GUIDELINES FOR COMPLETING
THE PROJECT DESIGN DOCUMENT (CDM-PDD), AND
THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM)

Version 06.2

CONTENTS

History of the document

Version	Date	Nature of revision(s)
01	1 July 2004	Initial adoption
02	3 Dec. 2004	Revision of Part I.B. "Glossary of CDM terms" (adding two terms and modifying two existing ones relating to Party involved, written approval, project participants and authorization.)
03	13 May 2005	• The "Glossary of CDM terms" was updated to reflect guidance and clarifications provided by the Board since version 02 of this document • Treatment of confidential/proprietary information submitted through forms • Specification of information requirements for sections of the CDM-PDD filled in support of a proposed new methodology (A.3 "Project participants" and Section A.4.5 "Public funding of the project activity") • Further guidance on how to structure information submitted in a some sections (e.g. A.3 "Project participants", A4.4.1 "Estimated amount of emission reductions over the chosen crediting period") • Reflecting that, in filling a form, a user must state explicitly that a section was left blank on purpose.
04	8 July 2005	• Part III Section A. and B. The Proposed New Methodology: Baseline (CDM-NMB) was revised to assist project participants to present methodologies in a format closer to the one of methodologies approved and to facilitate the process of reformatting • As a consequence, the form Proposed New Methodology: Baseline (CDM-NMB) was revised accordingly to version 2. The latest version of CDM-NMB can be found at <http://cdm.unfccc.int/Reference/Documents>.
05	19 May 2006	• Part III Sections A, B and C The Proposed new Methodology: Baseline and Proposed New methodology: Monitoring was replaced with Proposed New Baseline and Monitoring Methodologies. Sections A, B and C were replaced by Section A. General guidance on Proposed New Baseline and Monitoring Methodologies (CDM-NM. • The "Glossary of CDM terms" was updated to reflect the addition of the term "Biomass". • Section G.1 of the CDM-PDD was updated to reflect the guidance and clarifications provided by the Board since version 04 of this document

06	28 July 2006	• All references to Project Design Document (CDM-PDD) sections A to E have been replaced with A to C.
		• Paragraph 6 of CDM M&P has been added to the Information note for Project Design Document (CDM-PDD).
		• In the Specific guidelines for completing the Project Design Document (CDM-PDD):
		    ○ Section D is deleted and is replace with Environmental impacts
		    ○ Similarly section E is deleted and renamed to Stakeholders' comments.
		    ○ Section A.1 and A.2 were amended
		    ○ Section A4.4 was deleted and replaced by section A4.4.1 amended

		○ Section B1, B2, B3, B4, B5, B6, B7, B8 were amended • Annex 3 and 4 have been amended • In SECTION B: Summary and applicability of the baseline and monitoring methodologies amendments were made.
6.1	31 July 2006	• The version of this document was revised due to editorial reasons.
6.2	19 December	• "Glossary of CDM terms" has been separated and included into a stand-alone document.

**A. General Information on
the Project Design Document (CDM-PDD),
and the Proposed New Baseline and Monitoring Methodologies (CDM-NM)**

1.   These guidelines seek to assist project participants in completing the following documents:

- Project Design Document (CDM-PDD);
- Proposed New Baseline and Monitoring Methodologies (CDM-NM);

2.   The CDM-PDD, CDM-NM were developed by the CDM Executive Board in conformity with the relevant modalities and procedures for the Project Design Document for CDM project activities as defined in Appendix B "Project Design Document" to the CDM modalities and procedures (decision 17/CP.7 contained in document FCCC/CP2001/13/Add.2).

3.   If project participants wish to submit a project activity for validation and registration, they shall submit a fully completed CDM-PDD.

4.   If project participants wish to propose new baseline and monitoring methodologies they shall complete and submit the CDM-NM and a draft CDM-PDD with only sections A-C filled.

5.   The CDM-PDD, CDM-NM may be obtained electronically from the UNFCCC CDM web site (http://unfccc.int/cdm), by e-mail (cdm-info@unfccc.int) or in printed format from the UNFCCC secretariat (Fax: +49-228-8151999).

