

Analysis of Approaches for REDD+ Verification



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Acronyms

AAU	Assigned Amount Unit
ACR	American Carbon Registry
AFOLU	Agriculture, Forestry, and Other Land Use
ANSI	American National Standards Institute
BUR	Biennial Update Reports
CAR	Climate Action Reserve
CO₂	Carbon Dioxide
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
CGE	Consultative Group of Experts
CRF	Common Reporting Format
COP	Conference of Parties
COP/MOP	Conference of the Parties to the UNFCCC serving as Meeting of the Parties to the Kyoto Protocol
ERT	Expert Review Team
ERUs	Emission Reduction Units
EU	European Union
FC/FU	Forest Cover/Forest Use
FCPF	Forest Carbon Partnership Facility
FMREL	Forest Management Reference Levels
FRL/ FREL	Forest Reference Level/ Forest Reference Emission Levels
GDP	Gross Domestic Product
GHG	Greenhouse Gas



IAF	International Accreditation Forum
ICA	International Consultations and Analysis
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standards Organization
JI	Joint Implementation
KP	Kyoto Protocol
LDCs	Least Developed Countries
LULUCF	Land Use, Land-Use Change, and Forestry
MRV	Measurement, Reporting, and Verification
NAMAs	Nationally Appropriate Mitigation Actions
NFMS	National Forest Monitoring Systems
PDD	Project Design Document
QA/ QC	Quality Assurance/ Quality Control
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD+	Reducing Emissions from Deforestation and Forest Degradation, and the Role of Conservation of Forest Carbon Stocks, Sustainable Management of Forests and Enhancement of Carbon Stocks
RMU	Removal Unit
RL/REL	Reference Level/Reference Emission Level
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body of Scientific and Technical Advice
SCC	Standards Council of Canada
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard

Executive Summary

At the 16th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC), Parties requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop “modalities for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes.”¹

Measurement, reporting, and verification (MRV) of REDD+² has to be considered in the context of both previous COP decisions and ongoing negotiations related to the enhancement of reporting for all countries. At COP-16, Parties decided that developing country Parties will submit biennial update reports (BURs) that update the most recently submitted national communication.³ It was decided that a process of “international consultations and analysis” (ICA) of the biennial reports would take place in the Subsidiary Body of Implementation.⁴ According to the latest discussions in SBSTA, information on REDD+ results could be provided through BURs. The draft SBSTA text points towards a system of REDD+ verification that is built on:

- A link to ICA
- A requirement for developing country Parties to include REDD+ relevant information in their BURs, while the decision on whether this information is subject to the ICA process is left open
- A request for developing country Parties seeking results-based finance to submit additional information in a technical annex to the BUR

¹ Decision 1/CP.16, appendix II, para. (c).

² Reducing Emissions from Deforestation and Forest Degradation, including the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

³ FCCC/CP/2011/9/Add.1, Annex III, II. 2.

⁴ 1/CP.16 para. 63.

- Submission of additional REDD+ relevant information in the technical annex and a review process that may formulate additional requirements for an expert review of both the technical annex and REDD+ relevant information

Decisions to date on ICA suggest a process that is based on a “facilitative sharing of views” that aims to “increase the transparency of mitigation actions and their effects, through analysis by technical experts in consultation with the Party concerned.”⁵ As ICA does not verify the achievement of pre-defined results, but rather seeks to improve the quality of reporting through a constructive process of assessment and support, it would not, on its own, be the appropriate mechanism to verify REDD+ results. Therefore, the question for REDD+ verification is how it is linked to ICA and how strong such a link will be.

The precedents that exist for review, assessment, and verification within the UNFCCC and its Kyoto Protocol (KP) are designed to evaluate information based on common elements, but they differ depending on their purpose and ambition. Common elements include the following:

- Assessment of whether a Party submission conforms with all relevant guidelines, including how the five UNFCCC principles of estimating and reporting of emissions and removals are considered
- Evaluation of new information taking into account consistency with previous submissions and external authoritative information sources
- Technical and process recommendations for improving the quality of information submitted

In this paper, the authors present three approaches to REDD+ verification, with varying levels of effort and involvement by experts and Parties, as follow:

⁵ Decision 2/CP.17, Annex IV, I, para.1.

Details of a REDD+ Technical Annex for Consideration

The technical annex could be analyzed as part of the ICA process and contain additional substantive elements, such as:

- The assessed FREL/FRL in tonnes of CO₂e per year; pools, gases, and activities included; submission date; the period of the assessed FREL/FRL; methods and models used; and forest definition
- Use of common reporting format tables suitable for reporting REDD+ results in tonnes of CO₂e per year
- Demonstration that reported results are methodologically consistent with the FREL/FRL, including data and approaches used; methods/models and assumptions used; pools, gases, activities, and forest definition
- A summary of methods, models, and assumptions used for quantifying uncertainty around reported results
- Demonstration of how subnational leakage has been considered and accounted for in reported results, if applicable
- Demonstration of how reversals have been considered, if applicable

Approach I: Technical analysis and process through the ICA.

For developing countries that are not seeking results-based payments, the submission of REDD+ information would be limited to data and other information in their BURs, including information on forest monitoring systems, progress towards building FREL/FRLs, policies and measures (including those addressing drivers of deforestation), forest monitoring systems, and legal and institutional arrangements, among others. Such information could form part of the facilitative technical analysis under ICA.⁶ The main objective of this process would be to build capacity for Parties to improve the data and information reported in their national GHG inventories and, as a subset, to improve the measurement and reporting of REDD+ related emissions and removals occurring within the Agriculture, Forestry and Other Land Use (AFOLU) sector.

Approach II: Verification of results-based REDD+ actions, ICA with REDD+ technical annex.

The primary goal of REDD+ verification is to assess that the contributions to mitigation by REDD+ activities are real and credible, in support of Article 2 of the Convention. The results of such activities should be “measured against the forest reference emission levels and/or forest reference levels [FRELs/FRLs] should be expressed in tonnes of carbon dioxide equivalent per year.”⁷

Parties seeking to receive results-based finance, when submitting data and information through BURs, may be asked to supply a technical annex (as per para. 30, annex 3, decision 2/CP.17). Such an annex would include REDD+ relevant information on the measurement and reporting of emissions and removals against a FREL/FRL. The process could facilitate results-based finance where REDD+ emission reductions/removals are fully measured, reported, and verified.⁸

⁶ See para. 8 of the Annex of the SBSTA-38 Draft Conclusions (bracketed).

⁷ SBSTA-38 Draft Conclusions, Annex I, para.4.

⁸ See para. 9 of the Annex of the SBSTA-38 Draft Conclusions (bracketed).

Ensuring that real and credible emission reductions have been achieved is the goal of the verification process, and this assertion will be easier to make if measured results can be compared against a high-quality FREL/FRL. Parallel negotiations are ongoing with respect to the technical assessment process for the FREL/FRL, and the outcome of that decision will influence the quality of the subsequent process that verifies results. Therefore, it is recommended that COP-19 negotiations on reference levels and MRV occur in sequence, so that the verification decision has the potential to build upon a strong decision related to reference levels.

Approach III: Additional verifications.

Current negotiations on MRV for REDD+ focus on guidelines and modalities for verification of results-based GHG emissions and removals. Other negotiation streams under the UNFCCC or bilateral commitments between countries could define protocols needed to allow the issuance of tradable emission units and authorize both private and public entities to transact such units. Yet others may seek to verify results others than emissions and emission removals. Negotiations on market-based and non-market-based approaches will likely play out over the next two years. Market-based approaches to REDD+ may come with additional requirements to ensure that fungible emissions reductions/removals produced from REDD+ have a minimum set of attributes to ensure investors of a relatively uniform asset, regardless of where it was produced. Independently-accredited verification bodies could conduct the verification of emission reductions/removals under Approach III.

