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AND TOURISM



TWG Meeting Report: To review Forest Reference Level decisions

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TWG meeting report on –reviewing Forest Reference Level decisions

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EXECUTIVE SUMMARY

This report represents the outcome of Technical Working Group meeting on reviewing Forest reference level (FRL) decisions that support REDD+ planning in Mongolia. The purpose of meeting was to discuss and reach common agreement on the FRL construction development decisions within TWG members who are from key national stakeholder organizations.

The sessions were held as part of a wider collaboration between the Mongolian Ministry of Environment and Tourism (MET), and the Food and Agricultural Organization (FAO) of the United Nations, which aims to develop capacity to use FRL development for REDD+ in Mongolia. This work was initiated in response to a targeted support request from Mongolia to the UN-REDD Programme. There are 13 participants were attended this third TWG meeting (Annex 1).

Third TWG meeting participants reviewed and made decisions on FRL which relevant to developing roadmap planning with scope, activity data, emission factors, scale and construction method.

ACRONYMS AND ABBREVIATIONS

AGB	Aboveground biomass
AFOLU	Agriculture, Forestry and Land Use sector
BGB	Belowground biomass
CCPIU	Climate Change Project Implementing Unit
CE	Collect Earth
CH ₄	Methane
CO ₂	Carbon dioxide
EF	Emission factor
ERISC	Environmental Research, Information and Study Center
FAO	Food and Agriculture Organization
FRA	Forest resources assessment
FRDC	Forest Research and Development Center
FREL	Forest Reference Emission Level
FRL	Forest Reference Level
GHG	Greenhouse gas
GHGi	Greenhouse gas inventory
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IGG	Institute of Geography and Geoecology
INDC	Intended nationally determined contributions
IPCC	International Panel on Climate Change
IRIMHE	Information and Research Institute of Meteorology, Hydrology and Environment
LULUCF	Land use, land use change and forest
MRV	Measurement, Reporting and Verification
MUST	Mongolian University of Science and Technology
N ₂ O	Nitrous oxide
NDC	Nationally determined contributions
NDVI	Normalized difference vegetation index
NFI	National forest inventory
NGO	Non-governmental organization
NRSC	National Remote Sensing Center
NUM	National University of Mongolia
PAMS	Policy and Measures
PMU	Project management unit
REDD	Reducing emissions from deforestation and forest degradation
REDD+	REDD plus conservation, sustainable management of forests and enhancement of forest carbon stocks
RS	Remote sensing
RSD	Relative stock density
SFM	Sustainable forest management
TFI	Taxation forest inventory
TWG	Technical working group
UNFCCC	United nations framework convention on climate change

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TWG MEETING TO REVIEW FOREST REFERENCE LEVEL DECISIONS

Background

Members of the FRL Technical Working Group discussed and arrived at agreement on the key decisions that need to be made for the FRL construction, including whether the CCPIU Land use assessment data would be appropriate.

Topics covered

1. Definition
2. Data
3. Scope
4. Scale
5. Transparency
6. Construction method
7. Consistency
8. National circumstances

General

1. Consideration

Q: What is the reason for developing a FRL?

D1: To access results-based payments under the REDD+ initiative

N1: UN-REDD programme objective - it is a country decision whether to proceed with REDD+.

D2: To assess the contributions that the forest sector makes towards NDCs

N2: An FRL developed for REDD+ is likely to serve this purpose also, and even without REDD+ it is a justification on its own for developing an FRL.

D3: To assess the impact of forest policies and measures taken to mitigate and adapt to climate change

N3: An FRL developed for REDD+ is likely to serve this purpose also, and even without REDD+ it might be a justification on its own for developing an FRL.

C: All these three decisions are relevant to the FRL construction and TWG members agreed the decisions.

2. Consideration

Q: Will the FRL be developed in a stepwise fashion?

D: Yes

N: As better methods and data for assessing pools, separating activity types and quantifying error are developed the FRL will be improved and revised by the national REDD+ implementation team.

C: Agreed.

3. Consideration

Q: Will Mongolia submit its FRL to UNFCCC?

D: Decision to be taken by the Science and Technology Committee.

