2026

REDD+ Results

According to decisions 14/CP.19 and 18/CMA.1

BELIZE 2nd TECHNICAL ANNEX 2021-2022

Ministry of Sustainable Development, Climate Change and Solid Waste Management.

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Acknowledgement

The Government of Belize extends its deepest appreciation to the Forest Department for its exemplary leadership in advancing national climate commitments.

Special recognition is given to, Geospatial Monitoring Unit (GSMU), for pioneering land-use and land-cover mapping (2000–2023) through the Land Use Assessment application (CfRN-LUA app) and Google Earth Engine, facilitating the development of Belize's Forest Reference Level and National Forest Monitoring System (NFMS). Also, the Measuring, Reporting, and Verification (MRV) Program & Sustainable Forest Management (SFM) Program, for integrating ground-based assessments (permanent sample plots) and updating the FORMNET-B Emission Factor Database. Their contributions have been instrumental in key milestones, including Belize's submission of its first Biennial Transparency Report (BTR), in alignment with updated Nationally Determined Contribution (NDC) targets.

The Government also commends the National Climate Change Office and the National Biodiversity Office (Ministry of Sustainable Development, Climate Change, and Solid Waste Management) for deploying technical officers to streamline Activity Data collection, ensuring consistency with Belize's NDC targets.

Appreciation is extended to Belize Funds for a Sustainable Future for its logistical and resource support, which has been crucial in facilitating efficient Activity Data collection. Special thanks are also given to the Coalition for Rainforest Nations (CfRN) for its invaluable technical guidance to the MRV team, in Activity Data collection, the establishment of the National Greenhouse Gas Inventory (GHGi) Foundation Platform, and the development of the Forest Reference Level (FRL) Report and Forest and Other Land Use (FOLU) GHGi.

Additionally, the Government acknowledges the contributions of the Smithsonian Environmental Research Centre, The Pew Charitable Trusts, World Wildlife Fund Mesoamerica, and the University of Belize Environmental Research Institute in advancing mangrove emission factor research. Furthermore, appreciation is extended to Dr. Emil Cherrington, SERVIR Science Coordination Office, NASA, and the University of Alabama in Huntsville, and Dr. Percival Cho, Science for Sustainability, for their critical spatial methodological expertise, updating the Belize FORMNET-B data and Emission Factor values, respectfully. These partnerships exemplify Belize's steadfast commitment to science-driven climate action and transparency.

List of acronyms

AFOLU	Agriculture, Forestry, and Other Land Use
ABC	Agriculture, Ground Carbon
BGB	Below Ground Biomass
BFD	Belize Forest Department
BUR	Biennial Update Report
BTR	Biennial Transparency Report
CfRN	Coalition for Rainforest Nations
CH_4	Methane
CL	Cropland
CO_2	Carbon dioxide
CWD	Coarse Woody Debris
COP	Conference of the Parties
DBH	Diameter at Breast Height
ETF	Enhanced Transparency Framework
ERI	Environmental Research Institute
FAO	Food and Agriculture Organization (of the United Nations)
FOLU	Forest and Other Land Use
FL	Forestland
FRL/Zero FRL	Forest Reference Level
Gg	Gigagrams
GHG	Greenhouse Gas
GHGI	Greenhouse Gas Inventory
GL	Grassland
GPG GSMU	Good Practice(s) Guidance Geospatial Monitoring Unit

GWP	Global Warming Potential
Ha	Hectare
IPCC	Intergovernmental Panel on Climate Change
LULUCF	Land Use, Land Use Change, and Forestry
m^3	Cubic meter
MSDCCWM	Ministry of Sustainable Development, Climate Change and Waste Management
MLP	Managed Land Proxy
MPG	Modalities, Procedures, and Guidelines
MRV	Measuring, Reporting, and Verification
N_2O	Nitrous oxide
NCCO	National Climate Change Office
NIR	National Inventory Report
NFMS	National Forest Monitoring System
OL	Otherland
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SFM	Sustainable Forest Management
SL	Settlement land
TNC	Third National Communication
UNFCCC	United Nations Framework Convention on Climate Change
WL	Wetland

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Introduction

Belize is pleased to submit a Technical Annex to its first Biennial Transparency Report (BTR) containing REDD+ results, in accordance with the provisions of the United Nations Framework Convention on Climate Change (UNFCCC) and its Paris Agreement. This submission reflects Belize's national circumstances as a forest-rich, low-emitting developing country whose economy, livelihoods, and cultural heritage are closely linked to the sustainable management, conservation, and restoration of its forest resources. Through this annex, Belize seeks to access results-based payments for activities relating to reducing emissions from deforestation and forest degradation, as well as the role of conservation, sustainable management of forests, and the enhancement of forest carbon stocks (REDD+).

Consistent with Decisions 13/CP.19 (paragraph 2), 14/CP.19 (paragraphs 7 and 8), and 18/CMA.1 (paragraph 14), Belize underscores that the submission of this Technical Annex is voluntary. It is undertaken with the intention of obtaining and receiving results-based finance for demonstrated emission reductions and removals.

The REDD+ results presented herein were achieved for the period 2021–2022 and are measured against Belize's second modified Forest Reference Level (FRL). In line with UNFCCC guidance and reflecting national circumstances, Belize applied a historical average approach in its second modified FRL. Belize's current Greenhouse Gas Inventory (GHGi) applies the managed land proxy in accordance with the IPCC Guidelines, whereby all lands within the national territory are considered managed. Belize, approach aligns with COP decision 4/CP.15, and decision 12/CP.17, and do not require to report by specific activity in cases where Parties adopt a land-based approach aligned with 2006 IPCC Guidelines. Accordingly, the REDD+ results contained in this Technical Annex are derived from, and assessed against, that historical average benchmark. The FRL was originally submitted on January 10th, 2024, pursuant to Decision 13/CP.19 and was subsequently technically modified to enhance methodological consistency, transparency, and alignment with the most recent IPCC guidance. The modified FRL was formally submitted to the UNFCCC Secretariat on January 21st ,2026 and the draft Technical Assessment Report (TAR) was received by the Party on March 4, 2026. On April 17th, 2026, the final version of the Modified Forest Reference Level and the Technical Assessment Report was published on the UNFCCC official website.

In recognition of Belize's national circumstances, including its high forest cover and longstanding commitment to sustainable forest management, the REDD+ results demonstrate a high level of environmental integrity. The application of the historical average approach ensures that results are conservative, transparent, and fully consistent with UNFCCC modalities and procedures. As such, the REDD+ results presented in this Technical Annex represent emission reduction relative to the FRL. This accounting approach is fully consistent with the national greenhouse gas inventory submitted alongside Belize's first BTR, thereby ensuring transparency, methodological coherence, and alignment with the Enhanced Transparency Framework under the Paris Agreement.

Table 1. The annex of decision 14/CP.19 outlines the guidelines for elements to be included in the technical annex.

Elements in the annex to decision 14/CP.19:	Description
Paragraph 1. Summary information from the final report containing each corresponding assessed forest reference emission level and/or forest reference level, which includes:	Section 2 of this technical annex will provide a summary of the final report of the FRL following its receipt by the party from the UNFCCC. The report will be made available through an online shared folder[1] and will be made publicly available on the UNFCCC webpage, together with the final technical assessment report prepared by LULUCF experts selected by the UNFCCC secretariat, in accordance with COP decision 13/CP.19.
(a) The assessed forest reference emission level and/or forest reference level expressed in tonnes of carbon dioxide equivalent per year (tCO_2eq).	The assessed forest reference level (FRL) is based on the historical average approach, as explained in section 2.1 of this technical annex, and is expressed in tons of CO_2 equivalent per year as requested by the COP
(b) The activity or activities referred to in decision 1/CP.16, paragraph 70, included in the forest reference emission level and/or forest reference level.	The activities included are reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks, as referred to in decision 1/CP.16, paragraph 70.
(c) Territorial forest area covered	The territorial forest area covered is national, meaning that all forest areas and all forest area changes are included in the FRL and in the estimation of REDD+ results, in a consistent manner. Forest cover in the year 2020 was 1,410,335 hectares.
(d) The date of the forest reference emission level and/or forest reference level submission and the date of the final technical assessment report.	Original FRL submission: **January 10th, 2024** Modified FRL submission: **January 21st, 2026** Final Technical Assessment Report**: March 4th, 2026** Official publication of the FRL & TAR: **April 17th, 2026**
(e) The period (in years) of the assessed forest reference emission level and/or forest reference level.	The FRL is applicable for the period 2021-2025, covering the first half of the country's first NDC implementation period. The FRL is informed by a 10-year time-series including forest-related emissions and removals for 2011-2020, *i.e.* historical reference period.

[1] Shared folder available here: https://drive.google.com/drive/u/0/folders/105Rwj8MXMjIjbir-GmUmPIMFVUtPmU4X

Elements in the annex to decision 14/CP.19:	Description
Paragraph 2. Results in tonnes of CO2 equivalent per year, measured against the assessed forest reference level.	The achieved mitigation represents: **2021:** 5,001,627 tCO_2eq **2022:** 2,926,429 tCO_2eq Table 2 presents the net emissions and removals (tCO_2eq/yr) for Belize's historical reference period covering2011-2020, as well as the FRL values derived using a ten-year historical average approach.
Paragraph 3. Demonstrations that the methodologies used to produce the results referred to in paragraph 2 above are consistent with those used to establish the assessed forest reference emission level and/or forest reference level.	The methods, data, and assumptions used to construct the historical data (2011-2020) underlying the FRL were applied consistently for the reporting period 2021-2022. All GHG estimates for 2011-2022 follow the same methodological approach, based on the 2006 IPCC guidelines and its 2019 refinements. See sections 4 and 6 of this Technical Annex for more information.
Paragraph 4. A description of national forest monitoring systems and the institutional roles and responsibilities for measuring, reporting and verifying the results.	Section 5 of this Technical Annex provides a detailed description of the national forest monitoring system, including institutional roles and responsibilities for MRV.
Paragraph 5. Necessary information that allows for the reconstruction of the results.	All information related to the construction of the FRL, which includes in depth descriptions of the methods, data, and assumptions, as well as the calculation spreadsheet for estimating forest-related emissions and removals, is available through the following online shared folder: https://drive.google.com/drive/folders/105Rwj8MXMjIjbir-GmUmPIMFVUtPmU4X?usp=drive_link The same methods, data, and assumptions selected for 2011-2020 are applied for 2021-2022. The shared folder includes these estimations through an updated calculation spreadsheet for 2011-2022 that accompanies this Technical Annex. See section 6 of this Technical Annex for more information.
Para 6. A description of how the elements contained in decision 4/CP.15, paragraph 1(c) and (d), have been taken into account	The estimation of forest-related emissions and removals follows the latest IPCC guidance and guidelines and is based on field inventory data collected in 1992, as well as remote sensing information used to classify all lands in the country, including forests, since the year 2000 annually. Further, this technical annex includes information on uncertainties, also following IPCC guidance and guidelines. See section 7 of this Technical Annex for more information.

1. Summary information from the assessed Forest Reference Level

1.1 Rationale and scale of the FRL

Belize's FRL is expressed in tonnes of carbon dioxide equivalent per year (tCO_2e/yr) and is based on a historical average of net forest emissions and removals over the ten-year benchmark period 2011–2020. It was developed using methodologies based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the 2019 Refinement, incorporating nationally collected data compiled annually according to IPCC land-use and land-use change categories and subcategories

The FRL includes all REDD+ activities referenced in decision 1/CP.16, paragraph 70, covering all forest-related sources and sinks. It incorporates all IPCC-defined carbon pools Above-Ground Biomass (AGB), Below-Ground Biomass (BGB), Soil Organic Carbon (SOC), and Dead Organic Matter (DOM)as well as the principal forest-related greenhouse gases (CO_2, CH_4, and N_2O).

The FRL is national in scale, encompassing all forest areas and forest area changes within Belize's territory (22,110 km^2). Forest area was estimated at approximately 1,410,335 hectares in 2020, representing 64 per cent of the national territory. The FRL applies to the period 2021–2025, corresponding to the first half of Belize's initial Nationally Determined Contribution (NDC) implementation period.

Detailed information on the inclusion of activities, carbon pools, and greenhouse gases in the Modified Forest Reference Level is provided in Section 3.2.2 and Tables 7, 8, 9, and 10.

2. Historical emissions and removals during the reference period and FRL values.

The current Forest Reference Level (FRL) of Belize is based on the historical average of the net balance of greenhouse gas (GHG) emissions and removals from emissions sources and sinks related to forest, expressed in tonnes of carbon dioxide equivalent (see table 2).

Table 2. Forest-related emissions and removals as reported through Belize's FRL.

Year	Net emissions and removals ($tCO_2eq./yr$)	FRL ($tCO_2eq./yr$)
2011	10,456,769	
2012	-3,462,918	
2013	-4,972,786	
2014	-5,689,648	
2015	-4,047,974	
2016	113,994	
2017	-3,223,897	
2018	-7,936,838	
2019	-1,955,528	
2020	-1,470,521	
2021		-2,218,935
2022		-2,218,935
2023		-2,218,935
2024		-2,218,935
2025		-2,218,935

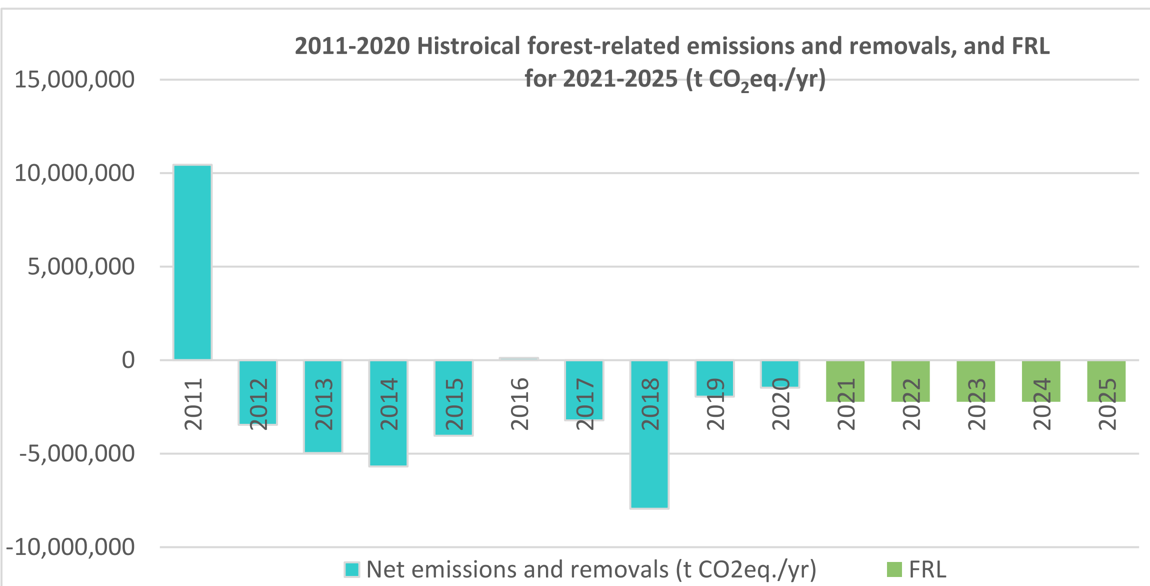

Figure 1. Historical forest related emission and removals 2011-2020 and FRL for 2021-2025(tCO_2e).

2.1 IPCC methodologies applied

For the construction of the FRL, Belize followed the 2006 IPCC Guidelines and its 2019 refinements. The gain-loss method was used to estimate historical emissions and removals for forest land remaining forest land, while the carbon stock difference method (on a per hectare basis) was applied to land converted to a new land-use category.

Table 3. IPCC methods and assumptions applied for the estimation of forest-related emissions and removals.

Carbon pools and greenhouse gases	Forest land remaining Forest land	Forest land conversions & Land converted to Forest land
CO_2- Biomass	Gain and loss method applied. *For gains*: IPCC equation 2.9. Refer to calculation sheet Land_ΔCO2. *For losses*: IPCC equations 2.11-2.14. Calculation sheet Land_ΔCL.	Stock difference method applied using IPCC equations 2.15 and 2.16. Refer to calculation sheet Land_ΔCO2. All biomass is assumed to be oxidized in the year of conversion.
CO_2- Dead organic matter	IPCC's tier 1 assumption adopted: no changes occur.	Stock difference method applied using IPCC equation 2.23. Refer to calculation sheet Land_ΔCO2. DOM is assumed to oxidized over a period of 20 years following land conversion.
CO_2- Soil organic carbon	IPCC's tier 1 assumption adopted: no changes occur.	Stock difference method applied using IPCC equation 2.25. Refer to calculation sheet Land_ΔCO2. SOC is assumed to oxidize over a period of 20 years following land conversion.
Non-CO_2	IPCC equation 2.27 applied for CH_4 and N_2O. Refer to calculation sheet Land_ΔCL.	No fires occurring in land transitions. All fires occur in Forest land remaining Forest land.

2.2. Forest definition & Land representation

The forest definition for the FRL and for purposes of estimating REDD+ results is the same: areas with a minimum canopy cover of 30% or higher, tree height of 5 meters or higher, covering an area of at least 0.5 hectares or more. This definition is the same for purposes of the national GHG inventory submitted through the BTR, ensuring consistent representation of forest areas.

All lands were defined as managed according to IPCC's definition of managed lands, since Belize effectively implements policies and measures impacting the use of all national lands, including forests.

Land representation corresponds to approach 3 of the IPCC, according to the 2006 IPCC guidelines for national GHG inventories. Table 3 of the modified FRL submission provides information on the land use categories and subcategories. The IPCC six main land use category is divided according to many factors please reference the modified FRL submission section 4.4 Land Representation and Definitions.

Land use and land use data was obtained using the CfRN LUA app, derived from FAO's Collect Earth application. A systematic, sampling grid was established with 21,993 plots every 1 km covering the entire national territory with equal sampling probability. Belize developed a protocol for land use assessment, including rules for classification, impossible transitions (modified FRL submission section 4.5.1, figure 6 page 76-77) and roles and tasks for data collection, as well as interpretation keys. The full protocol can be found in the shared folder.

