



Annex 27

**GUIDELINES FOR COMPLETING THE PROPOSED NEW AFFORESTATION AND
REFORESTATION BASELINE AND MONITORING METHODOLOGY FORM**

(Version 01.0)

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**PART I****General information on completing
the proposed new baseline and monitoring methodologies form**

1. The “Guidelines for completing the proposed new afforestation and reforestation baseline and monitoring methodologies form (F-CDM-AR-NM)”¹; seek to assist project participants in completing the proposed new baseline and monitoring methodologies form for afforestation and reforestation (A/R) project (CDM-AR-NM).
2. If project participants wish to propose new baseline and monitoring methodologies for A/R they shall complete and submit the CDM-AR-NM and a draft afforestation and reforestation PDD form with only sections A-C filled.
3. The CDM-AR-NM may be obtained electronically from the UNFCCC CDM website <<http://unfccc.int/cdm>>, by e-mail <cdm-info@unfccc.int> or in printed format from the UNFCCC secretariat (Fax: +49-228-8151999).
4. Terms, which are underlined with a broken line in the CDM-NM, are explained in the “Glossary of CDM terms” available on the CDM UNFCCC website. It is strongly recommended that before or during the completion of the forms that project participants consult the most recent version of the “Glossary of CDM terms”.
5. Project participants should also consult the section “Guidance – clarifications” of the UNFCCC CDM website <<http://unfccc.int/cdm>>. It is also available from the UNFCCC secretariat by e-mail <cdm-info@unfccc.int> or in print via fax (+49-228-815 1999).
6. The Executive Board may revise the CDM-AR-NM.
7. Revisions to the CDM-AR-NM do not affect proposed new baseline and monitoring methodologies:
 - a. Submitted to the DOEs prior to the adoption of the revised CDM-AR-NM;
 - b. Submitted to the DOEs within a month following the adoption of the revised CDM-AR-NM;
 - c. The Executive Board will not accept documentation using a previous version of the CDM-AR-NM three months after the adoption of the new version.
8. In accordance with the CDM modalities and procedures, the working language of the Board is English. The CDM-AR-NM shall therefore be completed and submitted in English language to the Executive Board. For the purpose of consultation, CDM-AR-NM is, however, available on the UNFCCC CDM website for consultation in all six official languages of the United Nations.



9. The CDM-AR-NM templates shall not be altered, that is, shall be completed using the same font without modifying its format, font, headings or logo.
10. Tables and their columns shall not be modified or deleted. Rows may be added, as needed.
11. The CDM-AR-NM shall include in section A.1 the version number and the date of the document.
12. If sections of the CDM-AR-NM are not applicable, it shall be explicitly stated that the section is left blank on purpose.
13. The CDM-AR-NM is not applicable to A/R CDM project activities. The documentation for afforestation and reforestation project activities is available on the UNFCCC CDM website.
14. The presentation of values in the CDM-AR-NM, 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 for weights/currency (Lakh/crore etc) should be accompanied by their equivalent S.I. units/norms (thousand/million) as part of the requirement to ensure transparency and clarity.



PART II
FORM FOR PROPOSED NEW BASELINE AND MONITORING METHODOLOGY FOR A/R

A. Information note on form for Proposed New Methodology for afforestation and reforestation project activities (CDM-AR-NM)

1. Before considering the proposal of a new baseline and monitoring methodology, the list of approved A/R methodologies should be checked by the PPs to verify whether an approved baseline and monitoring methodology could be used, with or without revision, for the proposed project activity. In case modifications are required, please refer to the guidance provided by the Board on criteria for the consolidation and revision of the approved methodologies (EB 27, Annex 10) and guidance on when to request a revision, clarification or deviation to an approved methodology (EB 31, Annex 12). This guidance is available at <<http://cdm.unfccc.int/EB/index.html>>.
2. The form “proposed new baseline and monitoring methodology for A/R” (CDM-AR-NM) is to be used to propose a new baseline methodology and a new monitoring methodology. The most recent version of this form may be obtained from the “forms” section of the UNFCCC CDM website <<http://cdm.unfccc.int>> or from the UNFCCC secretariat by e-mail (cdm-info@unfccc.int) or in print via fax (+49-228-815-1999).
4. The form “proposed new baseline and monitoring methodology for A/R” (CDM-AR-NM) shall be accompanied by a “Project Design Document for A/R” (CDM-AR-PDD) with at least the section “Application of an approved baseline and monitoring methodology” (including relevant annexes) completed as draft, providing an example of the application of the A/R PNM.
5. The form “proposed new baseline and monitoring methodology for A/R” (CDM-AR-NM) shall be submitted to the Board in accordance with “Procedure for the submission and consideration of requests for revision of approved baseline and monitoring methodologies and tools for A/R CDM project activities”.*
6. Each proposed new baseline and monitoring methodology should use a separate form “proposed new baseline and monitoring methodology for A/R” (CDM-AR-NM). “Proposed new baseline and monitoring methodology for A/R” (CDM-AR-NM) forms for several new baseline and monitoring methodologies may be submitted together with the same CDM-AR-PDD for several components of a proposed project activity.
7. For additional guidance on aspects to be covered in the description of a new methodology, please refer to guidance and clarifications by the Board on the “guidance – clarifications” section of the UNFCCC CDM website[†] and the “Glossary of CDM Terms”.[‡] PPs are encouraged to use, as appropriate and to the extent possible, the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance (GPG) for Land Use, Land-Use Change and Forestry (LULUCF).[§]

