore a project will be initiated for the cultivation of bamboo. For these projects a part of natural forest will be converted in to agriculture land.

Reclassification into FRA 2020 categories

The reclassification of the National classes to the FRA categories are shown in the table below.

Classification and definations	FRA classes			
National Class	Natural regenerating forest	Planted forest		
		Plantation forest		Other planted forest
			of which introduced	
Plantation (Planted forest)		100%	100%	
Rehabilitation				100%
Mangrove				100%
Shifting cultivation	100%			
Abandoned B plantation	100%			
Secondary forest	100%			
Undisturbed forest	100%			



FRA categories	Forest area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest (a)	15 364.63	15 326.72	15 285.71	15 237.52	15 226.17	15 218.87	15 206.63	15 194.38	15 182.14
Planted forest (b)	13.00	14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15
Plantation forest	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
...of which introduced species	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Other planted forest	0.00	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Total (a+b)	15 377.63	15 340.87	15 299.86	15 251.67	15 240.32	15 233.02	15 220.78	15 208.53	15 196.29
Total forest area	15 377.63	15 340.87	15 299.86	15 251.67	15 240.32	15 233.02	15 220.78	15 208.53	15 196.29

Comments

The Naturally regenerated area is calculated by extracting, Planted forest from total forest area. This Naturally regenerated forest consists of regenerated abandoned agriculture plantation, shifting cultivation, logged over areas and undisturbed forest. (Equation: Naturally regenerated forest= Total forest area- Planted forest)

Category	Comments related to data definitions etc.	Comments on reported trends
Naturally regenerating forest	This category includes: abandoned agricultural plantations that are regenerated, shifting cultivation areas, logged over areas and undisturbed forest .	The trend of the Naturally regenerated logged over areas is determined based on an average timber production rate, measured in a GISsystem and based on registered field data.
Mangrove		An area of 1.5 ha of mangrove forest is planted in the coastal zone of the district of Coronie. This was done in the period 2010 and 2013. Furthermore expansion of mangrove planted forest in the area of Weg naar Zee is being implemented, where an area of 1 ha is already finalized. Source: Professor Naipal of the Anton de Kom University of Suriname, 2018.
Plantation (Planted forest)	Description: Land covered primarily with trees, that were planted for commercial purposes and which have a minimum tree crown cover of 30% (or equivalent stocking level), with the potential to reach a minimum canopy height at maturity in situ of 5 meters, and a minimum area of 1.0 ha No National definition is yet in place. This is a discription of the class defined in collaboration with national stakeholders during the CCCD project where a National Land Use Land Cover map for 2015 was produced.	
Regenerated old agriculture plantation	Description: Land that was once used for human activities, but has been abandoned and was already in an advanced state of regeneration in the year 2000, covered primarily with trees, with a minimum tree crown cover of 30% (or equivalent stocking level), with the potential to reach a minimum canopy height at maturity in situ of 5 meters, and a minimum area of 1.0 ha. These areas may have some rectangle structures, indicating the presence of previous agriculture plantations. No National definition is yet in place. This is a discription of the class defined in collaboration with national stakeholders during the CCCD project where a National Land Use Land Cover map for 2015 was produced.	
Undisturbed forest	Description: Land covered primarily with trees, but also often containing shrubs, palms, bamboo, herbs, grass and climbers, with a minimum tree crown cover of 30% (or equivalent stocking level), with the potential to reach a minimum canopy height at maturity in situ of 5 meters, and a minimum area of 1.0 ha.	

	<p>The forest area that is remaining, after extracting Forest plantations, Abandoned B, Shifting cultivation and logged over area, is called the Undisturbed forest class.</p> <p>No National definition is yet in place. This is a discription of the class defined in collaboration with national stakeholders during the CCCD project where a National Land Use Land Cover map for 2015 was produced.</p>	
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1c Primary forest and special forest categories

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB).
3	National Geoportal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonnini" is a National geoportal, that provide all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparancy in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.
4	Suriname's Forestry Sector report	Timber production data	1990-2020	On yearly basis a descriptive report is produced of the forestry sector, whereby attempts are made to provide insights into the activities carried out by the sector. Attention is paid to the trend and the development within the forestry sector, where national and international factors are taken into consideration. The earnings of the forestry sector are also determined in order to show its contribution to the national economy.
5	Forestry Statistics- Production, export en import of timber and timberproducts in 2017	Timber production data	1990-2017	Annual report of realised timber production, export and import. This report presents the figures of timber production, timber export and timber import and is yearly published by SBB.

National classification and definitions

National class	Definition	Source
NA		

Original data

Whitin the framework of the Global Climate Change Alliance (GCCA+), a Mangrove project will be executed. Within this project a mangrove biodiversity monitoring system will be setup, resulting in a baseline mangrove map along with the execution of a National Forest Inventory (NFI) for the mangrove stratum of Suriname. At this moment the process of classification is being executed. An idication of the surface of the Mangrove area can already be estimated based on the first results. The first estimation shows that the magrove area in Suriname has a surface of approximately 60,000 ha.

An old agriculture plantation map was overlaid with the forest cover data of 2000. The forest cover within this area can be seen as naturally regenerated forest, as these agriculture plantations were abandoned about 100 years ago. The forest had enough time to regenerate, but still signs of human activity is visible.

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

The reclassification of the National classes to the FRA categories are shown in the table below.

	FRA classes			
National classes	Mangroves	Temporarily unstockes and/or recently regenerated	Primary forest	Rubber wood
Mangrove	100%%			

Undisturbed forest			100%	
Abandoned agriculture regenerated plantation		100%		

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Primary forest	15 015.79	14 977.88	14 936.87	14 888.68	14 833.29
Temporarily unstocked and/or recently regenerated	288.84	288.84	288.84	288.84	288.84
Bamboos					
Mangroves	60.00	60.00	60.00	60.00	60.00
Rubber wood					

Comments

Category	Comments on reported trends
Mangrove	Wihitin the framework of the Global Climate Change Alliance (GCCA+), a Mangrove project will be executed. Within this project a mangrove biodiversity monitoring system will be setup, resulting in a baseline mangrove map along with the execution of a National Forest Inventory (NFI) for the mangrove stratum of Suriname. At this moment the process of classification is being executed. An idication of the surface of the Mangrove area can already be estimated based on the first results. This is approximately 60,000 ha
Abandoned agriculture regenerated plantation	An old Abandoned agriculture plantation map was overlaid with the forest cover data of 2000. The forest cover within this area can be seen as naturally regenerated forest, as these agriculture plantations were abandoned about more than 100 years ago.The forest had enough time to regenerate, but still signs of human activity is visible. The total area of the Abandoned agriculture plantation is 288.84 ha. In some parts of these areas logging activities take place.