Regardless of the institutional model of the review process, new capacities need to be added to enable these bodies, or similar bodies, to fulfill the requirements of REDD+ review and assessment. To enhance the necessary expertise for REDD+ reviews and verification, the following actions could be contemplated:

The primary goal of REDD+ verification is to assess that the contributions to mitigation by REDD+ activities are real and credible

- Additional training for reviewers (either existing or new REDD+ experts) could be offered to include LULUCF activities.
- Remote sensing experts and experts in carbon measurement, modeling, and dynamics of tropical (as well as for temperate) forest systems should be added to the review teams.
- GHG inventory experts that are particularly knowledgeable on AFOLU and LULUCF should also be added to the teams.

The “V” of MRV is an essential, yet unresolved, aspect of REDD+. This paper describes how the REDD+ verification process could be executed, what it could cover, and who could perform the assessment. There are strong precedents within the UNFCCC for verification/review and assessment procedures that can be drawn on to make effective use of existing institutions. Three approaches for verification/review and assessment are presented. Maintaining momentum on REDD+ will require a dialogue between finance and technical negotiations—this was a key lesson learned from Doha. Verification arrangements (e.g., relationship between ICA and REDD+ MRV, the degree of assessment, and type of support) emerging from REDD+ negotiations as discussed here may be more generally applicable to all Parties, and progress in REDD+ may help to build momentum towards the delivery of a new and universal climate agreement by 2015 for the period beyond 2020.

1. Introduction

At the 16th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC), Parties requested that the Subsidiary Body for Scientific and Technological Advice (SBSTA) implement a work program that would, among other things, develop “modalities for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the [REDD+] activities referred to in paragraph 70” of the Cancun Decision.⁹ Since then, the SBSTA has worked on methodological guidance for the measurement, reporting, and verification (MRV) of REDD+ actions, now with the aim of completing this work at SBSTA’s 39th session. The goal is to prepare recommendations for a draft decision on this matter for consideration and adoption by COP-19, in Warsaw in November 2013.

In the context of SBSTA’s deliberations, MRV’s “V” (or verification) has spurred a substantial discussion on both its process and technical scope. With the objective of informing UNFCCC negotiators, this paper seeks to discuss how the verification process could be executed and what it could cover. The paper takes the draft conclusions that the Chair proposed at SBSTA’s 38th session (Bonn, June 2013)¹⁰ as a starting point and focuses on the items that remain unresolved.

1.1 Status of Negotiations prior to COP-19

In 2009, at its 15th session, the COP adopted a decision on REDD+ methodological guidance.¹¹ The decision included specific (albeit incomplete) guidance on MRV for REDD+. The decisions requested that the Parties use the most recent Intergovernmental Panel on Climate Change (IPCC) guidance and guidelines as adopted or encouraged by the COP as a basis for the following: estimating anthropogenic forest-related greenhouse gas (GHG) emissions by sources

and removals by sinks, forest carbon stocks, and forest area changes; and to establish national forest monitoring systems that provide transparent, consistent, and, as far as possible, accurate estimates that reduce uncertainties. Results should be made available and be suitable for review.

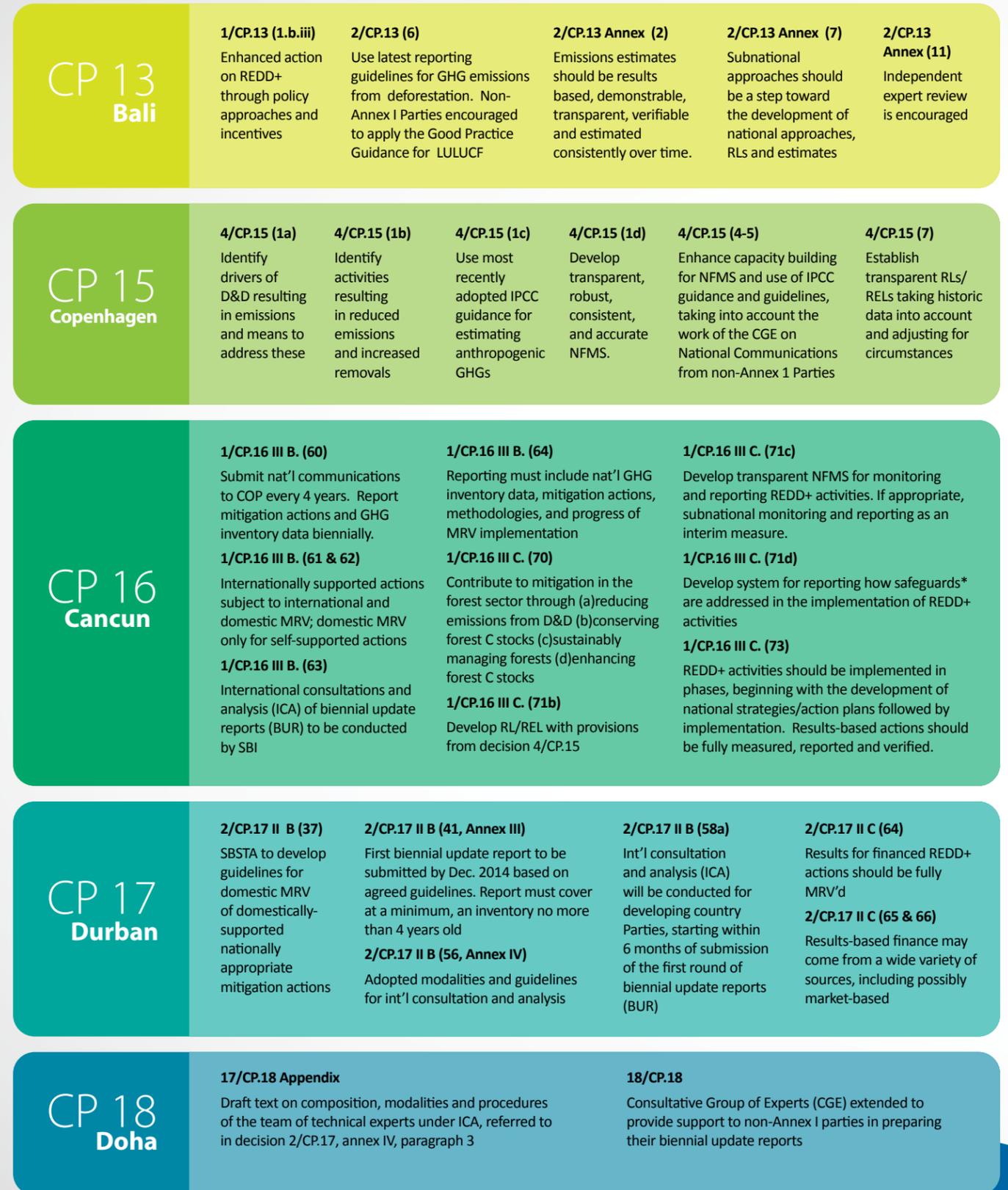
The multifaceted negotiations under the UNFCCC are organized in many parallel and interrelated negotiation streams. MRV decisions for REDD+ are dependent on broader decisions on reporting and review for developing countries; MRV for nationally appropriate mitigation actions (to the extent that countries present REDD+ as such); and on how REDD+ forest reference emissions levels and/or forest reference levels (FREL/FRL) will be constructed and evaluated.

