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Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

Report on the expert meeting on forest reference emission levels and forest reference levels for implementation of REDD-plus activities

Note by the secretariat

Summary

The Subsidiary Body for Scientific and Technological Advice requested the secretariat to organize meetings of technical experts on methodological issues referred to in document FCCC/SBSTA/2011/2, paragraphs 28 and 29, including a meeting before its thirty-fifth session. A second meeting of technical experts, on forest reference emission levels and forest reference levels for implementation of REDD-plus activities, took place in Bonn, Germany, from 14 to 15 November 2011. The presentations and discussions focused on the sharing of views and experiences and the challenges faced by developing countries implementing REDD-plus activities and their efforts to construct forest reference emission levels and/or forest reference levels, lessons learned from developed countries in determining their forest reference levels for forest management and ongoing work on methodologies and approaches and their outcomes. Experts exchanged views on and addressed issues relating to the scope and purpose of reference levels, characteristics, guidance for construction and a process for communication. They highlighted several issues and elements that may need to be considered when constructing forest reference emission levels and forest reference levels and identified issues requiring further discussion.

Contents

I. Introduction

A. Mandate

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its thirty-fourth session, considered views on methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries,[1] taking into account issues identified in appendix II to decision 1/CP.16 and relevant issues. At the same session, Parties identified a range of issues, including guidance on systems for providing information on how safeguards referred to in appendix I to decision 1/CP.16 are addressed and respected, modalities relating to forest reference emission levels and forest reference levels, and modalities for measuring, reporting and verifying, as referred to in appendix II to decision 1/CP.16.[2]

2. In order to facilitate the consideration of the matters referred to in paragraph 1 above at its thirty-fifth session, the SBSTA requested the secretariat to organize, subject to the availability of supplementary funds, meetings of technical experts, including a meeting before its thirty-fifth session.[3] The meeting on forest reference emission levels and forest reference levels for implementation of REDD-plus[4] activities[5] was the second of these meetings.[6]

3. At the same session, the SBSTA invited Parties[7] and accredited observers[8] to submit to the secretariat their views on the issues identified in paragraph 1 above.

4. The SBSTA decided to continue its consideration of the methodological guidance referred to in paragraph 1 above, taking into account the elements referred to in annex II to document FCCC/SBSTA/2011/2 and the submissions of views referred to in paragraph 3 above, with the aim of completing its work on these matters at its thirty-fifth session and reporting to the Conference of the Parties (COP) at its seventeenth session on progress made, including any recommendations for draft decisions on this matter.

B. Scope of the note

5. This document contains a description of the proceedings of the expert meeting (chapter II), summarizes the presentations that were made (chapter III) and presents the main points and outcomes of the discussions (chapter IV).

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[1] Referred to as "REDD-plus" in this document.

[2] FCCC/SBSTA/2011/2, paragraphs 28 and 29.

[3] FCCC/SBSTA/2011/2, paragraph 31.

[4] Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

[5] "REDD-plus activities" refers to the activities set out in decision 1/CP.16, paragraph 70.

[6] The first expert meeting, on guidance on systems for providing information on how safeguards for REDD-plus activities are addressed and respected, took place in Panama City, Panama, from 8 to 9 October 2011. The report on the meeting is contained in document FCCC/SBSTA/2011/INF.17.

[7] Submissions from Parties are contained in document FCCC/SBSTA/2011/MISC.7 and Add.1.

[8] Submissions from intergovernmental organizations are available at <http://unfccc.int/parties_observers/igo/submissions/items/3714.php>; submissions from non-governmental organizations are available at <http://unfccc.int/parties_observers/ngo/submissions/items/3689.php>.

C. Possible action by the Subsidiary Body for Scientific and Technological Advice

6. The SBSTA, at its thirty-fifth session, may wish to consider the information in this document as part of its continuing discussions on methodological guidance referred to in paragraph 1 above, and to provide additional guidance on further actions in order to complete at its thirty-fifth session the work on these matters as referred to in paragraph 4 above.