Calculation of the FRA Category "Temporarily unstocked and/or recently generated"

The abandoned agriculture naturally regenerated plantation is reported as temporarily unstocked and/or recently generated.

1d Annual forest expansion, deforestation and net change

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference Emission Level for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB) in collaboration with other national and international partners (e.g. CELOS).
3	National Geoportal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonini" is a National geoportal, that provides all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparancy in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.

National classification and definitions

National class	Definition	Source
Deforestation	Deforestation is defined as the direct and/or induced conversion of forest cover to another type of land cover after year 2000 in a given timeframe (DeFries et al., 2006; GOFC-GOLD, 2009).	Technical report: Forest cover monitoring in Suriname using remote sensing techniques. (SBB, 2017)
	<p>In the context of this FREL submission, deforestation is defined as “the direct and/or induced conversion of forest cover to another type of land cover in a given timeframe”.</p> <p>Explanatory notes:</p> <p>Explanatory notes</p> <p>This excludes areas that undergo a temporarily loss of the forest cover, such as:</p> <ul style="list-style-type: none"><input type="checkbox"/> Shifting cultivation (included in the definition of forest): The patches that are deforested are mostly smaller than the minimum area of forest and the Minimum Mapping Unit of our deforestation maps. There is a remaining tree cover and the area will recover after it is left to regenerate. The conversion from natural forest to shifting cultivation is seen as forest degradation.<input type="checkbox"/> Natural deforestation where the forest cover will recover naturally such as small areas where wind break or unplanned fires took place.	Forest reference emission level for Suriname's REDD+ programme (SBB, 2018)

Original data

Monitoring of the forest changes in Suriname is done within the Forest Cover Monitoring Unit (FCMU) using Remote sensing techniques, Satellite imageries and free softwares such as Terra Amazon (software developed by the National Institute for Space Research (INPE) from Brazil) and QGIS. Untill now deforestation figures are available for the following periods: 2000-2009, 2009-2013, 2013-2014, 2014-2015, 2015-2016. Recently the deforestation figures for 2016-2017 are in a procces to be finalized. The deforestation figures are shown in the tables below.The intention is to produce yearly deforestation maps in order to identify the trend of deforestation and make available on the National geoportal "Gonini" (www.gonini.org) for the general public and especially for the policymakers.

Besides National policy formulation, the deforestation figures are very important in the context of the REDD+ project which is in the preparation phase at this moment. These deforestation figures have been used as activity data in the development of the FREL for Suriname, and will also be used for the emission reduction reporting.

It can be noted that the National class "Deforestation 2000-2009" actually indicates deforested area from the year 2001 untill the end of 2009. For the other classes it represent the period as mentioned in it. Futhermore, it can be mentioned that from the year 2014 yearly deforestation maps are produced.

After the production of every deforestation map, a Quality Control/ Quality Assessment (QA/QC) is executed using a stratified sampling method developed by UN REDD. From this assessment Stratified estimated areas and Confidence interval for each class are obtained. See Table below. For the reporting of FRA 2020 the Stratified estimated areas are used.

Beside the Deforestation monitoring, Post-deforestation Land Use Land Cover (LULC) monitoring is done within FCMU in close collaboration with National stakeholders. The first Post-deforestation LULC map covers the period 2000-20009. After this, Post-deforestation LULC maps were produced every two years (2000-2013, 2000-2015, and 2000-2017).

Table. Map, stratified estimated areas and confidence interval shown for deforestation classes

Class	Map area (ha)	Stratified estimated area (ha)	Confidence interval (ha)
Deforestation 2000-2009	24,784	33,051	5,361
Deforestation 2009-2013	30,833	32,071	2,388
Deforestation 2013-2014	17,222	15,757	2,082
Deforestation 2014-2015	12,308	9,442	1,620
Deforestation 2015-2016	10,990	11,387	1,886
Deforestation 2016-2017	8,683	7,347	647

Analysis and processing of national data

Estimation and forecasting

At this moment Suriname is in the preparation phase of the REDD+ project. In this framework the following four components need to be in place:

- (1) National strategy (NS);
- (2) Safeguard Information System (SIS);
- (3) Forest Reference Emission Level (FREL);
- (4) National Forest Monitoring System (NFMS).

It is worth mentioning that for the NS and FREL already Scenario modeling has been executed in order to support the development of documents regarding these components.

The Scenario modeling was done for the period 2016-2035 based on the historical deforestation figures of the Deforestation maps from 2000-2015. Three scenarios were executed among which:

- (1) Business as Usual (same deforestation rate as the rate of 2015);
- (2) Developement scenario (highest historical deforestation rate was used and all projects mentioned in the Development Plan (OP) 2017-2021 were taken into consideration);
- (3) REDD+ scenario (mean historical deforestation rate was used and also the projects mentioned in OP 2017-2021 were taken into consideration but with some restriction. For example: No deforestation is assumed to occur in the protected areas (existing & proposed) and in the mangrove forest.

In table below the results of the different scenarios are shown.

Table. Scenario modeling results for the different periods

Scenario (Area ha/year)	2015-2020	2020-2025	2025-2030	2030-2035
Business As Usual scenario	16,068	15,787	15,432	15,062
REDD+ scenario	16,068	8,909	8,804	27,067
Development scenario	16,068	17,015	16,591	62,379

For the period 2000-2010 the gross deforestation was estimated at 4110 hectares and for the period 2010-2015 at 9860 hectares.

Reclassification into FRA 2020 categories

The reclassification of the National classes to the FRA categories are shown in the table below.

Classification and definations	FRA classes		
National Class	Forest expansion		Deforestation
	...of which afforestation	...of which natural expansion	
Deforestation	0%	0%	100%

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Forest expansion (a)	0.00	0.01	0.22	0.57
...of which afforestation				
...of which natural expansion				
Deforestation (b)	3.68	4.11	9.86	11.65
Forest area net change (a-b)	-3.68	-4.10	-9.64	-11.08

Comments

1e Annual reforestation

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha/year)			
	1990-2000	2000-2010	2010-2015	2015-2020
Reforestation				

Comments

Data not available for this FRA category.