6.   Terms, which are underlined with a broken line in the CDM-PDD, 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".

7.   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).

8.   The Executive Board may revise the CDM-PDD, and the CDM-NM.

9.   Revisions come into effect once adopted by the Executive Board, bearing in mind the provisions below.

10.   Revisions to the CDM-PDD do not affect project activities:

   a.   Already validated, or already submitted to the OE for validation, prior to the adoption of the revised CDM-PDD;

   b.   Submitted to the OEs within a month following the adoption of the revised CDM-PDD;

   c.   The Executive Board will not accept documentation using the previous version of the CDM-PDD six months after the adoption of a new version.

11.   Revisions to the CDM-NM do not affect proposed new baseline and monitoring methodologies:

   a.   Submitted to the OEs prior to the adoption of the revised CDM-NM;

b. Submitted to the OEs within a month following the adoption of the revised CDM-NM;

c. The Executive Board will not accept documentation using a previous version of the CDM-NM three months after the adoption of the new version.

12. In accordance with the CDM modalities and procedures, the working language of the Board is English. The CDM-PDD, the CDM-NM shall therefore be completed and submitted in English language to the Executive Board. For the purpose of consultation, the CDM-PDD, CDM-NM are, however, available on the UNFCCC CDM web site for consultation in all six official languages of the United Nations.

13. The CDM-PDD, CDM-NM templates shall not be altered, that is, shall be completed using the same font without modifying its format, font, headings or logo.

14. Tables and their columns shall not be modified or deleted. Rows may be added, as needed.

15. The CDM-PDD, CDM-NM shall include in section A.1 the version number and the date of the document.

16. If sections of the CDM-PDD, CDM-NM are not applicable, it shall be explicitly stated that the section is left blank on purpose.

17. The CDM-PDD, CDM-NM are not applicable to afforestation and reforestation CDM project activities. The CDM-PDD documentation for afforestation and reforestation project activities is available on the UNFCCC CDM web site.

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PART II

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A. Information note for Project Design Document (CDM-PDD)

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1.   The CDM-PDD presents information on the essential technical and organizational aspects of the project activity and is a key input into the validation, registration, and verification of the project as required under the Kyoto Protocol to the UNFCCC. The relevant modalities and procedures are detailed in decision 17/CP.7 contained in document FCCC/CP2001/13/Add.2.

2.   The CDM-PDD contains information on the project activity, the approved baseline methodology applied to the project activity, and the approved monitoring methodology applied to the project. It discusses and justifies the choice of baseline methodology and the applied monitoring concept, including monitoring data and calculation methods.

3.   Project participants should submit the completed version of the CDM-PDD, together with attachments if necessary, to an accredited designated operational entity for validation. The designated operational entity then examines the adequacy of the information provided in the CDM-PDD, especially whether it satisfies the relevant modalities and procedures concerning CDM project activities. Based on this examination, the designated operational entity makes a decision regarding validation of the project.

4.   Bearing in mind paragraph 6 of CDM M&P, project participants shall submit documentation that contains confidential /proprietary information in two versions:
   - One marked up version where all confidential/proprietary parts shall be made illegible by the project participants (e.g. by covering those parts with black ink) so that this can be made publicly available;
   - A second version containing all information which shall be treated as strictly confidential by all handling this documentation (DOEs/AEs, Board members and alternates, panel/committee and working group members, external experts requested to consider such documents in support of work for the Board, and the secretariat).

5.   In accordance with paragraph 6 of CDM M&P information used to determine additionality, to describe the baseline methodology and its application, and to support an environmental impact assessment, shall not be considered proprietary or confidential. Project participants shall therefore, in accordance with paragraph 45 (b) of CDM M&P describe the choice of approaches, assumptions, methodologies, parameters, data sources, key factors and additionality in a transparent and conservative manner. The scope and detail of the description in the PDD should allow interested parties to reproduce the rationale of the project.

