



Report on the technical assessment of the proposed forest reference level of Burkina Faso submitted in 2020

Summary

This report covers the technical assessment of the voluntary submission of Burkina Faso 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 Burkina Faso covers the activities reducing emissions from deforestation, reducing emissions from forest degradation and enhancement of forest carbon stocks, which are among the activities included in decision 1/CP.16, paragraph 70. For its submission, Burkina Faso developed a national FRL. The FRL presented in the original submission, for the reference period 1992–2014, corresponds to 6,314,100 tonnes of carbon dioxide equivalent per year. As a result of the facilitative process during the technical assessment, the FRL was modified to 10,218,000 tonnes of carbon dioxide equivalent per year and the reference period to 1995–2017. The assessment team notes that the data and information used by Burkina Faso in constructing its FRL are transparent, complete and in overall accordance with the guidelines contained in the annex to decision 12/CP.17. This report contains the assessed FRL and a few areas identified by the assessment team for future technical improvement in accordance with the provisions on the scope of the technical assessment contained in the annex to decision 13/CP.19.



Abbreviations and acronyms

AD	activity data
AT	assessment team
CH ₄	methane
COP	Conference of the Parties
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
EF	emission factor
FAO	Food and Agriculture Organization of the United Nations
FRA	Global Forest Resources Assessment
FREL	forest reference emission level
FRL	forest reference level
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
MMU	minimum mapping unit
NC	national communication
NFI	national forest inventory
N ₂ O	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)
Revised 1996 IPCC Guidelines	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SOC	soil organic carbon
TA	technical assessment
2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>

I. Introduction and summary

A. Overview

1. This report covers the TA of the voluntary submission of Burkina Faso on its proposed FRL,¹ submitted on 6 January 2020, in accordance with decisions 12/CP.17 and 13/CP.19. The remote TA² took place from 8 to 12 June 2020 and was coordinated by the secretariat.³ The TA was conducted by two land use, land-use change and forestry experts from the UNFCCC roster of experts⁴ (hereinafter referred to as the AT): Florian Claeys (France) and Jean-Paul Kibamba Lubamba (Democratic Republic of the Congo). In addition, Gervais Ludovic Itsoua Madzous, an expert from the Consultative Group of Experts, participated as an observer⁵ during the remote session. The TA was coordinated by Sabin Guendehou (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, Burkina Faso submitted its proposed FRL on a voluntary basis. The proposed FRL is one of the elements⁶ 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 FREL or 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. Burkina Faso provided its submission in French. The submission is supported by two annexes covering transition matrices for all land-use database categories (annex 1) and uncertainty calculations for EFs (annex 2), which enhance the transparency of the FRL. The Party also provided additional material during the TA: the technical specifications for land-use change maps, vegetation-cover maps, a detailed description of the NFI, a description of the national soil survey, a draft version of the NC3 (dated August 2019), a summary report of the national working group on forest definition and the land classification scheme, a draft version of the national REDD+ strategy, and detailed documentation on the construction of the FRL, including uncertainty estimates. Burkina Faso further provided information on the quality control and validation of the vegetation-cover maps produced by the Geographic Institute of Burkina Faso and on national policies and institutional arrangements related to the country's REDD+ activities.

4. The objective of the TA is to assess the degree to which the information provided by Burkina Faso is in accordance with the guidelines for submissions of information on reference levels⁷ 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 Burkina Faso for the construction and future improvement of its FRL, as appropriate.⁸

5. The TA of the FRL submitted by Burkina Faso was undertaken in accordance with the guidelines and procedures for the TA of submissions from Parties on proposed FRELs and/or FRLs.⁹ 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 Burkina Faso. The facilitative exchange during the TA allowed Burkina Faso to provide clarifications and additional information, which were considered by the AT in the preparation of this report.¹⁰ As a result of the

¹ The submission of Burkina Faso is available at <https://redd.unfccc.int/submissions.html?country=bfa>.