1f Other land with tree cover

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Protocol for the preparation of the Land Use Land Cover map 2015	LULC classes	2015	Whitin the Cross Cutting Capacity Development (CCCD) project, the National Land Use Land Cover map for 2015 was produced in close collaboration with national stakeholders and a international consultant. This report consists of the applied methodology, the class discription and the results (areas in ha) of the different LULC classes.

National classification and definitions

-

Original data

Recently, a National LULC map for 2015 was produced within the Cross Cutting Capacity Development (CCCD) project, with the same plaform of stakeholders from the validation of the Post-Deforestation LULC maps and support of an international consultant. In the table below the results are shown.

Table. Map areas of the National LULC map 2015

Class	Area (ha)
Abandoned B_plantation	59,178.79
Abandoned areas	129,568.09
Agriculture	103,392.14
Bare soil	61.64
Built area	34,270.94
Infrastructure	27,579.80
Lake	158,770.36
Mining	93,689.12
Open savannah	99,712.09
Open swamp	363,072.02
Planted forest	7,279.59
River/creek	174,467.26
Rock	8,983.83
Shifting Cultivation	209,709.45
Undisturbed forest	14,897,089.42

Analysis and processing of national data

Estimation and forecasting

It can be noted that abandoned agriculture areas in the caostal zone are not being utilized for more than 10 years. There is no indication of the further development of these areas. A great part of these areas has vegetation that meets the criteria of the forest definition.

Reclassification into FRA 2020 categories

The reclassification of the National classes to the FRA categories are shown in the table below.

Classification and definations	FRA classes				
	Palms	Tree orchards	Agroforestry	Trees in urban settings	Other (specify)
Abandoned areas				100%	

FRA categories	Area (1000 ha)				
	1990	2000	2010	2015	2020
Palms (a)					
Tree orchards (b)					
Agroforestry (c)					
Trees in urban settings (d)				129.57	
Other (specify in comments) (e)					
Total (a+b+c+d+e)	–	–	–	129.57	–
Other land area	222.37	259.13	300.14	348.33	403.71

Comments

Category	Comments related to data definitions etc.	Comments on reported trends
Palms		In parts of the district of Coronie coconut palms are the dominated vegetation. Unfortunately the exact data of the surface is not available.
Abandoned areas	<p>Description: Land that was still used in 2000 for human activities, but which have been abandoned and is already in an advanced state of regeneration in 2015, covered primarily by trees, with a minimum tree crown cover of 30% (or equivalent stocking level), with the potential to reach a minimum canopy height at maturity in situ of 5 meters, and a minimum area of 1.0 ha. These areas may also have some rectangle structures, indicating the presence of previous agriculture plantations and can possibly be located near swampy areas.</p> <p>No National definition is yet in place. This is a discription of the class defined in collaboration with national stakeholders during the CCCD project where a National Land Use Land Cover map for 2015 was produced.</p>	

2 Forest growing stock, biomass and carbon

2a Growing stock

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Annual Timber production statistics of SBB	Timber, production, Export, Import	2000-2017	An annual report is produced by SBB with detail figures of timber production, timber export and timber import.
2	SBB et al (2017): Technical report State-of-the-art study: Best estimates for emission factors and carbon stocks for Suriname	Carbon stock	2015-2017	Study done by SBB in collaboration with CATIE, CELOS and AdeKUS. This is an update of earlier work carried out by Arets et al. (2011)
3	Forest reference emission level for Suriname's. REDD+ programme	Forest area, Deforestation, Emission factors	2000-2015	The Forest Reference for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB).

National classification and definitions

National class	Definition
NA	NA

Original data

The Growing stock calculation was based on data from the Technical report State-of-the-art study: Best estimates for emission factors and carbon stocks for Suriname (SBB, 2017). This study was carried out harmonizing data from 11 forest inventories executed in Suriname. And it was also an update of an earlier study done by Arets et al. (2011), completed with the data collected in 12 field transects established during the Forest Carbon Assessment and Monitoring project (SBB, 2012) and the data collected in 31 sampling units (SU) throughout the pilot NFI project in 2013-2014. For more information regarding harmonization of the databases, it is refer to the Forest Reference Emission Level for Suriname's REDD+ Programme document (SBB, 2018).

In the table below, the Above ground biomass for living and dead organic material and Below ground biomass is shown for each forest stratum.

Table. Carbon stock (t C ha-1) by pool per strata

Forest stratum	Above ground biomass (living)						Above ground biomass (Dead organic material, DOM)			
	Living trees (dbh> 5 cm)		Palms		Lianas		Downed wood		Standing dead wood	
	C-stock (t C ha-1)	Uncertainty (%)	C-stock (t C ha-1)	Uncertainty (%)	C-stock (t C ha-1)	Uncertainty (%)	C-stock (t C ha-1)	Uncertainty (%)	C-stock (t C ha-1)	Uncertainty (%)
Mangrove forest	90.24	6.25%								
Coastal	149.62	21.4%	5.08	110.7%	0.64	182.7%	3.23	136.4%	1.31	124.8%
Forest belt	176.10	3.8%	1.06	55.6%	2.83	18.0%	11.54	41.9%	3.14	20.6%
Interior	164.99	11.8%	2.26	114.6%	2.38	46.1%	4.50	94.5%	1.92	68.2%

Table. Carbon stock (t C ha-1) by pool per strata (Cont'd)

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Stratum	Below ground biomass			
	Roots Living trees		Roots Palms	
	C-stock (t C ha-1)	Uncertainty (%)	C-stock (t C ha-1)	Uncertainty (%)
Mangrove forest*	44.22	6.3%		
Coastal plain	35.91	21.4%	1.22	110.7%
Forest belt	42.26	3.8%	0.26	55.6%
Interior	39.60	11.8%	0.54	114.6%

Analysis and processing of national data

Estimation and forecasting

The total Carbon stock was calculated based on the Above Ground Biomass (AGB) of trees mentioned in the table in chapter Original data. This was then converted to total Biomass. In order to get the total Growing stock, the total Biomass was then divided by 0.95, the BCEF for humid tropical natural forest.

To calculate the trend of the total Growing stock among the different years, Growing stock of 371.89 m3 per ha and the Forest areas mentioned in Table 1a were used .