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B. Specific guidelines for completing the Project Design Document (CDM-PDD)

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CONTENTS
PROJECT DESIGN DOCUMENT (CDM-PDD)

A.   General description of project activity

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D.   Environmental impacts

E.   Stakeholders' comments

Annexes

Annex 1: Contact information on participants in the project activity

Annex 2: Information regarding public funding

Annex 3: Baseline Information

Annex 4: Monitoring plan

SECTION A. General description of project activity

A.1. Title of the project activity:

> Please indicate
>   - The title of the project activity
>   - The current version number of the document
>   - The date of the document was completed.

A.2. Description of the project activity:

> Please include in the description
>   - the purpose of the project activity
>   - explain how the proposed project activity reduces greenhouse gas emissions (i.e. what type of technology is being employed, what exact measures are undertaken as part of the project activity, etc)
>   - the view of the project participants on the contribution of the project activity to sustainable development (max. one page).

A.3. Project participants:

> Please list project participants and Party(ies) involved and provide contact information in Annex 1. Information shall be in indicated using the following tabular format.
>
> | Name of Party involved (*) ((host) indicates a host Party) | Private and/or public entity(ies) project participants (*) (as applicable) | Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No) |
> |---|---|---|
> | Name A (host) | • Private entity A
 • Public entity A … | No |
> | Name B | • None | Yes |
> | Name C | • None | No |
> | … | • … | … |
>
> (*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.
>
> **Note:** *When the PDD is filled in support of a proposed new methodology (form CDM-NM),* at least the host Party(ies) and any known project participant (e.g. those proposing a new methodology) shall be identified.

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

A.4.1.2. Region/State/Province etc.:

A.4.1.3. City/Town/Community etc:

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity:

> Please fill in the field and do not exceed one page.

A.4.2. Category(ies) of project activity:

> Please use the list of categories of project activities and of registered CDM project activities by category available on the UNFCCC CDM web site, please specify the category(ies) of project activities into which this project activity falls. If no suitable category(ies) of project activities can be identified, please suggest a new category(ies) descriptor and its definition, being guided by relevant information on the UNFCCC CDM web site.

A.4.3. Technology to be employed by the project activity:

> This section should include a description of how environmentally safe and sound technology, and know-how to be used, is transferred to the host Party(ies).

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

> Please indicate the chosen crediting period and provide the total estimation of emission reductions as well as annual estimates for the chosen crediting period. Information on the emission reductions shall be indicated using the following tabular format.
>
> | Years | Annual estimation of emission reductions in tonnes of CO_2 e |
> |---|---|
> | Year A (e.g. 2007) | |
> | Year B | |
> | Year C | |
> | Year … | |
> | **Total estimated reductions** (tonnes of CO_2 e) | |
> | **Total number of crediting years** | |
> | **Annual average over the crediting period of estimated reductions** (tonnes of CO_2 e) | |

A.4.5. Public funding of the project activity:

> In case public funding from Parties included in Annex I is involved, please provide in Annex 2 information on sources of public funding for the project activity from Parties included in Annex I, which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties.
> **Note:** *When the PDD is filled in support of a proposed new methodology (form CDM-NM), it is to be indicated whether public funding from Parties included in Annex I is likely to be involved indicating the Party(ies) to the extent possible.*

SECTION B. Application of a baseline and monitoring methodology:

> Where project participants wish to propose a new baseline methodology, please complete the form for "Proposed New Methodology: Baseline and Monitoring Methodologies (CDM-NM)" in

accordance with procedures for submission and consideration of proposed new methodologies (see Part III of these Guidelines).

B.1. Title and reference of the <u>approved baseline and monitoring methodology</u> applied to the <u>project activity</u>:

Please refer to the UNFCCC CDM web site for the title and the details of <u>approved baseline and monitoring methodologies</u>[1]. Please indicate
- the approved methodology and the version of the methodology that is used (e.g. "Version 02 of AM0001")
- any methodologies or tools which the approved methodology draws upon and their version (e.g. "Version 02 of the tool for demonstration and assessment of additionality" or "Version 04 of ACM0002")

B.2 Justification of the choice of the methodology and why it is applicable to the project activity:

Please justify the choice of methodology by showing that the proposed <u>project activity</u> meets each of the applicability conditions of the methodology. Explain documentation has been used and provide the references to the document or include the documentation in Annex 3.