² Owing to the circumstances related to the coronavirus disease 2019, the TAs of the FREL and FRL submissions of developing country Parties in 2020 had to be conducted remotely.

³ As per decision 13/CP.19, annex, para. 7.

⁴ As per decision 13/CP.19, annex, paras. 7 and 9.

⁵ As per decision 13/CP.19, annex, para. 9.

⁶ See decision 1/CP.16, para. 71(b).

⁷ Decision 12/CP.17, annex.

⁸ Decision 13/CP.19, annex, para. 1(a–b).

⁹ Decision 13/CP.19, annex.

¹⁰ As per decision 13/CP.19, annex, paras. 1(b), 13 and 14.

facilitative interactions with the AT during the TA, Burkina Faso provided a modified version of its submission on 19 August 2020, 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. The modified submission, containing the assessed FRL, and the original submission are available on the UNFCCC website.¹¹

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 Burkina Faso, on a voluntary basis for a TA in the context of results-based payments, covers the activities reducing emissions from deforestation, reducing emissions from forest degradation 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, Burkina Faso developed a national FRL that covers its entire territory. For its submission, Burkina Faso 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 FRELs or FRLs by incorporating better data, improved methodologies and, where appropriate, additional pools.

8. The national FRL proposed by Burkina Faso for the historical reference period 1995–2017 is the annual average of emissions of CO₂, CH₄ and N₂O associated with deforestation and forest degradation and net removals associated with enhancement of forest carbon stocks. The proposed FRL was constructed using the gain–loss method from the 2006 IPCC Guidelines. The AD used in constructing the FRL were extracted from three land-use databases (for 1992, 2002 and 2014) and two maps of vegetation-cover change (for 1992–2002 and 2002–2014). The maps were developed by the Geographic Institute of Burkina Faso on behalf of the Ministry of Environment, Green Economy and Climate Change. In the modified submission, emissions of CO₂, CH₄ and N₂O associated with bush fires were estimated using historical data gathered between 1995 and 2017 from the Monitoring for Environment and Security in Africa programme and the National Observatory for the Environment and Sustainable Development. The EFs were obtained from Burkina Faso’s second NFI, which was carried out between 2012 and 2018, and the national soil survey, which was conducted by the National Soils Bureau between 1985 and 2019. The EFs were complemented by soil data and information from the International Soil Reference and Information Centre.¹² The EFs for bush fire emissions are IPCC default values from the 2006 IPCC Guidelines. Regarding the 100-year time-horizon, global warming potential values from the IPCC Second Assessment Report were used to convert CH₄ and N₂O emissions into CO₂ eq emissions. The FRL presented in the modified submission, with the aim of accessing results-based payments for REDD+ activities for 1995–2017, corresponds to 10,218,000 t CO₂ eq/year.¹³

9. The proposed FRL includes the pools above-ground biomass, below-ground biomass, deadwood and SOC, and excludes the litter pool. Regarding GHGs, the submission includes CO₂, CH₄ and N₂O.

¹¹ <https://redd.unfccc.int/submissions.html?country=bfa>.

¹² Available at <https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/4ef1fe75-44f2-4f12-b0a4-dad9d90a61b9>.

¹³ In its original submission, Burkina Faso proposed a national FRL of 6,314,100 t CO₂ eq/year for 1995–2015. The difference between the original and the modified submission is due mostly to the change of the national forest definition, historical reference period and MMU (from 0.5 to 0.8 ha), inclusion of CH₄ and N₂O emissions and emissions associated with bush fires, more accurate consideration of above-ground biomass on non-forest land and more comprehensive treatment of the SOC pool.

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

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

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

10. For constructing its FRL, Burkina Faso used the 2006 IPCC Guidelines. The FRL includes the activities reducing emissions from deforestation, reducing emissions from forest degradation and enhancement of forest carbon stocks for the reference period 1995–2017. Deforestation is defined as the transition from forest land to non-forest land. Forest degradation refers to the reduction of carbon stocks in forest land remaining forest land, which may include loss of biodiversity. No clear definition is provided in the submission of the enhancement of forest carbon stocks, but it is implied that it includes the natural regeneration of fallow land and the assisted regeneration of forest land through afforestation and reforestation.