Reclassification into FRA 2020 categories

-

FRA categories	Growing stock m³/ha (over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest									
Planted forest									
...of which plantation forest									
...of which other planted forest									
Forest	371.89	371.89	371.89	371.89	371.89	371.89	371.89	371.89	371.89
Other wooded land									

FRA categories	Total growing stock (million m³ over bark)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Naturally regenerating forest									
Planted forest									
...of which plantation forest									
...of which other planted forest									
Forest	5 718.77	5 705.10	5 689.85	5 671.93	5 667.71	5 664.99	5 660.44	5 655.89	5 651.33
Other wooded land									

Comments

2b Growing stock composition

National Data

Data sources + type of data source eg NFI, etc

For National data, see Table 2a.

National classification and definitions

National class	Definition
NA	NA

Original data

See Table 2a.

Analysis and processing of national data

Estimation and forecasting

To calculate the Growing stock for the ten most dominant tree species in Suriname, the harmonized database consisting of all the executed forest inventories was used (Technical report State-of-the-art study: Best estimates for emission factors and carbon stocks for Suriname, 2017). Only trees with a dbh size equal and above 10 cm were used for this assessment.

Reclassification into FRA 2020 categories

-

FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#1 Ranked in terms of volume	Eperua falcata	Walaba	633.79	632.28	630.59	628.60	626.32
#2 Ranked in terms of volume	Licania	Kwepi or Anawra or Fungu type	215.22	214.71	214.13	213.46	212.68
#3 Ranked in terms of volume	Manilkara bidentata	Boletri	179.20	178.77	178.29	177.73	177.09
#4 Ranked in terms of volume	Dicorynia guianensis	Basralokus	177.84	177.41	176.94	176.38	175.74
#5 Ranked in terms of volume	Lecythis idatimon	Berg Umabarklak	158.92	158.54	158.12	157.62	157.05
#6 Ranked in terms of volume	Couratari stellata	Ingipipa	151.63	151.27	150.86	150.39	149.84
#7 Ranked in terms of volume	Mora gonggripii	Mora-bukeya	134.44	134.12	133.76	133.34	132.86
#8 Ranked in terms of volume	Tetragastris altissima	Rode Sali	134.31	133.99	133.63	133.21	132.73
#9 Ranked in terms of volume	Goupia glabra	Kopi	131.11	130.80	130.45	130.04	129.56
#10 Ranked in terms of volume	Eschweilera	Barklak or Tete-udu type	123.17	122.87	122.54	122.16	121.71
Remaining native tree species			3 679.14	3 670.35	3 660.54	3 649.01	3 635.76
Total volume of native tree species			5 718.77	5 705.11	5 689.85	5 671.94	5 651.34
Introduced tree species							
#1 Ranked in terms of volume							
#2 Ranked in terms of volume							
#3 Ranked in terms of volume							
#4 Ranked in terms of volume							

FRA categories	Scientific name	Common name	Growing stock in forest (million m³ over bark)				
			1990	2000	2010	2015	2020
Native tree species							
#5 Ranked in terms of volume							
Remaining introduced tree species							
Total volume of introduced tree species			–	–	–	–	–
Total growing stock			5 718.77	5 705.11	5 689.85	5 671.94	5 651.34

Comments

2c Biomass stock

National Data

Data sources + type of data source eg NFI, etc

See Table 2a.

National classification and definitions

National class	Definition
NA	NA

Original data

In the table below, the Above Ground Biomass (AGB) for living and Dead organic material (DOM) and Below Ground Biomass are shown for each forest stratum. The AGB consists of living trees, Palms and Liana and the AGB DOM consists of Downed wood and standing dead wood, while BGB consists of roots of living trees and Palms.

Table. Carbon stock per forest stratum.

Forest stratum	AGB (t C ha-1)	DOM (t C ha-1)	BGB (t C ha-1)
Mangrove forest	90	0	44.22
Coastal	155	5	37.13
Forest belt	180	15	42.52
Interior	170	6	40.14

Analysis and processing of national data

Estimation and forecasting

For the Forest biomass reporting the Carbon stock per strata (see original data) was multiplied with the surface of each strata. To convert Carbon to Biomass the factor 0.47 was used (Biomass= Carbon/0.47).

Reclassification into FRA 2020 categories

-

FRA categories	Forest biomass (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass	362.88	362.88	362.88	362.88	362.88	362.88	362.88	362.88	362.88
Below-ground biomass	86.25	86.25	86.25	86.25	86.25	86.25	86.25	86.25	86.25
Dead wood	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51	18.51

Comments

2d Carbon stock

National Data

Data sources + type of data source eg NFI, etc

See Table 2a.

National classification and definitions

National class	Definition
NA	NA

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

-

FRA categories	Forest carbon (tonnes/ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Carbon in above-ground biomass	170.55	170.55	170.55	170.55	170.55	170.55	170.55	170.55	170.55
Carbon in below-ground biomass	40.54	40.54	40.54	40.54	40.54	40.54	40.54	40.54	40.54
Carbon in dead wood	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70
Carbon in litter									
Soil carbon									

Soil depth (cm) used for soil carbon estimates	
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Comments

The harmonized database shows that data of litter and Soil Organic Matter is only available for a limited geographic area (Forest belt). The intention is to gather more data in the future, sufficient enough for reporting.

3 Forest designation and management

3a Designated management objective

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB).
3	National Geoportal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonnini" is a National geoportal, that provide all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparancy in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.
4	Timber cutting license map. SBB	Timber concession, Community forest, Exploration license, Incidental cutting license	2010-2018	Within the GIS unit of the SBB, on regular basis the timber cutting license data is updated. This unit publishes Timber cutting license map on monthly basis. This provides up to date status of the Timber cutting license to broad public.
5	National Forest Policy of Suriname	Designation of forest land	2003	The development of the total forest sector is based on this policy document.
6	Nature conservation Act	Designation of protected areas	1954	Rules and guidelines, Management Plans for the protected areas
7	Forest Management Act	Designation of forest land	1992	Forest classification
8	SBB Data base"LogPro" Forest use rights Map	Data including issued concessions and other timber harvesting rights	1999-2012	The log tracking system in Suriname is being improved at this moment, due to the recent development, including the increased timber production and timber export. This process is being done with technical assistance of CATIE and financial assistance of the IDB, REDD+ programma and the government of Suriname. This will result in a new system so called Sustianable Forest Information System Suriname(SFISS), which will replace the existing system LogPro.
9	LBB/ Nature conservation devision map of the protected areas.	Protected areas		This map provides the extent of the protected areas.
10	Management plan of the Nature reserves	Nature reserves		The plans indicates the management activities of the Nature reserves.