B.3. Description of the sources and gases included in the <u>project boundary</u>:

Describe which emission sources and gases are included in the project boundary for the purpose of calculating project emissions and baseline emissions, using the table below. In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, explain and, where necessary, justify the choice.

	Source	Gas	Included?	Justification / Explanation
Baseline	e.g. Boiler Fuel Use	CO_2		
		CH_4		
		N_2O		
		CO_2		
		CH_4		
		N_2O		
		CO_2		
		CH_4		
		N_2O		
Project Activity		CO_2		
		CH_4		
		N_2O		
		CO_2		
		CH_4		
		N_2O		

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[1] If a new <u>baseline methodology</u> is proposed, please complete the form for "Proposed New Baseline and Monitoring Methodologies"(CDM-NM).

B.4 Description of how the <u>baseline scenario</u> is identified and description of the identified baseline scenario:

> Please explain how the most plausible baseline scenario is identified. Where the procedure involves several steps, describe how each step is applied and transparently document the outcome of each step. Explain and justify key assumptions and rationales. Provide relevant documentation or references. Illustrate in a transparent manner all data used to determine the baseline scenario (variables, parameters, data sources etc.), preferably in a table form.
>
> Provide a transparent and detailed description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity.

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM <u>project activity</u> (assessment and demonstration of additionality):

> Explanation of how and why this project activity is additional and therefore not the <u>baseline scenario</u> in accordance with the selected <u>baseline methodology</u>. Where the procedure involves several steps, describe how each step is applied and transparently document the outcome of each step. Where the barriers are involved in demonstrating additionality, only select the (most) relevant barriers. Explain and justify key assumptions and rationales. Provide relevant documentation or references. Illustrate in a transparent manner all data used to assess the additionality of the project activity (variables, parameters, data sources etc.), preferably in a table form.
>
> If the <u>starting date of the project activity</u> is before the date of validation, provide evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity. This evidence shall be based on (preferably official, legal and/or other corporate) documentation that was available at, or prior to, the start of the project activity.

B.6. Emission reductions

B.6.1. Explanation of methodological choices:

> Explain how the procedures, in the approved methodology to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity. Clearly state which equations will be used in calculating emission reductions.
>
> Explain and justify all relevant methodological choices, including:
> - where the methodology includes different scenarios or cases, explain and justify which scenario or case applies to the project activity (e.g. which scenario in ACM0006 is applicable);
> - where the methodology provides different options to choose from (e.g. which methodological approach is used to calculate the "operating margin" in ACM0002), explain and justify which option is chosen for the project activity;
> - where the methodology provides for different default values, explain and justify which of the default values have been chosen for the project activity.

B.6.2. Data and parameters that are available at validation

This section shall include a compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remains fixed throughout the crediting period AND that are available when validation is undertaken. Data that becomes available only after validation of the project activity (e.g. measurements after the implementation of the project activity) should not need to be included here but in the table in section B.7.1.

This may includes 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 or default values specified in the methodology should not be included in the compilation.

Provide for each data or parameter the chosen value or, where relevant, the qualitative information, using the table provided below. Particularly:
- Provide the actual value applied. Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information in Annex 3.
- Explain and justify the choice for the source of data. Provide clear and transparent references or additional documentation in Annex 3.
- Where values have been measured, include a description of the measurement methods and procedures (e.g. which standards have been used), indicate the responsible person / entity having undertaken the measurement, the date of measurement(s) and the measurement results. More detailed information can be provided in Annex 3.

(Copy this table for each data and parameter)

Data / Parameter:	
Data unit:	
Description:	
Source of data used:	
Value applied:	
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	

B.6.3. Ex-ante calculation of emission reductions

Provide a transparent ex-ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology. Use estimations for parameters that are not available when validation is undertaken or that are monitored during the crediting period.

Document how each equation is applied, in a manner that enables the reader to reproduce the calculation. Where relevant, provide additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets).

B.6.4. Summary of the ex-ante estimation of emission reductions

Summarize the results of the ex-ante estimation of emission reductions for all years of the crediting period, using the table below.