2.3 Activity data (AD) for land use and land use change

Activity data (AD) for all land use classes during the historical period 2011-2020 were derived from remote sensing products generated by the Forest Department, Climate Change Office, National Biodiversity Office and University of Belize. The data, covering the entire country, were collected between July and October 2023 following the systematic sampling approach recommended in the 2006 IPCC Guidelines (approach 3 for land representation). Belize used the Land Use Assessment application developed by the Coalition for Rainforest Nations to access and analyze the satellite images over time. The land-use assessment was performed by national experts over a four-month period in 2023 using the Land Use Assessment application, which provides access to satellite imagery of different resolutions, such as Planet NICFI, Sentinel–2, Landsat 7 and 8, Bing Maps, MODIS and Google Earth Pro, as well as the Normalized Difference Vegetation (NDVI) and Water Indices, which help the national team to assess land use, land-use changes and disturbances over time.

Detailed information is available in the Modified Forest Reference Level Submission, Section 4.7 *Plot Analysis with Support Images.*

2.4 Disturbance Matrix

The main disturbances or effects on forests were established/prioritized, reflecting the influence of productive sectors as a priority. Once prioritized, operational definitions were established and a matrix of disturbance effects by land use category was evaluated and established, to facilitate their interpretation within the framework of unique criteria. In the modified FRL submission section 4.5.2 and Figure 7 shows the prioritized disturbances and their relationship to the possibility or impossibility of affecting the different categories of land use defined.

2.5 Emission and removal factors (EF, RF)

The estimation of the emissions and removal used a combination of (a) country-specific methods and data, (b) IPCC methodologies and (c) emissions factors (EFs). The methods were consistent with the 2006 IPCC guidelines for national greenhouse gas inventories and are to the extent possible in line with international practices. IPCC tier 1, 2 and 3 were applied.

Detailed information is available in the Modified Forest Reference Level Submission, Section 4.*8.1 – 4.8.6.*

2.6 GHG calculation tool to enable reconstruction

To allow for the reconstruction of national GHG emissions, a Microsoft Excel calculation tool was developed for the FRL including the time-series 2011-2020, for which REDD+ are being presented in this technical annex. The calculation tool includes the following tabs:

- **Introductory** - Explanation of each sheet
- **2a. Land Representation** - Description of Land Use and Land Use change Categories
- **2b. Transitions** - Land Use and Land Use Change Matrix
- **2c. Disturbance** - Matrix of possible and impossible disturbance
- **3a. AD-Database** – Activity Data (area)
- **3c. Pivot AD** – Summary of Activity Data
- **4. SOC** – Soil Organic Carbon
- **LUC Matrices** – Land Use Change Matrices
- **Disturbance Matrices** – Results/Analysis
- **EF-Values** – Carbon stocks values used and the conversion of these values into emission factors and removal factors
- **Gain eq 2.9** – Changes in Carbon stock (Removals)
- **Losses eq 2.14** – Changes in Carbon stock (Emissions)
- **Conversions eq 2.16** – All conversion between categories and subcategories
- **DOM eq 2.23** – Changes in Carbon in Dead Organic Matter
- **NON-CO_2 eq 2.27** (CH4 & N20)
- **SOC eq. 2.25 Changes in Carbon in Dead Organic Matter**
- **Result All LU – Emissions and removal results for all land use categories and pools**
- **FRL 2011-2020**

2.7 Technical assessment of the FRL

The original FRL submission was submitted to the UNFCCC secretariat on 10th January 2024 in accordance with decision 12/CP.17 and 13/CP.19. The technical assessment took place from 18 to 22 March 2024 in Bonn. As a result, Belize provided a modified version of its submission on 20 January 2026, which took into consideration the technical input of the assessment team (AT). The final report was made available by the UNFCCC secretariat on the UNFCCC website (April 17th, 2026).

2.8 Estimating and accounting for REDD+ results

2.8.1 Achieved REDD+ Results

The FRL presented in the submission corresponded to -2,218,935, tonnes of carbon dioxide equivalent per year (tCO_2e e/yr) for years 2021, 2022, 2023, 2024, 2025. For 2021, emissions were 5,001,627 tCO_2e less than the expected average and for 2022 emissions were 2,926,429 tCO_2e less than the expected average. Together for 2021 and 2022 this resulted in a total of 7,928,056 tCO2e emissions less than the expected average (see table 4 and figure 2).

Table 4. Comparison of Belize GHG net emissions and removals (tCO_2e/yr) for 2021-2022, Belize FRL values 2021-2022 and the difference between GHG and FRL values produce the Results for Belize.

Year	Net emissions and removals (tCO_2e./yr)	FRL (tCO_2e./yr)	Net emissions and removals (tCO_2e./yr)	REDD+ Results (tCO_2e./yr)
2011	10,456,769			
2012	-3,462,918			
2013	-4,972,786			
2014	-5,689,648			
2015	-4,047,974			
2016	113,994			
2017	-3,223,897			
2018	-7,936,838			
2019	-1,955,528			
2020	-1,470,521			
2021		-2,218,935	-7,220,562	5,001,627
2022		-2,218,935	-5,145,363	2,926,429
Total				7,928,056

2.8.2 Uncertainty of REDD+ Results

In accordance with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, uncertainty estimation is a fundamental component of a complete greenhouse gas (GHG) inventory of emissions and removals. Belize therefore conducted uncertainty assessments for emission factors, activity data, and total emissions and removals across relevant land-use categories to enhance the transparency, accuracy, and credibility of its national reporting. The identification of key sources of uncertainty also supports the prioritization of future data collection efforts and the continuous improvement of the national GHG inventory and REDD+ reporting framework.

For the 2021–2022 reporting period, Belize performed a quantitative uncertainty analysis using Approach 1 (Error Propagation), as prescribed in Volume 1, Chapter 3 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

The application of this methodology required the prior determination of uncertainty estimates for the primary inventory parameters, activity data (AD) and emission factors (EF), which serve as the inputs for the error propagation equations used to derive the overall uncertainty for each category.

To estimate total uncertainty, the IPCC Guidelines provide two principal equations depending on how uncertain quantities are combined. Equation 3.1 is applied when uncertain quantities, such as emission factors, activity data, and other estimation parameters, are combined through multiplication, while Equation 3.2 is used when uncertain quantities are combined through addition or subtraction (IPCC 2006 Guidelines, Volume 1, Chapter 3). Through the application of these equations, Belize estimated uncertainties associated with emission factors, activity data, and total emissions and removals, thereby strengthening the robustness and reliability of the national GHG inventory estimates.

Eq. 3.1. COMBINING UNCERTAINTIES – APPROACH 1 – MULTIPLICATION

$$U_{total} = \sqrt{U_1^2 + U_2^2 + \ldots + U_n^2}$$

Where:

Utotal = the percentage uncertainty in the product of the quantities.

Ui = the percentage uncertainties associated with each of the quantities.

Eq. 3.2. COMBINING UNCERTAINTIES – APPROACH 1 – ADDITION AND SUBTRACTION

$$U_{total} = \frac{\sqrt{(U_1 \bullet x_1)^2 + (U_2 \bullet x_2)^2 + \ldots + (U_n \bullet x_n)^2}}{\left| x_1 + x_2 + \ldots + x_n \right|}$$

Utotal = the percentage uncertainty in the sum of the quantities (half the 95 percent confidence interval divided by the total land expressed as a percentage). This term ‘uncertainty’ is thus based upon the 95 percent confidence interval.

xi and Ui = the uncertain quantities and the percentage uncertainties associated with them, respectively.

Total uncertainty results were estimated at 48.7% for 2021 and 43.4% for 2022.

Table 5. Uncertainty Results – 2021

Category	*Emissions/Removals [tCO_2e]*	*Uncertainty [%]*
A) Forest land Remaining in the same category (Undisturbed	-9,869,768	65.11
B) Forest land Remaining in the same category (Disturbed)	136,839	10.89
C) Land converted to Forest lands	-342,816	2.40
D) Forest lands converted to other lands uses	2,855,184	9.18
NET BALANCE EMISSIONS AND REMOVALS	**-7,220,562**	**48.71**

Table 6. Uncertainty Results – 2022

Category	*Emissions/removals [tCO_2e]*	*Uncertainty [%]*
A) Forest land Remaining in the same category (Undisturbed)	-9,755,471	65.75
B) Forest land Remaining in the same category (Disturbed)	371,285	5.22
C) Land converted to Forest lands	-229,710	6.02
D) Forest lands converted to other lands uses	4,468,533	12.83
NET BALANCE EMISSIONS AND REMOVALS	**-5,145,363**	**43.44**

2.8.3 Uncertainty of Activity Data

Activity data (AD) uncertainty was primarily associated with interpretation error arising from the land-use assessment, which relied on the visual interpretation of systematically sampled plots. This interpretation error was quantified for each land-use category based on the proportion of misclassified sample units identified during the accuracy assessment, and the corresponding uncertainty values applied to each category are presented in the table below. The quality control procedures implemented during the land-use assessment complemented the interpretation error analysis by strengthening the reliability of the dataset and supporting the estimation of activity data uncertainty. Once uncertainties for activity data and emission factors (EF) were determined, total uncertainty was calculated using the error propagation method in accordance with Approach 1 described in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

To enhance the reliability and consistency of the dataset, a multi-level Quality Assurance/Quality Control (QA/QC) system was implemented during the validation phase of the Land Use Assessment (LUA). This process included weekly data reviews to identify impossible land-use transitions, misclassified disturbances, and low-confidence interpretations. Inconsistent and duplicate plot assessments were independently re-evaluated to prevent self-validation bias, and a structured decision logic was applied to resolve conflicting classifications. As part of these checks, an additional 5% quality control sample revealed 795 plots with three different assessments that required reassessment. These plots were evenly redistributed among interpretation teams, and a dedicated “re-assessed” option was integrated into the LUA application to clearly track revised evaluations and improve transparency. The decision logic prioritized plots without duplicates, plots with matching classification codes among duplicates, or those marked as reassessed; where no clear resolution existed, plots were flagged for further reassessment.

Additional validation procedures were also undertaken to further strengthen data integrity. A total of 250 plots with impossible transitions or incorrectly assigned disturbances and 233 plots labeled as having no confidence were reviewed by technical experts, while additional plots requiring validation were identified during data entry. To further assess interpretation accuracy, Belize conducted a comparative analysis between the 2018 and 2023 Mapathon datasets using the same systematic grid and plot identifiers (21,993 plots of 0.5 ha spaced 1 km apart and interpreted using Collect Earth Desktop). After aligning plot identifiers and attributes, a confusion matrix was developed, resulting in an overall interpretation accuracy of 89%, with 11% disagreement. Most discrepancies occurred within Forestland classifications, partly reflecting improved imagery availability in 2023, differences in interpretation timing, and refinements to the classification protocol. Nevertheless, the comparison demonstrated strong overall consistency, with Forestland subclass analysis showing 97% agreement (12,632 of 13,075 plots) between the two assessment periods.

Table 7. Plot Interpretation Agreement / Disagreement.

Plot Interpretation Agreement/Disagreement	Plot Count	Percentage
Yes	19561	89%
No	2432	11%
Total	21993	100%

In addition to overall accuracy, interpretation errors and accuracy metrics were also calculated for each vegetation category, providing a more detailed assessment of classification performance across land-use classes. The results are presented on the table below.

Table 8. Class-Specific Interpretation Accuracy.

Land use category	Number of Sample Units Evaluated	Number of Misclassified Units	Interpretation Error (%)	Accuracy (%)
Forestlands				
MBL	11,958	11,652	2.56	97.44
SBL	263	197	25.10	74.90
PINE	223	172	22.87	77.13
MAN	623	604	3.05	96.95
PLANTF	84	7	12.50	87.50
Croplands				
CSHIFTAGR	2,107	1,6944	19.60	80.40
INTAGR	2,107	1,694	19.60	80.40
CFALL	2,107	1,694	19.60	80.40
Grasslands				
GPAST	4,513	3,235	28.32	71.68
GSHRUB	4,513	3,235	28.32	71.68
GSAVOPEN	4,513	3,235	28.32	71.68
GSAVSHRUB	4,513	3,235	28.32	71.68
GSAVTREE	4,513	3,235	28.32	71.68
GSUBM	4,513	3,235	28.32	71.68
GFT	4,513	3,235	28.32	71.68
GABDP	4,513	3,235	28.32	71.68
Wetlands				
WWET	1,509	1,256	16.77	83.23
WIWB	1,509	1,256	16.77	83.23
Settlements				
SC	366	297	18.85	81.15
STOWN	366	297	18.85	81.15
SV	366	297	18.85	18.15
SO	366	297	18.85	81.15
SR	366	297	18.85	81.15
SM	366	297	18.85	81.15
SAQC	366	297	18.85	81.15
SOI	366	297	18.85	81.15
Other lands				
OBS	6	4	33.33	66.67
OROCK	6	4	33.33	66.67

2.8.4 Uncertainty of Emission/removal factors

Uncertainties associated with emission and removal factors were estimated using national statistical data, expert judgment, peer-reviewed literature, and IPCC default values where applicable. The corresponding uncertainty ranges and assumptions are described in the methodological section of the Forest Reference Emission Level (FREL), where all parameter values used in this report are documented.

These uncertainties arise primarily from variability in field measurements, differences in data sources, and the representativeness of available sample plots and studies (table 9). For instance, mangrove emission factors compiled from multiple national studies show an average above-ground biomass (AGB) of 60.6 t.d.m/ha with a confidence interval of 35.05%, below-ground biomass (BGB) of 47.0 t.d.m/ha with a confidence interval of 96.36%, and soil organic carbon (SOC) of 319.5 tC/ha with a confidence interval of 16.57%, reflecting differences in methodologies and ecological conditions among datasets summarized in the relevant tables.

Carbon Stock	Unit	Class	Belize Blue Carbon	Belize Rookeries	UB ERI CARICOM	Beers Twin Cays	Forest Department	Avg carbon stock /ha
AGB	Mg/ha	Tall	146.66		95.08			115.3
		Medium	99.77	105.87	65.92	104.46	86.32	92.0
		Dwarf	52.48			18.07	62.94	43.2
BGB	Mg/ha	Tall	114.68		84.60			99.6
		Medium	44.76	65.35	48.98	78.60		59.4
		Dwarf	23.47			50.65		37.1
SOC (to 1 m)	tC/ha	Tall	431.49					431.5
		Medium	429.12			417.45		423.3
		Dwarf	151.03			386.5		268.8

Table 9: Biomass calculation for the different studies.

Carbon pool	Unit	Statistic	Class	Avg carbon stock/ha	95% CI
AGB	Mg/ha	Average (all types)	All Types	60.6	35.05%
BGB	Mg/ha	Average (all types)	All Types	47.0	96.36%
SOC	tC/ha	Average (all types)	All Types	319.5	16.57%

Table 10: Overall mangrove biomass values by carbon pools.

Similarly, pine forest estimates derived from permanent sample plots indicate an average AGB of 117.28 t.d.m/ha with a 40.45% confidence interval, while Deadwood was estimated to be 1.46 t.d.m/ha (See Table 9). Above ground biomass calculation for Pine and other carbon pools), was then converted to (tC/ha) by multiplying by 0.47, resulting in a value of 0.68 tC/ha, with a confidence interval of 53.2%.(see table 11), and the annual biomass increment is 1.94 t.d.m/ha/yr with a confidence interval of 146.5%, highlighting the influence of limited sampling and disturbance history on removal factors (see table 12).

Carbon Stock	Variable	Unit	Statistic	MPR Priv 2	MPR Flor	SBFR 2	RBCMA	Avg AGB/ha	95% CI	Comments
Live AGB Tree	AGB / plot	Mg/ha	Sum Total	65.72	156.61	69.80	110.23	100.59	41.3%	
Live AGB Saplings	AGB / plot	Mg/ha	Sum Total	1.25	0.00	0.00	0.01	0.31	194.4%	
Live AGB HDWDS Tree	AGB / plot	Mg/ha	Sum Total	2.11	17.53	0.64	0.88	5.29	151.6%	
Live AGB HDWDS Sapling	AGB / plot	Mg/ha	Sum Total	0.00	5.25	16.25	0.25	5.44	137.0%	
Grass, Shrubs, Ferns	AGB / plot	Mg/ha	Sum Total	5.65	5.65	5.65	5.65	5.65	42.6%	*in order to account for understory - assume all understory is grass and that pine basal area is negligible
Live AGB	**AGB / plot**	**Mg/ha**	**Sum Total**	**74.73**	**185.04**	**92.34**	**117.02**	**117.28**	**40.4%**	
Litter	AGB / plot	Mg/ha	Sum Total	na	na	na	na	na	na	
FWD	AGB / plot	Mg/ha	Sum Total	na	na	na	na	na	na	
DW Tree/Stump AGB	AGB / plot	Mg/ha	Sum Total	1.11	2.40	0.57	1.77	1.46	53.2%	
DW Sapling AGB	AGB / plot	Mg/ha	Sum Total	0.00	0.00	0.00	0.00	0.00	na	
DW	**AGB / plot**	**Mg/ha**	**Sum Total**	**1.11**	**2.40**	**0.57**	**1.77**	**1.46**	**53.2%**	

Table 11: Above-ground biomass calculation for Pine and other carbon pools.

Carbon Stock	Variable	Unit	Statistic	MPR Priv 1	MPR Priv 2	SBFR 1	SBFR 2	ΔAGB yr-1	95% CI
Live AGB Tree	AGB / plot	Mg/ha	Sum Total	65.23	65.72	66.41	69.80	1.94	146.5%

Table 12: Pine Annual Increment.

For secondary broadleaf forests, estimates show 239.53 t.d.m/ha of AGB with a 32.78% confidence interval, litter biomass of 3.02 t.d.m/ha (1.42 tC/ha) with a 33.25% confidence interval, and deadwood of 27.37 t.d.m/ha (12.86 tC/ha) with a 22.03% confidence interval, illustrating how variability across carbon pools contributes to overall uncertainty. Additional parameters used in the estimation process, including carbon fraction values (generally 0.47, and 0.45 for mangroves), below-ground to above-ground biomass ratios (0.37 for most forests and 0.49 for mangroves), and growth rates for different forest types (e.g., 3.18 for mature broadleaf forests, 1.94 for pine, and 9.90 for mangroves), further influence emission and removal estimates. Together, these values demonstrate how methodological choices, data availability, and ecological variability contribute to the uncertainty associated with Belize's emission and removal factors.