II. Proceedings

7. The expert meeting on forest reference emission levels and forest reference levels for implementation of REDD-plus activities took place in Bonn, Germany, from 14 to 15 November 2011. Financial support for the meeting was provided by the Governments of Australia, New Zealand, Norway, Spain, Switzerland and the United Kingdom of Great Britain and Northern Ireland.

8. In total, 60 experts participated in the expert meeting, representing 25 Parties not included in Annex I to the Convention, 16 Parties included in Annex I to the Convention, five experts from intergovernmental organizations (IGOs) and four experts from non-governmental organizations.[9] The IGOs represented were the Centre for International Forestry Research (CIFOR), the Forest Carbon Partnership Facility (FCPF) of the World Bank, the Global Environment Facility and the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme).

9. Mr. Peter Graham (Canada) and Mr. Lucio Santos (Colombia) were appointed as co-chairs for this expert meeting by the Chair of the SBSTA, Mr. Mama Konaté. The co-chairs opened the meeting. They introduced the mandate and objective of the meeting, updated the experts on the progress of work on this agenda item under the SBSTA and provided an outlook to the next session of the SBSTA. In addition, they recalled an expert meeting on a similar topic that was held in March 2009 and highlighted several outcomes from that meeting for the information of the experts at this meeting.[10] The co-chairs, at the start of the meeting, appointed Mr. Bas Clabbers (Netherlands) and Mr. José Carlos Fernández Ugalde (Mexico) as rapporteurs to support them in summarizing the main points of discussions at the meeting.

10. The expert meeting, which took place over two days, was organized in three parts:

(a) Part I: experts from developing country Parties gave presentations on their experiences of the implementation of REDD-plus activities and their efforts to determine their forest reference emission levels and/or forest reference levels; experts from developed country Parties shared lessons learned from setting forest reference levels for forest management under the Kyoto Protocol; and other experts from Parties and IGOs gave

[9] Before the meeting, the secretariat extended an invitation to each of the nine constituencies of civil society. Three of these constituencies nominated experts to the meeting: environmental non-governmental organizations, research and independent non-governmental organizations and business and industry non-governmental organizations.

[10] The expert meeting on methodological issues relating to reference emission levels and reference levels took place in Bonn, Germany, from 23 to 24 March 2009. The report on this meeting is contained in document FCCC/SBSTA/2009/2.

presentations on ongoing work on methodologies and approaches.[11] Plenary discussions were held at the end of the first day;

(b) Part II: breakout groups were conducted on the second day. Discussions focused on the elaboration and clarification of issues raised in the presentations on the first day. A number of issues and questions were identified for further in-depth discussions in the breakout groups. The breakout groups reported back at the end of the discussions;

(c) Part III: discussions took place on issues raised by the breakout groups and the co-chairs gave a summary of the main points raised and discussed on the second day of the meeting.

11. Summaries of the presentations and the discussions are contained in chapters III and IV, respectively.

III. Summary of presentations

12. Experts from Viet Nam and Japan jointly presented an example of how forest reference emission levels and forest reference levels were used for a project by the Japan International Cooperation Agency in Viet Nam. In this project, forest reference emission levels and forest reference levels were interpreted as future carbon changes based on an extrapolation of historical carbon changes. A combination of ground-based data and remote sensing data was used to estimate these changes in carbon. The experts interpreted forest reference emission levels as relating to reducing emissions from deforestation and forest degradation, and forest reference levels as relating to the conservation of forest carbon stocks, the sustainable management of forests and the enhancement of forest stocks. Three main challenges for the development of forest reference emission levels and forest reference levels were identified. Firstly, the experts explained that an integrated forest reference emission level/forest reference level is much easier to process but more difficult to interpret than separate levels. The second challenge is the scale: on a national scale, forest reference emission levels and forest reference levels are more closely related to the national strategy, while on a subnational scale it is easier to extrapolate forest change trends associated with driving forces. In their case, the experts found it appropriate to set forest reference emission levels and forest reference levels separately on subnational scales in order to better understand forest change trends and their driving forces in the past. Thirdly, the experts pointed out that decisions on the time points of data and the extrapolation method used are challenging. They explained that the selection of extrapolation methodologies should take into account transparency, practicability and national circumstances.

