Joint Crediting Mechanism Guidelines for Developing Project Design Document and Monitoring Report for 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 (REDD-plus) and Afforestation/Reforestation

CONTENTS

1. Scope and applicability

1. The "Joint Crediting Mechanism Guidelines for Developing Project Design Document and Monitoring Report for 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 (REDD-plus) and afforestation/reforestation" (hereinafter referred to as "these Guidelines") are intended to assist project participants on developing project design documents (hereinafter referred to as "PDD") and monitoring report.
2. REDD-plus safeguards are outside the scope of these Guidelines. Safeguards are supported and promoted by project participants in line with the "Joint Crediting mechanism Guidelines for Developing Proposed Methodology for REDD-plus and afforestation/reforestation", and the "Joint Crediting Mechanism Guidelines for Addressing and Respecting Safeguards for REDD-plus and afforestation/reforestation".
3. These Guidelines describe standards which are requirements to be met, except guidance indicated with terms "should" and "may" as defined in paragraph 8 below.

2. Terms and definitions

4. "Project design document (PDD)" is prepared by the project participant of a JCM project and sets out in detail, in line with the JCM rules and guidelines, the JCM project which is to be realized.
5. "Monitoring" is collecting and archiving all relevant data necessary for estimating GHG emission that are significant and reasonably attributable to a registered JCM project.
6. "Monitoring plan" sets out the methodology to be used by project participants for the monitoring of, and by third-party entities for verification of the amount of GHG emission reductions achieved by the JCM project.
7. "Monitoring report" is prepared by a project participant and sets out the GHG emission reductions of an implemented registered JCM project for a particular monitoring period.
8. "Stakeholder consultation" is conducted to the individuals, groups including Indigenous People (IP) communities affected, or likely to be affected, by the proposed JCM project. Projects to be conducted within ancestral lands require Free, Prior Informed Consent (FPIC) is required in coordination with the National Commission on Indigenous People (NCIP). This is in accordance with the Philippine Law on Indigenous Peoples Rights Act of 1997 and subsequent regulations such as NCIP Administrative Order No. 3 series of 2012 or The Revised Guidelines on Free and Prior Informed Consent (FPIC) and other Related Processes of 2012.

9. "Environmental Impact Assessment" is conducted to projects with adverse environmental impacts.
10. The following terms apply in these Guidelines:
    (a) "Should" is used to indicate that among several possibilities, one course of action is recommended as particularly suitable;
    (b) "May" is used to indicate what is permitted.
11. Terms in these Guidelines are defined in "JCM Glossary of Terms" available on the JCM website.

3. General guidelines

12. When designing a proposed JCM project and developing a PDD and a monitoring report, project participants apply these Guidelines and the selected methodology(ies), which contain(s) approved methodology document(s) and Monitoring Spreadsheet(s). They also take note of the "Joint Crediting Mechanism Guidelines for Developing Proposed Methodology for 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 (REDD-plus) and afforestation/reforestation" and "Joint Crediting Mechanism Guidelines for Addressing and Respecting Safeguards for 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 (REDD-plus) and afforestation/reforestation".
13. The project participants also communicate with the government of Japan and the government of Philippines (hereinafter referred to as "both governments") to explain how they intend to establish the project reference level and estimate project net emissions following an approved methodology, consider any comments and other feedback they receive, and keep records of the communications.
14. The stakeholder consultation is to be conducted in all proposed JCM projects and its result forms part of the PDD.
15. The Monitoring Spreadsheet is provided as a part of each approved methodology and it consists of:
    (a) Monitoring Plan Sheet (input sheet and calculation process sheet) which is used before validation for developing a monitoring plan and calculating emission reductions *ex ante*;
    (b) Monitoring Structure Sheet which is used before validation for developing an operational and management structure to be implemented in order to conduct monitoring;

(c) Monitoring Report Sheet (input sheet and calculation process sheet) which is used before verification for developing a monitoring report and calculating emission reductions *ex post*.

16. A PDD consists of a completed PDD form and monitoring plan using Monitoring Plan Sheet and Monitoring Structure Sheet. A monitoring report is completed by using Monitoring Report Sheet.
17. The project participants provide a description of the project that provides a comprehension of the nature of the project and its implementation.
18. The project participants monitor the registered JCM project and its emission reductions. The project participants establish and apply quality management procedures to manage data and information. The project participants should reduce, as far as is practical, uncertainties related to the quantification of emission reductions.
19. These Guidelines, the PDD form, and Monitoring Spreadsheet can be obtained electronically from the JCM website.
20. The Joint Committee may revise the PDD form and the Monitoring Spreadsheet if necessary.
21. The Monitoring Spreadsheet may be revised when the corresponding approved methodology is revised.
22. The PDD form and the Monitoring Spreadsheet are completed in English language.
23. The PDD form and the Monitoring Spreadsheet are not to be altered, that is, are to be completed without modifying its format, font, headings, except for those referred in paragraph 24 below.
24. Rows may be added to the table in the Attachment of the PDD form.
25. Where a PDD contains information that the project participants wish to be treated as confidential or proprietary, the project participants are required to submit documentation in two versions:
    (a) One version where all parts containing confidential or proprietary information are made illegible (e.g. by covering those parts with black ink or overwrite those parts with letters such as “XXX”) so that the version can be made publicly available without displaying confidential or proprietary information;
    (b) Another version containing all information that is to be treated as strictly confidential or proprietary by all parties handling this documentation (the third-party entities, the Joint Committee members, external experts).
26. Description related to application of the eligibility criteria and the environmental impact assessment is not considered confidential or proprietary.
27. The presentation of values in the PDD, including those used for the calculation of emission reductions, should be in international standard format e.g. 1,000 representing one thousand

and 1.0 representing one. The units used should be accompanied by their equivalent S.I. units/norms (thousand/million) as part of the requirement to ensure transparency and clarity.

