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Report on the technical assessment of the proposed forest reference level of Dominica submitted in 2022

Summary

This report covers the technical assessment of the voluntary submission of Dominica on its proposed forest reference level (FRL) in accordance with decision 13/CP.19 and in the context of results-based payments. The FRL proposed by Dominica covers the activities conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks, which are among the activities included in decision 1/CP.16, paragraph 70.

For its submission, Dominica developed a national FRL. The FRL presented in the original submission, for the reference period 2001–2017, corresponds to –648,028 tonnes of carbon dioxide equivalent per year, including an adjustment. As a result of the facilitative process during the technical assessment, the FRL was modified to –446,983 tonnes of carbon dioxide equivalent per year, including an adjustment.

The assessment team notes that the data and information used by Dominica in constructing its FRL are partially transparent, complete and in overall accordance with the guidelines contained in decision 12/CP.17, annex. This report contains the assessed FRL and areas identified by the assessment team for future technical improvement in accordance with the provisions on the scope of the technical assessment contained in decision 13/CP.19, annex.

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
2019 Refinement to the 2006 IPCC Guidelines	*2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AD	activity data
AT	assessment team
C	carbon
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
COP	Conference of the Parties
DOM	dead organic matter
EF	emission factor
FAO	Food and Agriculture Organization of the United Nations
FREL	forest reference emission level
FRL	forest reference level
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
N_2O	nitrous oxide
REDD+	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)
SOC	soil organic carbon
TA	technical assessment

I. Introduction and summary

A. Overview

1. This report covers the TA of the voluntary submission of Dominica on its proposed FRL,[1] submitted on 10 January 2022, in accordance with decisions 12/CP.17 and 13/CP.19. The remote TA took place from 21 to 25 March 2022 and was coordinated by the secretariat.[2] The TA was conducted by two land use, land-use change and forestry experts from the UNFCCC roster of experts[3] (hereinafter referred to as the AT): Jean-Paul Kibambe Lubamba (Democratic Republic of the Congo) and Mattias Lundblad (Sweden). The TA was coordinated by Keiichi Igarashi (secretariat).

2. In response to the invitation of the COP and in accordance with the provisions of decision 12/CP.17, paragraphs 7–15 and annex, Dominica submitted its proposed FRL on a voluntary basis. The proposed FRL is one of the elements[4] to be developed in implementing the activities referred to in decision 1/CP.16, paragraph 70. Pursuant to decision 13/CP.19, paragraphs 1–2, and decision 14/CP.19, paragraphs 7–8, the COP decided that each submission of a proposed FRL, as referred to in decision 12/CP.17, paragraph 13, shall be subject to a TA in the context of results-based payments.

3. Dominica provided its submission in English. The submission is supported by two annexes in English, covering the simulation of uncertainties (annex A) and the Excel spreadsheet detailing the estimation of AD and EFs (annex B), which enhance the transparency of the FRL.

4. The objective of the TA is to assess the degree to which the information provided by Dominica is in accordance with the guidelines for submissions of information on reference levels[5] and to offer a facilitative, non-intrusive, technical exchange of information on the construction of the FRL with a view to supporting the capacity of Dominica to construct and improve its FRL in the future, as appropriate.[6]

5. The TA of the FRL submitted by Dominica was undertaken in accordance with the guidelines and procedures for the TA of submissions from Parties on proposed FRELs and/or FRLs.[7] This report on the TA was prepared by the AT following the same guidelines and procedures.

6. Following the process set out in those guidelines and procedures, a draft version of this report was communicated to the Government of Dominica. The facilitative exchange during the TA allowed Dominica to provide clarifications and additional information, which were considered by the AT in the preparation of this report.[8] As a result of the facilitative interactions with the AT during the TA, Dominica provided a modified version of its submission on 9 January 2023, which took into consideration the technical input of the AT. The modifications improved the clarity and transparency of the submitted FRL. This TA report was prepared in the context of the modified FRL submission.