13. A presentation by an expert from Australia described the country's experiences of developing a forest reference level. The expert pointed out that the development of the forest reference level started with government requirements and the key factors in forest management in order to ensure that the reference level meets national policy requirements. Some of the key criteria mentioned were a focus on anthropogenic emissions, meeting all reporting requirements, coverage of all key forest management activities, consistency and inclusion of all carbon pools and gases. Australia decided to use a projected forest reference level, a narrow definition of forest management and the best available data. Implementation took place through development of a strategic plan, identification of data and models to be used, complete report and modelling, internal review and preparation for technical assessment. The expert concluded that collaboration between all stakeholders is necessary

[11] All presentations are available at <http://unfccc.int/methods_science/redd/items/6455.php>.

and that it is important to ensure that needs, objectives and consequences are clearly understood.

14. The expert from Belarus provided an overview of the role of peatland carbon emissions, implications for a forest reference level and experiences from his country. He pointed out that peatlands contain disproportionate amounts of carbon in their peat soils and that emissions from degraded peat soils continue for a very long time after conversion. The expert recommended that, in order to reduce emissions from peatlands, any further peatland degradation needs to be prevented and, simultaneously, peatlands that are already drained and degraded need to be rewetted in order to reduce existing levels of emissions. He also proposed the inclusion of all peatlands in REDD-plus because of the interlinkages between land uses. It was pointed out that monitoring can be based on peat soil maps, remote sensing of land use, simple conservative algorithms for assessing emission effects of land-use change and default emission factors. The expert recommended countrywide forest reference levels for REDD-plus to make monitoring of leakage unnecessary and to increase REDD-plus financing.

15. An expert from the United States of America gave a presentation on the strengths and limitations of economic modelling in the construction of forest reference levels for REDD-plus. He distinguished between three different forest reference level concepts: based on historic emissions, future 'business as usual' scenarios, and compensation baselines. Estimates of historic emissions require data on forest cover change and emission factors and could contribute to the determination of future 'business as usual' scenarios. Future 'business as usual' scenarios are based on projections with assumptions, extrapolations and/or modelling and could contribute to the determination of compensation baselines. The expert explained that economic modelling has particular strengths in this regard because it is good at detecting underlying spatial patterns in deforestation and at disentangling multiple causal factors and drivers. The limitations of this method are that the data explain only a portion of spatial variation in deforestation and that the choice of input data sets, combinations of driver variables and assumptions can lead to different predictions, even when all are technically correct. In addition, evaluation of the models requires multi-period deforestation data sets, and complex statistical methods may be difficult to explain. He concluded that economic modelling of future 'business as usual' scenarios can be very useful for national planning.

16. Experts from Norway and Mexico jointly presented an overview of the findings of two reports regarding modalities and guidelines for REDD-plus forest reference levels. They defined forest reference levels as 'business as usual' baselines against which actual emissions are compared. These baselines are developed by taking into account historical data and adjusting for national circumstances. The experts noted that REDD-plus forest reference levels have a different scope for different Intergovernmental Panel on Climate Change (IPCC) land categories and the IPCC reporting principles (transparency, completeness, consistency, comparability and accuracy). As guidelines for developing forest reference levels the experts outlined some key decisions and data that are needed to determine historic emissions and removals, including the definition of forest, selection of pools to include, measurements of carbon stocks, identification of drivers of forest cover change and interpretation of remote sensing imagery. It was noted that national circumstances need to be considered through case-by-case adjustments based on robust and verifiable empirical data, because to date there is insufficient empirical evidence to support generalized adjustments to forest reference levels from projections based solely on historic emissions and removals. The experts stated that Parties can develop subnational forest reference levels that constitute a step towards adopting national forest reference levels, but these subnational forest reference levels should follow a common set of criteria that facilitate the subsequent reconciliation of forest reference levels at the national level. Three alternative procedural approaches to adopting forest reference levels were presented: a

single-undertaking top-down process, a country-driven sequential process, and a hybrid process consisting of a political decision at the international level and consolidation with country submissions. Possibilities with regard to the temporal validity of forest reference levels were described, including renegotiation within a specific time frame, resubmission for review and adjustment, automatic revisions and reviews after certain timespans, for example, in the context of national communications.