28. Deviations from the approved methodology are permitted where they represent a deviation from the procedures relating to monitoring, measurement and/or calculation set out in the section F. to J. of the approved methodology (e.g., data, parameters and equations available at validation, data and parameters monitored, or the monitoring plan). Deviations relating to any other part of the methodology are not permitted. Methodology deviations do not negatively impact the conservativeness of the quantification of the project emission reductions or removals, except where they result in increased accuracy of such quantification.
29. Methodology deviations are permitted at validation or verification and their consequences are reported in the validation or verification report, as applicable, and all subsequent verification reports.

4. Developing a PDD

In the following section, a hypothetical project is described in red color as an example to show how to fill in the PDD form, Monitoring Plan Sheet, and Monitoring Structure and Procedures Sheet.

4.1. Completing a PDD form

<Example of a completed PDD>

A. Project description

A.1. Title and reference number of the project idea note (PIN) of the JCM project

Title	
PIN reference number	

- *Provide an unambiguous title of the JCM project and the reference number of the PIN which was submitted to the Joint Committee and had no objection by the Joint Committee prior to the registration request. The title should indicate the major project activities.*

A.2. General description of the proposed project

- *Provide a brief description of the project, including:*
  - *The purpose of the project;*
  - *Drivers of deforestation and/or forest degradation that are expected to impact forests in the project area;*
  - *The type of activities the proposed project will implement to reduce net emissions and any other major activities that will be conducted.*
  - *Identification of risks that could substantially affect the project's GHG emission reductions or removals.*

A.3. Project location

Country	
Region, province, district, villages, etc.	
Geographical coordinates	

- *Provide information on the project location such as the name of the region, province, district, and/or village(s), etc. where the project is located in line with the related guidelines and the applied methodology(ies).*

A.4. Project area and activity area

Project area

Map	
Total size	
Fulfillment of forest definition	
Forest type and conditions	
Environmental conditions	
Rights of use for the project	

- *Provide a map displaying the geographical boundaries of the project area and other geographical information that aids comprehension of the project location.*
- *Provide the total size of the project area in hectares.*
- *Describe the forest type and conditions (extent of disturbance, if any) in the project area. Details may be provided in the Attachment.*
- *Provide an overview of present and prior environmental conditions of the project area including information on climate, hydrology, topography, relevant historic conditions, soils, vegetation and ecosystems. Details may be provided in the Attachment.*
- *Explain the past and present tenure rights in the project area, including ownership rights and use rights. Provide documentary evidence that at least 80% of the forest in the project area is under the control of the project in the Attachment.*

Activity area

Activity area	

- *Describe and provide a map of the activity area, if an activity area is employed in the project design.*
- *If an activity area is not employed in the project design, write "N/A" in the corresponding cell.*

A.5. Project participants

Project participants

Country	Project participants
Philippines	
Japan	

- *List the project participants from the Lao People's Democratic Republic and Japan in the corresponding cells.*

Project implementation structure

- *Describe the roles of each project participant and other organizations in the project.*
- *Describe the project implementation structure using a diagram(s) that depicts the relationships between the project participants (and any other organizations that are involved in the project).*
- *Provide evidence for establishing the implementation structure, if any, such as a memorandum of cooperation between the project participants, in the Attachment.*

A.6. Duration

Starting date of project period	
Duration of project period	
Starting date of crediting period (input the information when requesting a renewal of crediting period)	
Duration of crediting period	
Duration of observation period	

- *Provide the project start date in DD/MM/YYYY and operational lifetime in years and months.*
- *Provide the duration of crediting period, the starting date of crediting period, and the duration of observation period. When requesting a renewal of a crediting period, please indicate the starting date of the forthcoming crediting period which is the next date of the end of the previous crediting period.*
- *Note: The starting date of a JCM project is the date on which the operation of a project begins, but may not predate* [201Y/MM/DD].

A.7. Description of drivers of deforestation and/or forest degradation for REDD-plus and project activities

(Only for REDD-plus) Drivers of deforestation and/or forest degradation	
Project activities	

- *For REDD-plus, provide a description of the drivers of deforestation and/or forest degradation expected to impact the forests in the project area in the absence of the project.*

- *Describe the project activities, including objectives, actors involved, location (project area or activity area), duration/frequency, and other relevant information.*

A.8. Contribution from Japan

- *Explain how Japan contributes to the implementation of the project (e.g. financial support, technological inputs, training, etc.).*

A.9. Demonstration of economical additionality for afforestation/reforestation project

- *For afforestation/reforestation project with commercial activities, demonstrate economical additionality that commercial activities other than credit issuance implemented during the crediting period is not to be implemented without the project.*
- *Existing tool for additionality demonstration such as "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities" may be applied.*

B. Application of the approved methodology(ies)

B.1. Methodology(ies) applied to the proposed JCM project

Approved methodology No.	
Version number	
Approved methodology No.	
Version number	
Approved methodology No.	
Version number	

- *Provide the number and version of the approved methodology(ies) applied to the proposed JCM project.*

B.2. Explanation of how the project meets eligibility criteria of the approved methodology(ies)

Eligibility criteria	Descriptions specified in the methodology	Explanation of compliance with criterion
Criterion 1		
Criterion 2		
Criterion 3		
Criterion 4		
Criterion 5		
Criterion 6		
Criterion 7		