B. Proposed forest reference level

7. In decision 1/CP.16, paragraph 70, the COP encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking a number of activities, as deemed appropriate by each Party and in accordance with their respective capabilities and national circumstances, in the context of providing adequate and predictable support. The FRL proposed by Dominica, on a voluntary basis for a TA in the context of results-based

[1] The submission of Dominica is available at https://redd.unfccc.int/submissions.html?country=dma.
[2] As per decision 13/CP.19, annex, para. 7.
[3] As per decision 13/CP.19, annex, paras. 7 and 9.
[4] See decision 1/CP.16, para. 71(b).
[5] Decision 12/CP.17, annex.
[6] Decision 13/CP.19, annex, para. 1(a–b).
[7] Decision 13/CP.19, annex.
[8] As per decision 13/CP.19, annex, paras. 1(b), 13 and 14.

payments, covers the activities conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks, which are three of the five activities referred to in that paragraph. Pursuant to paragraph 71(b) of the same decision, Dominica developed a national FRL that covers its entire territory. For its submission, Dominica applied a stepwise approach to developing its FRL in accordance with decision 12/CP.17, paragraph 10. The stepwise approach enables Parties to improve their FREL or FRL by incorporating better data, improved methodologies and, where appropriate, additional pools.

8. The national FRL proposed by Dominica for 2018–2025 is the annual average of the expected net removals of CO_2 due to post-disturbance forest regrowth on forest land remaining forest land as natural regeneration starting in 2018, along with the expected CO_2 removals for land converted to forest land, using the historical average for 2001–2017. The proposed FRL includes regrowth of all forest types in Dominica. The AD used in constructing the FRL were obtained from land use and land-use change assessments, which were conducted on the basis of a sampling approach (IPCC approach 3) using the FAO Collect Earth tool, in which the land-use conditions, including natural and/or human disturbance, were determined for each year of the time series (2000–2018). The estimation of emissions and removals combined country-specific methods and data with IPCC methodologies and EFs. IPCC methodological tiers 1 and 2 were applied. The FRL presented in the modified submission, with the aim of accessing results-based payments for REDD+ activities for 2018–2025, corresponds to –446,983 t CO_2 eq/year, including an adjustment.[9]

9. Dominica applied an adjustment for national circumstances. Owing to the impact of Hurricane Maria in 2017, and taking into account assumptions made by local expert knowledge and local and regional studies, Dominica concluded that GHG removals of 100,610 t CO_2 eq/year from 2001 to 2016 did not represent future GHG emissions and removals in Dominica. As a result, Dominica did not use the emissions and removals during the reference period for calculating emissions and removals in forest land remaining forest land and forest land converted to other land for the FRL. Instead, emissions and removals for the FRL were calculated on the basis of expected post-disturbance forest regeneration starting in 2018, as well as deforestation in forests classified as "no significant damage" (see para. 24 below).

10. The proposed FRL includes the pools above- and below-ground biomass, DOM and SOC. Regarding GHGs, the submission includes CO_2, CH_4 and N_2O. However, as biomass burning has not been observed or estimated during the historical reference period, CH_4 and N_2O are not estimated in the FRL.

11. Dominica provided the spreadsheets used in constructing the FRL, with comprehensive background data and information on the steps involved in deriving the FRL estimate. The spreadsheets and associated references provided enabled the AT to reconstruct the FRL, which enhanced the completeness and transparency of the Party's submission.

II. Data, methodologies and procedures used in constructing the proposed forest reference level

How each element in decision 12/CP.17, annex, was taken into account in constructing the forest reference level

1. Information used by the Party in constructing its forest reference level

12. For constructing its FRL, Dominica used the 2006 IPCC Guidelines and a land-based approach, implying that the three REDD+ activities (conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks) were assessed

[9] In its original submission, Dominica proposed a national FRL of –648,028 t CO_2 eq/year for 2018–2025. The difference between the original and the modified submission is mostly due to recalculations in the light of the damage to the forest caused by the hurricane in 2017. Four categories were used to classify the damage, namely no significant damage, damage I, damage II and damage III (see para. 24 below).

together. The activities conservation of forest carbon stocks and sustainable management of forests refer to forest land remaining forest land, and land undisturbed and disturbed under management for natural and assisted regeneration. The activity enhancement of forest carbon stocks refers to forest land converted from cropland, grassland, wetlands, settlements and other land. The historical reference period considered for the three activities is 2001–2017. The AD were developed on the basis of land use and land-use change assessments conducted using a sampling approach from the 2006 IPCC Guidelines (vol. 4, chap. 3, approach 3). The EFs were developed on the basis of regional research, scientific literature and default values from the 2006 IPCC Guidelines and the 2019 Refinement to the 2006 IPCC Guidelines.