Carbon Stock	Variable	Unit	Statistic	VFR	GSCP	HCNP	Mean SBL Plot level AGB	SBL AGB Mg/ha	Unit
Litter	AGB within plot	kg/m2	Mean	0.2115	0.4136	0.282	0.30	3.02	tons/ha
		%	95% CI	0.256	0.165	0.162	33.2%	0.33	95% CI
FWD	AGB within plot	kg/m2	Mean	0.35	0.37	0.52	0.41	4.13	tons/ha
		%	95% CI	0.257	0.227	0.316	22.0%	0.22	95% CI
CWD	AGB within plot	Mg/2000m2	Mean	3.31	1.28	2.38	2.32	23.23	tons/ha
		%	95% CI	na	na	na	42.9%	0.43	95% CI
DW	AGB within plot	kg/m2	Mean	1.7202	0.7755	1.363	1.29	12.86	tons/ha
		%	95% CI				22.0%	0.22	95% CI
Understory	AGB within plot	kg/m2	Mean	0.117	0.265	0.106	0.16	1.63	tons/ha
		%	95% CI	0.698	1.58	1.021	53.5%	0.53	95% CI
Saplings	AGB within plot	Mg/50m2	Total	0.742	0.386	0.1635	0.43	4.31	tons/ha
		%	95% CI	na	na	na	66.4%	0.66	95% CI
Trees	AGB within plot	Mg/2000m2	Total	14.42	26.77	28.89	23.36	233.60	tons/ha
		%	95% CI	na	na	na	32.8%	32.8%	95% CI
Age (yrs)				16	29	30			
Understory, Saplings & Trees	AGB within plot	Mg/2000m2	Total	15.279	27.421	29.1595	23.95	239.5316667	tons/ha
		%	95% CI				32.8%	32.8%	95% CI
								SBL EFs	AGB/ha
								AGB	239.53
								Litter	1.42 tC/ha
								DW	27.37

Table 13: Secondary Broadleaf Forest Carbon Pool Biomass calculation.

Detail information on the emission and removal factors is available in section 4.8.3 – 4.8.6 of the modified FRL submission

2.8.5 Propagation of Uncertainty in Annual Emission and Removal Estimates

The uncertainties for each land-use sub-category were aggregated to determine the total uncertainty for the *Forest Land Remaining Forest Land* category, as well as for *land conversions to and from Forest Land*. This integration was performed by applying the error propagation method (Equation 3.2) as previously described.

The following tables provide a summary of the uncertainty analysis for the 2021 and 2022 inventory years, respectively.

Net Emissions/Removals and Uncertainty Analysis (2021)

Category	Emissions/removals [tCO_2e]	Uncertainty [%]
A) Forest land Remaining in the same category (Undisturbed)	-9,869,768	65.11
B) Forest land Remaining in the same category (Disturbed)	136,839	10.89
C) Land converted to Forest lands	-342,816	2.40
D) Forest lands converted to other lands uses	2,855,184	9.18
NET BALANCE EMISSIONS AND REMOVALS	**-7,220,562**	**48.71**

Net Emissions/Removals and Uncertainty Analysis (2022)

Category	Emissions/removals [tCO_2e]	Uncertainty [%]
A) Forest land Remaining in the same category (Undisturbed)	-9,755,471.47	65.75
B) Forest land Remaining in the same category (Disturbed)	371,285.08	5.22
C) Land converted to Forest lands	-229,709.58	6.02
D) Forest lands converted to other lands uses	4,468,532.55	12.83
NET BALANCE EMISSIONS AND REMOVALS	**-5,145,363.41**	**43.44**

2.8.6 Belize National Forest Context

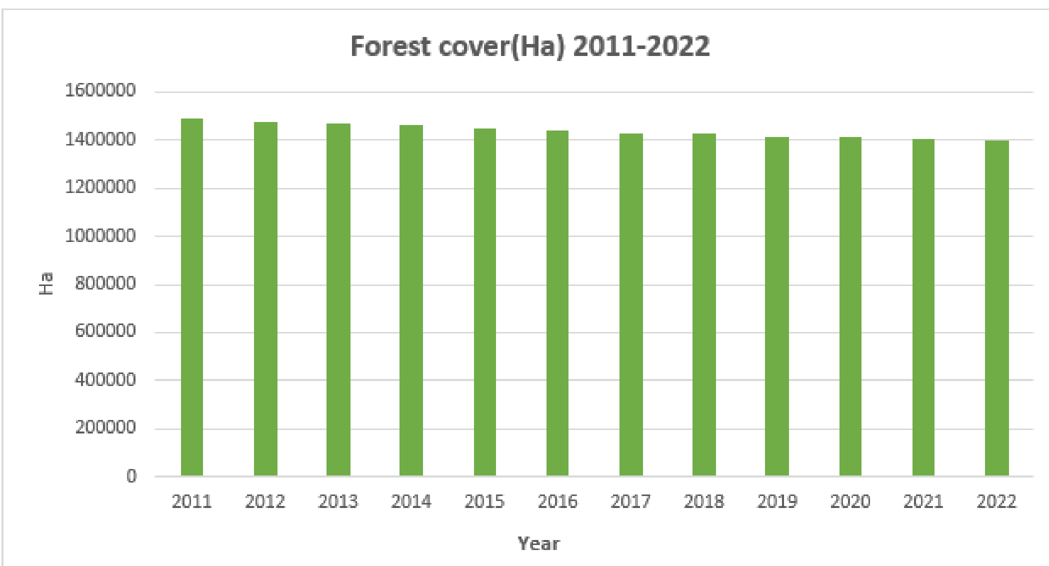

Figure 2. Forest Cover for the period 2011- 2022.

The forestry sector remains vital to Belize's economy and environmental sustainability, supporting timber production, non-timber forest products, and essential ecosystem services. Under the Forest Land Remaining Forest Land category is comprising mature broadleaf, secondary broadleaf, pine, mangrove, and plantation forests. National forest cover decline consistently shows a consistent decline, decreasing from 1,489,855 hectares in 2011 to 1,399,981 hectares in 2022, reflecting a net loss of 89,874 hectares (approximately 6%). This reduction is primarily driven by agricultural expansion and land conversion, alongside urban development, infrastructure expansion, and unsustainable or illegal logging. Despite these pressures, the Government remains committed to sustainable forest management through conservation initiatives, community engagement, and the promotion of practices that balance economic development with the long-term protection and resilience of Belize's forest ecosystems.

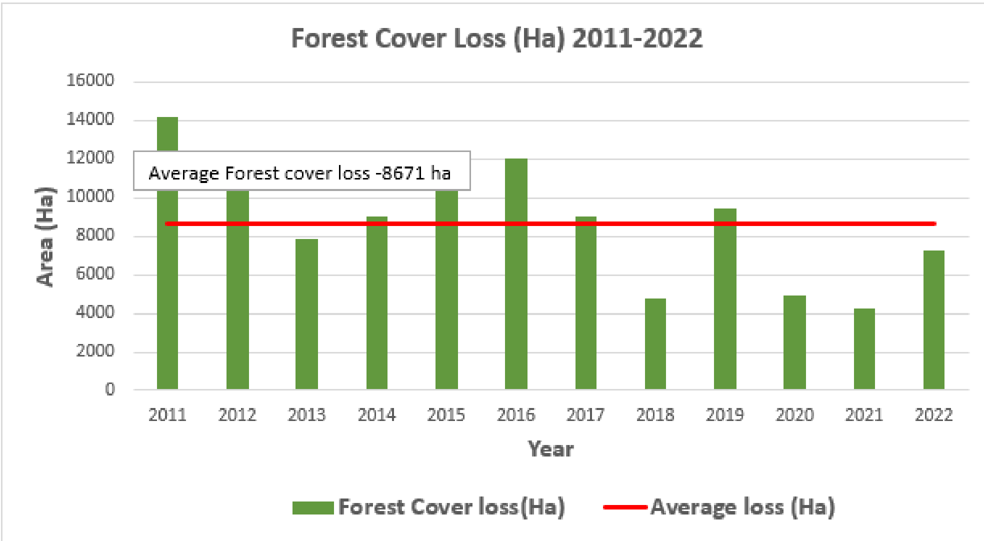

Figure 3. Forest Cover Loss (2011-2022).

The figure above shows that between 2011 and 2022; annual forest cover fluctuated over time but remained consistently significant relative to the long-term average. The highest losses were recorded in 2011 (14,174 ha) and 2016 (12,064 ha), while comparatively lower losses occurred in 2018 (4,725 ha), 2020 (4,926 ha), and 2021 (4,222 ha) see table 5. The calculated average annual forest loss for the period is 8,671 hectares. Although several years reflect losses below this average, the overall pattern points to sustained and ongoing pressure on forest resources. This trend underscores the importance of reinforcing forest governance frameworks, strengthening land-use planning processes, and implementing targeted sustainable management interventions to effectively address and reduce continued deforestation.

Year	Forest Cover (Ha)	Forest Cover Loss (Ha)	Average Loss (Ha)
2011	1,489,855	14,174	8671
2012	1,479,198	10,657	8671
2013	1,471,357	7,841	8671
2014	1,462,309	9,048	8671
2015	1,451,653	10,656	8671
2016	1,439,590	12,064	8671
2017	1,430,542	9,048	8671
2018	1,425,817	4,725	8671
2019	1,416,367	9,450	8671
2020	1,411,441	4,926	8671
2021	1,407,219	4,222	8671
2022	1,399,981	7,238	8671

Table 9. Forest Cover, Forest Cover loss and average loss from 2011-2022.

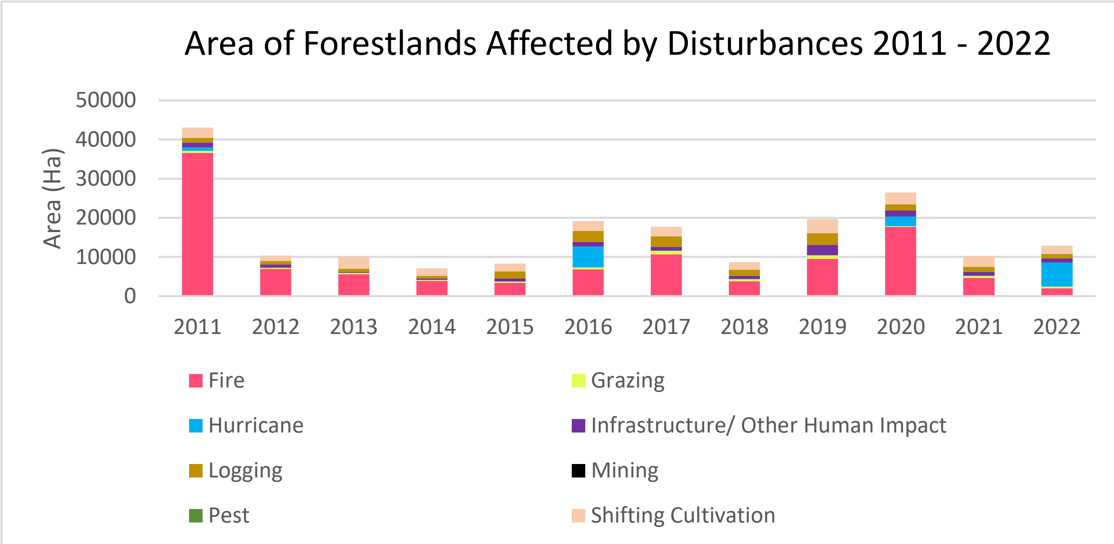

Figure 4. Illustrates area of forestlands affected by disturbances 2011-2022.

The figure above presents both natural and anthropogenic disturbances for the period 2011–2022. Fire represents the most significant disturbance, with the highest peak recorded in 2011, affecting 36,593 hectares, followed by 2020 with 17,693 hectares and 2017 with 10,656 hectares. Hurricanes rank as the second most impactful disturbance, with the greatest impact observed in 2022, affecting 6,132 hectares, and in 2016, affecting 5,328 hectares. Shifting cultivation constitutes the third major disturbance, with the highest recorded impacts in 2019, affecting 3,619 hectares, and in 2013 and 2019, each affecting 3,016 hectares.

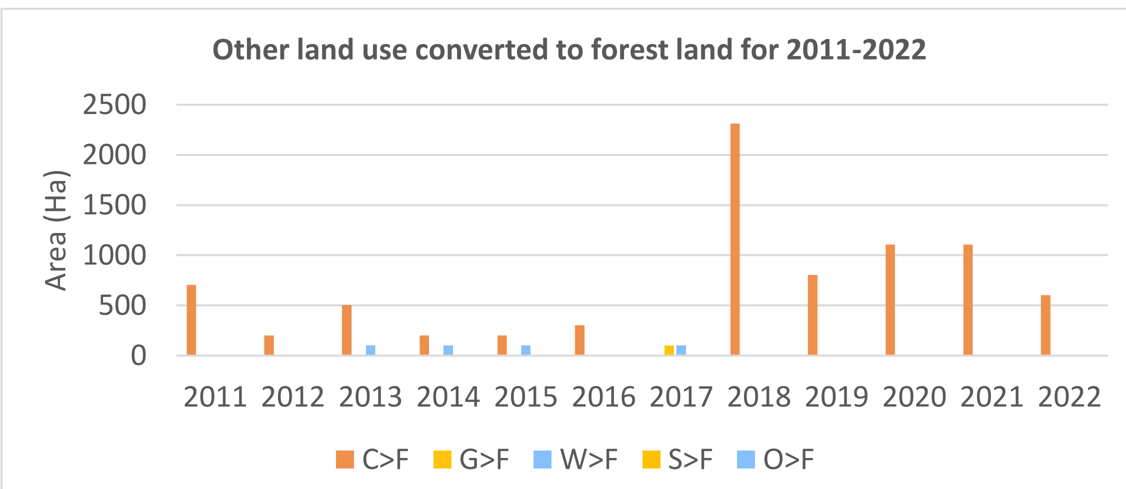

Figure 5. Illustrates Forest gain for the period 2011-2022.

The image above illustrates forest gain for the period 2011–2022. This gain reflects the conversion of land from cropland, grassland, wetland, settlement, and other land-use categories to forest land. The highest level of conversion to forest occurred from cropland in 2018, followed by wetland conversions between 2013 and 2016, and grassland conversion in 2017.

3. Demonstration that the methodologies used to produce the results are consistent with those used to establish the Forest Reference Level.

This Technical Annex is fully consistent with Belize's second modified FRL submission and includes references to that report, which outlines the methodological framework applied for the assessment period 2021–2022. The REDD+ results presented herein for 2021–2022 are measured against this second modified FRL (see the BEL Foundational Platform, sheet "FRL 2011–2022"), which was developed using a historical average approach in accordance with UNFCCC guidance and national circumstances.

The FRL was initially submitted on 10 January 2024, pursuant to decision 13/CP.19, and was subsequently technically modified on 21 January 2026 to enhance methodological consistency, transparency, and alignment with the most recent IPCC guidance. The draft TAR was shared with the Party on 10 March 2026, and the final report will be made publicly available on the UNFCCC website upon completion of the assessment process.

For the construction of this FRL, as well as for the National GHG Inventory included in Belize's first Biennial Transparency Report (BTR) and the estimation of the REDD+ results annexed thereto, a systematic sampling grid approach was adopted to ensure consistent and unbiased spatial representation across the national territory. Belize's total land area was calculated at 22,110 km² using ArcGIS Pro and official district shapefiles obtained from the Lands Information Center of Belize, forming the basis for grid development.

Through a systematic selection process conducted in Google Earth Engine, 21,993 sample plots were generated at 1 km × 1 km intervals nationwide. Each 0.5 ha plot is subdivided into 49 equal points, with each point representing two percent, enabling detailed estimation of land use and land-use change within each plot (see figure 7). This approach, which is encouraged for national GHG inventory applications, simplifies implementation, avoids spatial clustering or gaps, and ensures comprehensive national coverage, with the resulting sample size providing a statistically robust foundation for land-use and REDD+ assessments.

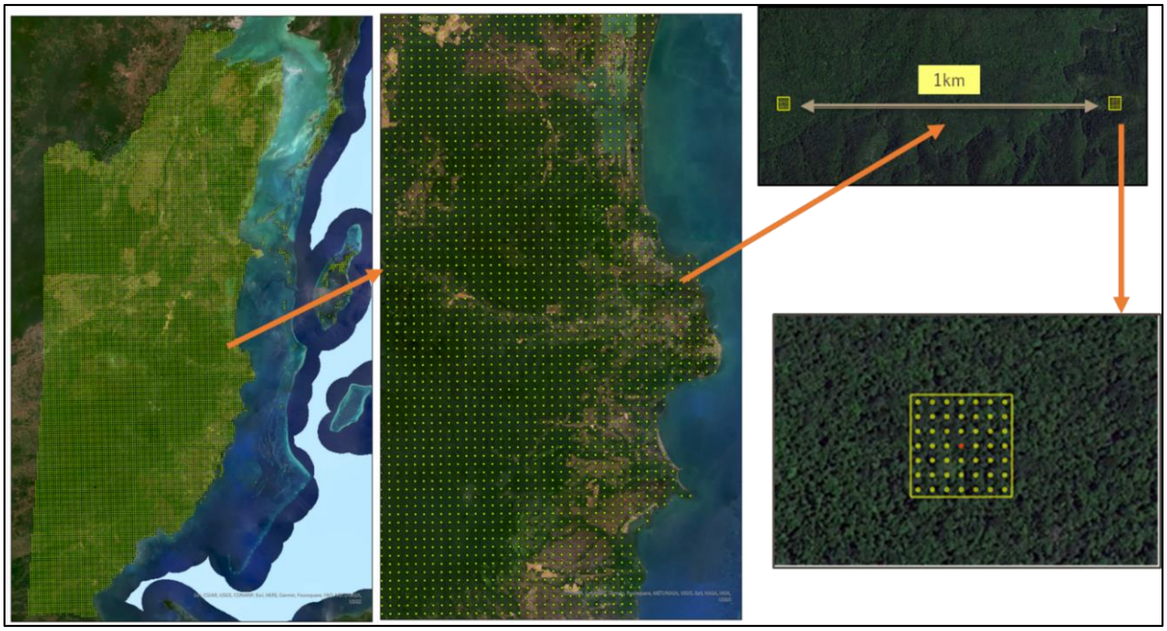

Figure 6. Belize Systematic grid design.