N: It is expected that the FRL will be submitted as the assessment process will be part of the capacity building and rehearsal for international transparency that will be required for NDCs as well as results based benefits.

C: Decision will be taken by Science and Technology committee and there will be two times of approval process whether we need to submit FRL to the UNFCCC. First one is to approve the methodology of CE assessment and secondly approve the result of FRL by the committee.

4. Consideration

Q: Is the FRL consistent with the GHGi submissions?

D: Yes

N: Consistency will be improved/ensured between the two reporting mechanisms as they are built. The FRL construction will follow the first GHGi that reports LULUCF which has been designed with FRL and MRV in mind.

C: Agreed.

Historical data

5. Consideration

Q: Is the FRL consistent with other forest statistics provided nationally and internationally?

D: No

N: The historical activity data used in national and international reporting is based upon the FRDC Forest Taxation Inventory which uses different definitions of forest. The FRL is consistent with the Mongolia National Forest Inventory, the forest definition used and the basis on which emission factors are derived. The FRL is consistent with a change from 1996 revised guidelines to use 2006 guide and guidelines for reporting. Work will be needed to explain the precise differences and how further improvements in consistency are foreseen. FRDC Forest Taxation Inventory does not use a minimum mapping unit, or minimum tree height and instead of canopy cover it uses relative stocking density.

C: Ongoing and clarification needed. We need to understand the differences.

6. Consideration

Q: Have existing historical data of forests been analysed for consistency and relevance to the FRL?

D: Yes, and further review expected

N: All official data has ultimately come from the Forest Taxation Inventory (FTI), but there are in addition other national forest area assessment data which show varying results. An accuracy assessment will be made on current data to determine which is most appropriate method for use within the FRL. These includes the GIZ forest mask method (multi-spectral classification using R

classifiers), the ERISC method (modified NDVI thresholding) and the CE method (visual interpretation of sample points) and how these relate to the FTI results. Further review will include how the activity data links to the emission factors.

C: FTI data is not useful for FRL construction because it does not contain error estimate therefore it does not fit the requirement.

7. Consideration

Q: What is the reference period that will be used?

D: To be decided (Range: 2000-2014/15)

N: The period chosen will depend upon the analysis of the data that becomes available. Collect Earth assessment will be from 1990-2015, and the ERISC forest assessment from 2000-2014. It is likely that the reference period will be chosen within this latter period. If the GIZ method is favoured then consideration should be given on the number of data points and reference period and the costs associated with this.

C: We will wait until June 2017 and make decision based on what data we will have at that point. Ten years seems to be likely numbers. For natural disturbance provision, longest possible points will be used.

8. Consideration

Q: How many data points will be used for construction?

D: To be decided

N: All official data has ultimately come from the Forest Taxation Inventory (FTI), but there are in addition other national forest area assessment data which show varying results. An accuracy assessment will be made on current data to determine which is most appropriate method for use within the FRL. This includes the GIZ forest mask method (multispectral classification using R classifiers), the ERISC method (modified NDVI thresholding) and the CE method (visual interpretation of sample points) and how these relate to the FTI results. Further review will include how the activity data links to the emission factors.

C: CE study is for 25 years and ERISC study is 15 year. It will be decided.

9. Consideration

Q: Will the stock-difference or gain-loss method to estimate emissions be used?

D: To be decided

N: Stock difference method is the most likely method to be applied. We will apply country specific information on carbon stocks (from NFI) for different land uses and different states of forest land remaining forest land to calculate emissions or removals that are observed either at sample locations in CE or areas of land use change in wall to wall maps (GIZ or ERISC data).

C: Mathieu to produce a note about what we can do with NFI. In the past it was always gain-loss method. But, it will be decided after how we did the calculation.

Scale

10. Consideration

Q: Will the FRL be constructed on a sub-national scale?

D: Yes

N: In as far as Saxaul forest will not be included in the initial FRL but which falls within the current national definition of forest, then a sub-national approach will be used. Justification for a continued sub-national approach will be given if Saxaul is considered a non-key category of forest.

C: FRL is developed in stepwise approach. If we provided sufficient statistical and spatial information of Saxaul forest, then Saxaul forest would include in FRL. We might do some data collection in Saxaul forest.