* <<http://cdm.unfccc.int/Reference/Procedures/index.html>>

† <<http://cdm.unfccc.int/Reference/Guidclarif/index.html>>

‡ <http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf>

§ <<http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf.html>>



8. PPs shall refrain from employing key terminology not used in the documents of the Conference of the Parties (COP) or the Glossary of CDM Terms and refrain from rewriting the instructions on the forms.
9. The methodology procedure shall:
- (a) Be completed in a fashion that can be readily used as an approved methodology. This requires use of appropriate format, tone and level of specificity. Text shall be clear and succinct, well written and logically sequenced. It shall describe the procedures in a manner that is sufficiently explicit to enable the methodology to be carried out by a methodology user, to be applied to projects unambiguously and reproduced by a third party. It shall be possible for projects following the methodology to be subjected to a validation and/or verification study. Methodology developers should review and be familiar with methodologies approved by the Board;
 - (b) Be generally appropriate for the entire group of project activities that satisfy the specified applicability conditions. A new methodology should therefore stand independently from the specific project activity proposed in the draft CDM-AR-PDD with which the new methodology is being submitted. The methodology should not make direct reference to, or depend on characteristics of, the specific project activity being proposed in the draft CDM-AR-PDD. It should not refer to specific project activities or locations, project-specific conditions or project-specific parameters. This project-specific information should be described in the draft CDM-AR-PDD however; it can be referred to in the explanation/justification section to help describe the methodology;
 - (c) Present the methodology steps as one might present a recipe. In doing so, clearly state what the methodology user must do and what information must be presented in the resulting CDM-AR-PDD. It should include all algorithms, formulae, and step-by-step procedures needed to apply the methodology and validate the project activity, i.e. calculating baseline removals, project removals and leakage emissions. The completed form shall provide stand-alone replicable methodologies, and avoid reference to any secondary documents other than EB-approved tools and methodologies;
 - (d) Indicate precisely what information the project proponent must report in the draft CDM-AR-PDD and/or in monitoring reports;
 - (e) Support important procedures and concepts with equations and diagrams. Non-essential information should be avoided;
 - (f) Refer by name and reference number to approved methodologies and tools if they are used – in whole or in part – in the methodology. Relevant sections can be cited specifically, but do not need to be repeated. Any proposed modifications and/or additions to approved tools and methodologies need to be clearly highlighted. PPs are encouraged to use, to the extent feasible, the tools approved by the Board. The approved A/R methodological tools are available on the UNFCCC website;**
 - (g) Specify, for all formulae/algorithms and/or models:

** <<http://cdm.unfccc.int/Reference/tools/index.html>>



- The variables used (e.g. species, tree density, growth rates);
 - The spatial resolution of data (e.g. local, regional, national, etc.);
 - The vintage of data.
- (h) Use common formats for equations and terms and use international system of units (SI units);
- (i) Specify, for the data sources and assumptions:
- Where the data are obtained from (official statistics, expert judgement, proprietary data, IPCC GPG for LULUCF, commercial data and scientific literature, etc.);
 - The assumptions used, if any.
- (j) Clearly specify data requirements and sources, as well as procedures to be followed if expected data are unavailable. For instance, the methodology could point to a preferred data source (e.g. national statistics for the past five years), and indicate a priority order for use of additional data (e.g. using longer time series) and/or fall back data sources when the preferred sources are not available (e.g. corporate sources, international statistics, etc.);
- (k) Include instructions to assist in implementing the methodology in a conservative manner where logical or quantitative assumptions have to be made by the methodology user, particularly in cases of uncertainty.
10. The “explanation and justification” sections shall:
- (a) Be used to assist the assessment by the A/R WG and the Board in reviewing the methodology. If the proposed methodology is approved these sections are removed from the final version;
 - (b) Provide the rationale for the procedures presented;
 - (c) If the procedure draws from an approved methodology or tool, provide reference of the same and clearly note any changes to them or elaborations of them. Justify why such changes have been made;
 - (d) Point out the key logical and quantitative assumptions, i.e. those assumptions to which the results of the baseline methodology are particularly sensitive;
 - (e) Be clear about sources of uncertainty. Clearly point out which logical or quantitative assumptions have significant uncertainty associated with determining them. If the methodology makes a certain assumption in cases where there is uncertainty, explain why this assumption is appropriate;
 - (f) Explain how the methodology ensures conservativeness. Explain how the procedures and assumptions on which the procedures rely are conservative. In particular, explain how assumptions in the case of uncertainty are conservative.