The modified FRL report provides a detailed description of the land classification system, its definitions, and other operational parameters applied during data collection for the years 2011–2020 *(reference section 4. Methodological process for estimating GHG emissions and removals: Belize Modified Forest Reference Level Report 2000-2020).* The information was collected during a single campaign (in 2020), and the same land-use classification was consistently applied across all years of the time series.

3.1 Time Series

The tool allows for a consistent year-to-year estimation of the following:

- Time series of the National GHG inventory 2011-2022 for category 3B biomass burning as part of IPCC category 3C.
- FRL uses the historical reference period 2011-2020 as the basis.
- REDD+ results for 2021 and 2022 are included in this technical annex.

Consistency is also demonstrated through the construction of continues time series, without gaps or overlaps or erratic behaviors. This time series relevant to REDD+ in Belize are presented below in the graphical form.

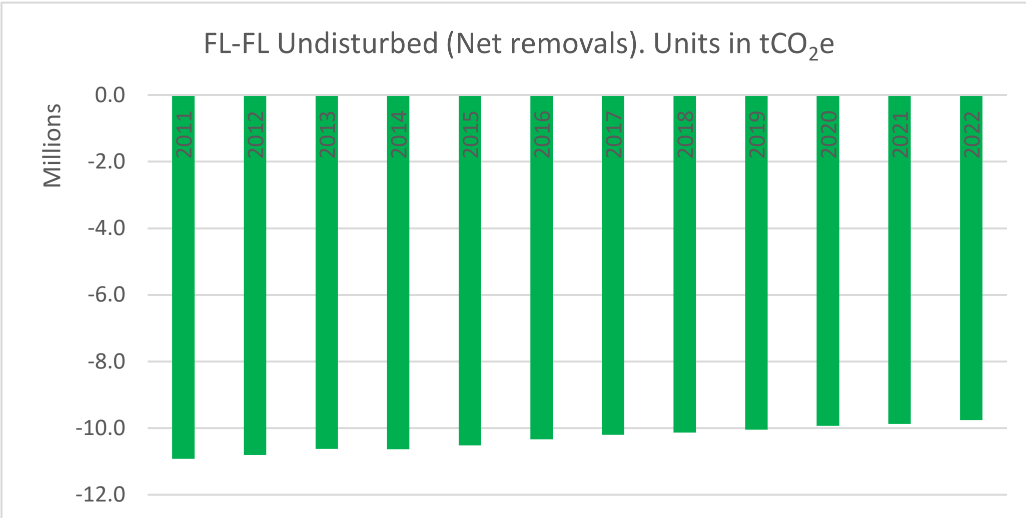

Figure 8. Forest land remaining Forest land undisturbed 2011-2022.

The above figure 8 illustrates a slight decline in carbon dioxide equivalent removals within Forest Land remaining Forest Land for the period 2011–2022, attributable to forest cover loss.

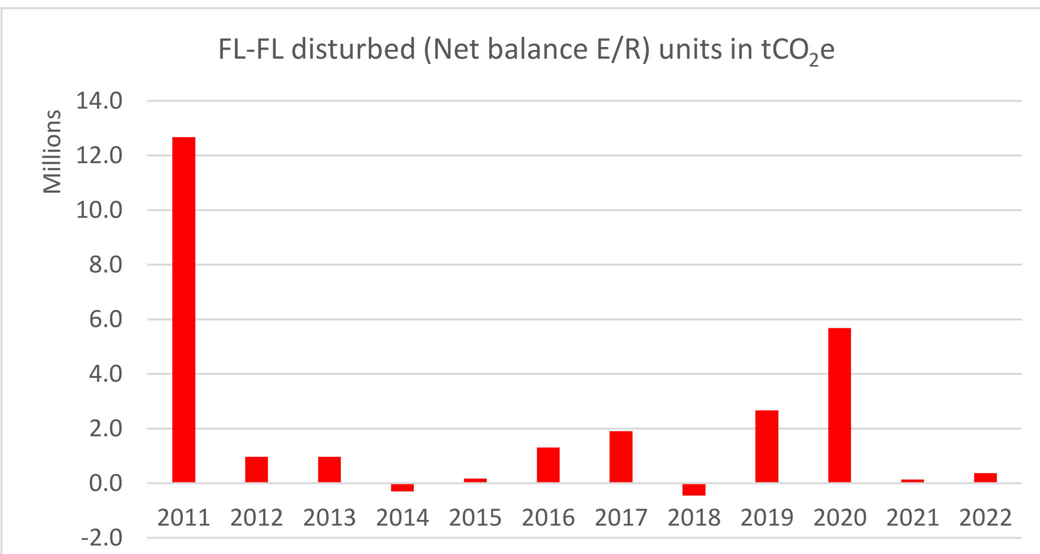

Figure 9. Forest land remaining Forest land disturbed 2011-2022.

The above figure 9 illustrates fluctuations in emissions and removal resulting from both natural and anthropogenic disturbances within Forest Land remaining Forest Land over the study period 2011–2022. The highest peak, recorded in 2011 (12,671,292 tCO_2e), is primarily attributed to fire disturbance, with a comparable trend observed in 2020 (5,686,782 tCO_2e) (see Figure 5). The second most significant source of disturbance is associated with hurricanes (see figure 5), followed by shifting cultivation.

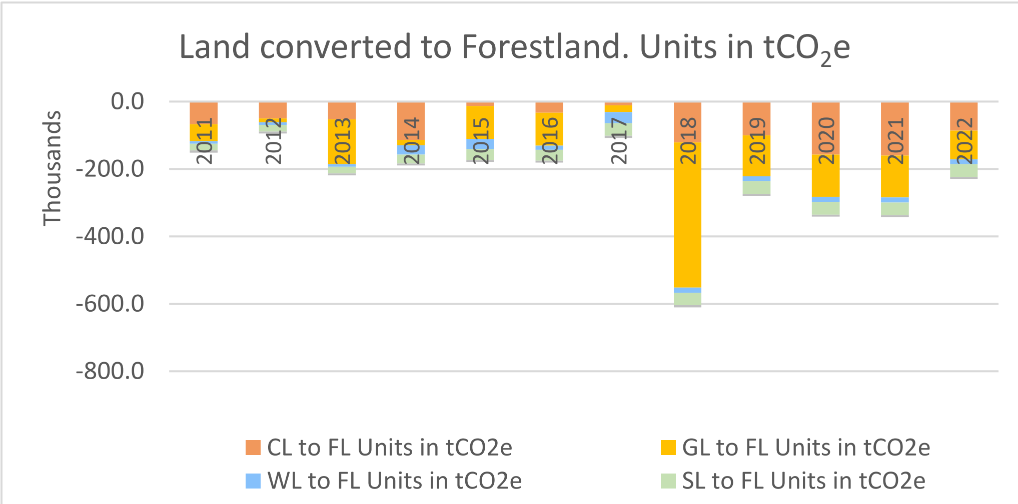

Figure 10. Land converted to Forest land for the period 2011-2022.

The above figure 10 illustrates the cumulative annual removal associated with the conversion of other lands uses to forest land, with the highest level of conversion recorded in 2018(-610,112 tCO_2e), followed by 2022(-229,709 tCO_2e) and 2020(-341,329 tCO_2e). These conversions may be attributed to the impacts of climate variability, including prolonged drought conditions and reduced rainfall, particularly affecting the agricultural sector, as well as the closure of the fishing industry due to disease outbreaks, which contributed to the expansion of mangrove cover.

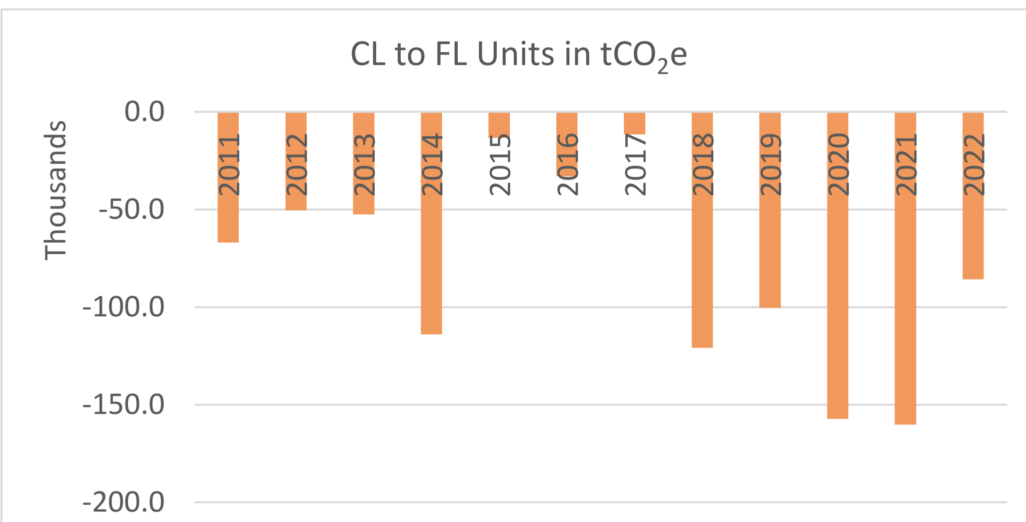

Figure 11 Cropland converted to Forest land for the period 2011-2022.

The above figure 11 illustrates fluctuations in removals associated with the conversion of cropland to forest land, with the highest peaks recorded in 2018 (-120,944 tCO_2e), 2019(-100,345 tCO_2e), 2020(-157,339 tCO_2e), and 2021(-85,777 tCO_2e). These conversions may be attributed to the impacts of climate variability, including prolonged drought conditions and reduced rainfall, which limited water availability for cultivation and compelled farmers to transition to alternative land uses.

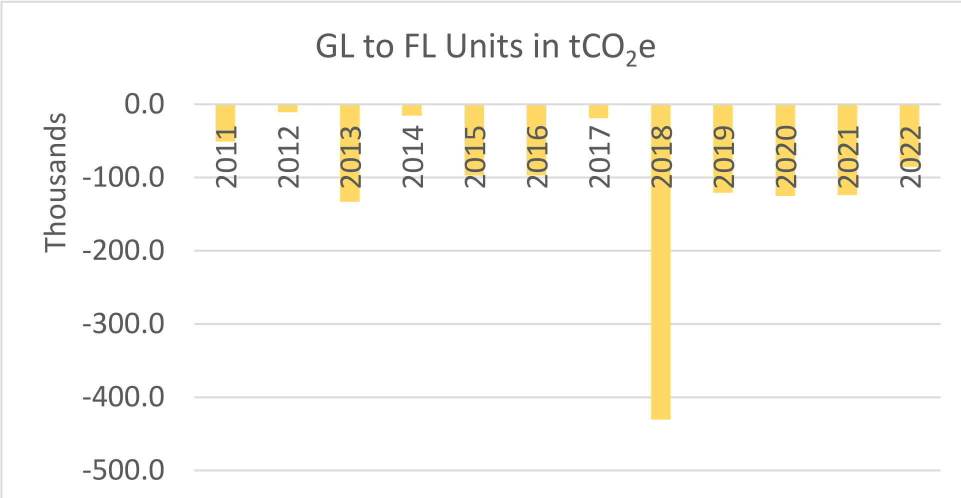

Figure 12 Grassland converted to Forest Land for the period 2011-2022.

The above figure 12 illustrates fluctuations in removals associated with the conversion of grassland to forest land, with the highest peak recorded in 2018 (−443,065 tCO_2e). For the period 2019–2021, removals reflect a relatively stable average of −123,537 tCO_2e. These conversions may be attributed to the impacts of climate variability, including prolonged drought conditions and reduced rainfall, which limited water availability for cultivation and compelled farmers to transition to alternative land uses.

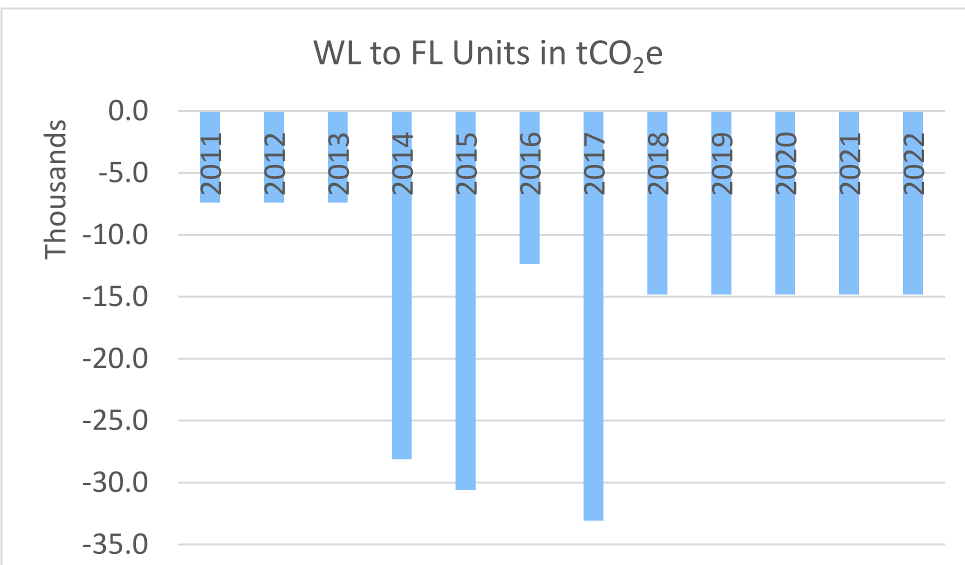

Figure 13 Wetland converted to Forest Land for the period 2011-2022.

The above figure 13 illustrates removals associated with the conversion of wetlands to forest land, with the highest peak recorded in 2017 (−33,069 tCO_2e), followed by 2015 (−30,599 tCO_2e) and 2014 (−28,128 tCO_2e). For the period 2018–2022, removals remained relatively stable, with an average of −14,823 tCO_2e. This trend can be attributed to sea level rise, which has facilitated saltwater intrusion and created favorable conditions for the expansion of mangrove cover.

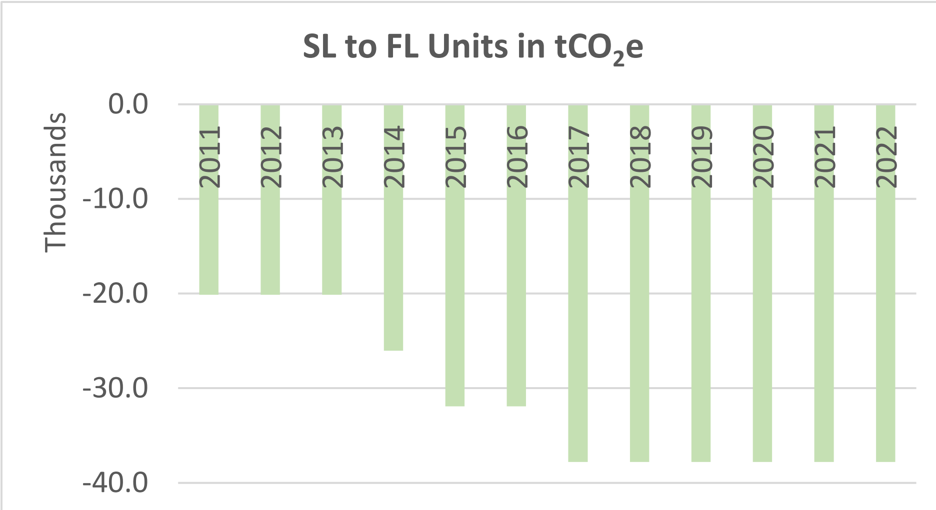

Figure 14. Settlement converted to Forest land for the period 2011-2022

The above figure14 illustrates removals (tCO_2e) associated with the conversion of settlement to Forest land. For the years 2011,2012 and 2013 saw an stable average of -20,136 tCO_2e and for the year 2014 to 2015 there was a flactuation which later on in the year 2017 to 2022 saw an stable average of -37,801 tCO_2e. This trend can be attributed to the expansion of mangrove cover resulting from the abandonment of aquaculture activities.

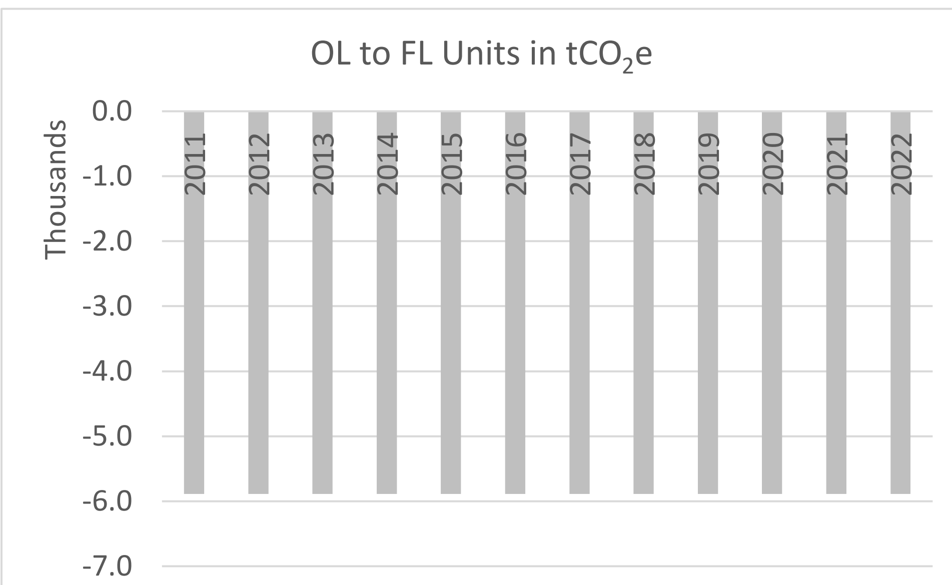

Figure 15 Otherland converted to Forest land for the period 2011-2022

The above figure 15 illustrates removals (tCO_2e) associated with the conversion of Other Land to Forest Land. Over the study period 2011–2022, removals remained relatively stable, with an average of −5,888 tCO_2e. This trend may be attributed to the conversion of beaches and sand dunes to mangrove ecosystems.