Year	Estimation of project activity emissions (tonnes of CO_2 e)	Estimation of baseline emissions (tonnes of CO_2 e)	Estimation of leakage (tonnes of CO_2 e)	Estimation of overall emission reductions (tonnes of CO_2 e)
Year A				
Year B				
Year C				
Year …				
Total (tonnes of CO_2 e)				

B.7. Application of the monitoring methodology and description of the monitoring plan

> The following two sections (B.7.1 and B.7.2) shall provide a detailed description of the application of the monitoring methodology and a description of the monitoring plan, including an identification of the data to be monitored and the procedures that will be applied during monitoring.
>
> Please note that data monitored and required for verification and issuance are to be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

B.7.1. Data and parameters monitored

> This section shall include specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity. Data that is determined only once for the crediting period but that becomes available only after validation of the project activity (e.g. measurements after the implementation of the project activity) should be included here.
>
> Provide for each parameter the following information, using the table provided below:
> - The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred.
> - Where data or parameters are supposed to be measured, specify the measurement methods and procedures, including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval.
> - A description of the QA/QC procedures (if any) that should be applied.
> - Where relevant: any further comment.
>
> Provide any relevant further background documentation in Annex 4.

(Copy this table for each data and parameter)

Data / Parameter:	
Data unit:	
Description:	
Source of data to be used:	
Value of data applied	

for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	
QA/QC procedures to be applied:	
Any comment:	

B.7.2. Description of the monitoring plan:

Please provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity. Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving. The monitoring plan should reflect good monitoring practice appropriate to the type of project activity. Provide any relevant further background information in Annex 4.

B.8. Date of completion of the application of the baseline and monitoring methodology and the name of responsible person(s)/entity(ies):

Please provide date of completion of the application of the methodology to the project activity study in *DD/MM/YYYY*.
Please provide contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity and indicate if the person/entity is also a project participant listed in Annex 1.

SECTION C. Duration of the project activity / Crediting period:

C.1. Duration of the project activity:

C.1.1. Starting date of the project activity:

The starting date of a CDM project activity is the date on which the implementation or construction or real action of a project activity begins.

Project activities starting between 1 January 2000 the date of the registration of a first clean development mechanism project, if the project activity is submitted for registration before 31 December 2005; have to provide documentation, at the time of registration, showing that the starting date fell within this period.

C.1.2. Expected operational lifetime of the project activity:

Please state the expected operational lifetime of the project activity in years and months.

C.2. Choice of crediting period and related information:

> Please state whether the project activity will use a renewable or a fixed crediting period and complete C.2.1 or C.2.2 accordingly.
>
> Note that the crediting period may only start after the date of registration of the proposed activity as a CDM project activity. In exceptional cases, (see instructions for section C.1.1. above) the starting date of the crediting period may be prior to the date of registration of the project activity as provided for in paragraphs 12 and 13 of decision 17/CP.7, paragraph 1 (c) of decision 18/CP.9 and through any guidance by the Executive Board, available on the UNFCCC CDM web site.

C.2.1. Renewable crediting period:

> Each crediting period shall be at most 7 years and may be renewed at most two times, provided that, for each renewal, a designated operational entity determines and informs the Executive Board that the original project baseline is still valid or has been updated taking account of new data where applicable.

C.2.1.1. Starting date of the first crediting period:

> Please state the dates in the following format: (DD/MM/YYYY).

C.2.1.2. Length of the first crediting period:

> Please state the length of the first crediting period in years and months.

C.2.2. Fixed crediting period:

> Fixed crediting period shall be at most ten (10) years.

C.2.2.1. Starting date:

> Please state the dates in the following format: (DD/MM/YYYY).

C.2.2.2. Length:

> Please state the length of the crediting period in years and months.

SECTION D: Environmental impacts:

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

> Please attach the documentation to the CDM-PDD.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party.