11. General instructions for completing the baseline methodology section of the new methodology form (CDM-AR-NM):
- (a) The baseline for an A/R CDM project activity is the scenario that reasonably represents the sum of the changes in carbon stocks in the carbon pools within the project boundary that would occur in the absence of the proposed A/R CDM project activity. A baseline shall cover all carbon pools within the project boundary, but PPs may choose not to account for one or more carbon pools if they provide transparent and verifiable information showing that the carbon stock in the pool under project scenario will not decrease relative to the baseline scenario. The general characteristics of a baseline are contained in paragraphs 20 to 22 of the CDM A/R modalities and procedures;
 - (b) When drafting a proposed new baseline methodology, PPs shall, in particular, follow the following steps:
 - (i) Choose and justify which one of the baseline approaches listed in paragraph 22 of the CDM A/R modalities and procedures is considered to be the most appropriate;
 - (ii) Elaborate a proposal for a new baseline methodology. A baseline methodology is an application of the selected baseline approach contained in paragraphs 22 (a) to (c) of the CDM A/R modalities and procedures to an individual A/R CDM project activity, reflecting aspects such as sector, technology and region. The Board agreed that no methodology is to be excluded a priori so that PPs have the opportunity to propose any methodology, which they consider appropriate. The PPs shall take into account guidance by the Board on aspects to be covered by a methodology (please see guidance and clarifications by the Board on the “Guidance – clarifications” web page of the UNFCCC CDM website);
 - (iii) Describe the proposed new methodology using the form for “Proposed New Methodology for A/R” (CDM-AR-NM) taking into account guidance given by the Board as well as the information provided in the CDM-AR-PDD;
 - (iv) Demonstrate the applicability of the proposed methodology, and, implicitly, that of the approach, to an A/R CDM project activity by providing relevant information in the section “Application of an approved baseline and monitoring methodology” of a draft CDM-AR-PDD;
 - (c) In accordance with guidance provided by the Board, the proposed new baseline methodology shall include a basis for determining the baseline scenario and, in particular:
 - (i) An explanation of how the baseline scenario is chosen, taking into account paragraph 20 (e) of the A/R modalities and procedures;
 - (ii) An underlying rationale for algorithm/formulae and/or model used in the baseline methodology;
 - (iii) An explanation of how, through the methodology, it is demonstrated that a proposed A/R CDM project activity is additional and, therefore, not the baseline scenario (to be used in Section C.5 or C.6 of the CDM-AR-PDD);



(iv) Delineation of the project boundary.

12. General instructions for completing the monitoring methodology section of the new methodology form (CDM-AR-NM):

- (a) Monitoring of an A/R CDM project activity refers to the collection and archiving of all relevant data necessary for determining the baseline net GHG removals by sinks, measuring actual net GHG removals by sinks within the project boundary of an A/R CDM project activity, leakage and applicability conditions, as applicable;
- (b) When drafting a proposed new monitoring methodology, PPs shall:
 - (i) Describe the proposed new methodology using the form “proposed new baseline and monitoring methodology for A/R” (CDM-AR-NM) taking into account guidance given by the Board;
 - (ii) Demonstrate the applicability of the proposed monitoring methodology to an A/R CDM project activity by providing relevant information in sections of a draft CDM-AR-PDD.
- (c) The monitoring methodology needs to provide detailed information on how to establish the monitoring plan related to the collection and archiving of all relevant data needed to:
 - (i) Estimate or measure actual net GHG removals by sinks occurring within the project boundary;
 - (ii) Determine the baseline net GHG removals by sinks;
 - (iii) Identify all potential sources of and estimate leakage for A/R CDM project activities.
- (d) The monitoring methodology should reflect good monitoring practice appropriate to the type of A/R CDM project activity.

13. PPs shall use the nomenclature for parameters and variables in the formulas, as found in recently approved A/R methodologies, when submitting proposed new methodologies.

**B. Specific guidelines for completing the proposed new baseline and monitoring methodology for A/R (CDM-AR-NM)****PROPOSED NEW BASELINE AND MONITORING METHODOLOGY FOR A/R
(CDM-AR-NM)****(Version 04)****CONTENTS**

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1. Methodology title and history of submission

Methodology title

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History of submission (to be completed by the secretariat)

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A/R WG recommendation (to be completed by the A/R WG)
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(a) To approve this proposed A/R methodology as contained in an annex to the A/R WG meeting report;

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*(b) To reconsider this proposed A/R methodology, subject to required changes.
Major required changes;*

>>

Other required changes.

>>

*(c) Not to approve the proposed A/R methodology.
Reasons for non-approval;*

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SECTION I. SOURCE, DEFINITIONS AND APPLICABILITY

1. Sources

If this methodology is based on a previous submission or an approved methodology, please state the relevant reference number (ARNMXXXX/AR-AMXXXX). Explain briefly the main differences and/or rationale for not using the approved methodology.

>>

This methodology refers to the latest approved versions of the following procedures, tools, guidelines and guidances:^{††}

- >>;
- >>.

^{††} Procedures, tools, guidelines and guidances are available at:

<<http://cdm.unfccc.int/Reference/Procedures/index.html>>, <<http://cdm.unfccc.int/Reference/tools>> and <http://cdm.unfccc.int/Reference/Guidclarif/ar/index_guid.html>.



A/R WG assessment (to be completed by the A/R WG)

Relationship with approved or pending A/R methodologies (if applicable).

(a) Does the proposed new A/R methodology include part(s) of one or more approved A/R methodology or an A/R methodology pending approval (see EB reports)? If so, please briefly note the relevant methodology reference numbers (AR-AMXXXX or ARNMXXXX), titles, and parts included;

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(b) In particular, is the proposed new A/R methodology largely an amendment or extension of an approved A/R methodology? (i.e. the methodology largely consists of expanding an approved methodology to cover additional project contexts, applicability conditions, etc., and is thus largely comprised of text from an existing approved methodology);

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(c) Please briefly note any significant differences or inconsistencies between the proposed new A/R methodology and approved A/R methodology(ies) of similar scope;

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(d) To avoid potential repetition, feel free to provide one comprehensive answer here that covers question a) through c).