Thus REDD+ MRV must be considered in the context of previous COP decisions and of ongoing negotiations related to the enhancement of reporting for all countries (see Figure 1). At COP-16, Parties decided that developing country Parties should submit biennial update reports (BURs) that update the most recently submitted national communication.¹² It was decided that a process of “international consultations and analysis” (ICA) of the biennial reports would take place in the Subsidiary Body of Implementation (SBI).¹³ Least developed country Parties and small island developing States “may submit biennial update reports at their discretion.”¹⁴

One objective of BURs is “to enable enhanced reporting by non-Annex I Parties on mitigation actions and their effects, needs, and support received, in accordance with their national circumstances, capacities and respective capabilities, and the availability of support.”¹⁵ There is no specific requirement to measure, report, and assess emission reductions/removals against reference or baseline scenarios, although this approach could be implicit in the analysis of the effects of mitigation actions. The BURs will include updates on national inventories

⁹ Decision 1/CP.16, appendix II, para. (c).
¹⁰ Draft Conclusions by the Chair, FCCC/SBSTA/2013/L.12.
¹¹ Decision 4/CP.15.
¹² FCCC/CP/2011/9/Add.1, Annex III, II. 2.
¹³ Decision 1/CP.16, para. 63.
¹⁴ Decision 2/CP.17, para. 41 (a).
¹⁵ Decision 2/CP.17, Annex III, I.1. (c).

Figure 1 . COP MRV guidelines



of anthropogenic emissions by sources and removals by sinks of all GHGs as well as “information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions/removal enhancements, to the extent possible.”¹⁶ ICA includes a technical analysis of the BURs submitted by developing country Parties and a facilitative sharing of views. The process will result in a record that the UNFCCC secretariat prepares that will include a technical “in-depth review report, the summary report of the Subsidiary Body for Implementation, questions submitted by Parties and responses provided, and any other observations of the Party under review.”¹⁷

Since 2010, negotiations have taken place on the ICA of BURs from developing countries, while parallel but separate negotiations have taken place under the SBSTA on MRV for REDD+. According to the latest SBSTA discussions, information on REDD+ results could be provided through the BURs by Parties, thereby linking the negotiations on the process of ICA to those under the SBSTA of REDD+ MRV.¹⁸ The draft decision of SBSTA-38 proposes that a “technical annex”¹⁹ on REDD+ could be included in the BURs by developing countries seeking results-based finance for REDD+. The content of a possible technical annex is still to be decided, as well as the process to assess the annex, although there are suggestions that a technical analysis may be undertaken by a technical team of experts, consistent with the ICA guidelines and modalities. The composition of the team of experts, the scope of the technical analysis, and the relationship between the team of experts and the country under review, remain subjects of negotiation.

Footnotes in the draft SBSTA text note the linkage between the assessment of the technical annex by the team of experts to the outcomes of negotiations on ICA and suggest that a discussion under REDD+ should not

prejudge pending decisions on the ICA.²⁰ The draft SBSTA text also suggests that Parties should provide data and information on the estimation of anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes in their BURs²¹, but has not yet decided on whether such information should be subject to the ICA process.²² In sum, the draft SBSTA text points towards a system of REDD+ verification that is built on the following:

- A link to ICA
- Developing country Parties should include REDD+ relevant information in their BURs, but it has not been finally agreed yet whether such information will be subject to ICA²³
- A request for developing country Parties seeking results-based finance to submit additional information in a technical annex to the BUR
- A process of review and analysis, which includes interaction with the Party concerned, of the technical annex by a technical team of experts

In addition, REDD+ verification of anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes should also be “consistent with MRV of NAMAs [nationally appropriate mitigation actions] by developing country Parties as agreed by the COP.”²⁴ COP-16 decided that “internationally supported mitigation actions will be measured, reported and verified domestically and will be subject to international measurement, reporting and verification in accordance with guidelines to be developed under the Convention.”²⁵ REDD+ MRV for Parties that seek results-based finance may, in process, be aligned with verification of supported NAMAs, in particular if REDD+, or REDD+ actions, will fall under NAMAs. However, details on the MRV of NAMAs have yet to be decided on and will not be examined in this paper.

²⁰ SBSTA-38 Draft Conclusions, Annex I, footnotes 2 and 4.
²¹ SBSTA-38 Draft Conclusions, Annex I, para.7.
²² SBSTA-38 Draft Conclusions, Annex I, para.8 [in brackets].
²³ Ibid.
²⁴ FCCC/SBSTA/2013/L.12, Annex 1, para.1.
²⁵ Decision 1/CP.18, para. 61.

¹⁶ Decision 2/CP.17, Annex III, IV, para. 12 (d).
¹⁷ Decision 2/CP.17, II, para. 30.
¹⁸ Draft Conclusions by the Chair, FCCC/SBSTA/2013/L.12.
¹⁹ Draft Conclusions by the Chair, SBSTA-38, para. 9.

1.2 REDD+ MRV and the Link to Finance

The context of the verification process influences the technical and procedural requirements. It can range from a facilitative review to a confirmation of the achievement of certain outcomes. Decisions to date on ICA suggest a process that is based on a “facilitative sharing of views” that aims to “increase the transparency of mitigation actions and their effects, through analysis by technical experts in consultation with the Party concerned.”²⁶ As ICA does not verify the achievement of pre-defined results (measured in tonnes of CO₂e per year), but rather seeks to improve the quality of reporting through a constructive process of assessment and support, on its own it would not be the appropriate mechanism to verify REDD+ results. Therefore, the question for REDD+ verification is how it is linked to ICA and how strong such a link will be. The link could be unconditional, referring in all aspects to ICA (without additional REDD+ requirements) or, be more specific, including the formulation of special guidance and requirements that would apply to REDD+ in the context of ICA. While ICA’s facilitative nature would help countries to build REDD+ capacities, the link of REDD+ verification to results-based finance may require the submission of additional information and the formulation of additional procedural requirements. It is in the interest of all Parties to the UNFCCC to formulate a conclusive REDD+ verification process that finds the right balance between what is feasible and reasonable for developing country Parties and what is required by those Parties and other entities providing results-based finance. In the absence of a broad agreement, there is a risk that additional requirements could be formulated in bilateral negotiations that lead to multiple and overlapping demands on developing countries.

REDD+ includes the following activities: (1) reducing emissions from deforestation; (2) reducing emissions from forest degradation; (3) conservation of forest carbon stocks; (4) sustainable management of forests; and (5) enhancement of forest carbon stocks. The Cancun decision on REDD+ states that “results-based actions should be fully measured, reported and verified.” The Durban

²⁶ Decision 2/CP.17, Annex IV, I, para.1.

decision then suggested that FREL/FRLs are benchmarks for assessing performance in implementing REDD+ activities. It separately stated that “to obtain and receive results-based finance, actions should be fully measured, reported, and verified.”²⁷ However, the COP has not yet connected finance directly to the performance assessment against FREL/FRLs. Depending on the outcome of further negotiations under the UNFCCC, non-carbon benefits may be considered as additional REDD+ results.²⁸

REDD+ decisions establish a link between the generation of GHG emission reductions/removals (and potentially other benefits) from REDD+ actions and support for those actions²⁹ (see also Figure 1). At COP-17 in Durban, countries recalled that to “obtain and receive results-based finance, [REDD+] actions should be fully measured, reported and verified.”³⁰ COP-17 also suggested that such finance “may come from a variety of sources, public and private, bilateral and multilateral, including alternative sources.”³¹ Furthermore, Parties agreed that “appropriate market-based approaches” could be developed “to support the results-based actions by developing country Parties.”³²

Where finance is linked to results, MRV procedures are likely to contain a confirmation that pre-defined results have been achieved. In this case, additional verification requirements may be formulated. ICA’s facilitative approach would then be complemented (or replaced) by a process that provides evidence for the achievement of results. Such evidence relies on the consistency of methodological guidance and the quality of the review, the credibility of which hinges on neutrality and transparency. In addition, if financing is linked to results-based REDD+,³³ then the verification process must include assessment of how measured emissions compare against the FREL/FRL³⁴ at the national or subnational scale.