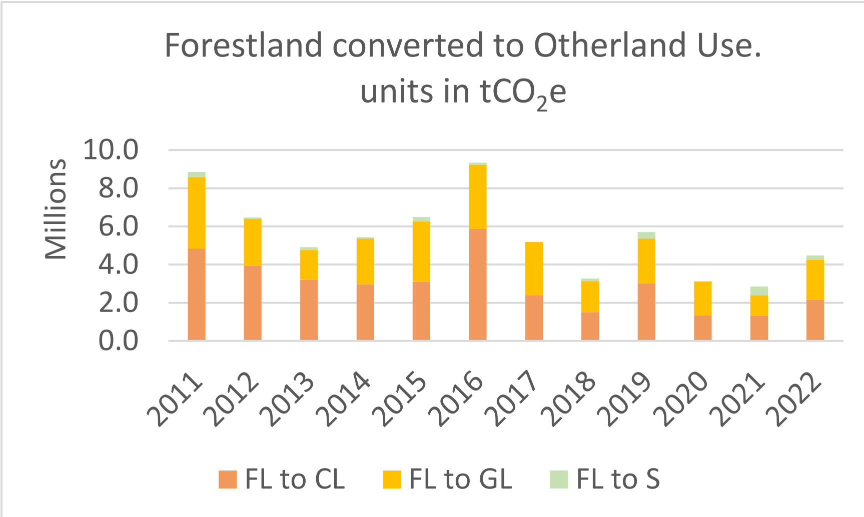

Figure 16. Forest land converted to other land for the period 2011-2022.

The above figure 16 illustrates emissions (tCO_2e) associated with the conversion of Forest Land to other land uses (Cropland, Grassland, and Settlements) over the period 2011–2022. The figure indicates notable fluctuations throughout the study period, with the highest peaks recorded in 2011 (8,853,340 tCO_2e) and 2016 (9,330,375 tCO_2e). These increases may be attributed to post-hurricane impacts, during which land clearing activities were undertaken by farmers to prepare areas for agricultural production.

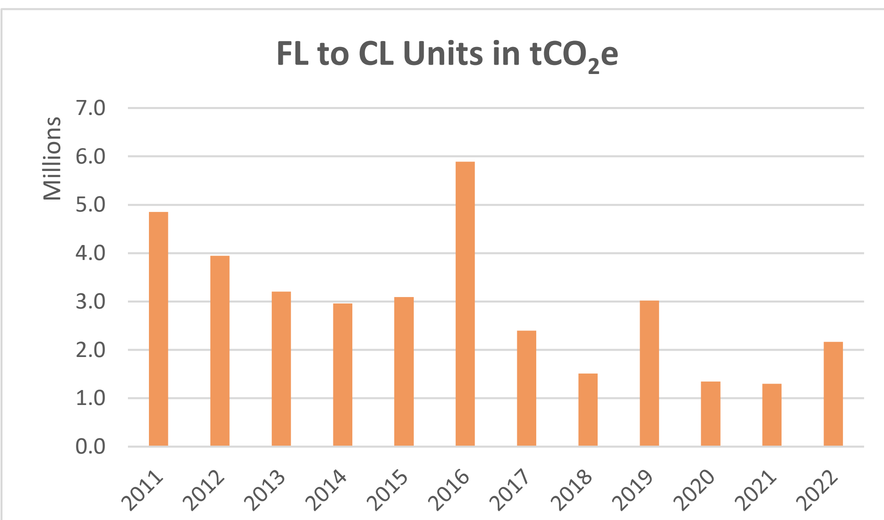

Figure 17. Forest land converted to Cropland for the period 2011-2022.

The above figure 17 illustrates fluctuations in emissions (tCO_2e) associated with the conversion of forest land to cropland. The highest level of emissions was recorded in 2026, with a value of 5,890,224 tCO_2e, while the lowest level occurred in 2021, at 1,298,936 tCO_2e. This decline may be attributed to the impact of the COVID-19 pandemic on the export of goods and services.

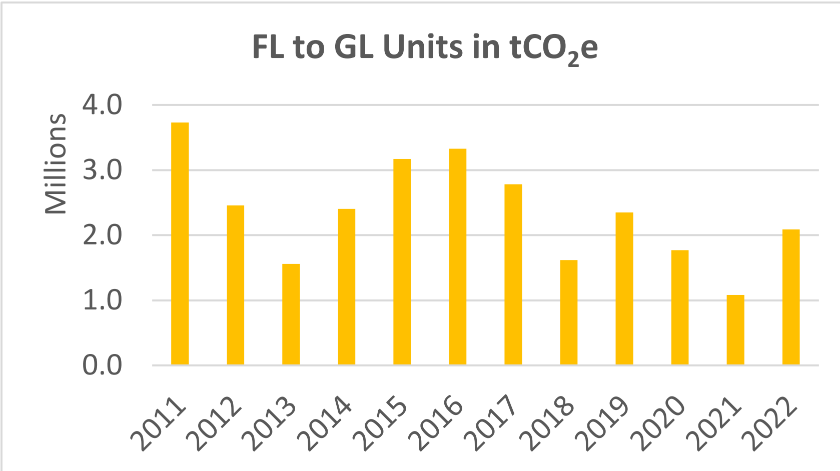

Figure 18. Forest land converted to Grassland for the period 2011-2022.

The above Figure 18 illustrates fluctuations in emissions (tCO_2e) associated with the conversion of forest land to grassland. The highest emission levels were recorded in 2011 (3,729,788 tCO_2e), 2015 (3,171,573 tCO_2e), and 2016 (3,329,653 tCO_2e). These peaks can be attributed primarily to areas severely affected by wildfires, particularly within the Mountain Pine Ridge Forest Reserve, where impacted areas did not fully recover, allowing ferns to proliferate and alter land cover. Hurricanes also contributed to these trends. In affected areas, particularly on privately owned lands, farmers applied for logging permits to extract forest products and subsequently converted the land to pasture for livestock production, a growing industry in Belize.

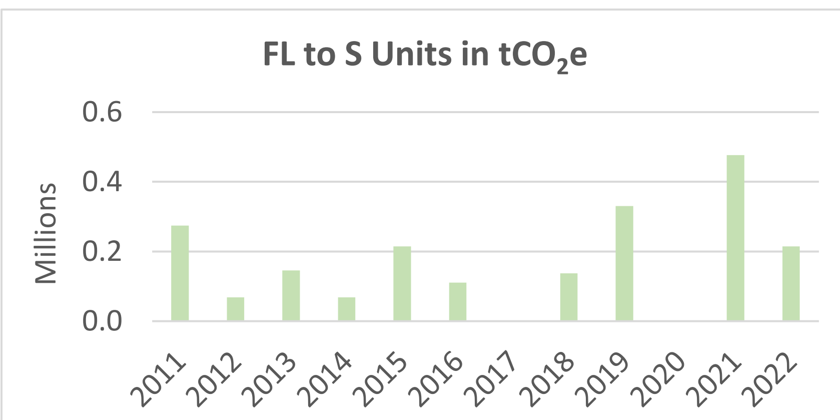

Figure 19. Forest land converted to Settlement for the period 2011-2022.

The above Figure 19 illustrates fluctuations in emissions (tCO_2e) over the study period. The highest emission peaks were recorded in 2011 (274,657 tCO_2e), 2019 (330,325 tCO_2e), and 2021 (476,344 tCO_2e). These increases can be attributed primarily to the expansion of villages and the development of other infrastructure categorized as urban construction. Such developments do not fall within the other defined settlement subcategories and include structures such as telecommunications antennas, power lines, and similar infrastructure.

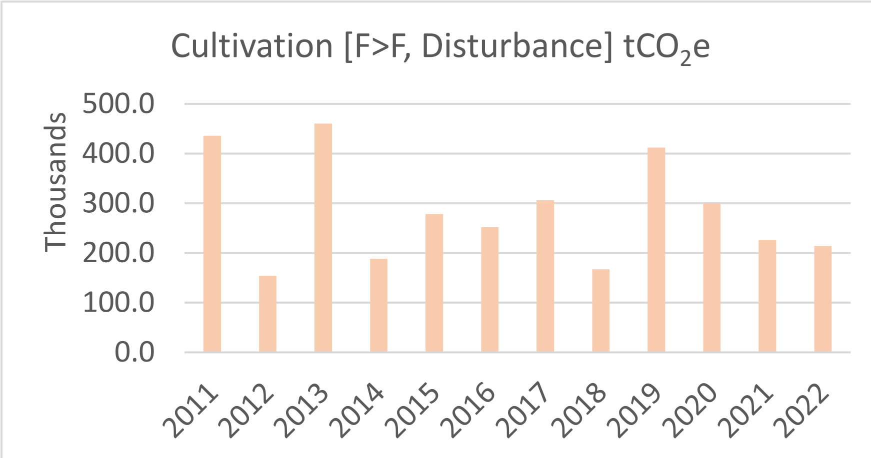

Figure 20. Forest land disturbed by cultivation for the period 2011-2022.

The graph shows the trend of emissions from Cultivation (Forest to Forest disturbance) measured in tCO_2e from 2011 to 2022. Overall, emissions fluctuate throughout the study period, with notable peaks occurring in 2011, 2013, and 2019, where emissions exceeded 400 thousand tCO_2e. The highest recorded value appears around 2013, followed closely by 2019. Conversely, lower emission levels are observed in 2012, 2014, and 2018, indicating periods of reduced disturbance. After the peak in 2019, emissions decline gradually from 2020 to 2022, suggesting a reduction in cultivation-related forest disturbance during the later years of the period.

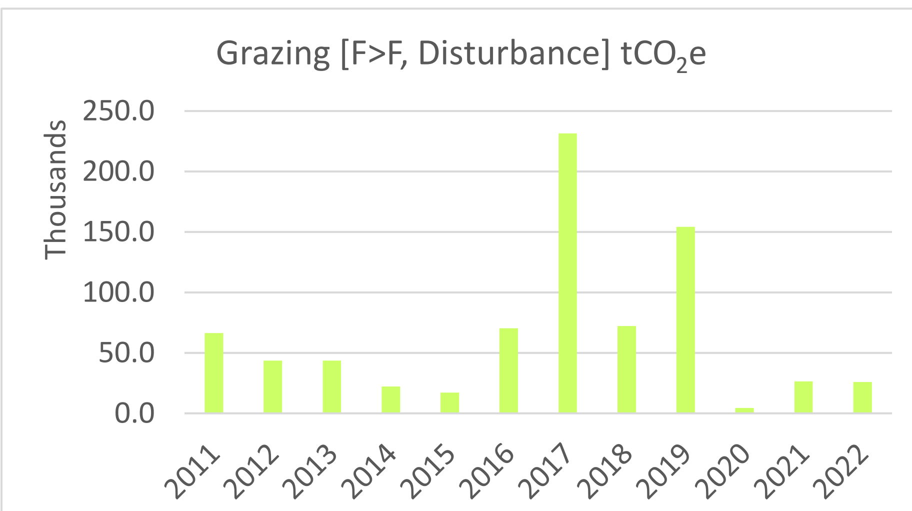

Figure 21. Forest land disturbed by Grazing for the period 2011-2022.

The time series of grazing-related emissions in Belize from 2011–2022 shows substantial variability, reflecting fluctuating grazing pressure and periodic pasture expansion. Emissions declined steadily from 66,376.9 tCO_2e in 2011 to 17,165.6 tCO_2e in 2015, suggesting reduced land conversion or stabilization of previously disturbed areas. This was followed by a sharp increase, peaking in 2017 at 231,556.9 tCO_2e, likely associated with significant expansion of grazing lands and the conversion of forest or secondary vegetation to pasture, particularly in frontier agricultural areas such as Cayo and Orange Walk. After this peak, emissions fluctuated declining in 2018, rising again in 2019, and dropping sharply to 4,329.6 tCO_2e in 2020 with relatively low levels maintained through 2021–2022 this can be attributed to restriction in movements during the covid-19 pandemic. Overall, the pattern indicates that grazing-related emissions occur in episodic pulses rather than a consistent long-term trend.

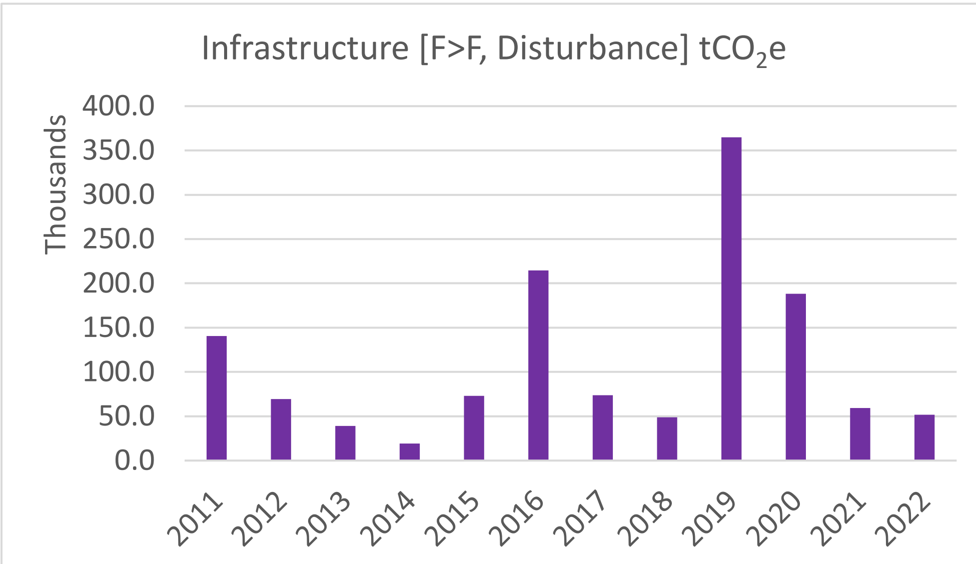

Figure 22. Forest land disturbs by infrastructure for the period 2011-2022.

Infrastructure-related disturbances constituted a consistent source of emissions from 2011 to 2022, characterized by notable temporal variability. Emissions declined significantly between 2011 and 2014, followed by a resurgence in 2015 and a marked increase in 2016, indicating renewed infrastructure development. After moderating during 2017–2018, emissions peaked in 2019 at 365,003.2 tCO_2e, the highest level in the series, likely reflecting intensified expansion activities.

From 2020 onward, emissions steadily decreased, reaching 51,647.5 tCO_2e by 2022. Overall, the trend highlights cyclical patterns of development and reduction, influenced in part by the implementation of policies promoting stricter building codes and enhanced resilience to natural disasters and furthermore due to the covid-19 pandemic that hit Belize in the March 2020 causing the restriction in movement and unemployment level increase.

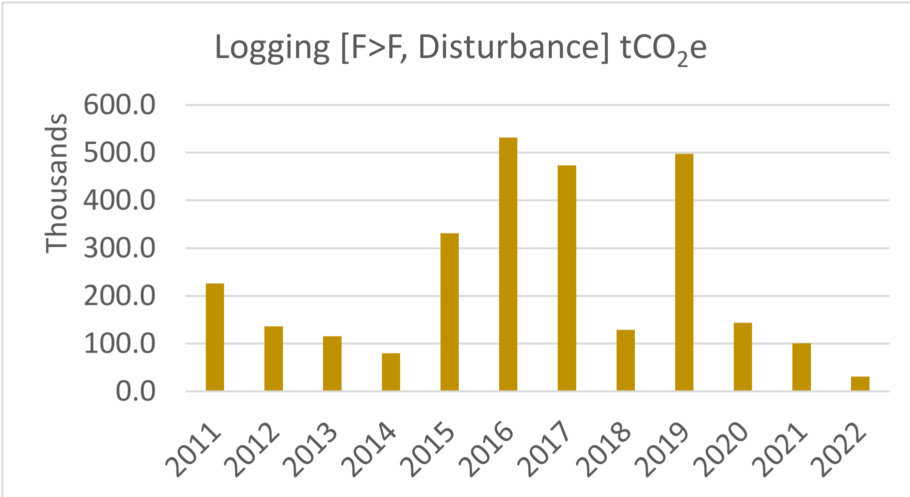

Figure 23. Forest land disturbed by logging for the period 2011-2022.

Figure 23 illustrates the temporal variability in emissions (tCO_2e) over the study period 2011–2022. The highest emission peaks were recorded in 2016 (531,509 tCO_2e), followed by 2017 (473,145 tCO_2e) and 2019 (128,805 tCO_2e), indicating periods of intensified activity contributing to elevated emissions levels.

From 2020 to 2022, emissions exhibited a consistent downward trend, reaching the lowest level of the time series in 2022. This decline can be attributed to a reduction in the issuance of logging permits, coupled with strengthened enforcement measures aimed at curbing illegal logging activities.

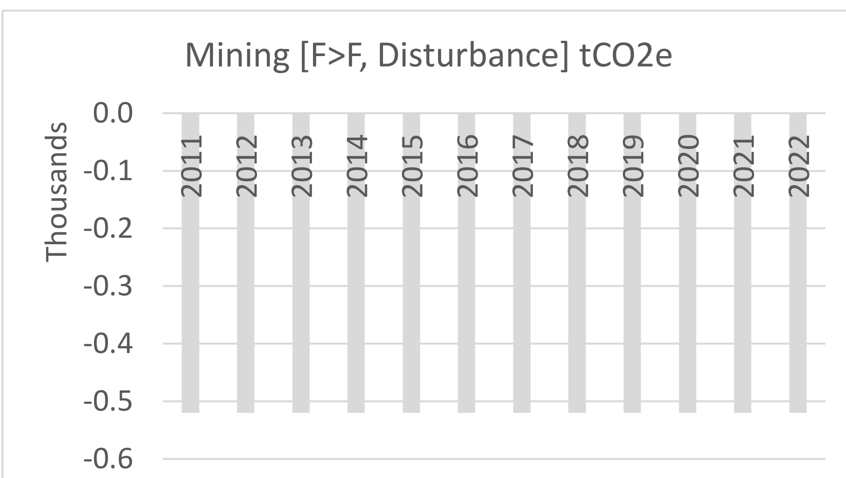

Figure 24. Forest land disturbed by Mining for the period 2011-2022.

The figure above illustrates a relatively stable trend in emissions (tCO_2e) over the study period 2011–2022. This consistency can be attributed to the limited scale of mining activities, reflecting the country's developmental context. Additionally, Belize's low population density approximately 18 persons per km² suggests a sparsely populated landscape, which further constrains large-scale extractive and infrastructure activities that typically drive higher emission levels.