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2. Selected baseline approach from paragraph 22 of the A/R CDM modalities and procedures

Choose one (delete others)

- Existing or historical, as applicable, changes in carbon stocks in the carbon pools within the project boundary;
- Changes in carbon stocks in the carbon pools within the project boundary from a land use that represents an economically attractive course of action, taking into account barriers to investment;
- Changes in carbon stocks in the pools within the project boundary from the most likely land use at the time the project starts.

Explanation/justification of choice (if not self-explanatory)

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3. Definitions

If needed, provide definitions of key new terms that are used in the proposed new methodology but are not defined in the Glossary of CDM Terms. To the maximum extent possible, use definitions from approved methodologies.



For the purpose of this methodology, the following specific definitions apply:

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Explanation/justification of choice of the definitions (if not self-explanatory)

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4. Applicability

This methodology is applicable to the following type of project(s):

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The conditions under which this methodology is applicable to A/R CDM project activities are:

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List any conditions that a proposed AR CDM project activity must satisfy in order for the methodology to be applicable (e.g. eligible species, sectoral circumstances, region, or historical use of the land areas). Applicability conditions must pertain to the type of proposed project activity and prevent management practices that are not consistent with the carbon pools and sources selected or excluded.

Applicability conditions should not be conditions on a presumed baseline scenario (e.g. it is not appropriate for an applicability condition to be “The land area would continue to be the same without the project activity” as this is not a condition on the project activity, but a result of baseline assessment).

In some cases, compliance with an applicability condition is obvious, easily validated, and unlikely to change. In other cases, however, compliance with an applicability condition may need to be monitored during the crediting period, and the consequences of non-compliance would need to be indicated in the methodology. For example, if an applicability condition is “The project activity does not result in the displacement of more than 50% of the pre-project activities”, the methodology should explain how the applicability condition can be satisfied (e.g. through monitoring of displacements), and how it will be reported. Where applicable, provide references to the relevant sections of the proposed methodology which provide guidance on approaches required to check if the applicability conditions are satisfied.

Explanation/justification (if not self-explanatory)
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Provide explanation/justification of the choices if the description is not self-explanatory. Provide references as necessary. Explain implicit and explicit key assumptions in a transparent manner.

A/R WG assessment (to be completed by the A/R WG)
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(a) Please provide your assessment of the applicability conditions of the proposed new A/R CDM methodology. The language used in the description of the applicability conditions should follow the one used in the last version of approved A/R CDM methodologies and any differences shall reflect differences in the substance. If necessary, explain any changes that should be made to the applicability conditions;

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(b) Please specify whether this methodology can be applied to other type of potential A/R CDM project activities;

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(c) Indicate whether an approved methodology exists for the same applicability conditions;

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(d) State whether the approach/language applied by project participants (PPs) follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

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SECTION II. BASELINE METHODOLOGY PROCEDURE

1. Project boundary and eligibility of land

The “project boundary” geographically delineates the afforestation or reforestation project activity under the control of the PPs. The A/R CDM project activity may contain more than one discrete area of land. Each discrete area of land shall have a unique geographical identification.

It shall be demonstrated that each discrete area of land to be included in the boundary is eligible for an A/R CDM project activity. PPs shall apply the latest version of the tool “Procedures to demonstrate the eligibility of lands for afforestation and reforestation CDM project activities” as approved by the Board.

The latest version of “Guidance on the application of the definition of project boundary to A/R CDM project activities” (available at: <<http://cdm.unfccc.int/Reference/Guidclarif>>) may be applied in identification of areas of land planned for an A/R CDM project activity.

The carbon pools included in or excluded from the project boundary are shown in Table 1.

Table 1: Selection and justification of carbon pools

Carbon pools	Selected (Yes or No)	Justification / Explanation
Above-ground biomass	>>	>>
Below-ground biomass	>>	>>
Dead wood	>>	>>
Litter	>>	>>
Soil organic carbon	>>	>>

The emission sources included in or excluded from the project boundary are shown in Table 2. An emission sources can be neglected, i.e. accounted as zero, if the application of the most recent version of the “Tool for testing significance of GHG emissions in A/R CDM project activities” leads to the conclusion that the emission source is insignificant.

Table 2: Sources of non-CO₂ greenhouse gases included in estimation of the actual net GHG removals by sinks and the leakage [add/delete gases and sources as needed]

Sources	Gas	Included / excluded	Justification / Explanation of choice
>>	CH ₄	>>	>>
	N ₂ O	>>	>>

**Explanation/justification of choice (only if space in the tables above is not sufficient)**

>>

The “project boundary” geographically delineates the A/R CDM project activity under the control of the PPs.

The methodology shall contain the approach required to establish the geographical delineation of the project boundary for a proposed A/R CDM project activity.

The methodology shall explicitly state all carbon pools and emission sources included in the project boundary.

- (a) Use Table 1 to list the carbon pools. Explain whether any carbon pools related to the baseline or the project activity have been excluded, and if so, justify their exclusion. Compare baseline and project if different;
- (b) Use Table 2 to list the emission sources. Explain whether any emission sources have been excluded, and if so, justify their exclusion while making conservative assumptions.

A/R WG assessment (to be completed by the A/R WG)

(a) State whether the selection of carbon pools is appropriate in the context of the applicability conditions and the determination of actual net GHG removals by sinks and baseline net GHG removals by sinks. If not, explain the shortcomings and required changes. Note that the same carbon pools should be considered for the actual net GHG removals by sinks and baseline net GHG removals by sinks;

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(b) State whether the selection of emissions by sources is appropriate taking into account the applicability conditions of the proposed A/R methodology.