11. The Party sourced its AD from satellite images for 1992 (from Landsat 4 and 5), 2002 (Landsat 7) and 2014 (Landsat 8) that had 30×30 m spatial resolution and covered the whole country. Landsat images were selected mainly on the basis of two criteria: they were cloud-free and could be used for addressing seasonality effects. A supervised pixel-based classification was conducted to obtain the land-cover maps for the three years using an MMU of 0.8 ha, which was considered optimal for the spatial resolution of the satellite imagery used. The three land-cover maps produced were compared with one another to derive land-cover change maps for 1992–2002 and 2002–2014. In its modified submission, Burkina Faso included an uncertainty analysis of the land-cover maps, which indicated a total uncertainty of 8.0 per cent, far below the 32.7 per cent indicated in the original submission, for which an MMU of 0.5 ha was used.

12. The EFs for the above-ground biomass and deadwood pools were obtained from data collected during the second NFI, and the EFs for the SOC pool were obtained from data collected during the national soil survey. For the second NFI, the country was stratified into four phytogeographical zones: North Sahelian, South Sahelian, North Soudanian and South Soudanian. A total of 21 strata were defined, comprising eight forest classes: dry forest, gallery forest, forest plantation, tree steppe, tree savannah, agroforestry park, shrub steppe and shrub savannah. A total of 5,850 sampling units (of which 1,147 are permanent plots) with a regular grid of 3×3 km were randomly established throughout the entire territory, while ensuring each stratum was statistically represented. After the second NFI, allometric equations were developed for estimating volume of tree trunks, branches with a diameter of greater than or equal to 2 cm and leaf biomass: 19 species-specific (for dominant trees) and one multispecies equation for the Sahelian zones and 21 species-specific (for dominant trees) and one multispecies equation for the Soudanian zones, suitable for estimating fuelwood, timber and leaf biomass volumes by phytogeographical zone. The wood density value used to convert volume into biomass was derived from the literature because that parameter was not measured during the NFI. Information on SOC was obtained from 1,397 georeferenced sample points for which data were collected in the upper 30 cm soil horizon in line with the 2006 IPCC Guidelines. Above-ground biomass, deadwood and SOC were estimated using the tier 3 approach. Below-ground biomass was also estimated with the tier 3 approach, using the IPCC default ratio of below-ground biomass to above-ground biomass for tropical dry forest and subtropical steppe.

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

13. Burkina Faso used the approach described in paragraph 11 above to produce land-cover change maps for 1992–2002 and 2002–2014 that contain information on the spatial

extent of changes from one class to another. During the TA, the AT noted that the underlying process used to derive the maps led to several inconsistencies in the AD, including a decreasing trend for both deforestation and forest degradation between the two periods. The Party explained that it found this trend to be unreliable, as it would lead to zero emissions for the country by 2025, which is highly unlikely and does not reflect the observed dynamics and national circumstances. In addition, the AT sought clarification about the uncertainty of the AD and the improvement of the land-cover maps used.

14. To address the inconsistencies in the AD noted by the AT, Burkina Faso included in its modified submission a land transition matrix averaged over 1992–2014, which enabled a more robust approach to assessing historical levels of deforestation and forest degradation. The Party also updated the land-cover maps using an MMU of 0.8 ha. The AT commends the Party for its efforts to improve the accuracy of the AD and for applying the tier 3 approach from the 2006 IPCC Guidelines for land representation. All these efforts contributed to reducing the uncertainty of the AD significantly from 32.7 to 8.0 per cent.

15. In the modified submission, Burkina Faso indicated 1995–2017 as the reference period and provided annual values for that time series, distinguishing between the averaged value of emissions and removals associated with changes in carbon pools for 1992–2014 (implicitly assumed to remain constant in 2014–2017) and the 1995–2017 time series of emissions associated with bush fires. The AT considers that aligning all AD with the modified reference period would improve the accuracy, consistency, completeness and transparency of the FRL, and noted this as an area for future technical improvement.