17. The expert from CIFOR presented considerations of drivers and data uncertainties for developing forest reference emission levels. He gave a global overview of gaps in forest monitoring capacity, changes of deforestation drivers over time and the main deforestation and forest degradation drivers for each continent. The concept of a tiered approach was introduced to match data availability and uncertainty and to allow for broad country participation, because data availability and quality varies for each country. The IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry* uses tiers as mechanisms to deal with uncertain and incomplete data for estimation at the national level. Tiers can also be a motivation to reduce uncertainties over time. As a possible example for a tier 1 approach the expert presented the results of an analysis of 86 developing countries, which showed that predictions of future forest area based on data from Global Forest Resources Assessments of the Food and Agriculture Organization of the United Nations (FAO) can be explained by 78 per cent using historical data. The expert recommended retaining the predictive power of historical trend data but moving to a more driver-based assessment and to predictions for higher-tier approaches to developing forest reference emission levels. Moving to higher tiers also requires national data on drivers and activities and allows for a better understanding of specific national circumstances.

18. The expert from FCPF of the World Bank gave a presentation on experiences with forest reference levels from working with 37 FCPF REDD-plus country participants. He pointed out that FCPF countries' main problems with forest reference levels are as follows: defining national interests in negotiations on the forest reference level; resolving national and subnational carbon accounting; constructing a forest reference level that reflects drivers of deforestation for a mix of all five REDD-plus activities; identifying whether national circumstances exist; assessing current capacity, available data and data gaps; working with methods that have not been adapted to the REDD-plus forest reference level problem; and consulting stakeholders and institutions about the proposed forest reference level. The definitions of forest reference level, forest reference emission level and national circumstances also remain unclear. The expert described three major approaches that in his experience countries are using: a statistical approach using forest inventory or remote sensing data; a geospatial approach using key variables to represent and predict land-use change patterns; and an economic modelling approach using economic and other variables to model non-linear relationships driving land use. Most FCPF countries use a combination of the statistical and the geospatial approach. While some countries have outlined the use of either national or subnational forest reference levels in their Readiness Preparation Proposals (R-PPs), the majority of countries seek methodological guidance to use some kind of nested approach. The expert summarized some additional policy issues that came up at a recent FCPF workshop. Many countries are reconsidering their existing forest definitions developed for the clean development mechanism to use for REDD-plus needs. Countries seem to be especially interested in exploring policy concerns regarding setting the compensation level and allocating the forest reference level to provinces. Countries were also interested in finding out whether their forest reference levels need to integrate all five REDD-plus activities or whether a country can pick and choose and have separate forest reference levels for each activity. Other open questions related to the inclusion of non-anthropogenic emissions and possible later adjustments of the forest reference level. Technical issues that were raised at the same workshop included the stratification of deforestation risks, the geospatial resolution of forest reference levels, the reflection of

external land-use change drivers in the forest reference level, regional cooperation and support for the analysis of historical deforestation based on few data points. The expert pointed out that most FCPF R-PPs mention that the country will follow the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry* , but do not demonstrate that they have the capacity to do so. He concluded that countries are identifying 'no regrets' activities that put key tools in place and build capacity, while awaiting policy clarity. Most countries phase out their forest reference level work and start with a nesting approach, which is not really a policy decision, but the only practical way forward on forest reference levels given the minimum data and capacity.

19. An expert from the secretariat of the UN-REDD Programme presented considerations on forest reference emission levels and forest reference levels for REDD-plus. He explained that almost all REDD-plus countries are in a position to use satellite data from 1990, 2000 and 2005 for past data and to fill data gaps. In addition to the use of historical data, it is necessary to make certain assumptions in order to establish forest reference emission levels and forest reference levels, taking into consideration the need for conservative approaches. The expert demonstrated the potential effect of different forest reference emission level and forest reference level options using an example from the Brazilian Amazon.