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2. Identification of the baseline scenario and demonstration of additionality**Methodology procedure**

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Provide a systematic, step-by-step procedure for determining the most likely baseline scenario. This procedure should describe a process for identifying the options to be considered as plausible candidate baseline scenarios. It should clearly explain the logical and analytical steps that must be followed in ascertaining the most likely baseline scenario from among these candidates. It should clearly state what the methodology user must do and what information must be presented in the resulting CDM-AR-PDD in order to make a logical and well-substantiated case for the baseline scenario. Be specific and complete, so that the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation study.

Ensure consistency between baseline scenario derived by this methodology and the procedure and formulae used to calculate the baseline net GHG removals by sinks (below). The baseline scenario



determination procedure should indicate for which baseline scenarios the overall methodology is applicable. Explain why the proposed procedure for determining the baseline scenario is appropriate for the project type and applicability conditions.

Justify that the range of options to be considered as plausible baseline scenarios is sufficiently comprehensive. The options to be considered should not exclude plausible options that, if included, might result in the determination of a different baseline scenario.

Explain how national and/or sectoral policies and circumstances, if and as relevant, are taken into account by the methodology.

Highlight the key logical assumptions and quantitative factors underlying the procedure for determining the baseline scenario. State clearly which assumptions and factors have significant uncertainty associated with them, and how such uncertainty is to be addressed.

PPs may consider the use of the combined tool to identify the baseline scenario and demonstrate additionality as approved by the Board.

Provide a systematic step-by-step procedure for determining whether or not the project activity is, or is a part of, the baseline scenario, and thereby determining whether the project activity is additional. The methodology should clearly state what the methodology user must do and what information must be presented in the resulting CDM-AR-PDD in order to make a logical and well-substantiated case for the project's additionality.

Ensure consistency between baseline scenario derived by this methodology and the procedure and formulae used to demonstrate additionality. Note, for many methodologies there will be a strong link between the baseline scenario and additionality sections. Present the procedures in each step in as much detail as needed, but avoid repetition that is not needed for reasons of clarity.

Highlight the key logical assumptions and quantitative factors underlying the procedure for demonstrating that the project activity is additional. State clearly which assumptions and factors have significant uncertainty associated with them, and how such uncertainty is to be addressed.

If relevant, explain how national and/or sectoral policies and circumstances are taken into account by the methodology.

PPs may consider the use of one of the tools approved by the Board: (i) Tool for the demonstration and assessment of additionality for afforestation and reforestation CDM project activities or (ii) Combined tool to identify the baseline scenario and demonstrate additionality.

Explanation/justification (if not self-explanatory)
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A/R WG assessment (to be completed by the A/R WG)
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(a) Explain whether the methodology provides for an appropriate step-wise procedure to identify the most plausible baseline scenario. Assess the appropriateness of this procedure, including the appropriateness of information to be presented in the resulting CDM-AR-PDD. Explain any shortcomings and list the required changes;



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(b) Explain whether the methodology provides for an appropriate step-wise procedure for demonstration that the proposed A/R project activity is additional and therefore not the baseline scenario. Assess the appropriateness of this procedure, including the appropriateness of information to be presented in the resulting CDM-AR-PDD. Identify any shortcomings and list the required changes;

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(c) State whether the procedure to demonstrate additionality is consistent with the procedure to identify the most plausible baseline scenario. If not, identify the inconsistencies;

>>

(d) State whether the approach/language applied by PPs follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

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3. Stratification

If the project activity area is not homogeneous, stratification should be carried out to improve the accuracy and the precision of biomass estimates. Different stratifications may be required for the baseline and the project scenarios in order to achieve optimal accuracy of the estimates of net GHG removal by sinks.

Methodology procedure

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Explanation/justification (if not self-explanatory)
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A/R WG assessment (to be completed by the A/R WG)
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(a) Explain whether the methodology provides for an appropriate approach for stratification of the proposed A/R project activity. Identify any shortcomings and list the required changes;

>>

(b) State whether the approach/language applied by PPs follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

>>

4. Baseline net GHG removals by sinks

Methodology procedure

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Elaborate all algorithms and formulae used to estimate measure or calculate the baseline net GHG removals by sinks. Be specific and complete, so that the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation study:

- (a) Explain the underlying rationale for algorithm/formulae;
- (b) Use consistent variables, equation formats, subscripts, etc.;
- (c) Number all equations;
- (d) Define all parameters, coefficients, variables, etc used in the equations, with units indicated;
- (e) Justify the conservativeness of the approach applied.

If the methodology requires *ex post* determination of the baseline net GHG removals by sinks, provide a consistent step-by-step procedure. Elaborate all algorithms variables and formulae required. The *ex post* calculation of baseline net GHG removals by sinks may only be used if proper justification is provided. Notwithstanding this, the baseline net GHG removals by sinks shall also be calculated *ex ante* and reported in the draft CDM-PDD.

For each of the parameters, coefficients, variables, etc, the methodology shall describe the basis for the values to be selected for these variables.