Criterion 8		
Criterion 9		
Criterion 10		

- *Copy all descriptions specified in the approved methodology(ies) for each criterion.*
- *Provide a comprehensive explanation supported by detailed project information of how the project meets each eligibility criterion.*
- *Details may be provided in the attachment.*

C. Calculation of emission reductions

C.1. Identification of all carbon pools and GHG sources relevant to the JCM project

Carbon pools and GHG sources listed in the applied methodology		Included / excluded (Y/N)	Justification of inclusion or exclusion
Project reference level			
Carbon pools			
GHG sources			
Project net emissions or removals			
Carbon pools			
GHG sources			

- *List all carbon pools and GHG sources covered in the applied methodology(ies).*
- *Identify whether each carbon pool and GHG source is included in the calculation of emission reductions and/or removals. Justify the inclusion or exclusion of each pool and source.*
- *Carbon pools and GHG sources can be excluded if their exclusion leads to conservative estimates of the emission reductions or removals.*

C.2. Establishment of project reference level

Reference area and period

Map	
Total size	
Justification	
Period	

- *Provide a map displaying the geographical boundaries of the reference area and the project area as well as other geographical information that aids comprehension of the reference area location. The accuracy of imagery analyses of land use classification is 80 percent or higher.*
- *Provide the total size of the reference area in hectares.*
- *Explain how the reference area is similar to the project area regarding drivers of deforestation and/or forest degradation, landscape configuration, and socio-economic and cultural conditions. List any additional requirements for the reference area set by the applied methodology(ies) and explain how the reference area meets these requirements.*
- *The reference period dates back at least 10 years from the start of the project and, if the applied methodology/ies sets a maximum date back period, it must not exceed the maximum date back period.*

Approach, procedure and data to establish the project reference level

Approach and procedure	
Data	
Relationship with national or sub-national reference levels	

- *Describe the approach and procedure used to establish the project reference level in line with "4. Concepts for REDD-plus and afforestation/reforestation in the JCM" in "Joint Crediting Mechanism Guidelines for Developing Proposed Methodology for 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 (REDD-plus) and afforestation/reforestation" and the applied methodology(ies).*
- *Provide information on the data used to establish the project reference level, including parameters, values, sources and justification.*
- *Details may be provided in the Attachment.*

C.3. Estimation of project net emissions or removals

Estimation of project net emissions or removals (excluding displaced emissions)

- *Describe the procedures for the estimation of project net emissions (excluding displaced emissions) covering all carbon pools and GHG sources in line with the applied methodology(ies).*
- *Details may be provided in the Attachment.*

Estimation of displaced emissions

Reasons for including / excluding displaced emissions	
Ways and means to estimate emissions displacement	
Total size of displacement belt	
Map of the displacement belt	
Explanation for setting the boundaries of the displacement belt	

- *Give the reasons for including / not including displaced emissions in the estimation of project net emissions. Note that any decrease in carbon stocks and increase of GHG emission from outside of the project area that are reasonably attributable to the project activities are quantified and accounted as displaced net emissions, while any increase in carbon stocks and decrease of GHG emissions compared to the situation without the project outside the project area due to the project activities are excluded from the accounting.*
- *Describe the ways and means applied to estimate the displacement of emissions in line with the applied methodology(ies).*
- *When the applied methodology(ies) requires the establishment of a displacement belt to monitor displaced emissions, provide:*
  - *The total size of the displacement belt in hectares;*
  - *A map of the displacement belt;*
  - *The process for setting the boundaries of the displacement belt*
- *When the applied methodology(ies) do not require the establishment of a displacement belt, write "N/A" in the relevant cells.*
- *Details may be provided in the Attachment.*

C.4. Ex ante estimation of emission reductions or removals

Year	Estimated	Estimated Project Net	Estimated Emission Reductions

	Project Reference Level (tCO_2eq) *A*	Emissions or Removals (tCO_2eq) *B*	or removals (tCO_2eq) *C = A – B*
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
Total (tCO_2eq)			

- *Summarize the results of the ex ante estimation of emission reductions or removals for all years of the monitoring period using the table above.*
- *The table presents the aggregate emission reductions or removals of the project. Separate tables for difference project components, if more than one, and each approved methodology that is applied, if more than one, should be provided in the Attachment.*

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	

- *Answer "YES" or "NO" depending on whether the proposed project is subject to an environmental impact assessment according to national or local regulations.*
- *If YES, provide the conclusions of the environmental impact assessment in the Attachment.*
- *If relevant, this information may also be provided in the Safeguards Implementation Plan (SGIP) form.*

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

- *Describe the process by which comments from local stakeholders have been invited for the proposed project. This may be conducted through consultative & participative processes such as meetings, orientations and consultation with the consent and participation of the Local Government Units (LGUs), various government agencies (MENRO, CENRO), academe, and even local non-government groups (if there are existing).*

- *If relevant, this information may also be provided in the Safeguards Implementation Plan (SGIP) form.*
- *For IP communities, FPIC is required to be conducted and a Certificate of Precondition (CP) to be secured as proof that the FPIC was conducted with regularity. Prior to the CP, the tribal community will validate and decide whether or not to object.*

E.2. Summary and consideration of comments received

Stakeholders	Comments received	Consideration of comments received

- *Identify stakeholders that have made comments and provide a summary of these comments.*
- *Explain how due consideration has given to the comments received.*

F. Description of Deviation

- *In case a part of procedures set out in the applied methodologies is deviated, provide information below:*
  - *Description of alternative methods,*
  - *Justification that the alternative methods may be more efficient for project specific circumstances and the deviation will achieve the same level of accuracy or is more conservative than what is set out in the applied methodology,*
  - *When the change occurred and the reasons for the change.*

G. References

Provide a list of references used to support the descriptions in the PDD, if any.