20. Two experts from the European Commission gave a presentation on a REDD-plus matrix and pragmatic solutions for forest reference levels in the early phases of REDD-plus. They explained that they expect the forest reference level to use reliable data sets that are readily available for most REDD-plus countries and encouraged a gradual build-up of capacities to meet broader monitoring needs. They also expect the forest reference level to allow for progressive aggregation of subnational or transboundary data sets to the national level in a consistent framework. The IPCC approach to land use, land-use change and forestry was briefly outlined and the experts called for the use of tiers higher than tier 1 for key categories such as forests. The proposed approach to REDD-plus is a matrix based on a simple deforestation matrix using IPCC land-use categories, but amended to include a category to capture forest degradation. All five REDD-plus activities are represented in this matrix. The experts outlined a method using binary forest maps, the methodology of the FAO remote sensing survey and an edge size of 500 m to map boundary forests. The experts expressed the opinion that using 'forest edges' as a proxy for forest degradation is both pragmatic and result-oriented. In order to take into account the uncertainty of the trend and to ensure full correlation of the errors, the proposed approach requires that the same tier is used in both the forest reference level and the accounting period.

21. A presentation by an expert from Papua New Guinea described suggested approaches to forest reference emission levels and forest reference levels for REDD-plus. The expert explained that the forest reference emission level and the forest reference level are the key elements in ensuring the environmental integrity and the cost-effectiveness of the REDD-plus mechanism; REDD-plus will succeed only when local and indigenous communities are able to preserve their forests while being competitive in relation to other economic drivers and mitigation actions. A comparison of the current level of emissions and removals with the forest reference emission level and the forest reference level is needed in order to assess whether and how policies and measures implemented for REDD-plus have resulted in quantifiable mitigation actions, and is expected to be used to determine the appropriate REDD-plus financing and incentives for a particular Party. The construction of the forest reference level and the forest reference emission level should be characterized by a transparent and conservative approach and be driven by the best scientific data available, based on historical data and allowing the use of historical satellite data; the levels should also be periodically updated. The expert noted that the forest reference level should be developed through conservative approaches in combination with assumptions and adjusted according to national circumstances, allowing for an adjustment

factor. The adjustment factor should foster the equitable distribution of REDD-plus positive incentives, ensuring the full implementation of the principle of common but differentiated responsibilities even among the REDD-plus Parties. The expert offered a definition of the forest reference emission level as the "average of the historical emission calculated with a conservative approach multiplied for the Adjustment Factor" and of the forest reference level as the "amount of forest carbon stock in forest land remaining forest land at the beginning of each implementation period multiplied for the Adjustment Factor". She recommended using a net–net approach for reducing emissions from deforestation and forest degradation, and a gross–net approach for sustainable management of forest land and enhancement and conservation of forest carbon stocks.

22. An expert from Indonesia presented his country's views on forest reference emission levels and forest reference levels. Indonesia uses satellite data Landsat-5 and Landsat-7 ETM+ (Enhanced Thematic Mapper Plus) from six points in time between 1990 and 2009 to determine land cover changes. The emission and removal factor is calculated using data collected since 1990 through Indonesia's national forest inventory. Twenty-three land cover classes based on the satellite data are reclassified to match the six IPCC land categories. The expert pointed out the importance of considering forest fire events in the forest reference level. He mentioned the possibility of using different forest reference emission levels for unprotected and protected forests. Other challenges in the context of national circumstances are future scenarios relating to national development needs and goals, including addressing poverty, maintaining economic growth while responding to climate change, ensuring consistency with the objective of environmental integrity, taking into account the multiple functions of forests and other ecosystems, and the inclusion of projected development activities, population growth, gross domestic product and other development trajectories.

IV. Main outcomes of discussions

A. Scope of the discussions

23. Guided by the issues and points raised on the first day of the meeting, the co-chairs formulated a set of questions concerning issues that required further clarification and elaboration. The experts, working in two breakout groups on the second day, were guided by this set of questions in their discussions, as follows:

(a) What is/are the difference(s) between forest reference emission levels and forest reference levels and the associated methodological differences?