- (a) Where values are provided in the methodology:
 - (i) Clearly indicate the precise references from which these values are taken (e.g. official statistics, IPCC Guidelines, commercial and scientific literature);
 - (ii) Justify the conservative application of the values provided.
- (b) Where values are to be provided by the project participant, the methodology shall clearly indicate how the values are to be selected and justified:
 - (i) For variables that are not monitored throughout the project life time, but are derived from default values or one time measurements and remain fixed throughout crediting period, this shall be detailed in paragraph 8 of Section II;
 - (ii) For variables that are monitored, this shall be detailed in paragraph 3 of Section III.

Ensure consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions of the baseline.



The Board has approved several A/R Methodological Tools. Please refer to the CDM website for these tools.^{##} The tools may be used whenever their applicability conditions allow. They should be used as stand-alone procedures, without changes, and need not be copied but only referenced in the proposed methodology. Make sure that the applicability conditions of the tool are met by the proposed project activity, the carbon pools and emission source referred to in the proposed methodology correspond to that in the tool, and that output of the tool and the methodology are consistent (e.g. with respect to units). Apart from using the existing approved tools, project proponents are also encouraged to propose new tools in areas where no tool exists or approved tools are not appropriate.

Explanation/justification (if not self-explanatory)
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>>

A/R WG assessment (to be completed by the A/R WG)
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(a) State whether the methodology provides a complete approach for estimation of baseline net GHG removal by sinks. State whether the approach is appropriate and, if not, identify the shortcomings and list required changes;

>>

(b) Provide an assessment of the appropriateness and correctness of the methodological procedure to calculate baseline net GHG removals by sinks, including an assessment of:

(i) The choice of algorithms/formulae and/or models used and correctness of their application (e.g. mathematical deficiencies, inconsistencies in calculus of dimensions);

>>

(ii) The appropriateness (adequacy, consistency, accuracy and reliability) of the parameters used in the methodology;

>>

(iii) State, whether the procedure results in a conservative estimation of the sum of the changes in carbon stocks in the carbon pools within the project boundary that would have occurred in the absence of the proposed A/R CDM project activity, taking into account the uncertainties associated with the data and parameters used. Assess whether the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation and/or verification study. Identify any shortcomings and list the required changes.

>>

(c) State whether the approach/language applied by PPs follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

>>

^{##} <<http://cdm.unfccc.int/Reference/tools/index.html>>



5. Actual net GHG removals by sinks

Methodology procedure

Elaborate all algorithms and formulae used to estimate measure or calculate the removals and emissions from the project activity. Be specific and complete, so that the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation and/or verification study.

- (a) Explain the underlying rationale for algorithm/formulae;
- (b) Use consistent variables, equation formats, subscripts, etc.;
- (c) Number all equations;
- (d) Define all parameters, coefficients, variables, etc used in the equations, with units indicated;
- (e) Justify the conservativeness of the approach applied.

For each of the parameters, coefficients, variables, etc, the methodology shall describe the basis for the values to be selected for these variables.

- (a) Where values are provided in the methodology:
 - (i) Clearly indicate the precise references from which these values are taken (e.g. official statistics, IPCC Guidelines, commercial and scientific literature);
 - (ii) Justify the conservative application of the values provided.
- (b) Where values are to be provided by the project participant, the methodology shall clearly indicate how the values are to be selected and justified:
 - (i) For variables that are not monitored throughout the project life time, but are derived from default values or one time measurements and remain fixed throughout crediting period, this shall be detailed in paragraph 8 of Section II;
 - (ii) For variables that are monitored, this shall be detailed in paragraph 3 of Section III.

In the application of the methodology in the PDD for the *ex ante* estimation of the net anthropogenic GHG removals by sinks over the selected crediting period, project participants may use reliable estimates for variables that are monitored and listed in paragraph 3 of Section III. However, if the methodology requires different approaches for the *ex ante* and *ex post* determination of actual net GHG removals by sinks, the methodology shall, in this section, clearly describe the differences between the *ex ante* and the *ex post* approaches and provide a consistent description of each approach, elaborating all algorithms, variables and formulae required.

The Board has approved several A/R Methodological Tools. Please refer to the CDM website for these tools. The tools may be used whenever their applicability conditions allow. They should be used as stand-alone procedures, without changes, and need not to be copied but only referenced in the proposed methodology. Make sure that the applicability conditions of the tool are met by the proposed project activity, the carbon pools and emission source referred to in the proposed methodology corresponds to that in the tool, and that output of the tool and the methodology are consistent (e.g. with respect to units).



Apart from using the existing approved tools, project proponents are also encouraged to propose new tools in areas where no tool exists or approved tools are not appropriate.

Explanation/justification (if not self-explanatory)
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>>

A/R WG assessment (to be completed by the A/R WG)
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(a) Provide an assessment of the appropriateness and mathematical correctness of the methodological procedure to calculate actual net anthropogenic GHG removals by sinks. Explain any shortcomings and list the required changes. Include an assessment of:

>>

(i) The choice of algorithms/formulae and/or models used and correctness of their application (e.g. mathematical deficiencies, inconsistencies in calculus of dimensions);

>>

(ii) The appropriateness (adequacy, consistency, accuracy and reliability) of the parameters used in the methodology;

>>

(iii) State, whether the procedure may lead to systematic overestimation of the actual net anthropogenic GHG removals by sinks, taking into account the uncertainties associated with the data and parameters used. Assess whether the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation and/or verification study. Identify any shortcomings and list the required changes.