Transparency

11. Consideration

Q: Were deforestation or forest degradation significant contributors to forest emissions in the historical period?

D: Mandatory

N: The method, rationale, data will be available to inspect on a public web site and will be provided for international technical assessment

C: We will have no choice and it must be transparent.

Scope

12. Consideration

Q: Were deforestation or forest degradation significant contributors to forest emissions in the historical period?

D: Yes

N: If forests affected by fire and pests take many years before any reforestation is apparent this can be confused with deforestation. If the rate of reforestation is slower than tree cover loss by these causes it can account for an apparent deforestation. Whatever it is called the consequence is a reduction in living biomass for a period of considerable time and therefore significant contributors to emissions in the period.

C: Degradation is significant contributor of emission.

13. Consideration

Q: Which activities offer the greatest mitigation potential?

D: Prevention of forest fire and pest offer the greatest potential

N: These are also the most difficult to control and arguably outside human influence if the consequence of climate change.

C: Have not decided. NFI/GIZ provide analysis. Illegal logging and mining might be included.

14. Consideration

Q: Are increased emissions expected from omitted activities from the FRL?

D: Probably not from omitted activities but possibly from new activities such as SFM thinning

N: If certain new SFM activities are introduced then there will be an increase in emissions from thinning. If new SFM thinning practices become a significant emissions factor they will need to be accounted for, and if significant then a national circumstance built into the FRL. Thinning data could be captured from thinning permits/forest management plans. Ideally SFM thinning practice will substitute for unsustainable harvesting activities in which case SFM thinning will not result in increased net emissions.

C: Not decided. End balance is expected to be sink for SFM. Yield models could help to predict future sinks for this SFM activity areas. For long term strategy, SFM can be used but at the moment, SFM cannot be used for FRL due to no available data. As well as grazing and mining activities have no available data that assess the impact of emission to forest from such activities.

15. Consideration

Q: Are there other national objectives that favour the inclusion of activities/pool/gases that are not key contributors?

D: Yes

N: Mining and illegal logging activities

C: Need a study to assess and measure the emission of mining and illegal logging activities.

16. Consideration

Q: Can emissions reduction estimates for significant activities in the FRL be measured with reasonable accuracy?

D: Yes

N: Deforestation and forest degradation caused by fire and pest should be relatively easy to measure as they approximate to deforestation in most cases.

C: Agreed. Illegal logging also can be included with reasonable accuracy.

17. Consideration

Q: What future improvement could be made as part of a stepwise approach?

D: Use of RS methods and field methods that can estimate the overall stock change of carbon to capture progressive biomass loss as well as removals.

N: Plans are in place to introduce methods and capacities in the use of 3D imaging satellite sensors such capacity into Mongolia's research institutes.

C: agreed.

18. Consideration

Q: Are the activities considered in the national strategy included in the scope of the FRL?

D: To be determined. Likely to be Deforestation, degradation and enhancement. With SFM and conservation being captured within the above three activities.

N: The intention is that they will be as far as historical data will allow.

C: Agreed and illegal logging and mining activities are added.

Activities

19. Consideration

Q: Which activities will be considered?

D: Deforestation, degradation due to fire and pest impacts, enhancement from managed reforestation. With SFM and conservation being captured within the above three activities. Needs include mining and illegal logging as well.

N: Deforestation (land use change) will be defined if areas degraded below the 10% threshold remain so for more than 20 years. SFM and conservation will be monitored through the above three activities. Degradation due to progressive selective logging will not be considered using the current RS methods (until it reaches a deforestation like state). Methods to assess degradation and enhancement to be discussed.

C: agreed

20. Consideration

Q: What are the most significant activities?

D: Degradation due to forest fire, pests, logging and mining.

N: Illegal logging may be significant but there is no way to easily quantify it. One area of investigation that may assist would be to look at the estimates of supply and demand for timber products produced by DFPC.

C: agreed and added logging as well as mining.

Pools

21. Consideration

Q: Which pools will be included?

D: AGB, BGB, Deadwood, Litter and Soil carbon will be included in the FRL

N: Harvested wood products will be treated as direct emissions. Changes to deadwood, litter and soil carbon will modelled. Standing dead trees following fire or pest will be treated as direct emissions just as harvested wood, it is thought to be difficult to detect the point at which standing dead trees are harvested if at a later date than the disturbance.