(b) Can a Party propose forest reference emission levels and/or forest reference levels for a subset of REDD-plus activity types? And if so, under what conditions?

(c) When is it appropriate to adjust extrapolated historical trends or estimates? What type of information is needed to support this adjustment?

(d) What information should be provided and in what form for the determination of forest reference emission levels and/or forest reference levels?

(e) What aspects of the construction of forest reference emission levels and/or forest reference levels should allow for comparability among countries?

(f) How can perverse incentives through the exclusion of pools or activities be avoided?

24. This chapter summarizes the key points from the plenary discussions on the first day and the discussions of the breakout groups on the second day. It elaborates on, and is

consistent with, the preliminary summary[12] of the co-chairs and the rapporteurs mentioned in paragraph 9 and 10(c) above.

B. Scope and purpose

25. While many of the experts shared the view that a forest reference emission level and/or forest reference level is a benchmark for assessing the results of activities relating to REDD-plus, the experts also stressed that there is a need to clarify the concepts of forest reference emission level and forest reference level and the differences between them. Two points of views were apparent from the discussions of the breakout groups. Firstly, a forest reference emission level or a forest reference level could be a single overall number reflecting net emissions. If a net source is estimated, then it refers to a forest reference emission level. If estimates result in a sink, it refers to a forest reference level.

26. The second viewpoint on the distinction between forest reference emission levels and forest reference levels was that a forest reference emission level refers to emissions from deforestation and forest degradation. On the other hand, a forest reference level refers to the 'plus' side of REDD-plus activities (conservation, sustainable management of forests and enhancement of forest carbon stocks) and, hence, reflects the carbon stocks in forest lands. It was suggested that it is possible for a country to propose two numbers, as long as the numbers proposed are transparent, accurate and reliable.

27. Furthermore, there should be flexibility in determining forest reference emission levels and forest reference levels to enable countries to progressively include more REDD-plus activities in their national strategy and action plan. Hence, in the construction of forest reference emission levels and forest reference levels, changes in land use should be accommodated to allow inclusion of other REDD-plus activities.

28. The experts discussed the use of IPCC land categories[13] as a basis for distinguishing the REDD-plus activities, particularly the use of the forest land category. Aligning the REDD-plus activities with the forest land category of the IPCC facilitates monitoring, estimating and reporting of emissions and removals from REDD-plus activities. However, one expert cautioned that while the use of the most recent IPCC guidelines as a basis for monitoring and estimation of emissions and removals, forest carbon stocks and forest area changes from REDD-plus activities is encouraged, developing countries are only required to follow the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

29. The issue of exclusion of carbon pools or REDD-plus activities from monitoring, reporting and accounting was raised, whether this would lead to perverse incentives and, if so, how perverse incentives could be avoided. The experts noted that in most cases, the exclusion of a carbon pool in estimates would be conservative. Problems would arise only if a country does not include large carbon pools (e.g. soil carbon pool where there is deforestation) in which emissions are expected. The experts shared the view that all emissions would have to be reported.

30. It was suggested that a key category analysis[14] as provided by the IPCC would identify the carbon pools that would need to be included. Countries would have to decide on the REDD-plus activities to be included in a forest reference emission level and/or forest

[12] The structure of this preliminary summary of the co-chairs follows the elements identified in the general guidance for submissions and future work on modalities relating to forest reference emission levels and forest reference levels in document FCCC/SBSTA/2011/2, annex II, paragraph 2.

[13] The land categories as described in the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, chapter 2.

[14] Key category identification and analysis as described in the IPCC *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, chapter 5.

reference level in order to conduct a key category analysis. However, one expert cautioned that many developing countries may face difficulties with a key category analysis because an IPCC tier 2 approach is needed, at a minimum.