16. During the TA, the Party indicated that the estimated removals from enhancement of forest carbon stocks might either be a result of the classification errors in the land-cover maps (see para. 13 above) or, in the case of agroforestry parks and natural regeneration of fallow land, be artificial. The AT sought clarification on the inclusion of agroforestry parks in the forest category, which might result in increased estimated removals associated with enhancement of forest carbon stocks. As a result of the facilitative interactions with the AT during the TA, and with the aim of ensuring consistency in estimating removals from enhancement of forest carbon stocks, Burkina Faso included agroforestry parks under the cultivated land category. The AT considers that providing detailed information on the estimation methodology used for the activity enhancement of forest carbon stocks, particularly regarding the changes in carbon stocks in pools for forest areas not subject to land-use change, would improve the transparency of the FRL, and noted this as an area for future technical improvement.

17. Pursuant to decisions 12/CP.17 and 13/CP.19 concerning consistency with corresponding anthropogenic forest-related GHG emissions and removals, the AT compared the estimated emissions and removals from deforestation, forest degradation and enhancement of forest carbon stocks used in calculating the FRL with the emissions and removals reported by Burkina Faso in its most recent GHG inventory, which at the time of the TA was the inventory included in the NC1 (which was submitted in 2002 and covered 1999 only). The comparison was conducted in line with the Revised 1996 IPCC Guidelines. In the GHG inventory, emissions from bush fires were reported under agriculture and livestock, emissions and removals from forest activities were reported together, and emissions and removals associated with deforestation were not reported. During the TA, the AT noted that the FRL submission was not consistent with the NC1 GHG inventory in terms of definitions, methodologies, AD and EFs. In response, Burkina Faso shared the GHG inventory that it has under development, which is included in its draft NC3. The AT found significant discrepancies also between the emissions and removals reported in the FRL and in that GHG inventory. The Party explained that, while establishing institutional arrangements for the GHG inventory had been challenging, a process of reconciling data sets and analyses was under way to ensure consistency between the FRL and the inventory. Burkina Faso indicated that the NC3 will include information and estimates (i.e. definitions, methodologies, AD and EFs) that are consistent with those in the FRL submission. The AT commends the Party for its efforts to improve consistency between the GHG inventory contained in its NC and the FRL.

18. During the TA, the AT requested the Party to include for all three activities included in the FRL country-specific data on below-ground biomass, as measured in the field during

the second NFI, because these data would increase the accuracy and completeness of the FRL. The AT commends Burkina Faso for continuing to work on updating and improving the estimation of below-ground biomass, and noted this as an area for future technical improvement.

19. Data collected during the second NFI were used to estimate wood volumes for each forest stratum and by phytogeographical zone. The AT noted large variation in the number of sample plots across the diverse land-use categories, which it considered might affect the representativeness of the sampling approach of the NFI. During the TA, Burkina Faso provided the AT with detailed information on the statistical representativeness of these plots and indicated that the sampling approach had been evaluated by the National Institute of Statistics and Demography. The Party explained that the points representing the plots were derived by simple random selection for each phytogeographical zone from a total of 5,850 points generated over a 3×3 km grid. The AT considers that the additional information provided by Burkina Faso in its modified submission considerably increased the transparency of the FRL and clarified the statistical information on the NFI.

20. Burkina Faso explained in its original submission that to estimate wood volume during the second NFI it took into account stems with a diameter greater than or equal to 5 cm in each plot. Also, data on herbaceous biomass were collected. During the TA, the Party provided the AT with information on the calculation of wood volume and clarified that the definition of wood volume was proven to be deficient in the construction of the FRL. In the modified submission, Burkina Faso reported a statistical analysis of the data from the NFI that were used to estimate the above-ground biomass for all strata, including those classified as forest land or non-forest land, according to the type of woody stand and by phytogeographical zone. Above-ground biomass was estimated using the allometric equations from the NFI in combination with data from the scientific literature to estimate the density values of the dominant tree species and the ratio of dry to wet weight of woody biomass. Leaf biomass data from the NFI were also accounted for in the above-ground biomass estimations. The AT commends Burkina Faso for providing this information in the modified submission, which improved the transparency of the wood volume calculations used in constructing the FRL, and welcomes Burkina Faso's intention to improve its use of country-specific data.