Attachment

(For sake of brevity, the attachment of the example given above is not provided in these guidelines.)

• Use appropriate numbering and subheadings for easy reference to the relevant sections of the PDD. Use a row for each section of the Attachment. Additional rows may be added.

Revision history of PDD		
Version	Date	Contents revised

4.2. Developing a Monitoring Plan

30. Project participants develop before validation of a monitoring plan using Monitoring Plan Sheet and Monitoring Structure Sheet in the corresponding Monitoring Spreadsheet of the methodology applied. The monitoring plan utilizes data and estimates from the National Forest Monitoring System or from any relevant sub-national monitoring system, as appropriate.
31. Project participants input estimated values for each parameter in the Monitoring Plan Sheet including those fixed ex ante for parameters not to be monitored.
32. Project participants also describe the following items for each parameter specified in the Monitoring Plan Sheet in line with the applied methodology(ies). Project participants may add detailed information specific to the proposed project to the contents given in the applied methodology.
    (a) Estimated values: Provide the estimated values of the parameter for the purpose of calculating emission reductions and/or removals *ex ante*;
    (b) Monitoring option: Select an option from below;
        (i) Option A: Based on public data which is measured by entities other than the project participants (Data used: publicly recognized data such as statistical data and specifications);
        (ii) Option B: Based on the amount of transaction which is measured directly using measuring equipment (Data used: commercial evidence such as invoices);
        (iii) Option C: Based on the actual measurement using measuring equipment (Data used: measured values).
    (c) Source of data: Provide the source of data used or to be used. Clearly indicate the type of data source (e.g. official statistics, surveys, measured value, etc.) and spatial level of data (e.g. local, regional, national, international), if applicable;
    (d) Measurement methods and procedures: Describe how the parameters are to be measured/calculated including Quality Assurance/Quality Control (hereinafter referred to as "QA/QC") procedures applied. If the parameter will be measured, describe the equipment to be used to measure it, including details on accuracy level, and calibration information (frequency, date of calibration and validity) in line with section 4.3 below; Describe how the uncertainty affects the GHG emission reductions and how it has been addressed to minimize misrepresentation;
    (e) Monitoring frequency: Describe the monitoring frequency (e.g. continuously, annually).
33. The project participants ensure that data monitored and required for verification and issuance

be kept and archived electronically for two years after the final issuance of credits.

34. In the Monitoring Structure Sheet, the project participants describe the operational and management structure to be implemented in order to conduct monitoring. The project participants establish and clearly indicate the roles and responsibilities of personnel, institutional arrangements, and procedures for data collection, archiving and reporting.
35. The project participants appoint a person who is responsible for overall monitoring activity including preparation of the monitoring report, and managing and archiving data. The responsible person for monitoring:
    (a) Ensures the quality of the monitoring report and the structure and procedure for producing such a document;
    (b) Appoints a person(s) responsible for managing monitoring points, when necessary, to collect data and maintain and control measuring instruments (including calibration/regular inspection) at monitoring points;
    (c) Ensures the assessment of the risks of malfunctioning of the project equipment, discontinuation of the project, omission of data, and intentional misstatement or noncompliance with laws and regulations which could prevent the achievement of the planned emission reductions.

4.3. Preparing for actual measurement[1]

36. For monitoring of parameters under Option C (i.e. parameters monitored through actual measurement), the project participants determine the frequency of calibration following the paragraphs 37 and 38 below, unless otherwise stated in the applied methodology, and describe the frequency in the Monitoring Plan Sheet in line with paragraph 32(d).
37. The monitoring for carbon pools under Option C should be conducted using a combination of remote sensing and ground-based survey(s). The best available technology, including novel satellite observation technologies, may be employed to build effective GHG monitoring systems.
38. The monitoring for carbon pools under Option C is implemented by people who have adequate relevant monitoring experience and qualifications. If any parts of the monitoring are conducted by people with less relevant experience, such as members of local

[1] The following documents may be referred to in developing a monitoring plan and in conducting the monitoring,
"REDD-plus Cookbook: How to measure and monitor forest carbon," Forestry and Forest Products Research Institute, 2012: www.ffpri.affrc.go.jp/redd-rdc/ja/reference/cookbook.html
"A sourcebook of methods and procedures for monitoring and reporting anthropogenic greenhouse gas emissions and removals associated with deforestation, gains and losses of carbon stocks in forests remaining forests, and forestation", GOFC-GOLD, 2015: http://www.gofcgold.wur.nl/redd/sourcebook/GOFC-GOLD_Sourcebook.pdf

communities, appropriate procedures for quality assurance and quality control are implemented.[2]

[2] The following guide may be referred to when engaging local communities in monitoring for REDD-plus projects under the JCM: "Community Based Forest Biomass Monitoring - Training of Trainers Manual," Institute for Global Environmental Strategies, 2014: https://pub.iges.or.jp/pub/community-based-forest-biomass-monitoring-0

<Example of a Monitoring Plan Sheet (Input Sheet)>

Monitoring Plan Sheet (Input Sheet) [Attachment to Project Design Document]

Table 1: Parameters to be monitored ex post

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Monitoring point No.	Parameters	Description of data	Estimated Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comments