National classification and definitions

National class	Definition
NA	NA

Original data

On the National Geoportal (www.gonini.org) several layers are availble related to the forest cover in Suriname, amongst other the Protecед Areas, the Multiple Use Management Areas (MUMA's), and Timber cutting lincense areas. Based on these layers an indication of the forest surface within the before mentioned categories can be assessed. It is possible that in some areas human activities can take place leading to decrease in forest cover i.e. MUMA's.

The MUMA's are important tools for the stabilization of the coastal zones (these have been established as a buffer zone against the dynamics of the ocean to protect the land area). The MUMA's are composed of water and land (forest and non-forest). Therefore the extend of the MUMA's was overlaid on the Deforestation maps, which allowed to calculate the forest area within their extend.

The table below provides information of the year when each MUMA was established.

Table. Year of establiment of the different MUMA's

MUMA's	Year of establishment
Bigi Pan	1987
Noord Coronie	2001
Noord Saramacca	2001
Noord Commewijne/ Marowijne	2002

Analysis and processing of national data

Estimation and forecasting

Production (a), includes the area on which the valid concession licenses are obtained for commercial timber exploitation. The data of these areas are based on the old timber cutting maps of LBB and the timber cutting licenses database of SBB. Important is to mentioned that the area of the valid concession license are issued within the production forest where already infrastructure is developed. The expectation is that in the near future the extent of this catergy will not increase significantly, due to the fact that there is no indication of forest accessibility infrastructure projects within the production forest.

Reclassification into FRA 2020 categories

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Primary designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production (a)	354.00	1 686.00	1 965.00	1 956.76	2 000.00
Protection of soil and water (b)	16.85	16.85	143.17	141.97	140.77
Conservation of biodiversity (c)	1 764.80	1 764.60	1 764.40	1 764.30	1 764.20
Social Services (d)	0.00	0.00	0.00	0.00	0.00
Multiple use (e)	527.00	527.00	702.00	702.74	762.74
Other (specify in comments) (f)	0.00	0.00	0.00	3.36	3.36
None/unknown (g)	12 714.98	11 346.42	10 725.29	10 682.54	10 525.22
Total forest area	15 377.63	15 340.87	15 299.86	15 251.67	15 196.29

Total area with designated management objective

FRA 2020 categories	Forest area (1000 ha)				
	1990	2000	2010	2015	2020
Production	4 500.00	4 242.73	4 217.25	4 172.61	4 135 738.05
Protection of soil and water			143.97	141.97	139.97
Conservation of biodiversity	1 764.80	1 764.60	1 764.40	1 764.30	1 764.20
Social Services					
Other (specify in comments)				3.36	3.36

Comments**Referring to the first table it can be noted that:**

Production (a), includes the area on which the valid concession licences are obtained for commercial timber exploitation. The data of these areas are based on the old timber cutting licenses maps of LBB and the timber cutting licenses database of SBB.

Protection of soil and water (b), includes all the areas of the MUMA's.

Conservation of Biodiversity (c), includes alle protected areas.

Multiple use (e), includes the areas of the MUMA's and also the areas on which communal cutting licenses (HKV) and community forest are issued to indigenous and tribal forest communities. It is allowed to utilize the HKV and community forests for timber production as well for subsistence use and commercial utilization. Furthermore, it is also allowed to utilize theme for the gathering of NWFP and agroforestry.

Other (f), are the special protected forest, which are established for scientific research.

Referring to the second table it can be noted that:

The category Production includes the indicated production forest within the forest belt. Due to lack of sufficient Land Use Plan, different types of license overlap in the same areas. A consequence of the lack of sufficient Land Use Plan is, thatwithin the indicated production forest mining licenses are also issued, leading to decrease of the forest.

3b Forest area within protected areas and forest area with long-term management plans

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB).
3	National Geoportal of Suriname: http://www.gonnini.org/	Forest area, Deforestation	2000-2016	"Gonnini" is a National geoportal, that provide all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparency in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.
4	Timber cutting license map. SBB	Timber concession, Community forest, Exploration license, Incidental cutting license	2010-2018	Within the GIS unit of the SBB, on regular basis the timber cutting license data is updated. This unit publishes Timber cutting license map on monthly basis. This provides up to date status of the Timber cutting license to broad public.
5	National Forest Policy of Suriname	Designation of forest land	2003	The development of the total forest sector is based on this policy document.
6	Nature conservation Act	Designation of protected areas	1954	Rules and guidelines, Management Plans for the protected areas
7	Forest Management Act	Designation of forest land	1992	Forest classification
8	SBB Data base”LogPro” Forest use rights Map	Data including issued concessions and other timber harvesting rights	1999-2012	The log tracking system in Suriname is being improved at this moment, due to the recent development, including the increased timber production and timber export. This process is being done with technical assistance of CATIE and financial assistance of the IDB, REDD+ programma and the government of Suriname. This will result in a new system so called Sustianable Forest Information System Suriname(SFISS), which will replace the existing system LogPro.
9	LBB/ Nature conservation devision map of the protected areas.	Protected areas		This map provides the extent of the protected areas.
10	Management plan of the Nature reserves	Nature reserves		The plans indicates the management activities within the Nature reserves.

National classification and definitions

National class	Definition
NA	NA

Original data

See Table 3a

Analysis and processing of national data

Estimation and forecasting

See Estimation and forecasting of Table 3a

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)								
	1990	2000	2010	2015	2016	2017	2018	2019	2020
Forest area within protected areas	1 794.30	1 793.80	1 891.70	1 890.30	1 890.30	1 890.30	1 890.30	1 890.30	1 890.30
Forest area with long-term forest management plan	2 645.80	3 977.60	4 431.40	4 423.80	4 164.65	3 941.17	4 136.46	4 331.75	4 527.04
...of which in protected areas	1 794.30	1 793.80	1 891.70	1 890.30	1 890.30	1 890.30	1 890.30	1 890.30	1 890.30

Comments

Based on the National planning there is no indication that new protected areas will be established.