21. The modified submission indicates that the allometric equations developed following the second NFI were limited to the estimation of timber production parameters (lumber, service timber, fuelwood, etc.) and focused on barrel, branch and leaf biomass estimates, and that developing specific allometric equations for estimating above-ground biomass would constitute an improvement to the FRL. The AT noted that the information in the submission on the methodology used to determine above-ground biomass does not specify whether and how species-specific allometric equations were used for estimating biomass for dominant and non-dominant species. The AT considers that providing detailed information on the use of allometric equations would improve the transparency of the FRL, and noted this as an area for future technical improvement.

22. The AT sought clarification on the significant differences it observed in the reported historical values of forest areas between the FRL submission and the FRA published by FAO in 2015. Burkina Faso explained that the observed discrepancies were due mainly to the difference in the forest definition used – in particular, agroforestry parks and tree savannahs were considered forest for the FRL but as other land for the FRA. For the modified submission, the Party applied the same forest definition as for the FRA. The AT considers that changing the forest definition improved the transparency of the FRL.

23. The AT commends the Party for providing additional information in the modified submission, although it was not sufficient to allow the AT to independently reconstruct the FRL. The AT was not able to verify the calculation of AD from primary data sources, the estimation of country-specific EFs, whether the EFs had been correctly applied to the AD, or whether the sum of the results of those calculations corresponded to the values reported for the FRL. The AT considers that providing the calculations related to AD and EFs used in constructing the FRL would improve the transparency of the FRL, and noted this as an area for future technical improvement.

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

24. At the time of submission of the FRL, the national REDD+ strategy had not been finalized. During the TA, Burkina Faso provided the AT with a draft of the strategy, which includes information not only on REDD+ activities but also on the institutional arrangements and measurement, reporting and verification system necessary for implementing the activities. The strategy includes policies and measures specific to forestry (e.g. reduction of firewood consumption, bush fire management, sustainable forest management), agriculture (e.g. land restoration, promotion of agroforestry, SOC enhancement), livestock (e.g. sustainable fodder wood management) and mining (e.g. land rehabilitation), as well as cross-cutting policies and measures (related, e.g., to governance, environmental taxation, land planning and land tenure).

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

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

26. The pools included in the Party's FRL are above-ground biomass, below-ground biomass, deadwood and SOC. The litter pool was not included. The AT welcomes Burkina Faso's intention to consider the inclusion of fuelwood, which would improve the coverage of the deadwood and litter pools, in future FRLs.

27. Regarding the changes in carbon stock in pools occurring during deforestation and forest degradation, the AT notes that above-ground biomass values derived from the second NFI on forest land were also used for non-forest land. As mentioned in the original submission, the Party considered this approach to be deficient. In the modified submission, Burkina Faso considered data on above-ground biomass of non-forest land, thus improving the reliability of the estimates of changes in pools during the conversion of forest land to other land uses.

28. With regard to emissions and removals from above-ground biomass, the AT acknowledges the use of country-specific EFs derived from the second NFI. In its modified submission, Burkina Faso compared these country-specific EFs with the IPCC default values and demonstrated that they are within the margin of error of those values. The AT concludes that the country-specific EFs for the above-ground biomass pool are consistent with the IPCC default values.

29. With regard to emissions and removals from below-ground biomass, the AT notes the use of default factors from the 2006 IPCC Guidelines. The AT welcomes the Party's aim, as stated in the original submission, of developing country-specific EFs and using a higher-tier method for this pool for future FRL submissions.