13. Dominica's proposed FRL covers net removals from conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks for the historical reference period 2001–2017. However, Dominica did not apply this reference period for the calculation of emissions and removals on forest land remaining forest land and forest land converted to other land owing to damage caused by Hurricane Maria in 2017. Dominica calculated the emissions and removals on forest land remaining forest land on the basis of expected carbon removals due to post-disturbance forest regrowth starting in 2018. Emissions from deforestation were considered only in forests in the category "no significant damage" and estimated at 25 per cent of the historical deforestation rate (see para. 24 below).

14. For deriving AD, forest land was stratified into the following forest types: montane forest (elfin and cloud montane), montane rainforest, semi-evergreen seasonal forest and semi-deciduous (coastal) seasonal forest, littoral evergreen forest and dry scrub. Dominica implemented land representation approach 3 from the 2006 IPCC Guidelines, which is characterized by spatially explicit observations of land-use categories and land-use conversions. To gather information on AD, Dominica used the Collect Earth tool with the plot size set to 1 ha to maintain consistency with the forest definition and a sampling area of 750 × 750 m. A total of 1,605 sampling plots of a national systematic grid were visually evaluated. For each plot, the visual interpretation provided time series information indicating the land use, whether the plot remained in the same land-use category or, if there was a land-use conversion, the year of the conversion, and whether there was a disturbance and, if so, the year of the event.

15. In addition to the default values from the 2006 IPCC Guidelines and the 2019 Refinement to the 2006 IPCC Guidelines, the EFs were developed on the basis of the national forest inventory of Saint Lucia because the islands share the same forest types and no recent forest inventory had taken place in Dominica. For forest land, Dominica used the default values from the 2006 IPCC Guidelines for the carbon fraction of wood for all forest classes and the default values from the 2019 Refinement to the 2006 IPCC Guidelines for the average annual above-ground biomass growth, ratio of below-ground to above-ground biomass, litter and deadwood stocks for all forest classes, and CH_4 and N_2O EFs. The above-ground biomass of all forest classes was estimated from data available in Chave et al. (2014) and data from Saint Lucia's national forest inventory. The fraction of biomass loss due to disturbance for all forest classes was determined using local expert judgment. For cropland, Dominica used the default EFs from the 2006 IPCC Guidelines for the carbon fraction, biomass accumulation rate, above-ground biomass and litter and deadwood stocks for all cropland classes, and the default values from the 2019 Refinement to the 2006 IPCC Guidelines for the ratio of below-ground to above-ground biomass for perennial cropland. For grassland, Dominica used the EFs from the 2006 IPCC Guidelines for all carbon pools covered by the FRL. For settlements, Dominica used the default EFs from the 2006 IPCC Guidelines for the carbon fraction of woody settlements, while the default values from the 2019 Refinement to the 2006 IPCC Guidelines were used for the ratio of below-ground to above-ground biomass for woody settlements.

2. Transparency, completeness, consistency and accuracy of the information used in constructing the forest reference level

(a) Methodological information, including description of data sets, approaches and methods

16. The AT noted that the value used in the FRL for mean canopy for deciduous seasonal forest was 46.5 per cent, which was below the canopy threshold in Dominica's forest definition (i.e. 60.0 per cent). During the TA, the AT requested Dominica to elaborate how this apparent discrepancy has been accounted for when estimating the EFs for this forest class. Dominica clarified that deciduous seasonal forest was usually a dense canopy cover with mature forest species reaching 10–12 m in height, which does not present any conflict with the ≥60 per cent highlighted within the recently agreed definition (see para. 36 below). In view of the specificity of this forest class to the Party's national circumstances, the AT considers that Dominica could provide additional information on this forest class in the FRL document in order to increase the transparency and accuracy of the FRL, and suggests including this information in future submissions.

17. Dominica's FRL describes a standardized method for selecting forest types. However, the AT noted that there were overlaps of forest types according to elevation and location. During the TA, the AT sought clarification on how overlapping forest classes could be clearly discriminated. Dominica explained that three main criteria were used for allocating forest types: descriptions of forest types presented in reference documents, expert field knowledge and observation (particularly during seasonal changes) and the elevation and location threshold for the Collect Earth assessment. The AT commends Dominica for providing this additional information, which increases the transparency of the FRL, and suggests including this information in future submissions.