²⁷ Decisions 1/CP.16, para. 77 and 2/CP.17, para. 64.
²⁸ Issues referred to in Decision 1/CP.18, para. 40, on methodological issues related to non-carbon benefits resulting from the implementation of REDD+. SBSTA will consider the methodological issues of non-carbon benefits at its 40th session.
²⁹ Decision 1/CP.16, paras.73 and 77.
³⁰ Decision 1/CP.17, para. 64.
³¹ Decision 2/CP.17, para. 65.
³² Decision 1/CP.17, para. 66.
³³ Decision 2/CP.17 paras. 64-65.
³⁴ SBSTA 38 Draft Conclusions, para. 4.

Table 1. Expert review, assessment and verification under the UNFCCC/Kyoto Protocol.

1. Title	2. Objective	3. Principles	4. Process
Review of Annex I Nat'l Communications (Articles 4.1 and 12 UNFCCC)	Ensure COP has accurate, consistent and relevant information to assist in carrying out its responsibilities.	Comprehensive, in-depth, consistent, transparent, independent/objective	NC is reviewed by team from UNFCCC roster of international experts—the Expert Review Team (ERT) conducts in-depth technical assessment (desk-based study and an in-country visit) and prepares a review report.
Inventory Review of Annex I Inventories	Ensure that COP has adequate and reliable information; to examine consistency with reporting guidelines; to assist Parties in improving the quality of their GHG inventories.	Objective, consistent, transparent, thorough, comprehensive, open.	Annual inventory reviews by ERTs normally occur as desk or centralized reviews; each Party subject to at least one in-country review during commitment period. ERT conducts in-depth technical assessment. Parties can review reports before forwarded to Compliance Committee. Guidelines also establish procedures for recommendations and adjustments inventories.
Initial and True-Up Period Report for KP Annex B Parties	Facilitate the accounting of emissions and assigned amount.	Comprehensive, in-depth, consistent, transparent, independent/objective	ERTs examine each Party's initial report of GHGs. If the ERT has doubts it can raise 'question of implementation' in its final review report. Includes a procedure for adjusting the inventories and correcting for transfer of emission units.
Review of Forest Mgmt Reference Level for Annex I Parties under the KP	Establish a Forest Management Reference Level (FMREL) by which future emissions and removals will be compared	Based on transparent, complete, consistent, comparable and accurate information.	Decision 2/CMP.6 requested each Annex I Party to submit information to the secretariat on FMRL, including updates. Each submission to technical assessment by a review team in accordance with guidelines outlined in Appendix II, part II.
5. CDM/ JI Verification	Confirm the monitoring reports of project participants are accurate; confirmation of GHG emission reductions	Independence, ethical conduct, fair representation, due professional care.	Internationally accredited bodies conduct independent review based on COP-established process. Project participants engage verifiers to certify emission reductions for trading. JI can be implemented under full responsibility of host country (Track I) or by relying on an internationally guided process (JI-Track II).
6. Biennial Update Reports and Int'l Consultations & Assessment (ICA)	Enhance the transparency of mitigation actions and their effects; to build capacity in developing countries.	Non-intrusive, non-punitive and respectful of national sovereignty.	The ICA for BURs coordinated by SBI. Technical experts in consultation with the Party will analyze the transparency of mitigation actions and their effect and produce a summary report. Details on the process still to be decided.
MRV of NAMAs by NAI Parties	Support implementation of NAMAs & generate feedback on NAMA effectiveness; facilitate decision-making and planning; Verify results & emission reductions (supported NAMAs).	Not yet defined.	The Copenhagen Accord calls for domestic verification of unilateral NAMAs and int'l verification of supported NAMAs. Verification guidelines for NAMAs do not yet exist. Verification through ICA/BUR and/or entities assigned in bilateral agreements.

2. Overarching Principles and Review Precedents under the UNFCCC

The UNFCCC and its Kyoto Protocol foresee different verification processes, all of which are designed to review and assess information. The verification scope and process depend on the specific context of the verification, but all these processes are guided by a series of common overarching UNFCCC principles that are summarized in section 2.1, below. Section 2.2 then describes verification precedents under the UNFCCC.

2.1 Requirements and Guidance for Reporting

Under the UNFCCC, five general principles apply to guide the estimation and reporting of emissions and removals of GHGs. The five principles are as follow:

- (1) **Transparency**—namely, that documentation of methods, assumptions, and data is sufficient for reviewers to assess the extent to which good practice requirements have been met and the estimates are correct
- (2) **Completeness**—that all relevant lands, pools, gases, and emissions and removal categories are included, estimated, and reported
- (3) **Consistency**—that the same definitions and methodologies are used through time so that differences in emissions and removals between years are real and not an artifact of changes in methodology or data, and, in the REDD+ context, all lands and pools that were included in the RL/REL must be included in the future monitoring system
- (4) **Comparability**—that the methodologies and standards provided by the IPCC for estimating and reporting inventories must be used so that inventory estimates can be compared among countries

(5) **Accuracy**—that methods used are designed to produce neither under- or over-estimates of emissions and removals so far as can be judged, and that uncertainties be reduced so far as is practicable

All reporting to the UNFCCC, including future reporting for REDD+, is assessed during the review process to ensure that these principles have been followed.

2.2 Existing Precedents for Review Processes under the UNFCCC

When considering how a REDD+ verification process could be structured, it is useful to consider the processes that already exist for review, assessment, and verification within the UNFCCC and its Kyoto Protocol (KP). These existing processes (see Table 1) are all designed to review and assess information, but differ depending on their purpose and ambition, and whether or not they have a compliance element.

Common elements of existing review processes include the following:

- An assessment of whether a Party's submission conforms with all relevant guidelines, including how the five UNFCCC principles of estimating and reporting of emissions and removals are considered
- Evaluation of new information taking into account consistency with previous submissions and external authoritative sources of information
- Technical and process recommendations for improving the quality of information submitted

The **Annex I GHG inventory review** follows the guidelines agreed on in 1999³⁵ and revised in 2002³⁶ to ensure that reviews are conducted consistently in a technically sound manner and conform to UNFCCC requirements and IPCC guidelines. The inventory review guidelines provide a set of instructions that contain general guidance, a review checklist, an outline of the written report to be prepared by the teams, and additional instructions for the lead reviewers. The review of GHG inventories comprises three stages, as summarized in Table 2, below:

Kyoto Protocol Article 8 Review. Annex I Parties with a commitment inscribed in Annex B to the Kyoto Protocol submitted to the Secretariat initial reports to facilitate the calculation of the Party's assigned amount units. A review of the report verified the compliance and confirmed the country's eligibility to participate in international emission trading.³⁷ Expert Review Teams (ERTs) conducted in-

³⁵ Decision 6/CP.5.
³⁶ Decision 19/CP.8.
³⁷ Article 17 Kyoto Protocol.

country technical assessments within a year of submission of each initial report. The assessments included a review of the following:

- The national system for the estimation of anthropogenic GHG emissions by sources and sinks
- National greenhouse gas inventory
- Calculation of the assigned amount units
- Calculation of the commitment period reserve
- The national registry
- Land use, land-use change, and forestry (LULUCF) parameters and election of activities

The reviews of initial reports were forwarded to a compliance committee to consider any 'questions of implementation' that were raised in the reports. The ERTs offered advice to Parties on how to correct problems that they identified in the technical assessment, taking into account the Party's national circumstances. ERTs were able to make conservative adjustments in the absence