30. With regard to emissions and removals from deadwood, the AT acknowledges the use of country-specific EFs derived from the second NFI. However, as mentioned by the Party in the original submission, deadwood lying on the ground was excluded, and the AT could not determine whether this component of the pool is significant. The AT welcomes the Party's aim, as stated in the original submission, to complete the coverage of this pool by including emissions and removals from deadwood lying on the ground for future FRL submissions.

31. With regard to emissions and removals from SOC, the AT welcomes the Party's use of country-specific EFs derived from the national soil survey and use of a tier 3 method. To develop the EFs, Burkina Faso measured SOC at 1,397 points throughout the country and calculated SOC for all strata in the land-use maps.

32. With regard to emissions and removals from litter, the AT requested clarification of the reasons for omitting the pool. In response, Burkina Faso explained that the pool was omitted due to lack of data. While the AT considers that this pool is unlikely to be significant given the nature of Sahelian forest ecosystems, it notes that the 2006 IPCC Guidelines provide a method for estimating carbon stock change in litter and the corresponding default EFs. The AT welcomes the intention, stated by Burkina Faso during the TA, to include this pool in future FRLs.

33. With regard to emissions and removals from harvested wood products, the AT notes that the existence and use of national data sets relevant to harvested wood products are mentioned in the NC2 (2014) and the draft NC3. The AT welcomes the intention, stated by Burkina Faso during the TA, to include this pool in future FRLs.

34. The AT found that Burkina Faso did not assume a transition period for changes in carbon pools associated with changes in forest land to other land uses, and therefore assumed instantaneous carbon stock changes. The AT considers the inclusion of a transition period – either the 20-year transition period associated with IPCC default EFs or a country-specific transition period for country-specific EFs – as an area for future technical improvement.

35. In its modified submission, Burkina Faso included CO₂ emissions and removals associated with changes in carbon pools and CO₂, CH₄ and N₂O emissions from bush fires.

36. In its modified submission, Burkina Faso highlighted that in the past 22 years almost half of the country's forests have disappeared. The AT considers this information as sufficient evidence that the Party included the most significant activity, reducing emissions from deforestation, of the five activities identified in decision 1/CP.16, paragraph 70, in accordance with its national capabilities and circumstances. Regarding the other activities covered in the FRL (reducing emissions from forest degradation and enhancement of forest carbon stocks), the AT did not find enough information in the submission to conclude whether these were the two next most significant activities. The AT notes that the remaining REDD+ activities – conservation of forest carbon stocks and sustainable management of forests – could also be significant. Indeed, it is possible that removals from those two activities are increasing as a result of Burkina Faso's policies and measures for conserving and sustainably managing forests. The Party stated in its NC2 that several forest management programmes are under way in the country, and stated in its draft NC3 that since 2000 it has been undertaking reforms in the energy sector aimed at, among other things, developing sustainable and participatory forest management programmes. According to the Party, these activities were excluded from the FRL submission owing to lack of quantitative data at the national level. The AT welcomes Burkina Faso's intention, as stated in the original submission, to include the two remaining REDD+ activities in future FRL submissions. The AT considers the provision of information on the significance of activities other than reducing emissions from deforestation as an area for future technical improvement.

37. Regarding the activity enhancement of forest carbon stocks, the AT found that changes in carbon pools for forest areas not subject to land-use change were not considered. The AT noted that, in the draft NC3, the second NFI was compared with the first in order to determine the annual change in forest biomass. The AT considers that including in the FRL the missing carbon pools for forest areas not subject to land-use change would increase the accuracy of the estimated emissions and removals from enhancement of forest carbon stocks, and noted this as an area for future technical improvement.

38. The AT acknowledges Burkina Faso's intention to identify steps being taken to improve future FRL submissions when new and adequate data and better information become available as part of the stepwise approach.