18. The AT noted that the Party's FRL mentions that the FRL was prepared in accordance with decision 12/CP.17, in particular paragraph 7 thereof, which suggests that the FRL presented by Dominica should be expressed in t CO_2 eq per year, with the aim of serving as a benchmark for assessing the country's performance in implementing REDD+ activities. However, the AT noted that throughout the FRL submission document the FRL was presented in t C. During the TA Dominica clarified that it considered carbon stock in 2018 as the baseline for its FRL projections, because of Hurricane Maria in 2017. The AT considers that the additional information provided by Dominica during the TA could help to build confidence in the emission estimates.

19. Dominica applied an adjustment to calculate removals on forest land remaining forest land. Instead of using historical emissions and removals during the reference period, the nearly linear FRL proposed by Dominica for 2018–2025 is the expected carbon removals due to post-disturbance forest regrowth as natural regeneration starting in 2018, plus the expected carbon removals for land converted to forest land (i.e. –648,028 t CO_2 eq per year) in the original submission, which was modified to –446,983 t CO_2 eq per year as a result of the facilitative process during the TA. Dominica also indicated that since the 1950s the Caribbean region has suffered 324 natural disasters (i.e. approximately four disasters per year) that have resulted in major impacts (landslides and floods) or catastrophic impacts (hurricanes and storms). During the TA, the AT sought additional information on whether the likelihood of disasters had been accounted for in the construction of the near-linear FRL for 2018–2025 and also whether Dominica considered using forest regrowth trends after disturbances to adjust the FRL. Dominica clarified that it had been unable to find a methodology suitable for representing such disasters in its FRL projection and that data on forest regrowth after disturbances had not been collected. The AT commends Dominica for providing this information and noted this as an area for future technical improvement.

20. In order to calculate the annual change in biomass carbon stocks for the category land converted to forest land, Dominica used the gain–loss method from the 2006 IPCC Guidelines (vol. 4, chap. 2) and applied the total carbon stock of the new forest land (160.44 t C/ha) to the term *Conversion* "initial change in carbon stocks in biomass on land converted to other land-use category" (equation 2.15). However, the AT noted that, in most cases, the term *Conversion* should be zero. For example, for conversions from cropland or grassland to forests, there would be no biomass immediately after the conversion. The AT considered that

applying the carbon stock of full-grown forests to the term *Conversion* may result in a significant overestimation of annual net removals. Dominica responded that this carbon stock (160.44 t C/ha) is not the stock of full-grown forests, but of young forests. Furthermore, it explained that zero was not applied to the term *Conversion* because, in most cases, five years had passed since the conversion had occurred and the forests had been maturing during that time. The AT commends Dominica for providing this information but considers this as an area for future technical improvement.

21. Dominica also applied the average value of the reference period to calculate losses in land converted to forest land. The AT noted that this average value included losses due to the hurricane in 2017 and therefore was not relevant to loss prediction for afforested land. The AT suggests that the Party use the expected average losses or set the losses to zero, noting this as an area for future technical improvement.

22. The AT noted that there could be a significant loss of soil carbon as a result of the biomass losses following the hurricane and the time until the new forests produce litter. The AT suggested that Dominica could explore options to take into account the changes in the DOM and SOC pools to ensure the accuracy of the FRL or refer to these eventual losses as natural losses due to the disturbance by the hurricane. In the modified submission, the Party described how the DOM and SOC pools have been included and clarified that the transfer of DOM to SOC was computed by allocating a decomposition rate of 1 per cent per year starting from year 5, based on the assumption that it takes about 100 years for deadwood to decompose in the tropical forest of Dominica. The AT commends Dominica for providing this information. However, the AT could not find the value for this annual loss in the submitted Excel spreadsheet. Furthermore, annual losses of carbon allocated to DOM in 2017 (–14,642,458 t CO_2 eq), which should be transferred to SOC, could not be seen from 2018 onward. It was not clear whether the increase in SOC was due to the effect of decomposed carbon from DOM. The AT notes this as an area for future technical improvement.