Category	Comments related to data definitions etc	Comments on the reported trend
Forest area within protected areas	Forest area extracted from the Deforestation maps consisting of the Forest class, overlaid with the Nature reserves	
Forest area with long-term forest management plan	Bigipan MUMA, which was allocated in 1987 has a forest cover of ca.16,800 ha in 2000. The other MUMA's were allocated in the period 2002-2003. The forest area in the MUMA's are very dynamic because of human activities and natural land acquisitions. In 2012 two special protected areas were established for scientific purposes, with a total area of ca. 3,000 ha	

4 Forest ownership and management rights

4a Forest ownership

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Forest Management Act	Designation of forest land	1992	Forest classification
2	SBB Data base"LogPro" Forest use rights Map	Data including issued concessions and other timber harvesting rights	1999-2012	The log tracking system in Suriname is being improved at this moment, due to the recent development, including the increased timber production and timber export. This process is being done with technical assistance of CATIE and financial assistance of the IDB, REDD+ programme and the government of Suriname. This will result in a new system so called Sustainable Forest Information System Suriname(SFISS), which will replace the existing system Log Pro.
3	National Forest Policy of Suriname	Designation of forest land	2003	The development of the total forest sector is based on this policy document.
4	National Geoportal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonnini" is a National geoportal, that provide all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparency in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.
5	Timber cutting license map. SBB	Timber concession, Community forest, Exploration license, Incidental cutting license	2010-2018	Within the GIS unit of the SBB, on regular basis the timber cutting license data is updated. This unit publishes Timber cutting license map on monthly basis. This provides up to date status of the Timber cutting license to broad public.
6	LBB/ Nature conservation devision map of the protected areas.	Protected areas		This map provides the extent of the protected areas.
7	Management plan of the Nature reserves	Nature reserves		The plans indicates the management activities of the Nature reserves.

National classification and definitions

National class	Definition								
NA	NA								

Original data

It is possible that in the past decades the total area of the land tenure: Private ownership, Allodial property, Lease hold, Land lease, and Others, is increased but no data are available. Forests on private land do not cover more than a total area of 50,000 ha. Within the Constitution of Suriname the tribal rights for the utilization of land is not yet settled clearly, however these tribal rights are being recognized by the Government. It can be noted that there are initiatives and ongoing processes to guarantee the legal rights of the tribal communities, within the surrounding areas of their villages. A recent development is that the National Assembly of Suriname has approved the "wet Beschermde Dorpsgebieden", this is a law to protect the surrounding areas of the villages. With this, another step has been taken to solve the tribal rights issue.

Table. Estimated forest area of Suriname by type of tenure as of 1985

National classification	Area (x 1000 ha)

Private ownership	50
Allodial property	37
Lease hold	47
Land lease	27
Others	60

Analysis and processing of national data

Estimation and forecasting

Because of the lack of sufficient Land Use plan, it is possible to issue other rights besides timber cutting rights within the production forest. There is a possibility that within the production forest, licenses for Lease hold and Land lease are issued. The reported figures of these licenses could be an underestimation (the updated figures are not available).

Reclassification into FRA 2020 categories

FRA Classification	National classification	Area in ha (x 1000)
Private ownership	Private ownership	50
	Allodial property	37
Public ownership	State land	47
	Lease hold	27
	Land lease	60
	Others	
Other ownership		

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Private ownership (a)	87.00	87.00	87.00	87.00
...of which owned by individuals				
...of which owned by private business entities and institutions				
...of which owned by local, tribal and indigenous communities				
Public ownership (b)	15 290.63	15 253.87	15 212.86	15 164.67
Unknown/other (specify in comments) (c)	0.00	0.00	0.00	0.00
Total forest area	15 377.63	15 340.87	15 299.86	15 251.67

Comments

The expectation is that the area of the Private owned forest will not increase.

4b Holder of management rights of public forests

National Data

Data sources + type of data source eg NFI, etc

See Table 4a

National classification and definitions

National class	Definition
NA	NA

Original data

See Table 4a

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

Table. Reclassification of forest management rights

FRA Classification	National classification
Public administration	- LBB-reserves - Nature reserves - Stateland - MUMA's
Individuals	Incidental cutting licenses and concessions issued to natural persons
Private business entities and institutions	Incidental cutting licenses, exploration licenses and concessions issued to legal persons (companies).
Communities	Communal cutting license and community forest
Other	A holder of a land lease or lease hold rights can, if there is no overlapping with actual forest management rights, dispose of the wood within the boundaries of their terrain.

FRA categories	Forest area (1000 ha)			
	1990	2000	2010	2015
Public Administration (a)	14 436.41	12 701.22	12 940.49	12 463.86
Individuals (b)	0.00	349.16	232.89	334.84
Private business entities and institutions (c)	350.80	1 700.02	1 464.70	1 586.51
Local, tribal and indigenous communities (d)	503.41	503.47	574.78	776.10
Unknown/other (specify in comments) (e)	0.01	0.00	0.00	3.36
Total public ownership	15 290.63	15 253.87	15 212.86	15 164.67

Comments

Based on the Timber Act of 1947, communal cutting licenses (HKV) were issued to forest based communities. With the approval of the Forest Management Act of 1992, which is the successor of the Timber Act of 1947, the community forest has been introduced to facilitate the forest based communities. However, until now there are still 60 communal cutting licenses with a total surface of 423,529 ha. The intention is to convert all the communal cutting licenses into community forests. In collaboration with the Ministry of Regional Development (Min. of RO), the Ministry of RGB is in process to convert all communal cutting licenses into community forest. The intention is also to facilitate villages which until now do not have community forest. Taking these factors into consideration, the expectation is that the total surface of the community forests will increase.

5 Forest disturbances

5a Disturbances

National Data

Data sources + type of data source eg NFI, etc

-

National classification and definitions

-

Original data

-

Analysis and processing of national data

Estimation and forecasting

-

Reclassification into FRA 2020 categories

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FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Insects (a)																		
Diseases (b)																		
Severe weather events (c)																		
Other (specify in comments) (d)																		
Total (a+b+c+d)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total forest area	15 340.87	–	–	–	–	–	–	–	–	–	15 299.86	–	–	–	–	15 251.67	15 240.32	15 233.02

Comments

No information is available.

5b Area affected by fire

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB).
3	National Geoportal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonnini" is a National geoportal, that provide all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparancy in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.

National classification and definitions

National class	Definition
Burned Area	Areas that have recently been burned.

Original data

For the category "Total land area affected by fire" (Table 5b), the Post-deforestation LULC maps produced by FCMU in close collaboration with National stakeholders, were used. The surface of the Post-deforestation LULC class "Burned areas" are shown in the table below. It is noticable that these burned areas are most often near the open savannas. Is it not clear if the burned areas are caused by human activities or natural causes.