SECTION E. <u>Stakeholders'</u> comments:

E.1. Brief description of how comments by local <u>stakeholders</u> have been invited and compiled:

> Please describe the process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local <u>stakeholders</u> shall be made in an open and transparent manner, in a way that facilities comments to be received from local <u>stakeholders</u> and allows for a reasonable time for comments to be submitted. In this regard, <u>project participants</u> shall describe a <u>project activity</u> in a manner which allows the local <u>stakeholders</u> to understand the <u>project activity</u>, taking into account confidentiality provisions of the CDM modalities and procedures. The local stakeholder process shall be completed before submitting the proposed project activity to a DOE for validation.

E.2. Summary of the comments received:

> Please identify stakeholders that have made comments and provide a summary of these comments.

E.3. Report on how due account was taken of any comments received:

> Please explain how due account have been taken of comments received.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE <u>PROJECT ACTIVITY</u>

> Please copy and paste table as needed. Please fill for each organisation listed in section A.3 the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail.

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

> Please provide information from Parties included in Annex I on sources of public funding for the <u>project activity</u> which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties

Annex 3

BASELINE INFORMATION

> Please provide any further background information used in the application of the baseline methodology. This may include tables with time series data, documentation of measurement results and data sources, etc.

Annex 4

MONITORING INFORMATION

> Please provide any further background information used in the application of the monitoring methodology. This may include tables with time series data, additional documentation of measurement equipment, procedures, etc.

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PART III

A. Technical guidelines for the development of proposed new baseline amd monitoring methodologies: (CDM-NM)

CONTENTS

PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM)

NOTE: The document is prepared with the aim to facilitate the development of new methodologies and as such is a guidance document. The decisions/guidance provided by either by the Board or COP are legally valid and this document does not replace such decisions or guidance provided. The document is a living document and shall be revised, as and when required, to accommodate EB and/or COP/MOP decisions.

Please note this document is not mandatory and as such is for guidance

SECTION A: General guidance on proposed new baseline and monitoring methodologies

1. Forms to be used for submitting new methodologies

a)   The new baseline and monitoring methodologies shall be proposed and approved together. The form "Proposed New Baseline and Monitoring Methodologies" (CDM-NM) is to be used to propose a new baseline and monitoring methodology. This form shall fully and completely describe the methodology. The form should be accompanied by a draft project design document (CDM-PDD) with sections A-C completed, including relevant annexes, in order to demonstrate the application of the proposed new methodologies to a proposed project activity. Each proposed new baseline and monitoring methodology should use a separate "CDM-Proposed New Methodology form" (CDM-NM). The CDM-NM form for several new methodologies may be submitted together with the same CDM-PDD for several components of a proposed project.

b)   The forms shall be submitted to the Executive Board in accordance with "Procedures for submission and consideration of a proposed new methodology". The most recent versions of these forms and the procedures may be obtained from the UNFCCC CDM web site (http://unfccc.int/cdm) or from the UNFCCC secretariat by e-mail (cdm-info@unfccc.int) or in print via fax (+49-228-815-1999).

c)   The CDM-NM and the CDM-PDD shall include in section A the version number and the date of the document. If sections of the CDM-NM and CDM-PDD are not applicable, it shall be explicitly stated that the section is left blank on purpose. Tables and their columns shall not be modified or deleted. Rows may be added, as needed.

d)   Project participants shall refrain from providing glossaries or using key terminology not used in the documents of the Conference of the Parties (COP), the COP/MOP, the "Glossary of CDM terms", or the "Definitions relevant to CDM baseline and monitoring methodologies" (Annex 2 of this document), and they shall refrain from rewriting these instructions.