23. In the FRL document, the values for SOC stock for each land-use subcategory were based on the FAO SOC map. The AT noted that these carbon stocks were significantly higher than the reference SOC values presented in the 2006 IPCC Guidelines (vol. 4, chap. 2, table 2.3) and the 2019 Refinement to the 2006 IPCC Guidelines (table 2.3). The AT considered that this situation could lead to both under- and overestimations of carbon stock changes due to land-use change. Dominica clarified that it used the FAO SOC data because these facilitated an explicit spatial analysis when the SOC map data were linked to the Collect Earth sampling plots, which allowed for a plot-by-plot analysis as presented in the FRL. In addition, Dominica mentioned that the FAO SOC values were country specific, whereas the values from the 2006 IPCC guidelines referred to large regions and were less precise than country-specific data. The AT considers that the additional information provided by Dominica during the TA could help to build confidence in the emission estimates.

24. During the TA, the AT suggested Dominica could consider including the activity reducing emissions from deforestation in the FRL. In the modified submission, Dominica classified forest lands into four categories in accordance with the level of damage caused by Hurricane Maria in 2017, as follows: no significant damage, damage I (stem remained standing but had broken branches or heavy defoliation), damage II (stem and branches were broken, full defoliation, but trees were not uprooted) and damage III (trees were totally uprooted). Dominica also noted that it was unlikely that emissions from deforestation in 2018–2025 would be high in forest lands classified as damage I, II and III. As a result, Dominica applied an adjustment and only 25 per cent of the historical deforestation rate was taken into account as a reference to deforestation in the forest classified as no significant damage. The AT commends Dominica for providing this additional information, which increases the transparency of the FRL.

25. The AT noted that the links to some relevant reports did not work and asked Dominica to make the reports publicly available. Although the modified submission indicated the intention to provide the links to the reports, the links were not provided in the modified submission. The AT considers publication of the relevant reports to increase transparency as an area for future technical improvement.

26. The Excel spreadsheet for the FRL calculations states that the projected FRL is the new scenario for the FRL (‘business as usual’ 80 per cent). The AT could not find any information on such a scenario in the submission. Dominica explained that this ‘business as usual’ scenario considers only natural regeneration, but there is another scenario (‘business as usual’ 80 per cent plus REDD+ 20 per cent), which considers both natural and assisted regeneration and rehabilitation. Dominica further explained that this information was not included in the submission because the FRL refers to both historical and anticipated conditions. The AT commends Dominica for providing this additional information and suggests that the Party could include this information in future submissions.

27. In the FRL submission, the Party reported an uncertainty assessment using an adjusted equation based on equation 3.2 from the 2006 IPCC Guidelines. Dominica calculated that forest-related emissions and removals have a total uncertainty of 3.76 per cent, and identified that the highest uncertainty could be seen in the forest growth rates, which are default values in the 2006 IPCC Guidelines. The AT commends Dominica for conducting the uncertainty analysis.

(b) Description of relevant policies and plans, as appropriate

28. Dominica included information in its submission on a range of policies and plans, including the National Resilience Development Strategy 2030, which is the overarching framework providing the road map and guidelines for taking the country to where it should be by 2030. The National Land Use Policy 2014 provides direction for all land-use decisions and describes how best to manage development to improve the quality of life for Dominicans via economic and social development, protecting human health and safety, and conserving the natural environment. Some policies related to tourism (National Tourism Policy and the Tourism Master Plan 2012–2022) deal with conservation of forests by identifying priority areas (i.e. zoning). The Forest Policy Statement for the Commonwealth of Dominica (2010) was developed in order to guide the sustainable management of Dominica’s forest resources, while maintaining or improving the present area of forest cover.

3. Pools, gases and activities included in constructing the forest reference level

29. According to decision 12/CP.17, annex, paragraph (c), reasons for omitting a pool or activity in constructing the FRL should be provided, noting that significant pools and activities should not be excluded.

30. The pools included in the Party’s FRL are above-ground biomass, below-ground biomass, DOM and SOC. The harvested wood carbon pool was not included owing to lack of information.

31. The FRL includes net removals from forest land remaining forest land, land converted to forest land and forest land converted to other land-use categories. The major contribution to net removals originates from regrowth on previously disturbed forest land (i.e. regrowth of forest as natural and assisted regeneration of forest on land disturbed by the hurricane in 2017).