Table 1-a. Area of stratum *i* and area burnt in stratum *i* at year *ym* during monitoring period

Year during the monitoring period	(1) Forest area (ha):			(2) Burnt area (ha):		

Table 1-b. Project fuel consumption

Year	

Table 2: Project-specific parameters to be fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	**Description of data**	**Estimated value**	**Units**	**Source of data**	**Other comments**

Table 2-a. Area of stratum *i* and area burnt in stratum *i* at year *yr* during reference period

Year during the reference period	(1) Forest area (ha):			(2) Burnt area (ha):		

Table 3: Ex ante estimation of CO2 emission reductions or removals

CO2 emission reductions or removals	Units
	tCO_2/p

[Monitoring option]

Option A	Based on public data which is measured by entities other than the project participants (Data used: publicly recognized data such as statistical data and specifications)
Option B	Based on the amount of transaction which is measured directly using measuring equipment (Data used: commercial evidence such as invoices)
Option C	Based on actual measurement using measuring equipment (Data used: measured values)

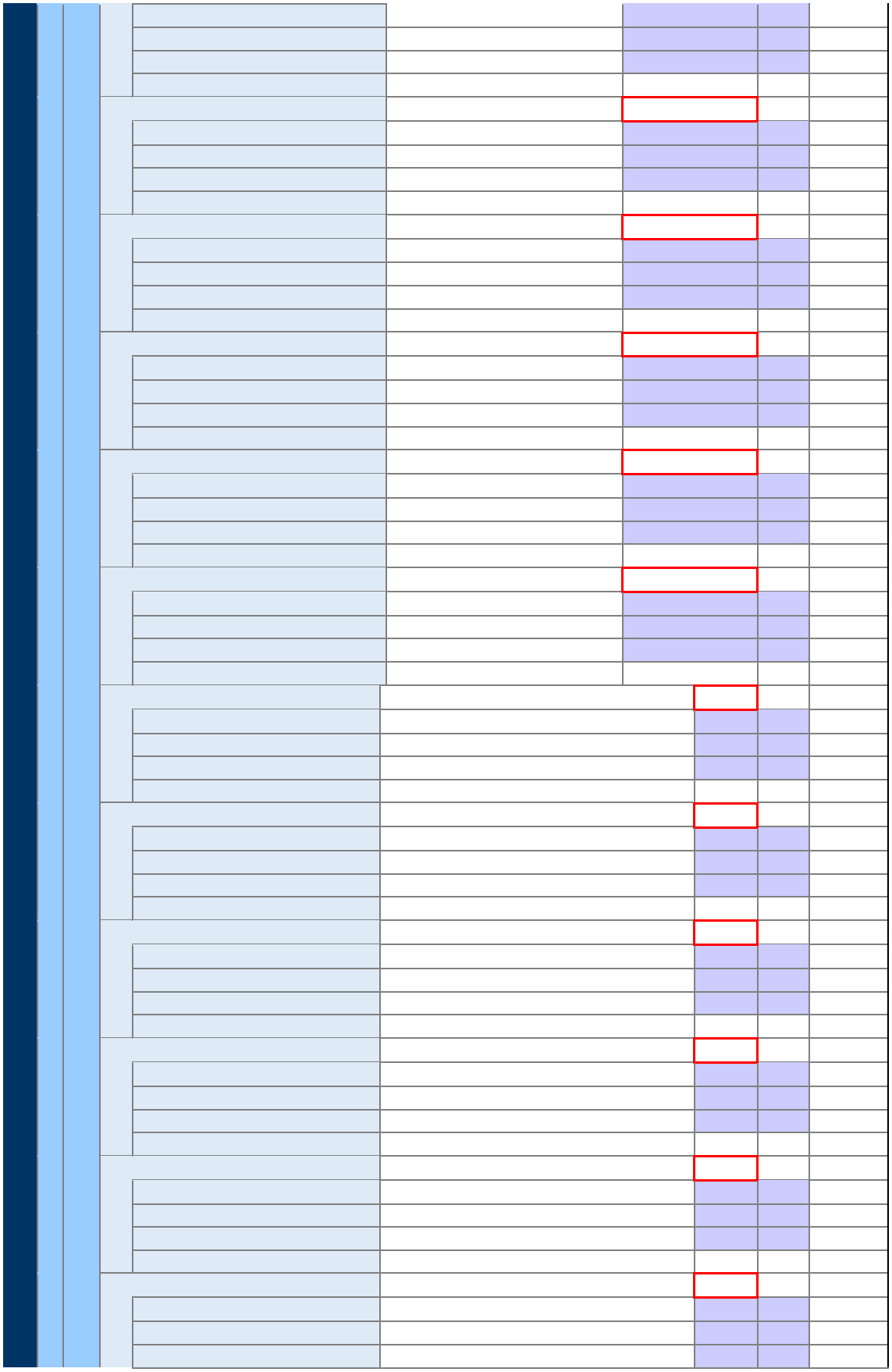
- *For the "Parameters to be monitored ex post" (Table 1), provide information for each of the items as follows:*
  - *Parameter: Provide the parameters used in equations in the proposed methodology;*
  - *Description of data: Provide a clear and unambiguous description of the data underlying the parameter;*
  - *Estimated value: Provide the estimated value;*
  - *Unit: Use the relevant International System Unit (for SI units, refer to <http://www.bipm.fr/enus/3_SI/si.html>)*
  - *Monitoring option: Select option(s) from below. If appropriate, provide the order of priority and the conditions when the options are chosen.*
    - *Option A: Based on public data which is measured by entities other than the project participants (Data used: publicly recognized data such as statistical data and specifications, IPCC Guidelines, etc.)*
    - *Option B: Based on the amount of a transaction which is measured directly using measuring equipment (Data used: commercial evidence such as invoices)*
    - *Option C: Based on actual measurement using measuring equipment, including equipment for remote-sensing and ground-based survey (Data used: measured values)*
  - *Source of data: Provide a description of which data source should be used to determine the parameter. Clearly indicate how the values are to be selected and justified, for example, by explaining:*
    - *What types of sources are suitable (official statistics, expert judgment, proprietary data, IPCC Guidelines, commercial and scientific literature, etc.);*
    - *What spatial level of data is suitable (local, regional, national, international).*
  - *Basic description of measurement methods and procedures: For option B and C, provide a short description of the measurement procedures or reference to appropriate standards. Provide complete descriptions of the measurement methods and procedures and QA/QC procedures in sections 2. Monitoring Procedures and 4. QA/QC, respectively, in the Monitoring Structure and Procedures Sheet.*
  - *Monitoring frequency: Describe the frequency of monitoring (e.g. continuously, annually, etc.).*
  - *Comments: Provide comments to elaborate the monitoring of each parameter not covered by the items above, when appropriate.*
- *Where applicable, adhere to the instructions provided above when completing the table "Parameters to be fixed ex ante" (Table 2). Data that is determined only once and remains fixed should be considered under "I. Data and parameters fixed ex ante" in the applied methodology.*