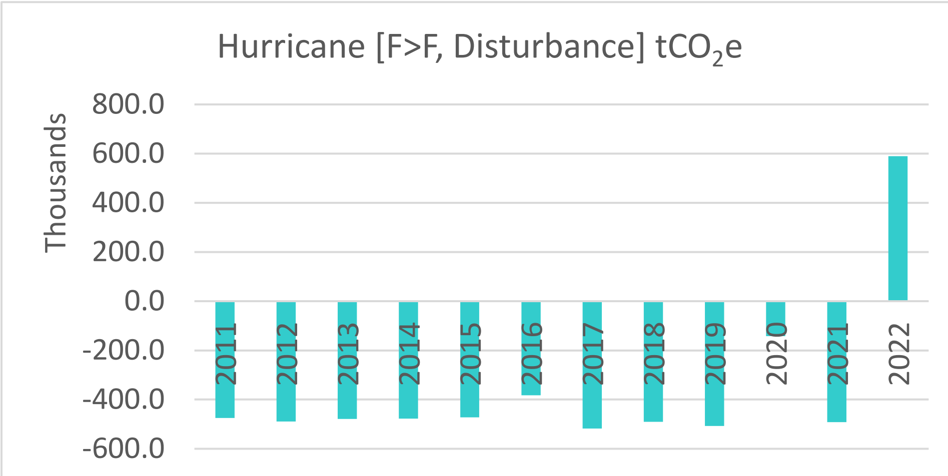

Figure 25. Forest land disturbed by Hurricane for the period 2011-2022.

The figure above illustrates fluctuations in carbon removals (tCO_2e) over the study period, reflecting the dynamic response of forest ecosystems to disturbance events. During this period, Belize experienced several significant tropical storms and hurricanes, including Hurricane Richard 2010 (Category 2), Hurricane Earl 2016 (Category 1), Hurricane Nana 2020 (made landfall as a minimal hurricane), and Hurricane Lisa 2022 (Category 1), causing extensive damage to homes, infrastructure, and forested areas within the Cayo and Belize district. The observed removals are closely associated with post-disturbance forest regeneration processes, whereby recovering vegetation exhibits enhanced carbon sequestration rates following hurricane impacts.

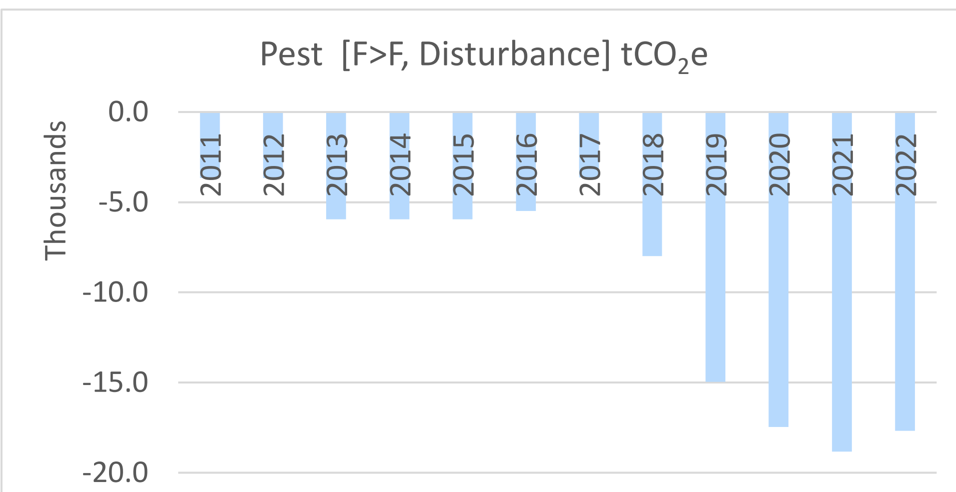

Figure 26. Forest land disturbed by Pest for the period 2011-2022.

Pest-related disturbances remained relatively low and stable between 2011 and 2015, indicating limited and consistent impacts during the early years of the time series. Moderate fluctuations occurred from 2016 to 2018, reflecting some variability in disturbance intensity. From 2019 onward, a marked increase in disturbance magnitude was observed, with impacts peaking in 2021 and remaining elevated in 2022. Overall, the data indicates that pest-related forest disturbances intensified after 2018, with the most significant impact occurring between 2019 and 2022.

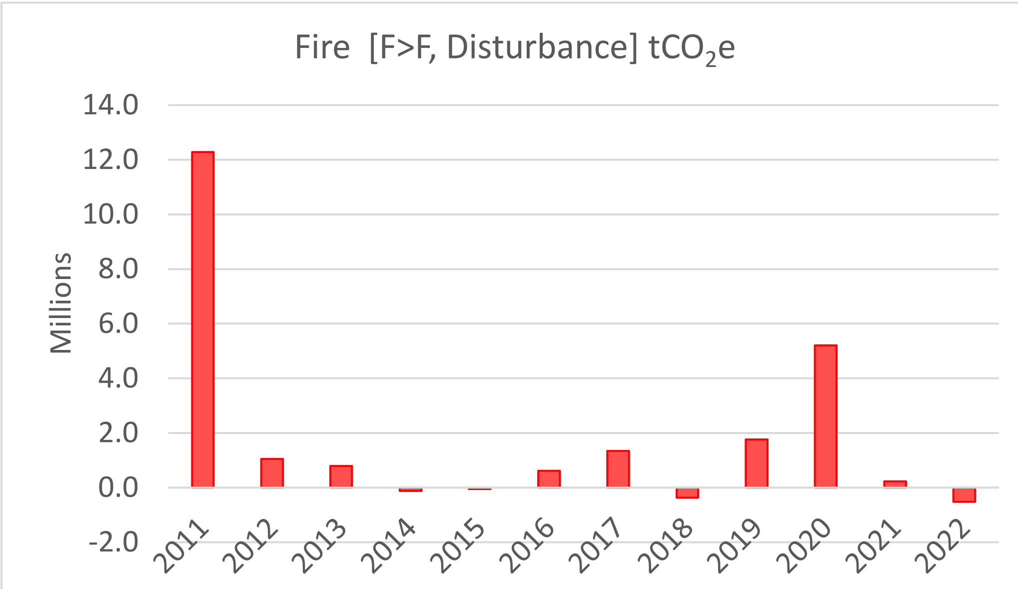

Figure 20. Forest land disturbed by Fire for the period 2011-2022.

The results indicate that fire as a disturbance within forest lands in Belize shows significant year-to-year variability between 2011 and 2022. The highest emissions occurred in 2011 (12,280,742.5 tCO_2e), representing a substantial peak in the time series. This increase can be partly explained by conditions following Hurricane Richard, whose aftermath left large amounts of woody debris on the forest floor, creating ideal fuel for wildfire propagation. These conditions were further intensified by the dry season, which likely facilitated the spread and intensity of fires[2]. After 2011, emissions declined considerably in 2012 (1,052,596.9 tCO_2e) and 2013 (790,632.7 tCO_2e), suggesting a reduction in fire extent and severity. After 2011, emissions declined considerably in 2012 (1,052,596.9 tCO_2e) and 2013 (790,632.7 tCO_2e), suggesting a reduction in fire extent and severity. Several years recorded negative values, including 2014, 2015, 2018, and 2022, indicating that carbon removals from forest regrowth exceeded emissions from fire disturbances during those periods. Moderate emission levels were observed in 2016, 2017, 2019, and 2021, reflecting intermittent fire activity. Another notable increase occurred in 2020 (5,211,198.9 tCO_2e), representing the second highest peak within the period. The subsequent declines in several years may be associated with improved wildfire management and prevention measures, including strengthened monitoring and early warning systems, increased coordination among, public awareness campaigns during the dry season, firebreak maintenance, and enhanced fire response capacity.

[2] Provisional Report on the Belize 2011 Wildfires (Afternath of Hurricane Richard); Jan Meerman. June.7.2011.

Table 10. Summary of Emissions and Removals by category contributing to REDD+ results for 2021 and 2022 [tCO_2e].

Years	Forest land remaining Forest land									Land Converted to Forest land					Forest land converted to Other land					Total
	Un Disturbed	Cultivation	Grazzing	Infrasturcture	Logging	Mining	Hurricane	Pest	Fire	CL>FL	GL>FL	WL>FL	SL>FL	OL>FL	FL>CL	FL>GL	FL>WL	FL>SL	FL>OL	
2000	-12,735,152.6	552,842.0	60,512.3	407,343.5	136,692.9	0	1860.7	5771.4	698962.6	0	0	0	0	0	323979.0	66124.5	0	0	0	-10,481,064
2001	-12,380,065.8	255,764.1	16,343.8	108,605.2	117,886.0	0	586118.524	7396.3	1046041.8	0	0	0	0	0	1086999.1	788060.8	0	61592.286	0	-8,305,258
2002	-12,208,458.5	573,396.0	142,147.6	235,051.3	103,510.5	0	-319651.151	42619.6	4154529.9	0	0	0	0	0	2191297.3	1778975.9	0	267585.04	0	-3,038,996
2003	-12,084,916.7	501,797.0	74,401.0	200,483.4	62,915.5	20857	-54846.7	-5060.9	3859873.3	0	0	0	0	0	2028055.4	1587607.8	0	159004.59	0	-3,649,830
2004	-12,036,212.9	92,175.0	35,011.7	99,012.1	28,005.2	-519.79	-361913.594	-5514.1	306301.0	0	0	-20716.8	-5888.5	0	1547606.1	1264846.7	0	336249.29	0	-8,721,559
2005	-11,962,407.2	88,491.7	73,043.7	154,922.2	103,599.3	-519.79	-356777.414	-5967.4	1655679.0	0	0	-2470.6	-5888.5	0	1395748.8	1219909.6	0	137328.5	0	-7,505,308
2006	-10,505,436.0	242,003.4	12,380.8	231,368.4	50,841.4	-519.79	-354425.744	-5967.4	1189017.5	-33339.3	-404.9	-2470.6	-5888.5	0	1584858.4	1551628.8	0	427438.48	0	-5,618,915
2007	-11,730,230.8	161,916.7	9,803.3	119,166.3	74,022.3	-519.79	-267763.132	19892.5	1592368.9	-3770.5	-404.9	-23187.4	-11777.1	0	1770618.4	0	0	196865.04	0	-8,093,000
2008	-11,666,142.5	643,482.5	46,101.4	66,739.2	44,112.8	-519.79	-388654.258	-7906.0	567363.4	-3770.5	-404.9	-25658.0	-38382.4	-5888.5	2851166.9	1532453.98	0	130256.54	0	-6,255,650
2009	-11,592,752.4	237,995.5	104,912.7	149,417.7	99,743.1	-519.79	-389648.237	-5489.1	673335.1	-2916.1	-110638.7	-7411.8	-20136.2	-5888.5	2155106.9	1771218.32	0	137328.5	0	-6,806,343
2010	-11,244,093.5	307,947.0	109,362.0	152,805.3	161,522.4	-519.79	31037.8	-6420.6	2126821.6	-2916.1	-48023.63	-7411.8	-20136.2	-5888.5	2240110.2	3247271.17	0	152305.97	0	-2,806,227
2011	-10,916,660.8	436,054.0	66,376.9	140,586.3	226,019.4	-519.8	-474,315.9	-3,651.0	12,280,742.5	-66,890.1	-50,875.8	-7,411.8	-20,136.2	-5,888.5	4,848,894.9	3,729,788.0	0	274,657.0	0	10,456,769
2012	-10,803,374.6	154,307.3	43,584.9	69,287.9	135,972.1	-519.8	-488,776.8	-3,651.0	1,052,596.9	-50,398.5	-10,830.3	-7,411.8	-20,136.2	-5,888.5	3,944,850.0	2,458,806.7	0	68,664.3	0	-3,462,918
2013	-10,625,941.7	460,507.1	43,708.4	39,106.8	115,301.1	-519.8	-478,686.8	-5,942.3	790,632.7	-52,509.9	-133,136.9	-7,411.8	-20,136.2	-5,888.5	3,203,237.3	1,559,185.3	0	145,709.5	0	-4,972,786
2014	-10,631,589.5	187,958.9	22,277.3	19,284.6	79,911.7	-519.8	-476,958.3	-5,942.3	-123,402.3	-113,920.6	-15,653.2	-28,128.6	-26,024.8	-5,888.5	2,958,343.9	2,401,939.4	0	68,664.3	0	-5,689,648
2015	-10,516,406.7	278,411.5	17,165.6	73,219.9	331,138.2	-519.8	-472,247.8	-5,942.3	-54,854.3	-13,380.1	-97,220.7	-30,599.1	-31,913.3	-5,888.5	3,095,116.3	3,171,573.3	0	214,373.8	0	-4,047,974
2016	-10,338,168.8	252,067.9	70,488.3	214,679.8	531,509.4	-519.8	-382,060.9	-5,489.1	621,895.6	-33,074.9	-97,554.1	-12,353.0	-31,913.3	-5,888.5	5,890,224.3	3,329,653.4	0	110,498.1	0	113,994
2017	-10,204,620.4	305,760.5	231,556.9	73,748.4	473,145.6	-519.8	-517,396.7	-3,626.0	1,346,609.9	-11,599.7	-19,261.3	-33,069.7	-37,801.9	-5,888.5	2,397,645.2	2,781,421.0	0	0.0	0	-3,223,897
2018	-10,136,313.8	166,968.0	72,117.5	49,008.1	128,805.4	-519.8	-490,110.3	-7,980.6	-371,781.0	-120,944.8	-430,653.9	-14,823.5	-37,801.9	-5,888.5	1,510,626.3	1,615,125.7	0	137,328.5	0	-7,936,838
2019	-10,048,751.9	411,983.9	154,197.2	365,003.2	497,555.1	-519.8	-507,302.1	-14,957.1	1,766,461.8	-100,345.7	-121,073.2	-14,823.5	-37,801.9	-5,888.5	3,021,511.8	2,348,896.9	0	330,325.8	0	-1,955,528
2020	-9,930,324.8	299,888.9	4,329.6	188,213.5	143,581.0	-519.8	-142,438.3	-17,471.1	5,211,198.9	-157,339.8	-125,475.9	-14,823.5	-37,801.9	-5,888.5	1,342,718.0	1,771,632.4	0	0.0	0	-1,470,521
2021	-9,869,768.3	226,448.8	26,461.2	59,322.0	100,689.1	-519.8	-491,484.3	-18,830.9	234,752.4	-160,239.2	-124,062.9	-14,823.5	-37,801.9	-5,888.5	1,298,936.2	1,079,903.8	0	476,344.3	0	-7,220,562
2022	-9,755,471.5	213,931.6	25,822.9	51,647.5	30,871.9	-519.8	589,807.7	-17,676.6	-522,600.1	-85,777.8	-85,417.8	-14,823.5	-37,801.9	-5,888.5	2,163,113.4	2,091,045.4	0	214,373.8	0	-5,145,363
Period 2011-2020	-10,415,215.3	295,390.8	72,580.3	123,213.8	266,293.9	-519.8	-443,029.4	-7,465.3	2,252,010.1	-72,040.4	-110,173.5	-17,085.6	-30,146.8	-5,888.5	3,221,316.8	2,516,802.2	0	135,022.1	0	-2,218,935
Results 2021	-545,447.0	68,942.0	46,119.1	63,891.8	165,604.8	0	48,455.0	11,365.6	2,017,257.6	88,198.8	13,889.4	-2,262.1	7,655.1	0	1,922,380.6	1,436,898.5	0	-341,322.2	0	5,001,627
Results 2022	-659,743.8	81,459.2	46,757.4	71,566.3	235,422.0	0	-1,032,837.1	10,211.3	2,774,610.2	13,737.4	-24,755.7	-2,262.1	7,655.1	0	1,058,203.4	425,756.8	0	-79,351.7	0	2,926,429
Total REDD+ Results	**-1,205,191**	**150,401**	**92,876**	**135,458**	**401,027**	**0**	**-984,382**	**21,577**	**4,791,868**	**101,936**	**-10,866**	**-4,524**	**15,310**	**0**	**2,980,584**	**1,862,655**	**0**	**-420,674**	**0**	**7,928,056**

CL: Cropland, FL: Forest land, GL: Grassland, WL: Wetland, SL: Settlement land, OL: Other land, Un Disturbed: Forest land undisturbed.

4. Description of the National Forest Monitoring System and institutional roles and responsibilities for measuring, reporting and verifying the results

4.1 Belize National Forest Monitoring System

The Government of Belize has established a multi-tiered system to monitor land-use changes, reflecting the country's diverse vegetation types, land tenure arrangements, and land-use dynamics. At the core of this framework is Belize's National Forest Monitoring System (NFMS) version 1.0, which integrates ground-based forest inventory data and remote sensing analysis to generate reliable information on forest conditions, Land Use, Land-Use Change and Forestry (LULUCF). The first system originated in the late 1990s with established a permanent ground-based forest inventory to measure forest age, structure, composition, and ecosystem processes under natural and anthropogenic conditions; this network expanded from 30; one-hectare plots to 64 plots across Belize's dry, moist, and wet climatic zones, including mangrove and non-forest vegetation types. The second component, launched in 2018, applied remote sensing and systematic virtual sampling using the Collect Earth platform to assess land-use and land-use change annually across 21,991 plots covering the country. This was later improved with the use the Coalition for Rainforest Nation Land-Use Application, while keeping with Belize' national grid system, allowing consistent monitoring of forest and non-forest transitions across the country. Together, these components provide transparent and nationally appropriate data to evaluate forest management and REDD+ activities.