32. Changes in the living biomass carbon pool on forest land remaining forest land, either disturbed or undisturbed, constitutes the major share of the net removals in the proposed FRL. The loss of living biomass due to the hurricane resulted in the transfer of carbon from living biomass to DOM and soil, so the soil organic pool also contributes as a sink. The AT also noted that Dominica introduced an approach for estimating DOM and SOC for forest land remaining forest land that takes into account losses such as the successive degrading of carbon.

33. The AT acknowledges that Dominica included in its FRL the most significant activities of the five activities identified in decision 1/CP.16, paragraph 70, in accordance with its national capabilities and circumstances, namely conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks. Although emissions from land converted from forest land to other land-use categories were included, these emissions were not considered as the activity reducing emissions from deforestation per se (i.e. based on historical deforestation rates). The activities reducing emissions from deforestation and reducing emissions from forest degradation were not included as a

consequence of the severe loss of forest cover in 2017, because it was not possible to estimate an appropriate level of emissions under current conditions.

34. The AT noticed that yearly land-use matrices from 2000 to 2017 did not depict any changes in forest land remaining forest land. As this situation seems quite unlikely, the AT suggested that Dominica could explore why deforestation and forest degradation has not been accounted for in analysing the historical reference period, given that reducing emissions from deforestation and reducing emissions from forest degradation are REDD+ activities. In the modified submission, Dominica explained that despite deforestation and forest degradation continuing to happen after the hurricane, it is unlikely that emissions from deforestation and forest degradation for 2018–2025 would be high in forests in the categories damage I, II and III (see para. 24 above), and concluded that it should estimate emissions from deforestation only for the "no significant damage" zone and not include emissions from forest degradation in its FRL. The AT commends Dominica for providing this additional information, which increases the transparency of the FRL.

35. In its submission, Dominica mentioned that it included CO_2, CH_4 and N_2O, although no emissions of CH_4 and N_2O were actually included in the final FRL estimate. During the TA, the AT suggested that Dominica could either include the effect of historical biomass burning in the estimates or clarify that these gases (CH_4 and N_2O) are not included. In response, Dominica mentioned that it would keep monitoring the forest and report the non-CO_2 emissions when forest fires occur. The AT commends Dominica for providing this additional information, which increases the transparency of the FRL, but notes it as an area for future technical improvement.

4. Definition of forest

36. Dominica provided in its submission the definition of forest used in constructing its FRL: "forest lands with canopy ≥60 per cent, minimum area of 1 ha and height ≥3 m, including temporary unstocked areas with the potential to reach the forest definition". This definition was applied for all forest types.

37. The AT noted that the definition is different from that used by the Party for its reporting to FAO for the Global Forest Resources Assessment (i.e. minimum area of 0.5 ha, height of 5 m or more and at least 10 per cent canopy cover or trees able to reach these thresholds in situ). During the TA, the AT sought clarification on the misalignment of these two definitions used by the Party. Dominica clarified that under the REDD+ framework for Dominica, the forest definition was agreed upon during consultations held with forestry, physical planning and agriculture officers to fulfil two main objectives that were to be operational for the monitoring, reporting and verification process: (1) monitoring to be done through remote sensing images; and (2) increasing forest cover as part of climate resilience strategies and in line with the Forest Statement for the Commonwealth of Dominica. The Party concluded that a high canopy cover threshold was representative of those objectives. The AT commends the Party for the clarifications, which improved the transparency of the FRL calculations.

38. Given the different definitions mentioned above, the total area of forest land remaining forest land was significantly higher (57,710 ha) in the submission for the FRL than in the Global Forest Resources Assessment (47,870 ha).

39. The GHG inventory reported in the Party's third national communication did not include a forest definition, although the forest area was estimated using remote sensing. Dominica's third national communication indicates that the total forest area of the country was derived using remote sensing analysis of 2014 satellite imagery. The forest area for 2014 was estimated at 44,860 ha, which differs from value presented in the FRL document (the forest area for 2015 was estimated at 57,804 ha). During the TA, Dominica clarified that its third national communication used completely different data sets for the agriculture, forestry and other land use sector, which were collated from default data; thus the values in the FRL are not relevant to the GHG inventory. The AT considers that the information provided by Dominica during the TA could help to improve the transparency and reproducibility of the FRL.