Table 2. Scope of Review of Annex I National Inventories

Stage	Scope of Review	
Initial check	Is the inventory submission complete and in the correct format?	
Synthesis and assessment	Part I	What are the emission trends, activity data, and implied emission factors reported across Parties over time?
	Part II	Are there potential problems to be considered at the individual review stage?
Individual review	<ul style="list-style-type: none"> • Correct application and documentation of IPCC Guidelines • Comparison with previous submissions • Comparison with relevant external authoritative sources • Consistency of information in CRF tables with that in national inventory report • To what extent have issues and questions raised by Expert Review Teams in previous reports been addressed and resolved • Suggestions for improvements in the estimation and reporting of inventory information 	

Table 3. Scope of Review of Forest Management Reference Levels

Topic	Scope of Review
Pools and Gases	Have pools and gases been identified? Is there consistent coverage of pools in the FMRL? Are the reasons for omitting a pool or gas adequately explained?
Approach	Is there an adequate description of approaches, methods, and models used in the construction of reference levels?
Conformity to guidelines	How is each element in the submission guidelines considered, including justification for why any particular element was not considered?
Consistency	Is the FMRL value consistent with the information and descriptions that the Party provided?
Transparency	Did the Party provide the information in a transparent manner?
Domestic policies	Is a description of domestic policies included and, if so, how were these policies used in the construction of the reference level? How were assumptions about changes to domestic policies excluded?

of an agreement on corrected estimates; disagreements between Parties could be referred to the Compliance Committee. Similar arrangements apply to subsequent annual inventory reviews under the Kyoto Protocol. Review reports are made publically available via the UNFCCC website.

Review of Kyoto Protocol Forest Management Reference Levels. In the second commitment period of the Kyoto Protocol, Annex I Parties are obliged to account for emissions and removals from forest management activities, as well as afforestation, reforestation, and deforestation that were already mandatory during the first commitment period. Emissions and removals will be compared against a Forest Management Reference Level (FMRL).³⁸ Table 3 shows the elements included in the technical assessment guidelines for FMRLs. The review process may provide technical recommendations to the Annex B

³⁸ Decision 2/CMP.6.

Party on the construction of its FMRL and may include a recommendation to make a technical revision to elements used in its construction. During the technical assessment, the ERTs presumed the accuracy of the methodological assumptions indicated by Parties in their GHG inventories and concentrated on assessing the methodology and data used in the construction of the FMRLs proposed in relation to forest management estimates.

Project-level verification. Verification of project-scale emission reductions/removals adheres to procedures that require site-based field monitoring, document review, and data checking against detailed accounting methodologies by audit teams. Project-based verification results in tradable emission reduction/removal credits; the verifying entity can be held liable for the environmental integrity of these units. As an example, CDM and Joint Implementation

(JI)/Track 2 projects must meet detailed requirements and follow exact methodologies, procedures, and steps for project validation and registration, and the verification and certification of emission reductions and removals. An Executive Board supervises the CDM and a supervisory committee for JI. More stringent verification procedures are possible for projects than for subnational or national-scale efforts because they are tied to defined and discrete areas of smaller scale, with fewer activities, and often have a single entity that is directly responsible for the management of the land (i.e., Project Proponents).

Table 4 summarizes the elements that an accredited auditor includes in the verification procedure under these mechanisms. An audit plan is prepared and followed, and after the audit, the project participants are informed of any concerns relating to the conformity of the actual project activity and its operation with the registered project design document (PDD); then project participants address the concerns and supply relevant additional information. A verification audit report is provided to the project participants, the Parties involved, and the Executive Board, and it is made publicly available.

Table 4. Scope of the Review of CDM/JI (Track 2) Monitoring Reports

Topic	Scope of Review
Compliance with PDD and UNFCCC decisions	Is the project documentation in accordance with the PDD requirement and with relevant provisions and decisions of the COP/MOP?
Site visit	On-site inspections comprised of performance records, interviews with project participants and local stakeholders, collection of measurements, observation of established practices, and testing of the accuracy of monitoring equipment
Correct application of methodology	Have monitoring methodologies been applied correctly? Is the documentation complete and transparent?
Correct calculation of emission reductions	Have reductions in anthropogenic emissions by sources or removals by sinks been calculated using procedures consistent with those contained in the PDD and in the monitoring plan?
Suggested changes to methodology	Are changes recommended to the monitoring methodology for any future crediting period?

3. Approaches to REDD+ Verification

At COP-16 in Cancun, Parties to the UNFCCC decided that REDD+ should be implemented in phases “evolving into results-based actions that should be fully measured, reported and verified”³⁹ (Phase 3), implying that verification refers to the technical assessment of emission reductions/removals achieved through REDD+ results-based actions. Current negotiations of REDD+ verification under the UNFCCC focus on the requirements for developing country Parties seeking to obtain and receive results-based finance (Phase 3 of REDD+ implementation). Verification of emission reductions and removals for results-based finance would be additional to ICA of developing countries that may choose to submit REDD+-relevant information as part of the BURs. The scope for verification may be broadened in the future to include other indicators (e.g., non-carbon benefits) or may link to other negotiation streams under the UNFCCC (e.g., finance or NAMAs); additional requirements may also be agreed on bilaterally between countries or in the context of particular mitigation strategies or market-based approaches.

Three approaches to REDD+ verification are summarized below, with varying levels of effort and involvement by experts and Parties:

- Approach I: Technical analysis process through the ICA
- Approach II: Verification of results-based REDD+ actions, ICA with REDD+ technical annex
- Approach III: Modalities for additional verifications

Section 4 provides additional detail on the Approach II verification process to inform UNFCCC negotiations that focus on that approach.

3.1 Approach I: Technical Analysis Process through the ICA

For developing countries that are **not** seeking results-based payments, the submission of REDD+ information would be limited to data and other information in their

³⁹ Decision 1/CP.16, para. 73.

BURs, including information on forest monitoring systems, progress towards building FREL/FRLs, policies and measures (including those addressing drivers of deforestation), forest monitoring systems, and legal and institutional arrangements, among others. Such information could form part of the facilitative technical analysis under ICA.⁴⁰ The main objective of the process would be to build capacity for Parties to improve the data and information reported in their national GHG inventories and, as a subset, the measurement and reporting of REDD+ related emissions and removals occurring within the Agriculture, Forestry and Other Land Use (AFOLU) sector. The technical analysis scope could follow that for the review of national GHG inventories for Annex I Parties⁴¹ and could include checks for transparency, consistency, comparability, completeness, and accuracy (i.e., the five principles), while considering a Party’s existing capacity.

By submitting REDD+ information to ICA, Parties could take advantage of expert assessments and exchange of views that would build capacity and enable developing countries to submit technical REDD+ information when they seek results-based payments. This approach would apply to countries in Phase 1 and Phase 2 of REDD+ implementation, allowing for the gradual building of capacity.

The review could focus on ensuring that the fundamental elements of the inventory process have been put in place, such as a determination of key categories, development of quality assurance/quality control (QA/QC) procedures, and determination of uncertainty for the purpose of prioritizing efforts to improve the accuracy of the inventory and to guide decisions on methodological choice. Information could also be submitted and assessed on measures to address drivers of deforestation and degradation. Capacity building activities could help to improve estimates of historical emissions and removals, and to design a national forest monitoring system.

⁴⁰ See para. 8 of the Annex of the SBSTA-38 Draft Conclusions (bracketed).

⁴¹ Decision 19/CP.8 and associated document FCCC/CP/2002/8.

Assessment: The facilitative review of REDD+ information could take place in the context of ICA and conducted according to the procedures agreed on for the review of BURs. Additional REDD+ requirements could be adopted for information to be provided by countries in Phases 1 and 2 of REDD+ implementation.