>>

(b) State whether the approach/language applied by PPs follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

>>

6. Leakage

Methodology procedure

Explain whether any leakage sources have been excluded, and if so, justify their exclusion.

Elaborate all algorithms and formulae used to estimate, measure or calculate leakage. Be specific and complete, so that the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation and/or verification study.

- (a) Explain the underlying rationale for algorithm/formulae;
- (b) Use consistent variables, equation formats, subscripts, etc.;
- (c) Number all equations;



(d) Define all parameters, coefficients, variables, etc. used in the equations, with units indicated;

(e) Justify the conservativeness of the approach applied.

Explanation/justification (if not self-explanatory)
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>>

A/R WG assessment (to be completed by the A/R WG)
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(a) State, whether the choice of leakage emission sources considered is appropriate. Indicate any important leakage emissions sources that have been neglected in the context of the applicability conditions;

>>

(b) Provide an assessment of the appropriateness and mathematical correctness of the methodological procedure to calculate ex ante leakage emissions. Explain any shortcomings and list required changes;

>>

(c) State whether the approach/language applied by PPs follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

>>

7. Net anthropogenic GHG removal by sinks

Methodology procedure

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Elaborate all algorithms and formulae used to calculate net anthropogenic GHG removal by sinks. Be specific and complete, so that the procedure can be carried out in an unambiguous way, replicated, and subjected to a validation and/or verification study.

(a) Use consistent variables, equation formats, subscripts, etc.;

(b) Number all equations;

(c) Define all parameters, coefficients, variables used in the equations, etc, with units indicated;

Please provide for the formulae to calculate net anthropogenic GHG removals by sinks for project activities using tCERs and for those using ICERs. Please refer to the latest guidance by the Board regarding these formulae.

A/R WG assessment (to be completed by the A/R WG)
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(a) Provide an assessment of the appropriateness and mathematical correctness of the methodological procedure to calculate ex ante actual net anthropogenic GHG removals by sinks. Explain any shortcomings and list the required changes;

>>



(b) State whether the approach/language applied by PPs follows to the maximum possible extent the one used in the approved A/R CDM methodologies and whether any differences reflect differences in the substance. If not, identify the inconsistencies.

>>

8. Data and parameters not monitored (default values used or possibly measured one time)

Data / Parameter:	>>
Description/unit:	>>
Used in equations:	>>
Source of data:	>>
Measurement procedures (if any):	>>
QA/QC procedures (if any):	>>
Any comment:	>>

A/R WG assessment (to be completed by the A/R WG)

State whether the compilation of data and parameters not monitored is complete, appropriate, and justified. Identify any shortcomings and list the required changes.

>>

SECTION III. MONITORING METHODOLOGY

All data collected as part of monitoring should be archived electronically and be kept at least for two years after the end of the last crediting period. All measurements should be conducted according to relevant standards, including the monitoring provisions contained in the tools referred to in this methodology.

1. Monitoring of project implementation

Methodology procedure

>>

Provide a procedure to clearly identify and document the implementation of the project on the land areas within the project boundary including:

- (a) The species, size, timing and geographical location of the stands established as part of the project activity;
- (b) Whether the stands are managed according to any requirements defined in the methodology (e.g. to obey the applicability conditions);
- (c) Where relevant: whether the applicability conditions still apply to the project activity.

**Explanation/justification (if not self-explanatory)**

>>

A/R WG assessment (to be completed by the A/R WG)

Assess the appropriateness of the procedure to monitor and document the implementation of the project on land areas within project boundary. Explain any shortcomings and list the required changes.

>>

2. Sampling design and stratification

Stratification of the project area into relatively homogeneous units can either increase the measuring precision without increasing the cost unduly, or reduce the cost without reducing measuring precision because of the lower variance within each homogeneous unit. PPs should present in the AR-CDM-PDD an *ex ante* stratification of the project area or justify the lack of it. The number and boundaries of the strata defined *ex ante* may change during the crediting period (*ex post*).

Methodology procedure

Describe how the sampling design is to be undertaken for the *ex post* calculation of actual net GHG removals by sinks and, in case the baseline is monitored, the baseline net GHG removals by sinks. The sampling design may, *inter alia*, include stratification, determination of number of plots, plot distribution, etc. The *ex post* stratification may be based on the *ex ante* stratification of the project area, in which case the methodology shall contain the steps for updating it, if required.

The sampling design may, *inter alia*, include information on size and shape of the plots for each carbon pool considered in the project activity, determination of number of plots and sample size calculation, plot distribution, etc. PPs may use the tool for “Calculation of the number of sample plots for measurements within A/R CDM project activities” for estimation of the number of permanent sample plots needed for monitoring changes in carbon pools at a desired precision level. (EB 31, Annex 15).

Explain how the sampling design and the monitoring methodology achieve reliable estimates of net anthropogenic GHG removals by sinks.

Explanation/justification (if not self-explanatory)

>>

A/R WG assessment (to be completed by the A/R WG)

Assess the appropriateness and correctness of the sampling design procedures for the ex post calculation of actual net GHG removals by sinks and determination of the ex post baseline net GHG removals by sinks (if required). The sampling design may include determination of number of plots, plot distribution, etc. Identify any shortcomings and list the required changes.

>>

3. Data and parameters monitored

The following parameters should be monitored during the project activity. While applying the relevant equations provided in this methodology for the *ex ante* calculation of net anthropogenic GHG removals by sinks, PPs shall provide transparent estimations for the parameters that are monitored during the crediting period.