<Example of a Monitoring Plan Sheet (Calculation Process Sheet)>

Monitoring Plan Sheet (Calculation Process Sheet)

[Attachment to Project Design Document]

1. Calculations for project emission reductions or removals	Pool / Sources	Value	Units	Parameter
Project emission reductions or removals during the period *p*			tCO2e	
2. Basic data of the project				
Size of reference area	Carbon stock and biomass burning			
Size of project area	Carbon stock and biomass burning			
Size of displacement belt	Carbon stock and biomass burning			
Monitoring start date				
Monitoring end date				
3. Selected default values				
4. Calculations for project reference level				
Project reference level at year *y*			tCO2e	RL_y
Monitoring year during reference period				
Carbon stock change at year *y*			tC	$\Delta CS_{ref\,y}$



Non-CO_2 emissions at year *y*			tCO 2e	$L_{fire\_ref\ y}$

5. Calculations of the project net emissions or removals			
Project net emissions or removals during year *y*		tCO2e	PE_y
Monitoring year during first monitoring period			
Carbon stock changes at year *y*		tC	$\Delta CS_{PJ,y}$

Non-CO_2 emissions from forest fires at year *y*			tCO 2e	$L_{fire\_PJ\,y}$
CO_2 emissions from transport and machinery use during year *y*			tC02 e	$E_{energy,PJ,y}$
Displacement of net emissions during the period *y*			tCO $_2$e	DE_y

<Example of a Monitoring Structure and Procedures Sheet>

Monitoring Structure and Procedures Sheet [Attachment to Project Design Document]

1. Monitoring Participants

Responsible organizations for implementing the methods and procedures for each data

Description of data	**Basic description of measurement methods and**	**Organizations involved**

	procedures	

- *When each data when monitoring options B or C are applied, copy (c) Description of data and (h) Measurement methods and procedures from Table 1: Parameters to be monitored ex post in Monitoring Plan Sheet (Input Sheet) and paste the information into the first two columns of the table above.*
- *Identify the organizations responsible for implementing the methods and procedures for each data.*
- *Additional rows may be added.*

Responsible personnel and their roles

Personnel	Role(s)

- *Provide the positions of the individuals responsible for the monitoring and describe their roles. When teams are involved, e.g. communities involved in forest inventory, provide the position of the individual responsible for managing or supervising the monitoring.*
- *Additional rows may be added.*

2. Monitoring procedures

- *For each data for which options B or C are applied, provide a detailed description of the monitoring procedures.*
- *Details may be described in the Attachment.*

3. Procedures for recording and archiving data

- *Describe the procedures for recording and archiving monitoring data.*
- *For each data for which options B or C are applied, provide a detailed description of the procedures*
- *Details may be described in the Attachment.*

4. QA/QC procedures

- *Describe the procedures that the project employs for quality assurance and quality control.*
- *For each data for which options B or C are applied, describe the calibration procedures of any measurement equipment used where applicable.*
- *Details may be described in the Attachment.*

Attachment

- *Use appropriate numbering and subheadings for easy reference to the relevant sections of the Monitoring Structure and Procedures Sheet. Use a row for each section of the Attachment.*
- *Additional rows may be added or unnecessary rows removed.*

5. Monitoring

5.1. Conducting monitoring

39. Project participants conduct monitoring in line with the monitoring plan of the registered PDD.
40. When using remote sensing for monitoring of carbon pools under Option C, satellite imageries whose spatial resolution is 30 meters or higher is used for monitoring land use and land-use changes. For the classification of land cover and forest types, classification to reflect the amount of carbon stock per hectare is encouraged and the classification should reflect each country's forest designations. The accuracy of forest/non-forest maps and forest type maps is 80 percent or higher.