Reviewers: Pending an ICA decision, the BUR review could be conducted by the Consultative Group of Experts (CGE) on National Communications from Parties not included in Annex I to the Convention or a similar body. The review would be designed primarily to build capacity and constructively improve upon reporting. In addition, and if so selected by the submitting Parties, experts from the LULUCF roster (that the UNFCCC secretariat maintains) could provide comments on the information submitted in the BURs. The comments may help to build expertise and would be particularly useful if individuals are included with relevant expertise and if such experts play a role in Approach II verification. Experts from non-Annex I Parties may also be encouraged to review and comment on submissions from other countries, thereby building expertise through a combination of compiling information for one country and reviewing it for another.

Interaction with Parties: This approach would follow the procedures agreed for ICA. Facilitative approaches to review assume a close involvement of the Party in the review process that includes capacity building and training as part of the review. The CGE terms of reference, for example, include the mandate to provide “technical advice and support, by organizing and conducting workshops, including hands-on training workshops at the regional or subregional level on greenhouse inventories, vulnerability and adaptation, and mitigation, as well as training on the use of the guidelines for the preparation of second and subsequent national communications by non-Annex I Parties.”⁴² The reviewers could also assist developing country Parties by providing additional information and clarification as requested by the technical analysis team. If a country chooses to have additional experts review the submitted information (with a view to preparing for Approach II verification), interaction between international experts and national experts would be encouraged.

Parties could provide clarifications or make revisions to their submissions to correct or clarify issues in the form of

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⁴² Decision 3/CP.8, Annex para. 9 (d).

a written report or response. No punitive action would be associated with this process, as it is meant to improve the technical submission.

3.2 Approach II: Verification of Results-based REDD+ Actions, ICA with REDD+ Technical Annex

SBSTA-38 Annex 1 paragraph 9 [encourages/requests] Parties seeking to obtain and receive results-based finance, when submitting data and information through BURs, to supply a technical annex (see paragraph 30, annex 3, decision 2/CP.17). Such an annex would include REDD+ relevant information on the measurement and reporting of emissions and removals against a FREL/FRL. The process could facilitate results-based finance where REDD+ emission reductions/removals are fully measured, reported, and verified.⁴³

The annex contents could be analyzed as part of the ICA process. Draft elements of such a technical annex are outlined in bracketed SBSTA-38 draft text (for more details, see section 4, below). The technical annex provides a starting point for Approach II of the REDD+ verification process, where measured results are assessed for quality and compared against the approved FREL/FRL for REDD+.

Assessment: The review of REDD+ information could take place in the ICA context but be conducted according to the procedures agreed on for the technical analysis of the technical annex. Additional REDD+ requirements for information to be provided by countries in Phase 3 of REDD+ implementation could be adopted, as well as procedural modalities that may lead to adjustments of submitted information.

Reviewers: The review could be conducted by the CGE or by ERTs drawn from an expert roster. The experts could be selected from the following groups: (i) the CGE; (ii) the existing UNFCCC roster of experts for Annex 1 inventories with added expertise in tropical or developing country forest lands; (iii) a newly formed roster of experts, all of whom have expertise specific to REDD+ and can be drawn on for individual reviews; or (iv) a standing group of experts with REDD+ expertise.⁴⁴ The process could also draw on

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⁴³ See para. 9 of the Annex of the SBSTA-38 Draft Conclusions (bracketed).

⁴⁴ At their 10th meeting in March 2013, the lead Annex I inventory reviewers suggested establishing a standing group of experts established by the secretariat to undertake all review tasks, under the secretariat staff coordination (FCCC/SBSTA/2013/INF.2).

both the CGE as well as ERTs, based on their comparative advantages. The CGE could assist Parties to prepare relevant information and ensure consistency between inventory and information on REDD+ (before the submission), while ERTs would assess the information provided in the REDD+ technical annex (after the submission). Reviewers should disclose—and be free from—any conflicts of interest that would affect impartiality.

Interaction with Parties: Processes that review particular results often foresee a rule-based interaction between reviewers and the reviewed Party that may lead to eventual changes in the reviewed reports. Annex I ERTs can raise more general ‘questions of implementation’ relating to a Party’s eligibility to use the mechanisms defined by the Kyoto Protocol, and they can identify ‘problems’ relating to Annex I Party inventory and their compliance with the Kyoto Protocol. After several rounds of recommendations and responses, such identified problems could lead to adjustments of a Party’s inventory calculated in consultation with the Party concerned. Such adjustments could be made by the Secretariat and diverting views of the Party concerned could be noted. The revised estimate will then replace the adjusted estimate. If the Party concerned disagrees with the proposed adjustment(s), the COP/MOP and the Compliance Committee will consider the case.⁴⁵

REDD+ verification could rely on a process similar to the active interaction between the expert team and national experts in the Annex I GHG inventory review. Such interaction is a feature of in-country reviews and occurs during centralized and desk reviews. The review may include a process that can lead to adjustments by the reviewers or the secretariat in consultation with the Party concerned. This process is also a component of some current bilateral agreements (e.g., Guyana-Norway), where resources are provided to developing countries to support interaction between international and national experts. Generally, both the process and the outcome quality are improved by more rounds of consultations and the ability to make corrections and eventual adjustments. However, a more detailed and engaged review comes at a cost.⁴⁶

.....
⁴⁵ Decision 22/CMP.1, Annex.

⁴⁶ A detailed cost-benefit analysis should evaluate costs of a more interactive process as compared to simpler review options.

3.3 Approach III: Additional Verifications

Current negotiations on MRV for REDD+ focus on guidelines and modalities for verification of results-based GHG emissions and removals. Other negotiation streams under the UNFCCC or bilateral commitments between countries could define protocols needed to allow the issuance of tradable emission units and authorize both private and public entities to transact such units. Yet others may seek to verify results others than emissions and emission removals. Negotiations on market-based and non-market based approaches will likely play out over the next two years. Some Parties may wish to create demand for REDD+ credits through “New Market Mechanisms” or under a common “Framework of Various Approaches.” However, discussions on such approaches are still at an early stage. Market-based approaches to REDD+ may come with additional requirements to ensure that fungible emissions reductions/removals produced from REDD+ have a minimum set of attributes to ensure investors of a relatively uniform asset, regardless of where it was produced. To achieve this level of uniformity, some amount of standardization of MRV methods, expectations, and data outputs is likely essential.

Assessment: The assessment scope and process for market-based approaches are unlikely to be defined within the scope of UNFCCC REDD+ negotiations. However, if relevant questions come up within other negotiation streams, REDD+ negotiators may be consulted.

Reviewers: Verification for markets could be done via independently accredited auditors, through international review teams or national verification bodies. Different levels of capacities or ‘readiness’ could be accounted for through processes similar Track 1/Track 2 JI procedures, whereby countries may choose to follow international procedures or, provided that they have sufficient capacities, use their own procedures. This type of verification would not preclude other national or bilateral agreements.

Independence of verification body auditors is rooted in the principle of impartiality, as described by the International Accreditation Forum (IAF),⁴⁷ in that auditors should exemplify actual and perceived objectivity in the sense of being free from conflicts of interest, bias, and prejudice and exhibiting neutrality, fairness, and detachment in the evaluation of GHG assertions.

Interaction with Parties: Market-based approaches that allow the participation of private and public entities may also foresee a round that allows clarifications and revisions; in the end, however, it would be the independent entity's prerogative to issue a final verification report. The affected Party may have the option to challenge such a report under a designated body under the Convention.