Data / Parameter:	>>
Description/unit:	>>
Used in equations:	>>
Source of data:	>>
Measurement procedures:	>>
Monitoring frequency:	>>
QA/QC procedures:	>>
Any comment:	>>

Note any parameters, coefficients, variables, etc. that are used to calculate baseline net GHG removals by sinks, actual net GHG removals by sinks and leakage where values are to be provided by the PPs and the parameters, coefficients, variables, etc, are monitored throughout the project life time. This may include data that is measured or sampled and data that is collected from other sources (e.g. official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature, etc.). Data that is calculated with equations provided in the methodology should not be included in the compilation.

Use the tables provided in the CDM-NM to provide the following information for each parameter, coefficient or variable:

- (a) Under “data/parameter”, the variable used in equations in the baseline methodology;
- (b) Under ‘Data unit’, use International System Units (SI units – refer to http://www.bipm.fr/enus/3_SI/si.html);
- (c) Under ‘description’, a clear and unambiguous description of the parameter;
- (d) Under ‘Used in equations’, list the numbers of all equations where the variable is used;
- (e) Under ‘Measurement procedure and/or source of data’, clearly indicate how the variables will be monitored. Provide:
 - (i) A description of the measurement procedures or reference to appropriate standards. For data that is collected from other sources, indicate what types of sources are suitable (official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature, etc.);
 - (ii) The vintage of data that is suitable;
 - (iii) What spatial level of data is suitable (local, regional, national, international);
 - (iv) How conservativeness of the values is to be ensured.
- (f) Under ‘Monitoring frequency’, a description of the frequency of monitoring (e.g. annually, etc);



- (g) Under ‘QA/QC procedures’, a description of QA/AC procedures. For assumptions and measurement procedures that have significant uncertainty associated with them, include how such uncertainty is to be addressed.

A/R WG assessment (to be completed by the A/R WG)

State whether the compilation of data and parameters monitored is complete, appropriate, and justified. Identify any shortcomings and list the required changes.

>>

4. Conservative approach and uncertainties

To help reduce uncertainties in the accounting of emissions and removals, this methodology uses whenever possible the proven methods from the GPG-LULUCF, GPG-2000, the IPCC Revised 2006 Guidelines and tools and guidance approved by the Board on conservative estimation of emissions and removals.

It is recommended that PPs identify key parameters that would significantly influence the accuracy of estimates. Values that are specific to the project circumstances should be obtained for these key parameters, whenever possible. These values should be based on:

- Data from well-referenced peer-reviewed literature or other well-established published sources;^{§§}
- National inventory data or default data from IPCC literature that has, whenever possible and necessary, been checked for consistency against available local data specific to the project circumstances; or
- In the absence of the above sources of information, expert opinion may be used to assist with data selection. Experts will often provide a range of data, as well as a most probable value for the data. The rationale for selecting a particular data value should be briefly noted in the CDM-AR-PDD. For any data provided by experts, the CDM-AR-PDD shall also record the experts’ name, affiliation, and principal qualification as an expert (e.g. that they are a member of a country’s national forest inventory technical advisory group). A one-page summary CV for each expert consulted should be included in an annex.

In choosing key parameters or making important assumptions based on information that is not specific to the project circumstances, such as the use of default data, PPs shall follow the most recent version of the “Guidelines on conservative choice and application of default data in estimation of the net anthropogenic GHG removals by sinks”.

Methodology procedure (if any)

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^{§§} Typically, citations for sources of data used should include: the report or paper title, publisher, page numbers, publication date etc (or a detailed web address). If web-based reports are cited, hardcopies should be included as annexes in the CDM-AR-PDD if there is any likelihood that such reports may not be permanently available.

**Explanation/justification (if not self-explanatory)**

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A/R WG assessment (to be completed by the A/R WG)

State, whether the methodology takes into account uncertainties by appropriate choice of monitoring methods, such as number of samples, to achieve reliable estimates of net anthropogenic greenhouse gas removals by sinks. State whether the methodology ensures that the net anthropogenic GHG removals by sinks are estimated in conservative manner, taking into account the uncertainties of the methodology. If not, identify the shortcomings and list the required changes.

>>

5. References

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A/R WG assessment (to be completed by the A/R WG)

Assessment of the description and consistency of the methodology.

(a) State whether the proposed A/R CDM methodology has been described in an adequate and transparent manner. If not, identify the shortcomings and list the required changes;

>>

(b) State whether any other source of information (i.e. other than documentation on this proposed A/R methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references;

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(c) Indicate any further comments.

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History of the document

Version	Date	Nature of revision
01.0	EB 66, Annex 27 2 March 2012	Initial adoption. This guideline, along with the <i>Guidelines for completing the project design document form for afforestation and reforestation CDM project activities</i> (version 01.0, EB 66, Annex 10), replaces the <i>Guidelines for completing the CDM A/R forms for: the project design document (CDM-AR-PDD) and the proposed new baseline and monitoring methodology (CDM-AR-NM)</i> (version 10, EB 56, Annex 14). The revision includes removing requirements that have been incorporated into the CDM Project Standard as referenced in Appendix 1, <i>Implementation plan for the CDM Project Standard, Validation and Verification Standard and Project Cycle Procedure</i> (EB 65 report, annex 6, appendix 1)
Decision Class: Regulatory Document Type: Guideline Business Function: Methodology		