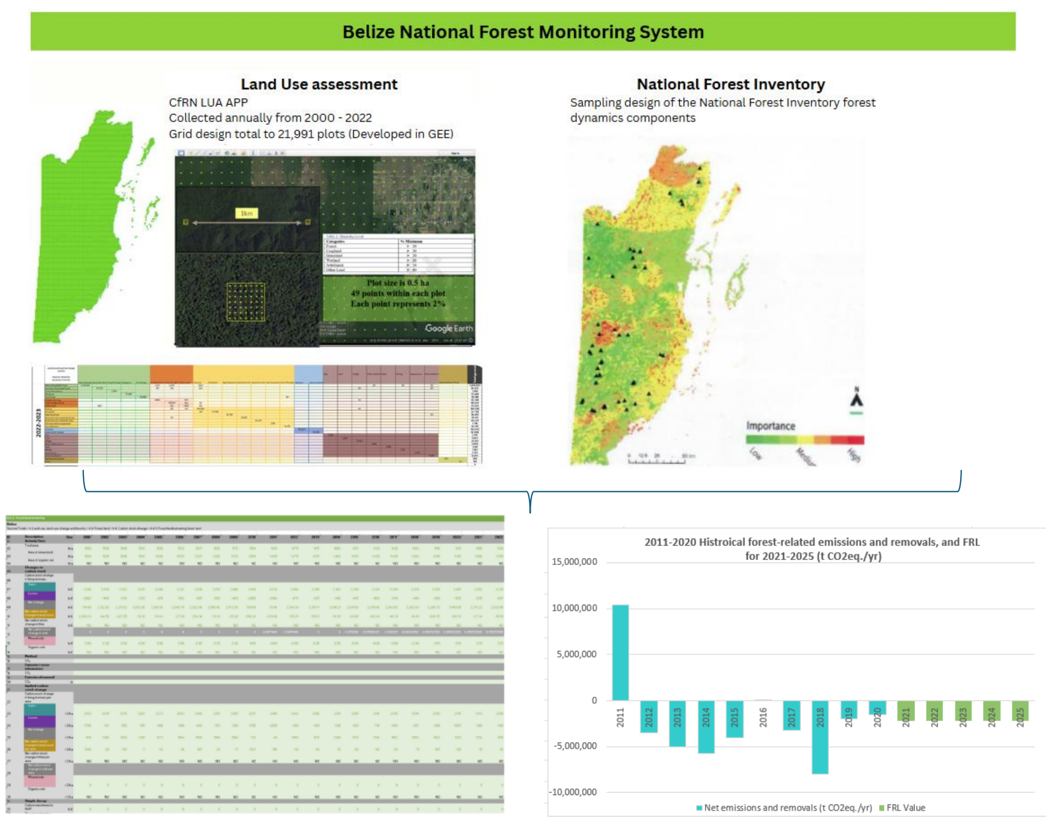

Figure 7. National Forest Monitoring System of Belize in 2025.

These datasets are integrated within Belize's foundational platform, which houses both the permanent sample plot database and the LULUC assessment data. The platform serves as the national calculation tool where activity data and emission factors are combined to estimate greenhouse gas emissions and removals.

Following the calculations, the results are analyzed and quality checked before being incorporated into Belize's Greenhouse Gas Inventory. The outputs are subsequently reported in national and international climate reporting instruments, including the Nationally Determined Contribution (NDC), National Communication (NC), Biennial Transparency Report (BTR), National Inventory Document (NID), and the Forest Reference Emission Level/Forest Reference Level (FREL/FRL) and its Technical Annex.

Overall, this integrated workflow ensures a transparent and consistent data flow from data collection to reporting, while maintaining adherence to the IPCC principles of transparency, accuracy, consistency, comparability, and completeness (TACCC).

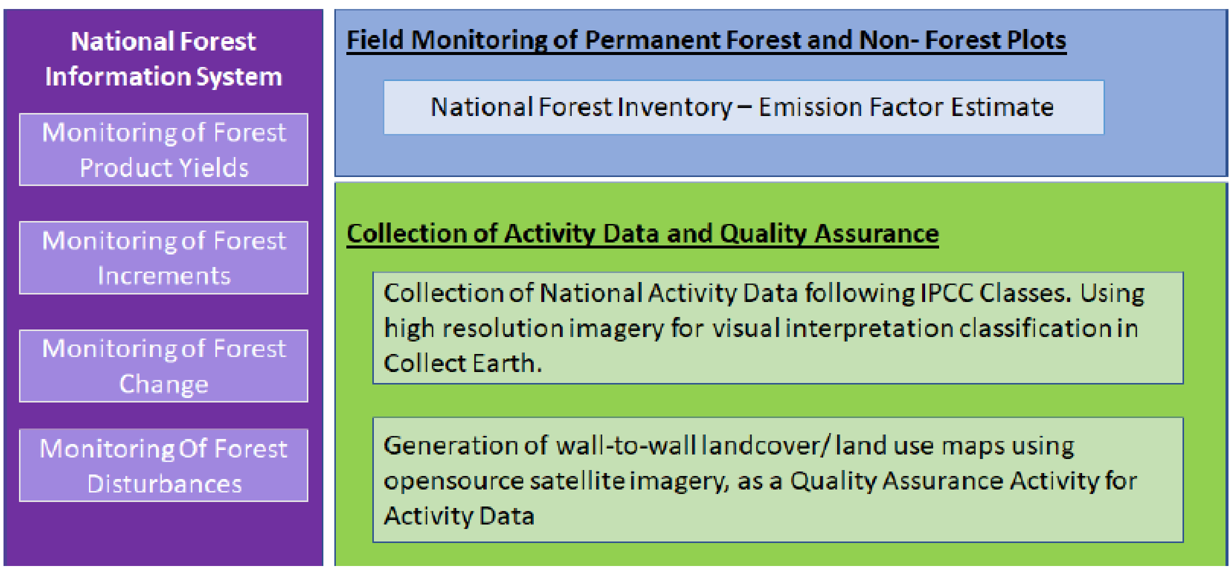

Figure 9. National Forest Information System of Belize.

In contrast, while the NFMS focuses on the collection and generation of forest and land-use data, the Measurement, Reporting and Verification (MRV) program uses this information to estimate greenhouse gas emissions and removals and to support national and international reporting through products such as the Greenhouse Gas Inventory, Forest Reference Level submissions, Biennial Transparency/Biennial Update Reports, and associated Technical Annexes.

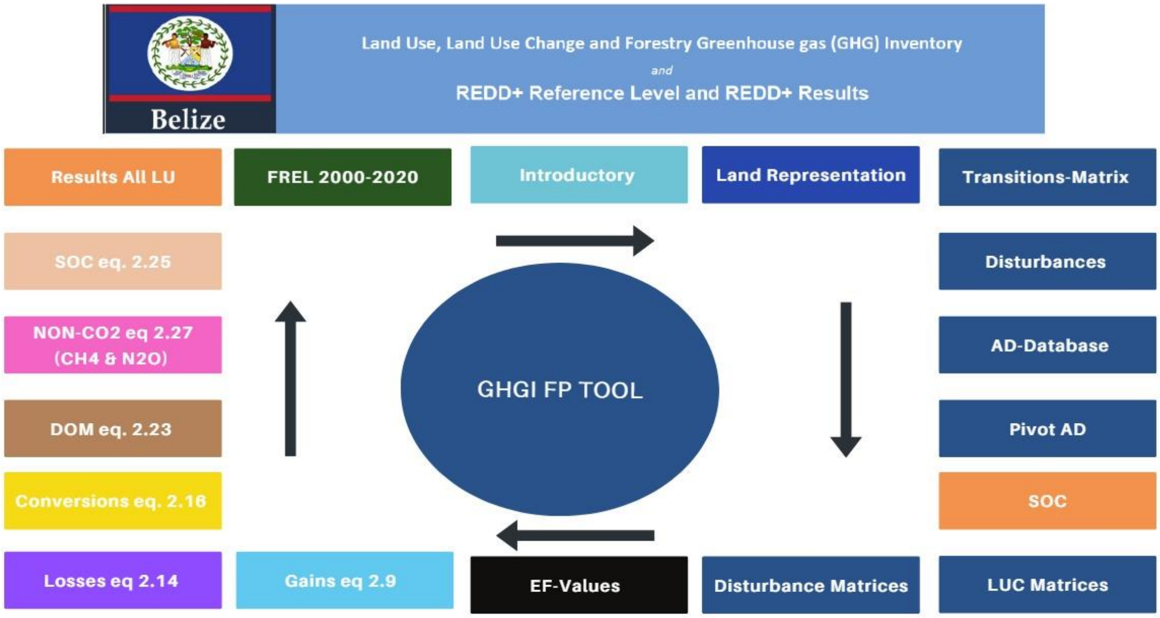

Figure 10. Belize Fundamental Platform Layout.

4.2 Roles and responsibilities for Measuring, Reporting and Verifying REDD+ results

The Forest Department houses the Geospatial Monitoring Unit, Sustainable Forest Management and the Measuring, Reporting, and Verification (MRV) Program they all play a pivotal role in fulfilling the MRV mandate. By meticulously track Land Use, Land-Use Change and Forestry occurring annually across Belize's national territory through the National Forest Monitoring System (NFMS). This comprehensive system encompasses the Geospatial Monitoring Unit, advanced spatial analysis techniques and the MRV Program's stringent measurement and reporting protocols. Together, these components constitute a robust framework aimed at producing robust data on human activities and ecosystem processes within forests.

The Belize NFMS, empowered by these specialized units and programs, is dedicated to estimating forest carbon stocks, emissions changes resulting from land-based activities, and other critical metrics. The insights gleaned from these estimations serve not only the Department but also extend to its parent Ministry and the broader Government. This data driven techniques prioritize transparency, accuracy, and consistency while acknowledging and managing acceptable levels of uncertainty. Additionally, they are tailored to reflect the unique national circumstances of Belize.

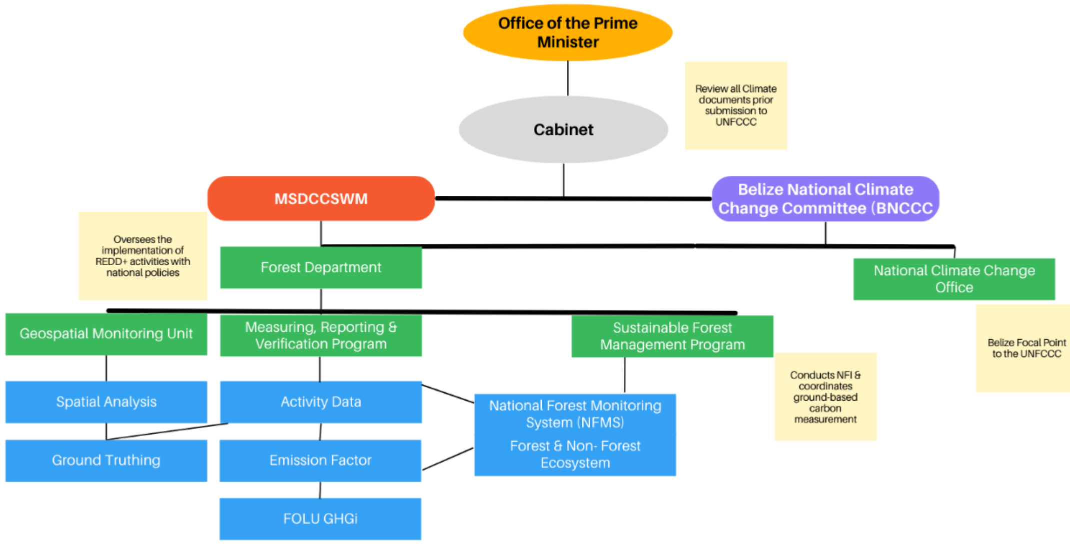

Figure 11. Institutional Framework.

5. Necessary information that allows for reconstruction of the results

To ensure full transparency and facilitate the reconstruction of the results, the calculations for estimating the Forest Reference Level and REDD+ outcomes can be accessed in this worksheet "BEL Foundational Platform" available on the online share folder:

6. Description of how the elements contained in decision 14/CP.15, paragraphs 1(c) and (d), have been taken into account.

Table 10. Description of the elements contained in decision 14/CP.15

Elements contained in decision 4/CP.15, paragraphs 1(c) and 1(d)	How Belize has taken them into account
1(c) To use the most recent Intergovernmental Panel on Climate Change guidance and guidelines, as adopted or encouraged by the Conference of the Parties, as appropriate, as a basis for estimating anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes.	Belize applied the 2006 IPCC guidelines for national GHG inventories and its 2019 refinements. The specific methods and IPCC equations are shown in Table 14 and explained in detail in section 4.8.7 of the modified FRL submission. The GHG calculation tool makes explicit the operationalization of the select IPCC equations and methods as explained in section 2.9 of this report, under the heading: "GHG calculation tool to enable reconstruction".
1(d) To establish, according to national circumstances and capabilities, robust and transparent national forest monitoring	Belize has established a robust system to monitor land use change at the national level. This monitoring system involves various levels of expertise and institutions at the

systems and, if appropriate, sub-national systems as part of national monitoring systems that: *(i) Use a combination of remote sensing and ground-based forest carbon inventory approaches for estimating as appropriate, anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes.*	national level, enabling comprehensive coverage (refer to section 5). This system integrates remote sensing assessments of land dynamics with the collection of additional information on carbon stocks by setting up permanent plots in the field. Currently, from 2018 the remote sensing component is on operational, and it has provided the necessary data for the submission of the Forest Reference Level, the REDD+ Technical Annex, and the Land Use, Land-Use Change, and Forestry (LULUCF) estimates included in the greenhouse gas inventory for the current Biennial Transparency Report (BTR). Belize initiated the second part of the National Forest Monitoring System (NFMS) in the earlier 1992 under the Sustaining the Yield
(ii) Provide estimates that are transparent, consistent, as far as possible accurate, and that reduce uncertainties, taking into account national capabilities and capacities.	Sections 3, 4 & 6 of this report provide further details to ensure full transparency, consistency with FRL; accuracy and uncertainty of the estimations based on national capacities
(iii) Are transparent and their results are available and suitable for review as agreed by the Conference of the Parties.	A calculation tool is provided in attachment of this report to allow for full reconstruction of the results and ensure transparency of the information used. All tables on Land areas are included in Annex I and on emissions/removals factors are provided in Annex II of this report.

7. Policies and programs

7.1 National Policy Documentation addressing Climate Change Issues

Currently, the Belize National Climate Change Committee (BNCCC) serves as the leading strategic body overseeing and endorsing major climate change initiatives, policies, and plans. Chaired by the Ministry of Sustainable Development, Climate Change and Solid Waste Management, the BNCCC includes representatives from government ministries, the private sector, civil society, and academia. It plays a vital role in integrating climate considerations into national development.

The National Climate Change Office (NCCO) is the Focal Point to the United Nations Framework Convention on Climate Change (UNFCCC) and is responsible for coordinating Belize's international climate reporting under the UNFCCC and the Paris Agreement. The BNCCC provides both technical and strategic guidance to ensure reports are accurate and inclusive before being submitted to Cabinet. This process is strengthened by stakeholder consultations and expert reviews, particularly for complex reports like the National Greenhouse Gas (GHG) Inventory. Belize uses a flexible, continuously improving GHG inventory model, aligning with national development goals and supported by technical experts. Capacity building is a key focus to establish a multi-ministerial institutional framework capable of meeting reporting requirements and evaluating the climate impact of domestic policies.

As a Party to the UNFCCC, Belize is committed to the Convention's overarching goal of stabilizing greenhouse gas (GHG) concentrations in the atmosphere at levels that prevent dangerous anthropogenic interference with the climate system. In alignment with this commitment, and consistent with the Sustainable Development Goals (SDGs) and the Paris Agreement, the Government of Belize has developed and implemented a series of policy frameworks and strategic actions aimed at reducing national GHG emissions. These include:

1. Horizon 2010–2030
2. National Energy Policy Framework
3. Sustainable Energy Action Plan (2014–2033)
4. National Climate Resilience Investment Plan (2013)
5. Growth and Sustainable Development Strategy (2016–2019)
6. National Climate Change Policy, Strategy and Action Plan (2015–2020)
7. Forest Department Strategic Action Plan (2019–2023)

These instruments collectively demonstrate Belize's commitment to a low-emission development trajectory and support the integration of climate resilience across national planning and policy processes.

7.2 Policies and measures in the context of Forest

Belize has established a robust framework of policies and measures aimed at promoting the sustainable management, conservation, and restoration of its forest resources. In fulfilling its reporting obligations, Belize provides data on GHG emissions and removals across all sectors, including the Forestry and Other Land Use (FOLU) sector. The Forest Department (FD) serves as the leading agency for the FOLU sector and is responsible for the measurement, reporting, and verification (MRV) of emissions and removals related to forest-based activities. Operating under the Ministry of Sustainable Development, Climate Change, and Solid Waste Management, the Forest Department is the national regulatory authority mandated to ensure the sustainable management of forest resources for long-term social, economic, and environmental benefits. These efforts are operationalized through national strategies, legislative instruments, and targeted programs, with primary oversight provided by the Belize Forest Department.

Core Legal measures, Policy and Plan:

1. National Forest Policy (2015)
2. Belize Forest Department Strategic Action Plan
3. Forest Act & Regulations

Core Functions of the Forest Department:

1. Oversight of forest use and protection
2. Issuance of forest licenses and permits
3. Collection of royalties on forest resources
4. Compliance monitoring, including license condition enforcement
5. Design and implementation of forest management plans
6. Maintenance of revenue records and a revenue database
7. Public awareness and outreach

Goals and Strategic Objectives:

Goal 1: Proactive Forest Stewardship through Sustainable Forest Management (SFM)

- **SO1:** Promote resilient, healthy, and functioning forest ecosystems
- **SO2:** Enhance the economic, social, and environmental benefits of forests through sustainable resource utilization
- **SO3:** Implement focused, results-driven programmatic strategies
- **SO4:** Prevent net loss of forest cover in designated priority areas

Goal 2: Organizational Excellence

- **SO5:** Strengthen collaboration and stakeholder engagement to improve program delivery
- **SO6:** Foster an inclusive and professional work environment with continuous capacity development
- **SO7:** Build an efficient and effective service-oriented organization
- **SO8:** Streamline and reinforce forest-related policies and legislation
- **SO9:** Develop stable, diversified, and sustainable financial resources

Within the Forest Department, three key units, the Geospatial Monitoring Unit and the Measuring Reporting and Verification Program and the Sustainable Forest Management program are central to fulfilling the Department's MRV responsibilities. These units, through the National Forest Monitoring System (NFMS), monitor land use and land-use change across Belize on an annual basis.

The National Forest Monitoring System (NFMS), which supports GHG estimation, includes two components:

- **Satellite and Land Monitoring System (SLMS)** – uses remote sensing for land use mapping and forest monitoring
- **National Forest Inventory (NFI)** – a network of permanent forest plots (FORMNET-B) to track long-term forest changes

With rigorous MRV protocols to ensure comprehensive and credible tracking of forest-related activities the NFMS plays a critical role in estimating forest carbon stocks, emissions, and removals associated with land-based activities. These estimates not only inform the work of the Forest Department but also support evidence-based policymaking at the ministerial and national levels. By providing a clear understanding of trends and management opportunities, the NFMS strengthens strategic planning and sustainable forest governance.