4. Gradual Building of Information and Capacities

There is likely to be variation with respect to which of the three verification approaches are most appropriate for a given country's needs, priorities, and capacities over the coming years. Approach I applies to most developing country Parties under the Convention. It may be sufficient for developing countries that currently have low capacity to implement MRV procedures, both for REDD+ and more generally for other UNFCCC reporting processes such as national communications and GHG inventory reporting. Parties could gradually include more REDD+ information in their BURs, reflecting improved data and capacities. Along the way, linkages on how the REDD+ MRV process aligns with MRV for NAMAs may become clearer. When the Party has adopted an internationally registered FREL/REL, it could submit the required information in the proposed technical annex. By that time, analysis of country information on the basis of BURs will have already taken place, possibly for several years, and the Party and its experts would be well prepared for REDD+ verification. This way, a gradual approach to REDD+ verification could facilitate the timely development of a robust long-term GHG accounting framework that would provide

⁴⁷ International Accreditation Forum, Inc. 2009. "IAF Mandatory Document for the Application of ISO 14065:2007."

full visibility and understanding about a given Party's individual and joint efforts to reduce global emissions in line with Article 2 of the Convention, including how REDD+ emission reductions are couched within that framework. To avoid a situation where analyses conducted by CGE or expert review teams do not have the same level of expertise as auditors trained specifically on REDD+ issues, experts from LULUCF rosters (with relevant expertise on tropical forests) may be included in the review of REDD+ relevant of the BURs.

Verifications under Approach III may be additional to both Approaches I and II, at least to the extent that there is no overlapping with the verification of GHG emissions and removals from REDD+ activities. Approach III verifications for market-based REDD+ financing would most likely build on Approach II as Approach I is unlikely to produce the data needed for carbon market mechanisms and systems. On the other hand, market-based data may also provide information relevant for Approach II verification. For example, data and information collected as part of a subnational jurisdiction implementing REDD+ activities financed through market-based mechanisms would improve the data and information available for reporting national emissions and removals from the forestry sector included in the BUR, assessed in verification Approach II.

5. Verification of Results-based REDD+ Actions

The primary focus of the "V" of MRV of REDD+ is the verification of "anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the activities referred to in decision 1/CP.16."⁴⁸ Consequently, the primary goal of REDD+ verification is to assess that the contributions to mitigation by REDD+ activities are real and credible, in support of Article 2 of the Convention. The results of such activities should be "measured against the forest reference emission levels and/or forest reference levels should be expressed in tonnes of carbon dioxide equivalent per year."⁴⁹

⁴⁸ SBSTA-38 Draft Conclusions, Annex I, para. 1.

⁴⁹ SBSTA-38 Draft Conclusions, Annex I, para. 4.

According to paragraph 9 of the draft SBSTA 38 text, when submitting the data and information through BURs, Parties seeking to obtain and receive results-based finance are [requested/encouraged] to supply a technical annex that outlines how data and information on REDD+ results should be organized and presented. According to the draft SBSTA text, "the data and information provided in the annex shall be consistent with decisions 4/CP.15 and 12/CP.17 and follow the guidelines provided in the annex to the SBSTA 38 draft decision" (see Figure 1).

Section 5.1 focuses on the technical annex details that distinguish Approach II verification from others and highlights additional issues to be considered. Section 5.2 discusses the composition and interactions of the review teams that will be tasked to assess the information submitted by Parties.

5.1 Contents of a technical annex

A. *Summary information from the final report on the latest assessed reference levels, including: (a) the assessed FREL/RL expressed in tonnes of CO₂e per year; (b) the activity(ies) included; (c) territorial forest area covered; (d) date of the reference level submission and date of final technical assessment report; and, (e) the period (years) of the assessed reference levels.*

Analysis and recommendations: Decision 12/CP.17 establishes modalities and guidelines for submission of information on reference levels by Parties, as follows:

- FREL/FRLs are guided by the most recent IPCC guidance and guidelines, as adopted or encouraged by the COP.
- Information is presented in a comprehensive and transparent way.
- Methodological information used for the construction of the FREL/FRL is included.
- Pools, gases, and activities included in the FREL/FRL are identified, and reasons for omission of a pool/gas/activity are included.

- Forest definition used is identified, and an explanation is provided of why and how the definition was chosen if it is different from that used in the national GHG inventory or in reporting to other international organizations.

The goal of the verification process is to ensure that real and credible emission reductions have been achieved, and this assertion will be easier to make if measured results can be compared against a high-quality FREL/FRL. Parallel negotiations are ongoing with respect to the technical assessment process for the FREL/FRL, and the outcome of that decision will influence the quality of the subsequent process that verifies results. Therefore, it is recommended that COP-19 negotiations on reference levels and MRV occur in sequence, so that the verification decision has the potential to build on a strong decision related to reference levels. Although this report's focus is not the FREL/FRL assessment, it is important to evaluate how the verification of results maintains consistency with the approach to identifying anthropogenic emissions and removals in the FREL/FRL. Parties may consider how human-induced emission reductions resulting from REDD+ activities will be considered and credited during the MRV period.

B. *Results in tonnes of CO₂e per year, consistent with the assessed reference levels*

Analysis and recommendations: Common reporting format tables are required for UNFCCC GHG inventory reporting by Annex I Parties. Emissions and removals from REDD+ activities will be estimated according to IPCC guidance and guidelines, but still to be defined is the format in which Parties report REDD+ results to the UNFCCC. Flexibility in reporting requirements will accommodate individual circumstances of Parties (e.g., the decision to apply activity- versus land-based accounting), but a lack of standardization also has the potential to result in a more subjective assessment process. Therefore, additional discussion on reporting formats for REDD+ should be considered.

The REDD+ technical annex is likely to be housed within the BUR, but there is a lack of clarity on whether REDD+ results are also to be reported and verified biennially or if Parties have flexibility in determining when to submit results for

verification. This is important when considering reversals, where the atmospheric impact of emission reductions achieved in one year may be negated by increases in emissions in subsequent years. In the ideal scenario, emission reductions within a country will be achieved consistently and sequentially through time as REDD+ activities are implemented, with emissions decreasing gradually each year. In reality, annual emissions are likely to be more variable, with lower emissions occurring in some years and higher in others, possibly even rising above the assessed FREL/FRL in some years. Therefore, the frequency and timing of the REDD+ verification will be important to account for reversals. Although this issue may not affect what is presented in the technical annex, it is unlikely to be considered in the FREL/FRL negotiations because it is not a reference level issue. Therefore, reversals should be considered in the negotiations on MRV and/or finance.

C. Demonstration that the results in B are methodologically consistent with the assessed reference level, including: (a) data sets and approaches used (e.g., remotely sensed data, national forest inventory [or equivalent]); (b) information on the methods/models and assumptions used; (c) year(s) under consideration; (d) territorial forest area covered; (e) pools, gases and activity(ies) included; and, (f) definition of forest used

Analysis and recommendations: Consistency with the assessed reference level is a major, though not exclusive, consideration for evaluating whether or not measured results from REDD+ activities have resulted in real and credible emission reductions. Paragraph 11 of decision 12/CP.17 states that subnational FREL/FRLs may be elaborated as an interim measure, while transitioning to a national FREL/FRL, and that interim FREL/FRLs of a Party may cover less than its entire national territory of forest area. Several Parties appear to be opting for an interim subnational approach as they develop their REDD+ programs. To ensure that reported results from subnational jurisdictions are real and credible, it is recommended that subnational jurisdictions be required to demonstrate in the technical annex how subnational leakage has been considered and accounted for in reported results. If results are compared only against the assessed subnational FREL/FRL, then the review teams will have incomplete information to evaluate whether reported emission reductions are real and

credible, as they will be unable to confirm that emissions have not shifted to other jurisdictions within the national boundary. The assumption that leakage information could be captured by review teams by comparing subnational results for REDD+ against national GHG inventory results fails to consider differences in spatial scale, inventory sampling designs, and so on, that would make direct numerical comparisons difficult.