Mentioning worth is that in the interior the forest communities practice the "slash and burned" method to do agricultural activities (Shifting cultivation). In this case also forest areas are burned, but it is not reported as the category "Area affected by fire". The Shifting cultivation is mainly found close to the villages of indigenous and tribal communities, in the vicinity of rivers and/or roads. The forest dependent communities clearly indicate that shifting cultivation is a traditional and sustainable use of the forest. Based on this the area of Shifting cultivation is reported as Forest.

Table. Map areas of the Post-Deforestation LULC class "Burned areas" for the following periods: 2000-2009, 2000-2013, 2000-2015

Area (ha)	2000- 2009	2000-2013	2000-2015	2000-2017
Burned areas	243	2052	2502	2972

The figures of the Burned areas in the period 2000-2009, 2000-2013, 2000-2015, and 2000-2017, represent the accumulated figures of the previous periods. Futhermore, it can be clarified that areas which are regenerated are excluded from these figures. It is not clear yet for what Land Use these areas were burned in case were human activities took place.

Analysis and processing of national data

Estimation and forecasting

Forest fires occur in small scales in Suriname and does not have big impact on the forest. There is a mechanism in place in cases forest fires occur, to take action (Nationaal Coördinatie Centrum voor Rampenbeheersing (NCCR)).

Reclassification into FRA 2020 categories

-

FRA categories	Area (1000 ha)																	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total land area affected by fire																		
...of which on forest										0.24				2.05		2.50		2.97

Comments

Forest fires occur in small scales in Suriname and does not have big impact on the forest. There is a mechanism in place in cases forest fires occur, to take action (Nationaal Coördinatie Centrum voor Rampenbeheersing (NCCR)).

5c Degraded forest

Does your country monitor area of degraded forest		No
If "yes"	What is the national definition of "Degraded forest"?	
	Describe the monitoring process and results	

Comments

Suriname does not have yet, an active monitoring system of forest degradation in place. However the FREL of Suriname was developed based on Forest degradation due to logging activities and Deforestation. The definition for forest degradation used within the FREL is defined as follows: “human-induced or natural loss of the goods and services, provided by the forest land, in particular the forest carbon stocks, not qualifying as deforestation, over a determined period of time”. Within the framework of the development of the FREL, a study has been conducted to assess the emission factor due to logging activities. Based on the Timber production and the emission factor, the emission due to logging activities is determined.

It can be mentioned that in the near future the monitoring of Forest degradation will be set up, focussing on the surrounding areas of mining activities and shifting cultivation.

6 Forest policy and legislation

6a Policies, Legislation and national platform for stakeholder participation in forest policy

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	National Forest Policy of Suriname	Designation of forest land	2003	The development of the total forest sector is based on this policy document.
2	Interim Strategic Action Plan for the forest sector in Suriname		2009-2013	The Forest policy is converted into action plans for the development of the total forest sector.
3	Nature conservation Act	Designation of protected areas	1954	Rules and guidelines, Management Plans for the protected areas
4	Forest Management Act	Designation of forest land	1992	Forest classification

National classification and definitions

National class	Definition
NA	NA

Original data

-

Indicate the existence of	Boolean (Yes/No)	
	National	Sub-national
Policies supporting SFM	Yes	Yes
Legislations and regulations supporting SFM	Yes	Yes
Platform that promotes or allows for stakeholder participation in forest policy development	Yes	Yes
Traceability system(s) for wood products	Yes	Yes

Comments

Forest policy formulation in Suriname is based on a participatory process. There is a platform with representatives of the Foundation for Forest Management and Production Control (SBB) , the private sector organizations, forest community organizations and other relevant stakeholders. When necessary meetings are organized regarding policy making issues these platform is invited to participate.

Regarding the Traceability system for wood products, it can be noted that currently the existing Log tracking system is being updated. The focus is to have an adequate Log tracking system for log production. The intentioned is to finalize this process mid 2019.

6b Area of permanent forest estate

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Technical report: Forest cover monitoring in Suriname using remote sensing techniques	Forest area, Deforestation	2000-2015	The report gives insight of the method used for producing the different deforestation maps. Also the results i.e. map areas, stratified estimated areas and the confident intervals, are shown.
2	Forest reference emission level for Suriname's REDD+ programme	Forest area, Deforestation	2000-2015	The Forest Reference for Suriname was calculated based on forest degradation due to logging activities and deforestation, with the data produced by the Foundation for Forest Management and Production Control (SBB).
3	National Geoportaal of Suriname: http://www.gonini.org/	Forest area, Deforestation	2000-2016	"Gonnini" is a National geoportal, that provide all up to date data related to forest cover of Suriname. It is designed in the context of the REDD+ programme to achieve transparency in forest related data accessibility towards the stakeholders, policy makers and national and international public. The geoportal is designed with the technical assistance of the FAO and financed by REDD+ funding. Based on the development in the country the geoportal is updated.
4	LBB/ Nature conservation devision map of the protected areas.	Protected areas		This map provides the extent of the protected areas.
5	Management plan of the Nature reserves	Nature reserves		The plans indicates the management activities of the Nature reserves.
6	Timber cutting license map. SBB	Timber concession, Community forest, Exploration license, Incidental cutting license	2010-2018	Within the GIS unit of the SBB, on regular basis the timber cutting license data is updated. This unit publishes Timber cutting license map on monthly basis. This provides up to date status of the Timber cutting license to broad public.

National classification and definitions

-

Original data

The area of premament forest estate includes, the production forest, the nature reserves, MUMA's and the temporary maintained forest, excluded by the greenstone belt, non forest areas, hydrography and the deforestation within the mentioned areas. The greenstone belt represents the area where gold occurences are present. Within this area the most gold mining licences are issued.

FRA 2020 categories	Forest area (1000 ha)					
	Applicable?	1990	2000	2010	2015	2020
Area of permanent forest estate	Yes	11 452.60	11 442.56	11 431.52	11 425.01	11 392.58

Comments

The forest within the area of permanent forest estate shows a decreasing trend, due to the fact that within this area deforestation takes place. Because of the lack of sufficient Land Use Plan, other types of licenses are issued within this area resulting in loss of forest.

7 Employment, education and NWFP

7a Employment in forestry and logging

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Suriname's Forestry Sector	Employment in forestry and logging	2000-2016	On yearly basis a descriptive report is produced of the forestry sector, whereby attempts are made to provide insights into the activities carried out by the sector. Attention is paid to the trend and the development within the forestry sector, where national and international factors are taken into consideration. The earnings of the forestry sector are also determined in order to show the contribution to the national economy.