5.2. Data correction for actual measurement

41. For monitoring of parameters under Option C (i.e. parameters monitored through actual measurement), the project participants calibrate measuring equipment as per the monitoring plan.
42. The project participants determine the necessity for data correction in calculation of emission reductions following the decision tree shown in Figure 1 below. If any relevant protocols exist in the National Forest Monitoring System, equipment calibration and data correction should be conducted in line with these protocols.
43. Regarding parameters for which corresponding national laws and regulations on measurement exist, the project participants:
    (a) Apply measured values (uncorrected values) to those parameters in calculation of emission reductions, if measuring equipment are calibrated and/or qualified in accordance with the national laws and regulations on measurement;
    (b) Do not apply measured values in calculation of emission reductions for that monitoring period, if measuring equipment are not calibrated and/or qualified in accordance with the national laws and regulations on measurement.
44. Regarding parameters for which national laws and regulations on measurement do not exist, the project participants check whether the instrumental errors identified in the calibration test stay within the required level of accuracy (i.e. ±5%).
45. For parameters described in paragraph 44, if measuring equipment are calibrated in line with the monitoring plan, the project participants:
    (a) Apply measured values (uncorrected values) to those parameters in calculation of emission reductions, where the instrumental errors of the measuring equipment stay within ±5%;
    (b) Correct measured values by applying the difference resulted from the instrumental

error and required level of accuracy to the measured values during the period between the date of the previous calibration and the concerned calibration, in line with the Appendix to these Guidelines, and apply the corrected values to those parameters in calculation of emission reductions, where the instrumental errors of the measuring equipment do not stay within ±5%.

46. For parameters described in paragraph 44, if measuring equipment are not calibrated in line with the monitoring plan, but calibration is implemented after the scheduled date, the project participants:
    (a) Apply measured values (uncorrected values) to those parameters in calculation of emission reductions, where the instrumental errors identified in the delayed calibration test stay within ±5%;
    (b) Correct measured values by applying the difference resulted from the instrumental error identified in the delayed calibration and required level of accuracy to the measured values during the period between the date of previous calibration and the actual date of calibration in line with the Appendix to these Guidelines, and apply the corrected values to those parameters in calculation of emission reductions, where the instrumental errors identified in the delayed calibration test do not stay within ±5%.
47. Correction of values in line with paragraph 45(b) and 46(b) are conducted in a manner which results in a conservative calculation of emission reductions, as shown in the Appendix.
48. For parameters described in paragraph 44, if measuring equipment are not calibrated in line with the monitoring plan and calibration is not implemented after the scheduled date, the project participants do not apply measured values in calculation of emission reductions for that monitoring period.

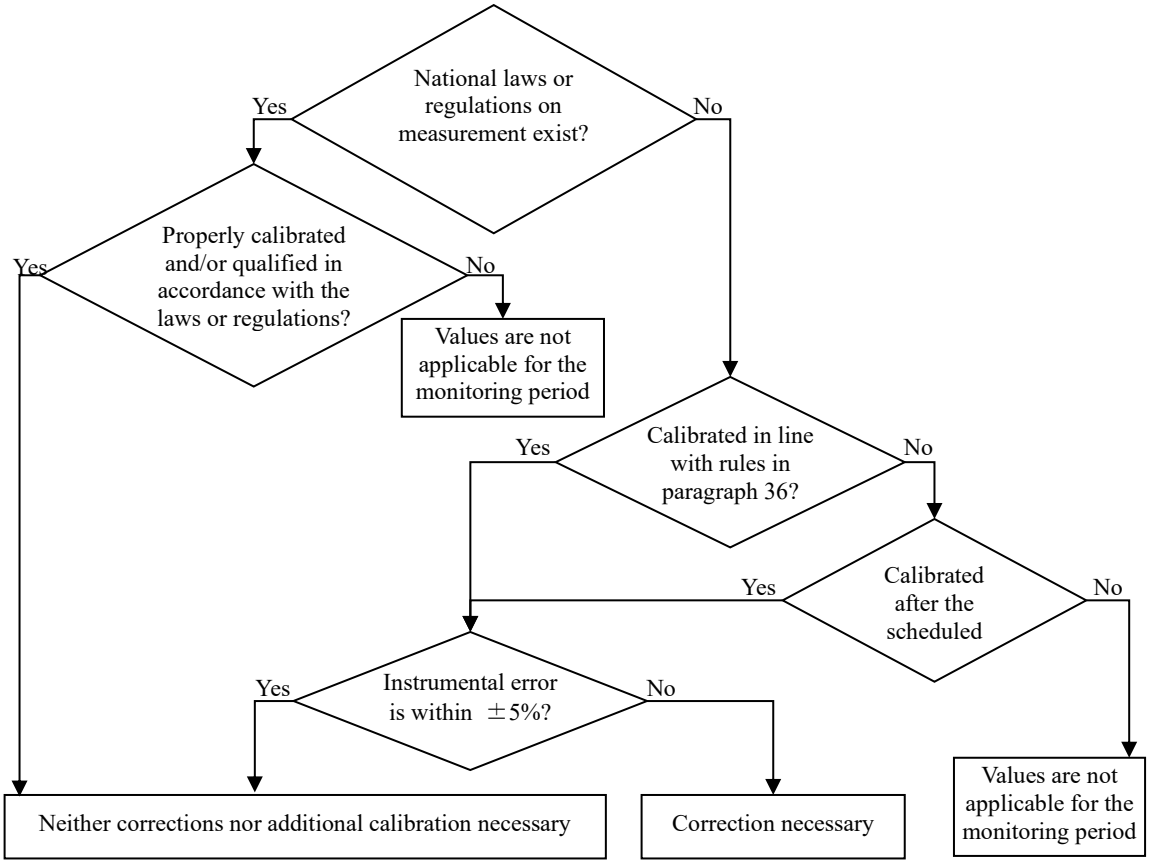


Figure 1 Decision tree for data correction

5.3. Recording and archiving data

49. The project participants record and archive the data as per the monitoring plan.
50. When conducting monitoring, the project participants archive the evidence and records that validate the figures to be stated in the monitoring report(s). It includes the source documents that form the basis for calculations and other information underlying the emission reductions.