C: Harvested wood information is not available. When we become clear about SFM then we could include harvested wood into our FRL.

22. Consideration

Q: Which GHGs will be included?

D: CO₂, N₂O

N: N₂O will be estimated from areas known to have been affected by fire. CH₄ could be included as part of a stepwise approach when peat forest extents are known and identified as a significant source.

C: CH₄ measurement is not certain for peatland areas in Mongolia. Decided not to include CH₄. It could be included in the future FRL revision for peatland. But, for fire related CH₄ we could use default value. Sanaa (AFOLU sector specialist) suggest that if we include N₂O then better to include CH₄. Otherwise, we need to write justification that saying why we did not include one of them. For simplicity, only CO₂ should be estimated.

23. Consideration

Q: Reasons why some GHGs will not be included

D: To be developed

N: CH₄ may be included but we do not have peatland distribution information available at the moment.

C: Sanaa suggest that leave it till last moment whether we should use it. It will be depending on whether we could have data at that time.

Definition

24. Consideration

Q: What is the Forest definition used for the FRL?

D: Areas of land where canopy cover is greater than 10% or has the potential to be, tree height is greater than 2 m or has the potential to be, and the minimum area considered to be forest is 1.0 ha. (Additionally the minimum width is 20m.)

N: This definition has been approved by the Science and Technology Committee during the approval of the NFI methodology. It is not however consistent with the current definition of forest as defined by Law and used by FRDC within the FTI.

C: Agreed.

25. Consideration

Q: What is the definition of deforestation?

D: Areas of forest where the tree canopy cover has been reduced to below 10% AND the predominant land use is no longer forest "production"

N: Note if forest cover falls below 10% and the intent is for the land to be reforested this will be defined as forest still - in accordance with the existing national definitions. It is important to appreciate that we are dealing with two different land classifications - land cover and land use. This distinction is important to recognise since IPCC GHGi reporting uses land use, whereas most satellite

earth observation techniques can only identify land cover. This issue arises in the situation where tree cover falls below the threshold; the land cover changes but the land use may be remained the same - ie forest in this case.

C: Areas of forest where the tree canopy cover has been reduced to below 10% and if it still at same condition after 20 years then that would-be deforestation. AND the predominant land use is no longer forest "production"

26. Consideration

Q: What is the definition of forest degradation?

D: For carbon accounting, degradation is the process of the persistent loss of accumulated forest biomass/carbon below a theoretical maximum/optimum for a particular species or forest ecosystem.

N: Degradation is the Process. Other ecosystem aspects of degradation will not be considered for FRL or MRV. There would a requirement to identify and measure climax forests of each type to establish the degradation baselines for each forest type.

C: Agreed.

27. Consideration

Q: What is the definition of a degraded forest?

D: A degraded forest is one where there has been a loss biomass below a theoretical maximum/optimum usually associated with a state of climax, it may be indicated by the loss of canopy from a mature forest below 100%, but would also include forest undergoing restoration even if 100% canopy.

N: It is possible that some naturally occurring low density forest may fall under this definition using canopy density as an indicator. There is a requirement to identify and measure climax forests of different type to establish the degradation baselines for each forest type.

C: Agreed.

Construction approach

28. Consideration

Q: Is forest definition consistent over time?

D: Yes

N: The definition for forest and the data used to construct the FRL will be consistent over time. The forest definition has changed since the introduction of the REDD+ compliant NFI. This means that forest area reporting will be different from national statistics and those reported to FAO FRA. However, the new definition will be applied to new assessments using historical satellite data and will be consistent over time.

C: Agreed.

29. Consideration

Q: Is the forest definition consistent with the GHGi?

D: Yes

N: GHGi for LULUCF is being introduced into NC and BUR in 2017 and uses the new definition.

C: Agreed.

30. Consideration

Q: Is there more than one definition of forest?

D: Maybe- Boreal and Saxaul forests

N: Saxaul forest consists of low density low height woody vegetation which currently is defined as forest, a second definition for this non-boreal forest type will be developed so as not to inadvertently include shrub vegetation into the boreal forest definition that might be the consequence of a single definition.