4. Definition of forest

39. Burkina Faso provided in its modified submission the definition of forest used in constructing its FRL. The definition is the same as the one that the Party uses for its reporting to FAO for the FRA (i.e. minimum area of 0.5 ha, height of 2 m or more and at least 10 per cent canopy cover). The AT was not able to determine from the information in the submission whether this definition was different from the one used for the national GHG inventory included in the NC2 or in the draft NC3. During the TA, and subsequently in its modified submission, Burkina Faso confirmed its intention to ensure consistency between the FRL and the national GHG inventory. In the original submission, the forest definition included forest plantations and agroforestry parks; however, during the TA the Party informed the AT that that classification was being reviewed, and in its modified submission agroforestry parks were classified under cropland.

III. Conclusions

40. The information used by Burkina Faso in constructing its FRL for reducing emissions from deforestation, reducing emissions from forest degradation and enhancement of forest carbon stocks is transparent, complete and in overall accordance with the guidelines for submissions of information on reference levels.

41. The FRL presented in the modified submission, for the reference period 1995–2017, corresponds to 10,218,000 t CO₂ eq/year.

42. The AT acknowledges that Burkina Faso included in its FRL the most significant activities and the most significant pools in terms of emissions from forests. The AT considers that, in doing so, Burkina Faso followed decision 1/CP.16, paragraph 70, on activities undertaken, and decision 12/CP.17, paragraph 10, on applying the stepwise approach. The AT commends Burkina Faso for providing information on its ongoing work to develop FRLs for other activities and missing pools.

43. As a result of the facilitative interactions with the AT during the TA, Burkina Faso provided a modified submission that took into consideration the technical input of the AT. The AT notes that the transparency and completeness of the information provided were significantly improved in the modified FRL submission and commends Burkina Faso on its efforts. The new information provided in the modified submission and the examples of how estimates of CO₂ emissions from deforestation and forest degradation and removals from enhancement of forest carbon stocks were calculated increased the reproducibility of the FRL calculations.

44. The AT notes that, overall, the FRL does not maintain consistency with the GHG inventory included in Burkina Faso's NC2, which was prepared using the Revised 1996 IPCC Guidelines and different AD and EFs.¹⁴ However, Burkina Faso indicated in the modified submission that its NC3, currently under development, will include information and estimates that are consistent with those in the FRL submission.

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

- (a) Aligning all AD with the modified reference period (see para. 15 above);
- (b) Providing detailed information on the estimation methodology used for the activity enhancement of forest carbon stocks, particularly regarding the changes in carbon stocks in pools for forest areas not subject to land-use change (see para. 16 above);
- (c) Using available country-specific data on below-ground biomass for all activities included in the FRL (see para. 18 above);
- (d) Providing detailed information on the use of species-specific and multispecies allometric equations for dominant species and non-dominant species in estimating above-ground biomass (see para. 21 above);
- (e) Providing the calculations related to AD and EFs used in constructing the FRL (see para. 23 above);
- (f) Providing information on the significance of the activities other than reducing emissions from deforestation (see para. 36 above);
- (g) Including in the FRL the missing carbon pools for forest areas not subject to land-use change (see para. 37 above).

46. 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 Burkina Faso 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 consideration of a transition period for changes in carbon pools during the conversion of forest land to other land uses to ensure

¹⁴ In reference to the scope of the TA, as per decision 13/CP.19, annex, para. 2(a).

consistency with the 2006 IPCC Guidelines (see para. 34 above) as an additional area for future technical improvement regarding the exclusion of pools and gases from the FRL.

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

(a) Improve the use of country-specific data for calculating wood volume in constructing the FRL (see para. 20 above);

(b) Include emissions and removals associated with the use of fuelwood in order to improve the coverage of the deadwood and litter pools (see para. 26 above);

(c) Develop country-specific EFs and use a higher-tier method for estimating emissions and removals for the below-ground biomass pool (see para. 29 above);

(d) Include emissions and removals from deadwood lying and litter on the ground (see paras. 30 and 32 above, respectively);

(e) Include in the FRL the activities conservation of forest carbon stocks and sustainable forest management (see para. 36 above).

48. In conclusion, the AT commends Burkina Faso 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 Burkina Faso'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.¹⁵ The AT also acknowledges that the TA was an opportunity for a rich, open, facilitative and constructive technical exchange of information with Burkina Faso.