D. Consistency of the results in B with the corresponding information provided in the national greenhouse gas inventory

Analysis and recommendation: At present, many non-Annex I countries tend to report their national GHG inventories using the lowest IPCC approach and tier, and use default data, thus their quality will be low. However, as results are obtained from work on REDD+ (including development of FREL/FRL and NFMS), it is likely that data for national GHG inventories will improve. Therefore, in the early stages of reporting results on REDD+, there is likely to be little consistency between the estimates of the emissions and removals in the GHG inventory and the results from the REDD+ MRV, thus this step could be voluntary at this stage. Alternatively, additional detail could be provided that outlines the degree to which consistency is to be achieved (e.g., consistency in pools, gases, definitions, methods, assumptions, and so on). When inconsistencies exist, this section can outline the reasons why and how they have been addressed.

E. Description of the institutional roles and responsibilities for measuring, reporting, and verifying the results

Analysis and recommendations: Although a description of institutional roles and responsibilities for REDD+ MRV may not be needed for an assessment of whether results are measurable and verifiable, the information provided could be useful in evaluating existing capacity to account for REDD+ emissions and removals.

F. Provide all the necessary information that allows for the reconstruction of the results

Analysis and recommendations: This section could be incorporated into Section B above, or left as is in Section F of the annex. A summary could be provided of methods, models, and data used based on the application of IPCC guidance and guidelines. At a minimum, the summary

should present methods, models, and data used to derive activity data and emission factors for each REDD+ activity included, incorporating QA/QC procedures that were followed to optimize the accuracy of final results.

G. Take into account, as appropriate, paragraphs 1(c) and 1(d) in decision 4/CP.15 (the reference to 1(d) addresses the issue of uncertainty)

Analysis and recommendations: This section can be deleted from the annex. Reference to IPCC guidance and guidelines is implied in the requirement in section (C) above, that results are to be consistent with the assessed reference level.⁵⁰ Uncertainties can be discussed in section H below.

H. [how to reflect uncertainties – we think this is covered under 1(d) from decision 4/CP.15]

Recommendations: Following IPCC guidance and guidelines, both the FREL/FRL and measured emissions will be calculated as an average value, plus or minus a quantitative uncertainty value. At a minimum, Parties can perform the uncertainty assessment by applying simple error propagation techniques as described in the IPCC Good Practice Guidance. It is currently unclear in the negotiations how final emission reductions will be calculated and linked to payments, and the technical issue of uncertainty will likely be linked to the REDD+ finance negotiations.

At this stage, it is recommended that the technical annex include a summary outlining methods, models, and assumptions used for quantifying uncertainty around measured results. In addition, the summary should demonstrate how these methods are methodologically consistent with those used to estimate uncertainty around the assessed reference level and, if applicable, any change that leads to an inconsistency. Additional specifications could be included on how Parties have reduced uncertainties or plan to reduce uncertainties over time as data availability, capacity, and national capabilities improve. Information on uncertainty can be presented here in Section H or, alternatively, this information could

⁵⁰ Developed according to the most recent IPCC guidance and guidelines as adopted or encouraged by the COP, according to the annex to decision 12/CP.17.

be incorporated as subsection (g) in Section C above that outlines how other components of the results are shown to be consistent with the assessed reference level.

I. PROPOSED LANGUAGE – If applicable, any change that leads to an inconsistency with the assessed reference levels, taking into account that these changes may only refer to a decrease in relation to the result that would be otherwise obtained

Analysis and recommendations: This section can be deleted from the annex. Inconsistencies with the assessed reference levels can be explained in Section C above, in cases where a Party is unable to demonstrate, as requested, that results are methodologically consistent with the assessed reference level. For example, if a pool/gas/activity was excluded (with appropriate justification) from the FREL/FRL and it becomes significant during the measurement period, then a description could be included of the data and methods used to estimate emissions and removals from this pool/gas/activity or plans for how this pool/gas/activity will be included/monitored in future years.

The phrase related to allowing methodological changes only when they “refer to a decrease in relation to the result that would otherwise be obtained” is confusing and should be revised, if section I is retained or moved elsewhere in the annex. As written, there is a lack of clarity about whether changes are allowed only if they result in a decrease in measured emissions as the “result” or in emission reductions as the “result.” Presumably, methodological changes would be allowed only in cases where the quantity of estimated emission reductions during the MRV period is adjusted downwards (i.e., conservative adjustments are allowed). If this is the case, it is worth considering that depending how uncertainty is addressed in the negotiations, the application of consistent but low-quality methods and data could result in a higher estimate of emission reductions than could otherwise be achieved using higher quality methods and data. This is a concern particularly if periodic updates to the FREL/FRL occur infrequently at the Party’s discretion, while lower quality methods and data may continue

to be used for several years because they lead to more emission reductions and require no further justification on consistency. Therefore, a possible modification to the phrase could encourage adjustments in both directions in cases where the methodological inconsistencies that arise between the FREL/FRL and MRV period are the result of improved methods and data used during the MRV period that reduce uncertainties.

5.2 Assessment Teams

While existing bodies and expert rosters can serve as a model and institutional starting point, all require expansion, modification, and the addition of relevant expertise to enable these bodies, or sub-groups of these bodies, to engage in REDD+ verification.

Regardless of the institutional model of the review process, new capacities need to be added to enable these bodies, or similar bodies, to fulfill the requirements of REDD+ review and assessment. This process would be in line with the guidance from the 10th meeting of inventory lead reviewers to improve the cost-effectiveness, efficiency, and practicality of the review process⁵¹ and suggests the inclusion of additional LULUCF experts, among others. Similarly, to enhance the necessary expertise for REDD+ reviews and verification, the following actions could be contemplated:

- Additional training for reviewers (either existing or new REDD+ experts) could be offered to include LULUCF activities and the review of progress made towards emission reduction/removal targets through REDD+ activities. The training would improve the quality, timeliness, and consistency of reviews and address the experts' needs with regard to the BUR reviews.
- Because REDD+ measurement and monitoring relies increasingly on information derived from remote sensing data, it is essential for REDD+ verification to add remote sensing experts to the expert teams. Similarly, experts in carbon measurement, modeling, and dynamics of tropical (as well as for temperate) forest systems are needed for REDD+.

- GHG inventory experts that are particularly knowledgeable on AFOLU and LULUCF should also be added to the teams. The participation of national inventory experts in assessment teams should be encouraged as well as national experts who are in charge of establishing national forest monitoring system and building the information base for FREL/REL; the latter will allow expert dialogue and an exchange of expertise and experience.

When expert teams are assembled, it is essential that the team's collective skills address the special circumstances of the country whose data and reports are reviewed. There should also be an overall balance in the participation of experts from Annex I and non-Annex I Parties, as well as geographical balance among them (to the extent possible). The participating experts in the team performing the analysis phase of the review process should serve in their individual capacity and should not be nationals of the Party undergoing the process. While it is beyond this paper's scope to conduct a cost-benefit analysis to consider the need for additional qualified experts and their training, there will be cost implications, as well as increased demands put on the Secretariat for its time and resources.

6. Conclusions

The "V" of MRV is an essential, yet unresolved, aspect of REDD+. This paper describes how the REDD+ verification process could be executed, what it could cover, and who could perform the assessment. There are strong precedents within the UNFCCC for verification/review and assessment procedures that can be drawn on to make effective use of existing institutions. Three approaches for verification/review and assessment are presented. Maintaining momentum on REDD+ will require a dialogue between finance and technical negotiations—this was a key lesson learned from Doha. Verification arrangements (e.g., relationships between ICA and REDD+ MRV, the degree of assessment, and type of support) emerging from REDD+ negotiations as discussed here may be more generally applicable to all Parties, and progress in REDD+ may help to build momentum towards the delivery of a new and universal climate agreement by 2015 for the period beyond 2020.

⁵¹ FCCC/SBSTA/2013/INF.2.



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