31. While countries would have the flexibility to pick and choose among the REDD-plus activities, certain conditionalities would have to apply in order to avoid perverse incentives. For example, if a country focuses actions on enhancement of forest carbon stocks and not on deforestation, it could lead to perverse incentives. An example of a conditionality could be: if a country chooses reducing emissions from deforestation as its REDD-plus activity and sets a forest reference emission level for deforestation, it would also need to demonstrate that forest degradation is not increasing in its other forest lands.

32. The experts shared the view that it is essential for countries to include reducing emissions from deforestation as part of their REDD-plus activities and in their construction of forest reference emission levels and/or forest reference levels. A few experts noted that reducing emissions from deforestation and reducing emissions from forest degradation are linked and should be considered together. To implement either reducing emissions from deforestation or reducing emissions from forest degradation without the other would lead to perverse incentives. On the other hand, there was also a view that reducing emissions from forest degradation should be included only when it is a significant source of emissions. It was noted that it is not necessary to make the inclusion of the other REDD-plus activities compulsory unless these activities are significant sources of emissions. In addition, the implementation of the safeguards[15] for REDD-plus activities should also hinder perverse incentives for certain actions taken.

33. The experts were of the view that technical issues, including technical adjustments to forest reference emission levels and forest reference levels, should be separated from the policy issues and socio-economic and development considerations of a country. They noted that policy issues are more relevant for the consideration of incentives at the international level. There was a proposal that technical adjustments should be considered on a case-by-case basis depending on national circumstances and where adjustment is justified, rather than applying general adjustments. Any adjustments made in the models used for the projection of trends or estimates should be supported with relevant information and the models and the variables used should be validated. In addition, an expert added that models are unable to forecast whether policies actually had impacts on reducing emissions (in other words, the outcome is counterfactual).

C. Characteristics

34. The experts discussed the measurement units for forest reference emission levels and forest reference levels. They appeared to agree that both forest reference emission levels and forest reference levels should be measured in tonnes of carbon dioxide per year and over time.

35. The experts were of the view that the IPCC guidelines and general principles for the development of inventories and reporting (e.g. transparency, consistency, completeness) should guide the construction of forest reference emission levels and forest reference levels.

36. There was an exchange of views over whether the principle of comparability applies to forest reference emission levels and/or forest reference levels. A few experts questioned where comparability would apply, whether it is the comparability of methodologies and approaches for constructing forest reference emission levels and/or forest reference levels or the comparability of these reference levels between countries. A few others noted that

[15] Decision 1/CP.16, appendix I, paragraph 2.

the term "comparability" carries a specific meaning under Article 4 of the Convention, which stipulates that Parties are required to use comparable methodologies agreed by the COP for developing their national greenhouse gas inventories. It was also noted that the use of IPCC guidance would ensure comparability. For countries using the IPCC tier 1 approach, the principle of conservativeness could help to make the approach more comparable. Several experts associated comparability with the phases of REDD-plus implementation and said that comparability would only apply to phase 3 on full implementation of REDD-plus activities with results-based outcomes. Other experts noted that comparing the methodologies and approaches used would facilitate the review process of reference levels. In other words, it is about the comparability of methodologies and approaches and not about the comparison between countries or results. Another view on comparability, in connection with the review process, is that it would facilitate summing all the reference levels to assess whether there is indeed a reduction in global forest-related emissions.

D. Guidance for construction

37. The experts discussed whether there is a need for new definitions of forests or if countries should keep to existing definitions. They shared the view that new definitions are not needed. Instead, a country should respect the existing definitions which it uses in its reporting to other international bodies (e.g. FAO). It was suggested that, in the context of definitions, countries should ensure consistency in their application.

38. Many of the experts were of the view that the construction of forest reference emission levels and forest reference levels should be based on historical data (i.e. activity data and emission factors). However, the following issues were raised regarding the use of historical data: (1) some countries may have difficulty with the availability of historical data and/or with the quality of these data; (2) if historical data are used, how a country should take into account low deforestation rates in the past and its development path for the future; and (3) whether the historical data used for the construction of forest reference emission levels and/or forest reference levels should be an average only or an average or a trend.