III. Conclusions

40. The information used by Dominica in constructing its FRL for conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks is partially transparent (see para. 46 below) and complete and in overall accordance with the guidelines for submissions of information on reference levels.

41. The adjusted FRL presented in the modified submission, for the reference period 2001–2017, corresponds to –446,983 t CO_2 eq/year.

42. The AT acknowledges that Dominica included in its FRL the most significant activities, the most important forest types and the most significant pools in terms of emissions from forests. The AT considers that, in doing so, Dominica followed decision 1/CP.16, paragraph 70, on activities undertaken and decision 12/CP.17, paragraph 10, on applying the stepwise approach.

43. As a result of the facilitative interactions with the AT during the TA, Dominica provided a modified submission that took into consideration most of the technical input of the AT. Though some technical inputs were still pending in the modified FRL (see para. 20–22 and 25–26 above), the AT notes that the transparency and completeness of the information provided were significantly improved in the modified FRL submission and commends Dominica on its efforts. The new information provided in the modified submission, including the data made available and the examples of how estimates of net removals of CO_2 were calculated, increased the reproducibility of the FRL calculations.

44. The AT notes that, overall, Dominica did not maintain consistency, in terms of sources of AD and EFs used for its FRL, with those used for the GHG inventory included in its third national communication.[10]

45. The AT notes that the application of an adjustment to establish the FRL without taking into account historical emissions and removals during the reference period for the calculation of emissions and removals for the categories forest land remaining forest land and forest land converted to other land should be justified by explaining that no data and information are available about forest regrowth after disturbances and providing a description of Dominica's national circumstances (see para. 19 above).

46. Pursuant to decision 13/CP.19, annex, paragraph 3, the AT identified the following areas for future technical improvement:

(a) Adding detailed explanations about forest classification (i.e. classification of deciduous seasonal forest and classification by elevation) (see paras. 16–17 above);

(b) Collecting data about forest regrowth after disturbances to establish the FRL based on historical emissions and removals (see para. 19 above);

(c) Applying zero to the term *Conversion* when calculating the annual change in biomass carbon stocks on land converted to other land, or adding an explanation of why zero was not applied to the term in the submission (see para. 20 above);

(d) Applying the expected average values or zero to calculate losses in land converted to other land because the average value for the reference period does not represent the loss predicted for afforested land (see para. 21 above);

(e) Calculating the carbon transfer from the DOM pool to the SOC pool, which could not be seen in the submitted Excel spreadsheet (see para. 22 above);

(f) Making the relevant reports indicated in the submission available to the public in order to increase transparency (see para. 25 above);

(g) Improving the description of which assumptions are include in the scenario for the FRL (i.e. clarify the difference between the 'business as usual' 80 per cent scenario and the 'business as usual' 80 per cent plus REDD+ 20 per cent scenario) (see para. 26 above).

[10] In reference to the scope of the TA, as per decision 13/CP.19, annex, para. 2(a).

47. Pursuant to decision 13/CP.19, annex, paragraph 2(f), in assessing the pools and gases included in the FRL the AT noted that the pools and gases excluded by Dominica are likely to be insignificant in the context of the FRL. Nevertheless, pursuant to decision 13/CP.19, annex, paragraph 3, the AT identified the following additional area for future technical improvement regarding pools and gases excluded from the FRL: treatment of emissions of CO_2 and non-CO_2 gases from fires (i.e. to maintain consistency with the GHG inventory included in the Party's national communication/biennial update report) (see para. 35 above).

48. The AT acknowledges and welcomes the Party's intention to:

(a) Continue monitoring forest degradation to assess whether the reduction of deforestation is leading to the displacement of emissions, and include emissions from forest degradation in future FRL submissions when new and adequate data and better information are available;

(b) Collect data necessary to quantify risk associated with the impacts of climate change and natural hazards on forests.

49. In conclusion, the AT commends Dominica for showing strong commitment to continuously improving its FRL estimates in line with the stepwise approach. A number of areas for the future technical improvement of Dominica's FRL have been identified in this report. At the same time, the AT acknowledges that such improvements are subject to national capabilities and policies, and notes the importance of providing adequate and predictable support.[11] The AT also acknowledges that the TA was an opportunity for a rich, open, facilitative and constructive technical exchange of information with Dominica.