National classification and definitions

National class	Definition
NA	NA

Original data

On regular basis, the SBB, register the employment in the total Forestry sector, including logging, timber transport and timber processing.

FRA 2020 categories	Full-time equivalents (1000 FTE)											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Employment in forestry and logging	2.40			2.80			3.30	0.01	3.29	4.30	0.01	4.29
...of which silviculture and other forestry activities												
...of which logging	2.40			2.80			3.30	0.01	3.29	4.30	0.01	4.29
...of which gathering of non wood forest products												
...of which support services to forestry												

Comments

The total employment within the forest sector in Suriname is 6,650. Of this 3,500 are employed in logging activities and 800 in the transport of logs. Furthermore, 50 persons can be categorized as a support service to forestry. The forest management institutions employs 300 persons. Also it can be mentioned that the employment within the timber processing industry is 2,000. There are no silviculture activities within the forest sector of Suriname.

Employment data regarding the gathering of non wood forest products is not available.

7b Graduation of students in forest-related education

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	Suriname's Forestry Sector report	Employment in forestry and logging	2000-2016	On yearly basis a descriptive report is produced of the forestry sector, whereby attempts are made to provide insights into the activities carried out by the sector. Attention is paid to the trend and the development within the forestry sector, where national and international factors are taken into consideration. The earnings of the forestry sector are also determined in order to show the contribution to the national economy.
2	Anton de Kom University of Suriname- Master's degree in Sustainable Management of Natural Resources (SMNR)	MSc graduates	2012-2018	The University of Suriname (ADEKUS) has a 2 year programme for Sustainable Management of Natural Resources (SMNR) on master level, this programme also includes sustainable forest management. The SMNR is a capacity building programme in sustainable management of natural resources in Suriname.
3	The Foundation for Forest Management and Production Control	Technician certificate/ diploma, BSc and MSc graduates	2000-2018	SBB facilitates students on the following levels: mid-level, BSc level and MSc level with their study programmes.
4	Anton de Kom University of Suriname- BSc programme on Forestry	BSc graduates	1983-2018	The Technological Faculty of the University of Suriname (ADEKUS) has a 3 year education programme for forestry on bachelor level.
5	NATIN	Technician certificate/ diploma.	1971-2018	The NATIN is a mid-level technical education institution with a 4 year programme for forestry.

National classification and definitions

National class	Definition
NA	NA

Original data

It is worth mentioning that for the reporting of Table 7b "Graduation of Students in forest-related education" the figures are a three year average of the reporting years. Furthermore it can be noted that these figures cover only a part of the total actual graduates on the different levels.

FRA 2020 categories	Number of graduated students											
	1990			2000			2010			2015		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
Doctoral degree												
Master's degree										3.00	2.00	1.00
Bachelor's degree	4.00	1.00	3.00	1.00	1.00		3.00	2.00	1.00			
Technician certificate / diploma				2.00	1.00	1.00				2.00	1.00	1.00
Total												

Comments

The University of Suriname (ADEKUS) has a 2 year programme for Sustainable Management of Natural Resources (SMNR) on master level, this programme also includes sustainable forest management.

The Technological Faculty of the University of Suriname (ADEKUS) has a 3 year education programme for forestry on bachelor level.

The NATIN is a mid-level technical education institution with a 4 year programme for forestry.

7c Non wood forest products removals and value 2015

National Data

Data sources + type of data source eg NFI, etc

#	References to sources of information	Variable(s)	Year(s)	Additional comments
1	General Bureau of Statistics (ABS). Environment Statistics Publication	Non wood forest products removal's and values	2016	The ABS produces on bi-annual reports of Environment statistics. It includes also data of the forest sector

National classification and definitions

National class	Definition
NA	NA

Original data

The figures reported in the table below are information from the bi-annual Environment statistics publication of 2016.

	Name of NWFP product	Key species	Quantity	Unit	Value (1000 local currency)	NWFP category
#1	Turtles				17	
#2	Reptiles (snakes)				143	
#3	Apes				46	
#4	Other mammals				4	
#5	parrots				677	
#6	Other Birds				23	
#7	Bee's				0	
#8	Fruits and plants				24 417	
#9	Flowers				39	
#10						
All other plant products						
All other animal products						
Total					25 366	

Name of currency	USD
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Comments

There is no data available of the production and local trade of non wood forest products. The Nature Conservation Division of the Forest Service (LBB) registers export data of the non wood forest products.

The reported figures only represents the export of non wood forest products. The actual production figures is most probably higher than the reported figures.

8 Sustainable Development Goal 15

8a Sustainable Development Goal 15

SDG Indicator 15.1.1 Forest area as proportion of total land area 2015

Indicator	Percent							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area as proportion of total land area 2015	98.34	98.08	97.77	97.69	97.65	97.57	97.49	97.41

Name of agency responsible	The Foundation for Forest Management and Production Control (SBB)
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SDG Indicator 15.2.1 Progress towards sustainable forest management

Sub-Indicator 1	Percent						
	2000-2010	2010-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Forest area annual net change rate	-0.03	-0.06	-0.07	-0.05	-0.08	-0.08	-0.08

Name of agency responsible	The Foundation for Forest Management and Production Control (SBB)
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Sub-Indicator 2	Forest biomass (tonnes/ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Above-ground biomass stock in forest	362.88	362.88	362.88	362.88	362.88	362.88	362.88	362.88

Name of agency responsible	The Foundation for Forest Management and Production Control (SBB)
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Sub-Indicator 3	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area located within legally established protected areas	11.76	12.40	12.39	12.39	12.39	12.39	12.39	12.39

Name of agency responsible	The Foundation for Forest Management and Production Control (SBB)
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Sub-Indicator 4	Percent (2015 forest area baseline)							
	2000	2010	2015	2016	2017	2018	2019	2020
Proportion of forest area under long-term forest management plan	26.08	29.06	29.01	27.31	25.84	27.12	28.40	29.68

Name of agency responsible	The Foundation for Forest Management and Production Control (SBB)
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Sub-Indicator 5	Forest area (1000 ha)							
	2000	2010	2015	2016	2017	2018	2019	2020
Forest area under independently verified forest management certification schemes	0.00	89.12	364.48	386.20	363.09	46.33	—	—