49. The table contained in annex I summarizes the main features of Burkina Faso's proposed FRL.

¹⁵ 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 Burkina Faso

	<i>Main features of the FRL</i>	<i>Remarks</i>
Proposed FRL	10 218 000 t CO ₂ eq/per year	In the modified submission, Burkina Faso provided a FRL for each year of the time series 1995–2017, distinguishing between emissions and removals associated with changes in carbon pools and emissions associated with bush fires (see para. 8 of this document)
Type and reference period of FRL	FRL = average of historical emissions and removals in 1995–2017	
Application of adjustment for national circumstances	No	
National/subnational	National	
Activities included	Reducing emissions from deforestation Reducing emissions from forest degradation Enhancement of forest carbon stocks	Other activities are planned to be included (see para. 36 of this document)
Pools included	Above-ground biomass Below-ground biomass Deadwood SOC	Other pools, including litter and harvested wood products, are planned to be included (see paras. 32–33 of this document)
Gases included	CO ₂ , CH ₄ , N ₂ O	CO ₂ emissions and removals associated with changes in carbon pools and CO ₂ , CH ₄ and N ₂ O emissions from bush fires are included (see para. 35 of this document)
Forest definition	Included	Minimum area of 0.5 ha, height of 2 m or more and at least 10 per cent canopy cover (see para. 39 of this document) The forest definition is identical to that used in reporting to FAO for the FRA
Consistency with latest GHG inventory	Methods used for estimating the FRL are not consistent with those used for the latest GHG inventory (2002)	During the TA, Burkina Faso clarified that its NC3 will include information and estimates that are consistent with those in the FRL submission (see para. 17 of this document)
Description of relevant policies and plans	Included	Burkina Faso provided a draft of the national REDD+ strategy (see para. 24 of this document)
Description of assumptions on future changes to domestic policies, if included in the construction of the FRL	Not applicable	
Description of changes to previous FRL	Not applicable	
Identification of future technical improvements	Yes	Several areas for future technical improvement were identified (see paras. 45–47 of this document)

Annex II

Documents and information used during the technical assessment

A. Reference documents

First FRL submission of Burkina Faso. Available at <https://redd.unfccc.int/submissions.html?country=bfa>.

“Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference levels”. Annex to decision 13/CP.19. 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”. Annex to decision 12/CP.17. Available at

<https://unfccc.int/sites/default/files/resource/docs/2011/cop17/eng/09a02.pdf#page=19>.

IPCC. 1997. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. JL Houghton, LG Meira Filho, B Lim, et al. (eds.). Paris: IPCC/Organisation for Economic Co-operation and Development/International Energy Agency. Available at <https://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html>.

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>.

B. Other documents

The following references have been reproduced as received:

Élaboration du plan d’action pour le développement d’un système MNV, le développement du système MNV détaillé et de l’établissement d’un scénario de référence MNV – Projet de Gestion Participative des Forêts classées pour la REDD+ (PGFC/REDD+), février 2020

Compte rendu de la rencontre de concertation entre le PIF et le SP/CNDD pour l’harmonisation des rapports de la TCN et du niveau de référence (Koudougou, les 02 et 03 juin 2020)

Rapport de l’atelier national de validation du document guide du système MNV et de la définition de la forêt dans le cadre du processus REDD+ au Burkina Faso, mai 2018.

Assurance Qualité – Contrôle Qualité de la mise en place de la BDOT MNV-REDD+, février 2019

Second Inventaire Forestier National du Burkina Faso – Rapport final, mai 2018.

Production des bases de données d’occupation des terres (BDOT) MNV REDD+ - Rapport technique provisoire N°1 – Étapes préliminaires et classification numérique d’images (1992, 2002 et 2014), avril 2019.

Stratégie Nationale REDD+ - Draft 1, mai 2020.

3ème communication nationale du Burkina Faso sur les changements climatiques. Rapport provisoire. Août 2019.