50. The table contained in annex I summarizes the main features of Dominica's proposed FRL.

[11] As per decisions 13/CP.19, annex, para. 1(b); and 12/CP.17, para. 10.

Annex I

Summary of the main features of the proposed forest reference level based on information provided by Dominica

Main features of the FRL		*Remarks*
Proposed FRL	–446 983 t CO_2 eq/year	The proposed FREL is based on expected carbon removals due to post-disturbance forest regrowth along with the expected carbon removals on land converted to forest land. See paragraph 8 of this document
Type and reference period of FRL	FRL = average of historical removals in 2001–2017 for land converted to forest land and a projection of expected annual emissions and removals in 2018–2025 for forest land remaining forest land and forest land converted to other land	Owing to a loss of 90 per cent of forest cover in 2017, the FRL is based on regrowth in forest land and land converted to forest land. Dominica did not apply the reference period for removals on forest land remaining forest land and emissions from forest land converted to other land. See paragraph 9 of this document
Application of adjustment for national circumstances	Yes	Dominica calculated emissions and removals on forest land remaining forest land and forest land converted to other land on the basis of expected carbon emissions and removals along with assumptions made using local expert knowledge. See paragraph 9 of this document
National/subnational	National	See paragraph 7 of this document
Activities included	Conservation of forest carbon stocks Sustainable management of forests Enhancement of forest carbon stocks	See paragraph 7 of this document
Pools included	Above-ground biomass Below-ground biomass DOM Soil	The harvested wood carbon pool was not included owing to a lack of information. See paragraph 10 of this document
Gases included	CO_2, CH_4 and N_2O	No emissions of CH_4 and N_2O were included because no forest fires were recorded for the reference period. See paragraph 10 of this document
Forest definition	Included	The forest definition deviates from the FAO definition. See paragraph 38 of this document
Consistency with latest GHG inventory	Methods used for estimating the FRL are not consistent with those used for the latest GHG inventory (2020)	The GHG inventory presented in the third national communication used completely different data sets for the agriculture, forestry and other land use sector. See paragraph 39 of this document
Description of relevant policies and plans	Included	Dominica provided information on relevant policies and plans. See paragraph 28 of this document

Main features of the FRL		*Remarks*
Description of assumptions on future changes to domestic policy, if included in constructing the FRL	Not applicable	
Description of changes to previous FRL	Not applicable	
Identification of future technical improvements	Included	Several areas for future technical improvement have been identified (see paras. 46–47 of this document)

Annex II

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl.

IPCC. 2019. 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. E Calvo Buendia, K Tanabe, A Kranjc, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc.ch/report/2019-refinement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/.

B. UNFCCC documents

First modified FRL submission of Dominica. Available at https://redd.unfccc.int/submissions.html?country=dma.

Third national communication of Dominica. Available at https://unfccc.int/non-annex-I-NCs.

"Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference levels". Decision 13/CP.19, annex. Available at https://unfccc.int/sites/default/files/resource/docs/2013/cop19/eng/10a01.pdf#page=36.

"Guidelines for submissions of information on reference levels". Decision 12/CP.17, annex. Available at https://unfccc.int/sites/default/files/resource/docs/2011/cop17/eng/09a02.pdf#page=19.

C. Other documents

The following references may not conform to UNFCCC editorial style as some have been reproduced as received or as cited in the submission:

Chave, Jérôme, Maxime Réjou-Méchain, Alberto Búrquez, Emmanuel Chidumayo, Matthew S. Colgan, Welington B. C. Delitti, Alvaro Duque, Tron Eid, Philip M. Fearnside, Rosa C. Goodman, Matieu Henry, Angelina Martínez-Yrízar, Wilson A. Mugasha, Helene C. Muller-Landau, Maurizio Mencuccini, Bruce W. Nelson, Alfred Ngomanda, Euler M. Nogueira, Edgar Ortiz-Malavassi, Raphaël Pélissier, Pierre Ploton, Casey M. Ryan, Juan G. Saldarriaga, and Ghislain Vieilledent. 2014. "Improved Allometric Models to Estimate the Aboveground Biomass of Tropical Trees." Global Change Biology 20(10):3177–90. doi:10.1111/gcb.12629.

FAO, Global Forest Resources Assessment 2020 of Dominica. Available at https://www.fao.org/3/ca9988en/ca9988en.pdf.