39. Some experts noted an apparent interest in using projections to establish forest reference emission levels and/or forest reference levels. It was suggested that projections could be made by extrapolating or averaging historical data and through modelling. However, the paucity of data for projections may pose difficulties.

40. Several experts noted that historical data could allow reasonable projections but it would be important to understand the relationship of such data to the drivers of deforestation. They proposed that adjustments[16] may be needed to reflect future drivers of deforestation and degradation. They noted that, in such cases, it would be necessary to provide transparent information to justify adjustments to reference levels. It was proposed that guidance should be developed for conditions under which adjustments could be made.

41. Many experts agreed that there is a need for periodic revision of forest reference emission levels and/or forest reference levels to take into account improved data, broader coverage of activities and the impacts of mitigation action taken over time. Periodic revision or recalculation using improved data is necessary, particularly when a country does not have adequate historical data but has to rely on proxies to begin with.

42. The experts highlighted the benefits of the stepwise, tier approach of the IPCC. The use of a tier 1 approach facilitates the participation of a greater number of developing

[16] See also paragraph 33 above.

countries in REDD-plus activities. In connection with the use of lower tier approaches, the experts noted the principle of conservativeness in addressing large uncertainties in data and estimates and avoiding overestimation of future emissions. When better and more data become available, countries can revise their forest reference emission levels and/or forest reference levels and move to the use of higher tiers. In addition, the use of higher tiers would allow countries to use different methods for projections and expand their coverage of carbon pools and/or REDD-plus activities over time.

43. The experts identified the types of information that should be provided in the determination of forest reference emission levels and/or forest reference levels. These include: the scope of activities; the definition of forest; the period for historical analysis; the scale of implementation (national and/or subnational level); a general description of agents and drivers of forest cover change and forest degradation; identification of the carbon pools and gases included in estimates; justification for the omission of certain carbon pools; a description of approaches, methodologies, models, and assumptions used; a description of the stratification of forest lands; and an explanation of how disturbances were treated.

44. It was noted that guidance for the construction of forest reference emission levels and/or forest reference levels, including for technical adjustments of extrapolations of historical data, should allow for flexibility to accommodate national circumstances and capacity. In addition, the experts noted that guidance for the progression of subnational forest reference emission levels and/or forest reference levels, as interim measures, into national forest reference emission levels and/or forest reference levels will be needed.

E. Process for communication

45. The experts exchanged views on reviews of forest reference emission levels and/or forest reference levels submitted by countries and the timing of such submissions. They were of the view that countries should submit their forest reference emission levels and/or forest reference levels when they are ready to do so and, hence, submissions would be made progressively (instead of all countries sending submissions at the same time). In addition, if the submissions were to be reviewed, some experts noted that the review would be conducted by technical review experts and focus only on the technical elements of the submissions, and would not be about compensation for emission reductions.

F. Other issues

Reducing emissions from forest degradation

46. The experts discussed the monitoring of emissions from forest degradation and noted the associated difficulties regarding assessing forest degradation and monitoring its emissions. In most cases, the data on forest degradation are weak and hard to come by. However, it was suggested that it should be possible to develop proxies for forest degradation. The difficulty of monitoring forest degradation through remote sensing was also raised, as these techniques cannot detect past events of forest degradation or can detect only some of the drivers of forest degradation. In order to assess forest degradation, on-the-ground monitoring and measurement of carbon stocks would be necessary.

47. Despite the lack of availability of data and of default factors for estimating emissions from forest degradation, some experts were of the view that the use of available IPCC default factors is still preferable to excluding forest degradation from a country's implementation of REDD-plus activities.

48. Several experts also exchanged views on the definition of forest degradation and whether it is a process that entails irreversible changes or a sustained decline in carbon stocks. However, an expert noted that regardless of its definition, forest degradation entails defining a time frame in order to determine whether or not the change is reversible.

Issues for further discussion

49. The experts identified a few issues for further discussion and elaboration in the future: adjustments for approved policy changes, ex post assessments of policy impacts and the implications of future scientific and technical developments and/or improvements (e.g. as more remote sensing data or knowledge become available for countries).