6. Developing a Monitoring Report

51. The project participants develop a monitoring report using the Monitoring Report Sheet applied to the registered JCM project.
52. For each parameter in the Monitoring Report Sheet, the project participants describe appropriate information corresponding to the following items:
    (a) Monitoring period: Describe the monitoring period;
    (b) Monitored values: Provide the values of the monitored parameter for the purpose of calculating emission reductions;
    (c) Monitoring option: Fill in the monitoring option used;

(d) Source of data: Provide the source of data used. Clearly indicate the type of data source (e.g. logbooks, daily records, surveys, etc.) and spatial level of data (e.g. local, regional, national, international), if applicable;

(e) Measurement methods and procedures: Describe how the parameters are measured/calculated including QA/QC procedures applied. If the parameter is measured, describe the equipment used to measure it, including details on accuracy level, and calibration information (frequency, date of calibration and validity);

(f) Monitoring frequency: Describe the monitoring frequency.

53. In the Monitoring Report Sheet which is Attached Document to the Monitoring Report Sheet, the project participants provide the locations of monitoring points of the ground-based(s) survey on a map, the result of reassessment of the project reference level, and the situation of the actual recording and archiving of data.

54. Projects may deviate from the procedures set out in the applied methodologies in certain cases, where alternative methods may be more efficient for project-specific circumstances, and where the deviation will achieve the same level of accuracy or is more conservative than what is set out in the applied methodology. Deviations from the PDD are permitted where they represent a deviation from the plan relating to the project activities, monitoring and /or calculation, which does not affect the eligibility of the applied methodology. Deviations relating to the validity of the eligibility criteria of the applied methodology are not permitted.

55. Deviations from the PDD are permitted at verification. Project participants describe and justify the deviations in the monitoring report. It includes a description of when the changes occurred and the reasons for the changes. The deviation is assessed by a TPE and the process, findings and conclusions are reported in the verification report. The assessment determines whether the deviation is appropriately described and justified, and whether the project remains in compliance with rules under the JCM. The deviation is also reported on in all subsequent verification report.

<Example of a Monitoring Report Sheet (Input Sheet)>

Monitoring Report Sheet [Attachment to Project Design Document]

Table 4: Parameters to be monitored ex post

(a) Monitoring point No.	(b) Parameters	(c) Description of data	(d) Estimated Values	(e) Units	(f) Monitoring option	(g) Source of data	(h) Measurement methods and procedures	(i) Monitoring frequency	(j) Other comments

Table 1-a. Area of stratum *i* and area burnt in stratum *i* at year *ym* during monitoring period

Year during the monitoring period	(1) Forest area (ha):			(2) Burnt area (ha):		

Table 1-b. Project fuel consumption

Year	

Table 5: Project-specific parameters to be fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	**Description of data**	**Estimated value**	**Units**	**Source of data**	**Other comments**

Table 2-a. Area of stratum *i* and area burnt in stratum *i* at year *yr* during reference period

Year during the reference period	(1) Forest area (ha):			(2) Burnt area (ha):		

Table 6: Ex-post estimation of CO2 emission reductions or removals

Monitoring period	Emission reductions or removals	Units
		tCO_2/p

[Monitoring option]

Option A	Option A	Based on public data which is measured by entities other than the project participants (Data used: publicly recognized data such as statistical data and specifications)
Option B	Option B	Based on the amount of transaction which is measured directly using measuring equipment (Data used: commercial evidence such as invoices)
Option C	Option C	Based on the actual measurement using measuring equipment (Data used: measured values)

Monitoring Report Sheet Attachment

1. Monitoring sites of the ground-based survey(s)

- *Provide a map that displays the locations of the monitoring sites used in the ground-based survey for the monitoring of net project emissions.*

2. Reassessment of project reference level

- *Provide information that is necessary for reassessment of the project reference level. Refer to the "Joint Crediting Mechanism Guidelines for Developing Proposed Methodology for 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 (REDD-plus) and/or afforestation/reforestation", noting that:*
- *The project reference level is reassessed within five years intervals to ensure that it adequately reflects the actual circumstances of the project area, such as drivers of deforestation and/or forest degradation, activities that lead to land-use changes, and changes of forest management methods.*
- *If the result of reassessment shows that project reference level doesn't adequately reflect the actual circumstances, the project reference level is reestablished.*
- *If a national or relevant sub-national reference level is established after the project start date, the national or relevant sub-national reference level should be taken into account when reestablishing the project reference level at the time of reassessment, and the validity of the new project reference level should be explained.*
- *Details may be provided in the Attachment.*

3. Description of Deviation

- *In case a part of procedures set out in the applied methodologies and/or the PDD is*

deviated, provide information below:

- *Description of alternative methods,*
- *Justification that the alternative methods may be more efficient for project specific circumstances and the deviation will achieve the same level of accuracy or is more conservative than what is set out in the applied methodology and/or the PDD,*
- *When the change occurred and the reasons for the change.*

4. Recording and archiving data

- *Describe the actual situation of the recording and archiving of the monitoring data.*
- *Details may be provided in the Attachment.*

Attachment

- *Use appropriate numbering and subheadings for easy reference to the relevant sections of the Monitoring Report Sheet. Use a row for each section of the Attachment. Additional rows may be added.*