C: We need two other definition. One for boreal forest and other for Saxaul forest.

31. Consideration

Q: Is the forest definition supported by data availability, acquisition, cost and processing capacity to allow for accurate assessment of change?

D: Yes

N: With the exception of gradual changes to forest density or increment due to regeneration the forest definition will support the monitoring of key changes such as forest fire and pest damage. Forest density is apparent from high resolution imagery in GE/Bing but there is no certainty that this data will be updated nationally and synchronised with the reporting cycle. Reliance is therefore made on medium resolution imagery from Landsat and Sentinel 2. Methods that offer potential to monitor gradual changes including removals will be investigated, at present the cost may be prohibitive, but could reduce uncertainty in emissions and add the ability to measure removals that may justify the cost.

C: Yes for Boreal forest no to Saxaul forest.

32. Consideration

Q: Which IPCC Tier will be used for Emissions factors?

D: Initially Tier 2

N: The NFI will provide country specific EF's for forest land remaining forest land. However Tier 1 default values may have to be used for determining net carbon balance for a land use changes if there are no country specific values in research literature, as the NFI does not cover non-forest IPCC classes.

C: Later will be assessed to decide what to call it.

33. Consideration

Q: Which IPCC Approach will be used for activity data?

D: Likely to be Approach 3 - spatially explicit

N: If CE assessment is used there is some debate as to whether it is Approach 3, but will be if used in combination with ERISC or GIZ wall to wall mapping.

C: Later will be assessed to decide what to call it.

34. Consideration

Q: What is the construction method used for the FRL?

D: not decided

N: This decision will be taken once an analysis has been undertaken on all the available historical data to assess its accuracy and the likelihood that it can predict future Business as Usual scenarios.

C: Would be decided after the second CE assessment. (Probably would be historic average)

35. Consideration

Q: Has the FRL considered existing national policy and legislation that may impact on the BAU scenario?

D: not yet

N: This analysis of existing policy and law has yet to be undertaken, but will be considered.

C: Need study.

Consistency

36. Consideration

Q: Are the methods definitions and comprehensiveness of data consistent between the FRL and methods to measure performance.

D: Yes

N: These have yet to be fully decided, but the intention will be to use consistent methods for historical emission estimates and future emissions methods. If new and better technologies or methods emerge then FRL maybe should be revised as part of a stepwise approach.

C: Agreed.

National circumstances

37. Consideration

Q: Will the managed land proxy be used?

D: decided

N: At the moment, all forested land in Mongolia is being considered managed land and therefore all impacts and disturbances treated as anthropogenic. According to land use category as well as CCPIU, all the forest land is managed.

C: All forest land will be used for FRL.

38. C: Consideration

Q: Will the natural disturbance provision be used?

D: Yes.

N: Fire and pest outbreak is endemic in Mongolian forests but climate change could be exacerbating this by leading to abnormally large events. Fire and pest records exist that could allow for the creation of a natural disturbance threshold for use in reporting emissions. The decision is dependent upon detailed analysis of historical fire data and activity data during the reference period.

C: Yes and time period will be decided after the second assessment result. Need to further discuss with Donna.

Emission factors

39. Consideration

Q: Is data available to determine Tier 3 country specific emissions factors?

D: yes, partially

N: The NFI currently contains a single snap shot of forested areas so country specific carbon stocks can be estimated for forests. Assumptions should be made as to the carbons stocks in replacement land states/uses, and heavily degraded forests which may have fallen below the 0.3 RSD threshold and therefore not included in the NFI and will not have carbon stock values. In practice combining country specific NFI determined forest carbon stocks with other (default) land use carbon values may result in Tier 2 level of estimation.

C: Agreed

40. Consideration

Q: Will the emission data be neither over- nor under-estimated as far as can be judged

D: Yes

N: A number of methods will be considered to cross-validate the estimates and to reduce error of the estimate.

C: Agreed.

41. Consideration

Q: Will uncertainties have been reduced as far as practicable

D: Yes

N: A number of methods will be considered to cross-validate the estimates and to reduce error of the estimate.

C: Agreed.

Participant list of 3rd TWG meeting-2016.11.18

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