Leveraging state-of-the-art remote sensing tools and ground-based inventory techniques, the Belize NFMS generates data that meet international standards of transparency, accuracy, consistency, and comparability, while also accounting for nationally specific circumstances and accepted levels of uncertainty.

While domestic Monitoring, Reporting, and Verification (MRV) efforts are relatively new, progress is being made to ensure structured and transparent reporting. The Forestry and Other Land Use (FOLU) sector has the most advanced MRV system, developed under the national REDD+ program by the Forest Department and the NCCO's REDD+ Readiness Unit. Together, SLMS data and custom emission factors from NFI help ensure accurate GHG estimates from the FOLU sector. Ongoing initiatives aim to enhance institutional structures, develop indicators for tracking Nationally Determined Contributions (NDCs), monitor climate finance flows, and build technical capacity and regional cooperation. As the domestic MRV system evolves, it is expected to improve access to climate-related data, enabling better policy analysis and more informed decision-making.

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Annex I: Land use and land use change

Reference to the Belize fundamental Platform (Table 4.1 LUC Matrix) for improved clarity and readability.

2010-2011

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agric	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,328,806					1,407	5,630		5127											101			101		201			1,341,372
Secondary Broadleaf Forest		49,963				302	704		704																			51,672
Forest Plantations			1,307																									1,307
Mangrove				73,890																								73,890
Pine Forest					35,185		101								503													35,789
Swidden farming		201				40111		503																				40,815
Intensive Agriculture							121139	704																				121,842
Fallow land		503				101	101	8847																				9,550
Pasture						101	101	1005	125,562																			126,768
Shrubland									302	38,201																		38,503
Open Savannah											37,799																	37,799
Savannah with scattered shrubs												94,197																94,197
Savannah with scattered trees													34,080															34,080
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,169													13,169
Wetland																103,345												103,345
Inland Water Bodies																	43,328											43,328
City																		2,614										2,614
Town																			4,222									4,222
Village																				19,201								19,201
Other infrastructure																					2,513							2,513
Road																						1,206						1,206
Mining																							804					804
Aquaculture								302				101												2,815				3,217
Other Settlement																									6,032			6,032
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1328805.54	50667.12	1306.89	73889.55	35185.5	42021.54	127773.63	11359.89	131694.3	38201.4	37799.28	94297.14	34079.67	3116.43	13672.08	103344.84	43328.43	2613.78	4222.26	19301.76	2513.25	1206.36	904.77	2814.84	6232.86	502.65	100.53	2,210,956

2011-2012

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agric	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,319,959					1,206	4,524		3016																101			1,328,806
Secondary Broadleaf Forest		48,657				201	905		905																			50,667
Forest Plantations			1,307																									1,307
Mangrove				73,890																								73,890
Pine Forest					35,185																							35,185
Swidden farming						41418		603																				42,022
Intensive Agriculture							127271	503																				127,774
Fallow land		201						11159																				11,360
Pasture							101	402	131,192																			131,694
Shrubland							101		101	38,000																		38,201
Open Savannah											37,699													101				37,799
Savannah with scattered shrubs							101					94,197																94,297
Savannah with scattered trees													34,080															34,080
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,672													13,672
Wetland																103,345												103,345
Inland Water Bodies																	43,328											43,328
City																		2,614										2,614
Town																			4,222									4,222
Village																				19,302								19,302
Other infrastructure																					2,513							2,513
Road																						1,206						1,206
Mining																							905					905
Aquaculture																								2,815				2,815
Other Settlement																									6,233			6,233
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1319958.9	48857.58	1306.89	73889.55	35185.5	42825.78	133001.19	12666.78	135212.85	38000.34	37698.75	94196.61	34079.67	3116.43	13672.08	103344.84	43328.43	2613.78	4222.26	19301.76	2513.25	1206.36	904.77	2915.37	6333.39	502.65	100.53	2,210,956

2012-2013

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agric	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,313,223					704	3,619		2312																101			1,319,959
Secondary Broadleaf Forest		47,249				101	1,206		201											101								48,858
Forest Plantations			1,307																									1,307
Mangrove				73,789																	101							73,890
Pine Forest					35,185																							35,185
Swidden farming						42223		603																				42,826
Intensive Agriculture							132700	302																				133,001
Fallow land		503				101		12064																				12,667
Pasture							201	302	134,610									101										135,213
Shrubland									101	37,900																		38,000
Open Savannah							101				37,297										101			201				37,699
Savannah with scattered shrubs							101		101			93,895												101				94,197
Savannah with scattered trees													34,080															34,080
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,672													13,672
Wetland																103,345												103,345
Inland Water Bodies				101													43,228											43,328
City																		2,614										2,614
Town																			4,222									4,222
Village																				19,302								19,302
Other infrastructure																					2,513							2,513
Road																						1,206						1,206
Mining																							905					905
Aquaculture																								2,915				2,915
Other Settlement																									6,333			6,333
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1313223.39	47751.75	1306.89	73889.55	35185.5	43127.37	137927.16	13269.96	137323.98	37899.81	37296.63	93895.02	34079.67	3116.43	13672.08	103344.84	43227.9	2714.31	4222.26	19402.29	2714.31	1206.36	904.77	3216.96	6433.92	502.65	100.53	2,210,956

2013-2014

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agric	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,305,985					804	3,317		3016																101			1,313,223
Secondary Broadleaf Forest		45,741				302	1,005		704																			47,752
Forest Plantations			1,307																									1,307
Mangrove				73,890																								73,890
Pine Forest					35,085										101													35,185
Swidden farming						42625		503																				43,127
Intensive Agriculture							137324	503												101								137,927
Fallow land		201						13069																				13,270
Pasture						101	201	804	136,218																			137,324
Shrubland										37,900																		37,900
Open Savannah							101				36,794										101	101		201				37,297
Savannah with scattered shrubs							101		101			93,694																93,895
Savannah with scattered trees													33,979							101								34,080
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,672													13,672
Wetland				101												103,244												103,345
Inland Water Bodies																	43,127				101							43,228
City																		2,714										2,714
Town																			4,222									4,222
Village																				19,402								19,402
Other infrastructure																					2,714							2,714
Road																						1,206						1,206
Mining																							905					905
Aquaculture								302																2,915				3,217
Other Settlement																									6,434			6,434
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1305985.23	45942.21	1306.89	73990.08	35084.97	43831.08	142048.89	15180.03	140038.29	37899.81	36793.98	93693.96	33979.14	3116.43	13772.61	103244.31	43127.37	2714.31	4222.26	19603.35	2915.37	1306.89	904.77	3116.43	6534.45	502.65	100.53	2,210,956

2014-2015

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agric	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,296,837					1,106	3,820		4021											201								1,305,985
Secondary Broadleaf Forest		44,233					603		1005																101			45,942
Forest Plantations			1,307																									1,307
Mangrove				73,890																		101						73,990
Pine Forest					35,085																							35,085
Swidden farming						43127		704																				43,831
Intensive Agriculture							139636	2111	201											101								142,049
Fallow land		201				101	101	14778																				15,180
Pasture							201	1407	138,430																			140,038
Shrubland									101	37,799																		37,900
Open Savannah											36,693													101				36,794
Savannah with scattered shrubs												93,493								101					101			93,694
Savannah with scattered trees													33,979															33,979
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,773													13,773
Wetland																103,244												103,244
Inland Water Bodies				101													42,926				101							43,127
City																		2,714										2,714
Town																			4,222									4,222
Village																				19,603								19,603
Other infrastructure																					2,915							2,915
Road																						1,307						1,307
Mining																							905					905
Aquaculture											101													3,016				3,116
Other Settlement																									6,534			6,534
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1296837	44434.26	1306.89	73990.08	35084.97	44333.73	144361.08	19000.17	143757.9	37799.28	36793.98	93492.9	33979.14	3116.43	13772.61	103244.31	42926.31	2714.31	4222.26	20005.47	3015.9	1407.42	904.77	3116.43	6735.51	502.65	100.53	2,210,956

2015-2016

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agric	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,286,683					1,810	3,921		4222										101	101								1,296,837
Secondary Broadleaf Forest		42,223				302	704		1106									101										44,434
Forest Plantations			1,307																									1,307
Mangrove				73,990																								73,990
Pine Forest					35,085																							35,085
Swidden farming						43831		503																				44,334
Intensive Agriculture							143054	704	503											101								144,361
Fallow land		302						18699																				19,000
Pasture							302	704	142,652														101					143,758
Shrubland										37,799																		37,799
Open Savannah											36,593									101	101							36,794
Savannah with scattered shrubs												93,493																93,493
Savannah with scattered trees									101				33,879															33,979
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,773													13,773
Wetland																103,244												103,244
Inland Water Bodies																	42,926											42,926
City																		2,714										2,714
Town																			4,222									4,222
Village																				20,005								20,005
Other infrastructure								101													2,915							3,016
Road																						1,407						1,407
Mining																							905					905
Aquaculture								402																2,714				3,116
Other Settlement																									6,736			6,736
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1286683.47	42524.19	1306.89	73990.08	35084.97	45942.21	147980.16	21111.3	148583.34	37799.28	36592.92	93492.9	33878.61	3116.43	13772.61	103244.31	42926.31	2814.84	4322.79	20307.06	3015.9	1407.42	1005.3	2714.31	6735.51	502.65	100.53	2,210,956

2016-2017

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agrici	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,279,043					1,910	2,212		3519																			1,286,683
Secondary Broadleaf Forest		41,217				201	302		804																			42,524
Forest Plantations			1,206						101																			1,307
Mangrove				73,990																								73,990
Pine Forest					34,884										201													35,085
Swidden farming						45138		704	101																			45,942
Intensive Agriculture							147075	603	302																			147,980
Fallow land							101	20810	201																			21,111
Pasture		101				101	302	402	147,578											101								148,583
Shrubland										37,799																		37,799
Open Savannah											36,593																	36,593
Savannah with scattered shrubs												93,392													101			93,493
Savannah with scattered trees													33,879															33,879
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,773													13,773
Wetland				101												103,144												103,244
Inland Water Bodies																	42,926											42,926
City																		2,815										2,815
Town																			4,323									4,323
Village												101								20,207								20,307
Other infrastructure																					3,016							3,016
Road																						1,407						1,407
Mining																							1,005					1,005
Aquaculture								101																2,614				2,714
Other Settlement																									6,736			6,736
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1279043.19	41317.83	1206.36	74090.61	34883.91	47349.63	149990.76	22619.25	152604.54	37799.28	36592.92	93492.9	33878.61	3116.43	13973.67	103143.78	42926.31	2814.84	4322.79	20307.06	3015.9	1407.42	1005.3	2613.78	6836.04	502.65	100.53	2,210,956

2017-2018

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agrici	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,272,408					1,307	2,513		2614											101	101							1,279,043
Secondary Broadleaf Forest		40,916				101	201		101																			41,318
Forest Plantations			1,206																									1,206
Mangrove				74,091																								74,091
Pine Forest					34,884																							34,884
Swidden farming						46746		603																				47,350
Intensive Agriculture							149086	603	201														101					149,991
Fallow land		2312				101		20207																				22,619
Pasture							101	704	151,599											101					101			152,605
Shrubland										37,799																		37,799
Open Savannah											36,492									101								36,593
Savannah with scattered shrubs												93,493																93,493
Savannah with scattered trees									101				33,678												101			33,879
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,974													13,974
Wetland																103,043					101							103,144
Inland Water Bodies																	42,926											42,926
City																		2,815										2,815
Town																			4,323									4,323
Village																				20,307								20,307
Other infrastructure																					3,016							3,016
Road																						1,407						1,407
Mining																							1,005					1,005
Aquaculture											101													2,513				2,614
Other Settlement																									6,836			6,836
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1272408.21	43227.9	1206.36	74090.61	34883.91	48254.4	151900.83	22116.6	154615.14	37799.28	36592.92	93492.9	33677.55	3116.43	13973.67	103043.25	42926.31	2814.84	4322.79	20608.65	3216.96	1407.42	1105.83	2513.25	7037.1	502.65	100.53	2,210,956

2018-2019

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agrici	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand c	Rocks	Total general
Mature Broadleaf Forest	1,263,059					1,307	3,820		3820											101					302			1,272,408
Secondary Broadleaf Forest		42,625				201	302													101								43,228
Forest Plantations			1,206																									1,206
Mangrove				73,890																	101				101			74,091
Pine Forest					34,783				101																			34,884
Swidden farming						47450		603	101														101					48,254
Intensive Agriculture							150694	402	804																			151,901
Fallow land		804					101	21111	101																			22,117
Pasture						101	402	704	153,409																			154,615
Shrubland										37,799																		37,799
Open Savannah											36,492								101									36,593
Savannah with scattered shrubs												93,493																93,493
Savannah with scattered trees							101						33,476							101								33,678
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,974													13,974
Wetland																103,043												103,043
Inland Water Bodies																	42,926											42,926
City																		2,815										2,815
Town																			4,323									4,323
Village																				20,609								20,609
Other infrastructure																					3,217							3,217
Road																						1,407						1,407
Mining																							1,106					1,106
Aquaculture								101				101												2,312				2,513
Other Settlement																									7,037			7,037
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1263058.92	43428.96	1206.36	73889.55	34783.38	49058.64	155419.38	22920.84	158334.75	37799.28	36492.39	93593.43	33476.49	3116.43	13973.67	103043.25	42926.31	2814.84	4423.32	20910.24	3317.49	1407.42	1206.36	2312.19	7439.22	502.65	100.53	2,210,956

2019-2020

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agrici	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand c	Rocks	Total general
Mature Broadleaf Forest	1,257,932					704	2,111		2312																			1,263,059
Secondary Broadleaf Forest		42,926							503																			43,429
Forest Plantations			1,206																									1,206
Mangrove				73,890																								73,890
Pine Forest					34,381		101								302													34,783
Swidden farming						48355		704																				49,059
Intensive Agriculture							154816	603																				155,419
Fallow land		1106					101	21614	101																			22,921
Pasture							201	704	157,229											101				101				158,335
Shrubland										37,799																		37,799
Open Savannah											36,492																	36,492
Savannah with scattered shrubs												93,593																93,593
Savannah with scattered trees													33,476															33,476
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															13,974													13,974
Wetland																103,043												103,043
Inland Water Bodies																	42,926											42,926
City																		2,815										2,815
Town																			4,423									4,423
Village																				20,910								20,910
Other infrastructure																					3,317							3,317
Road																						1,407						1,407
Mining																							1,206					1,206
Aquaculture																								2,312				2,312
Other Settlement																									7,439			7,439
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1257931.89	44032.14	1206.36	73889.55	34381.26	49058.64	157329.45	23624.55	160144.29	37799.28	36492.39	93593.43	33476.49	3116.43	14275.26	103043.25	42926.31	2814.84	4423.32	21010.77	3317.49	1407.42	1206.36	2412.72	7439.22	502.65	100.53	2,210,956

2020-2021

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agrici	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,253,408					1,005	1,206		1608										101		201		101		302			1,257,932
Secondary Broadleaf Forest		43,429				302	101		201																			44,032
Forest Plantations			1,206																									1,206
Mangrove				73,789																	101							73,890
Pine Forest					34,281										101													34,381
Swidden farming						48757		302																				49,059
Intensive Agriculture							156726	402	201																			157,329
Fallow land		1106					101	22318	101																			23,625
Pasture							302	402	159,240												101				101			160,144
Shrubland										37,799																		37,799
Open Savannah											36,492																	36,492
Savannah with scattered shrubs									101			93,392													101			93,593
Savannah with scattered trees							201						33,275															33,476
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															14,275													14,275
Wetland																103,043												103,043
Inland Water Bodies																	42,926											42,926
City																		2,815										2,815
Town																			4,423									4,423
Village																				21,011								21,011
Other infrastructure																					3,317							3,317
Road																						1,407						1,407
Mining																							1,206					1,206
Aquaculture																								2,413				2,413
Other Settlement																									7,439			7,439
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1253408.04	44534.79	1206.36	73789.02	34280.73	50063.94	158636.34	23423.49	161451.18	37799.28	36492.39	93392.37	33275.43	3116.43	14375.79	103043.25	42926.31	2814.84	4523.85	21010.77	3719.61	1407.42	1306.89	2412.72	7941.87	502.65	100.53	2,210,956

2021-2022

Land Use and Land Use Change (LULUC) Vertical: Initial Use Horizontal: Final Use	Mature Broadle	Secondary Broa	Forest Plantati	Mangrove	Pine Forest	Swidden farmir	Intensive Agrici	Fallow land	Pasture	Shrubland	Open Savannah	Savannah with	Savannah with	Sub-mountainc	Ferns/Thickets	Wetland	Inland Water B	City	Town	Village	Other infrastru	Road	Mining	Aquaculture	Other Settleme	Beaches/Sand	Rocks	Total general
Mature Broadleaf Forest	1,246,874					704	2,513		3116										101		101							1,253,408
Secondary Broadleaf Forest		43,429				201	603		201																101			44,535
Forest Plantations			1,206																									1,206
Mangrove				73,688														101										73,789
Pine Forest					34,180										101													34,281
Swidden farming						49863		101																	101			50,064
Intensive Agriculture							158033	201	101											302								158,636
Fallow land		603					101	22720																				23,423
Pasture							201	402	160,747													101						161,451
Shrubland										37,799																		37,799
Open Savannah											36,492																	36,492
Savannah with scattered shrubs									101			93,191													101			93,392
Savannah with scattered trees													33,275															33,275
Sub-mountainous grassland														3,116														3,116
Ferns/Thickets															14,376													14,376
Wetland																103,043												103,043
Inland Water Bodies																	42,826			101								42,926
City																		2,815										2,815
Town																			4,524									4,524
Village																				21,011								21,011
Other infrastructure																					3,720							3,720
Road																						1,407						1,407
Mining																							1,307					1,307
Aquaculture																								2,413				2,413
Other Settlement																									7,942			7,942
Beaches/Sand dunes																										503		503
Rocks																											101	101
																												0
Total general	1246873.59	44032.14	1206.36	73688.49	34180.2	50767.65	161451.18	23423.49	164266.02	37799.28	36492.39	93191.31	33275.43	3116.43	14476.32	103043.25	42825.78	2915.37	4624.38	21412.89	3820.14	1507.95	1306.89	2412.72	8243.46	502.65	100.53	2,210,956