2. General guidance for completing the proposed new baseline and monitoring methodology form (CDM-NM)

a)   The "methodology procedure" sections shall:

    i)   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 carried out by a methodology user, 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 CDM Executive Board (please refer to the section on methodologies in the UNFCCC CDM web site http://cdm.unfccc.int/methodologies/PAmethodologies).

    ii)   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-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-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-PDD, however, it can be referred to in the explanation/justification section to help describe the methodology.

    iii)   Present methodology steps as one might present a recipe. 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, project, 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.

iv) Indicate precisely what information the project proponent must report in the draft CDM-PDD and/or in monitoring reports.

v) Support important procedures and concepts with equations and diagrams. Non-essential information should be avoided.

vi) Refer by name, reference number and version number to approved methodologies and tools if they are used – in whole or in part – in this methodology. Relevant sections can be cited specifically, but should not be repeated. Any proposed modifications and/or additions to approved tools and methodologies need to be clearly highlighted.

vii) Provide instructions for making any logical or quantitative assumptions that are not provided in the methodology and must be made by the methodology user.

viii) 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.

b) The "explanation and justification" sections shall:

i) Be used to assist the assessment by the Meth Panel and the Executive Board in reviewing the methodology. If the proposed methodology is approved, these sections are removed from the final version.

ii) Provide the rationale for the procedures presented.

iii) If the procedure draws from an approved methodology or tool, clearly note any changes to them or elaborations of them. Justify why such changes have been made.

iv) Point out the key logical and quantitative assumptions, i.e., those assumptions that the results of the baseline methodology are particularly sensitive to.

v) 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.

vi) 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.

3. Use of variables in equations

a) Use the nomenclature of variables contained in Annex 1 to these guidelines. Variables not contained in the standard nomenclature should be named with two or three upper case letters that are first letters of each key word describing variable (e.g. stack height = SH).

b) All variables that are reported or estimated annually should have a y subscript for year (e.g. BE_y)

c) Variables should use the i subscript to denote multiple pieces of equipment, fuel types, processes, sites or measuring locations (e.g. F_i = flow rate at different measuring points i). If two summations are required (e.g. fuel type and equipment piece), the subscripts i and j should be used.

d) No name should be used more than once for different variables in the same methodology.

e) Where necessary, the subscripts BL and PJ should be used to distinguish between the project and the baseline (e.g. EG_{BL}, EG_{PJ}).

f) Where a variable refers to a gases, the formula of the gas should be indicated as a subscript (e.g. $BE_{CO2,y}$)

SECTION B: Summary and applicability of the baseline and monitoring methodologies

1. **Methodology Title**

a) Provide an unambiguous title for the proposed methodology. The title should reflect the project types to which the methodology is applicable. Do not use project-specific titles. Please indicate the following:

   i) The title of the proposed methodology;

   ii) The version number of the document;

   iii) The date of the document.

b) State whether the proposed methodology is based on a previous submission or an approved methodology and, if so, explain briefly the main deviation(s) and their rationale. Where the methodology references other approved methodologies, the following guidance should be followed:

   i) The new methodology should clarify whether a section of an approved methodology is used verbatim, or rather as the basis for the proposal.

   ii) If the section is used verbatim, then no additional text is needed in the methodology proposal other than a reference to the sections and paragraphs of the approved methodology (including version number).

   iii) If the original text is modified in the proposal, then the entire text should be repeated.

2. **Selected baseline approach from paragraph 48 of the CDM modalities and procedures**

a) Developers of a new baseline methodology shall select the approach from paragraph 48 of the CDM modalities and procedures that is most consistent with the context of applicable project types, and most consistent with the underlying algorithms and data sources used in the proposed baseline methodology, and justify the choice on this basis. (EB10, Annex 1, Para B3)

b) Proponents of methodologies have indicated some apparent overlap between approaches (a), (b), and (c) of paragraph 48 of the CDM modalities and procedures. Since paragraph 48 stipulates that only one approach should be chosen, developers are advised to select the one that most closely reflects the process used for calculating baseline emissions or baseline emission rates. The tool used in order to demonstrate additionality does not need to be linked to one of the three approaches of paragraph 48 of the CDM modalities and procedures. (EB10, Annex 1, Para B4)

c) Project participants wishing to select approach 48 (c) of the CDM modalities and procedures shall elaborate in their submission of a proposed new baseline methodology, inter alia, on:

   i) How they determine "similar social, economic, environmental and technological circumstances", and

   ii) How they assess the "performance among the top 20 per cent of their category" defined as greenhouse gas emissions performance (in terms of CO_2e emissions per unit of output). (EB08, Annex 1, Para B)

3. **Applicability conditions**

a) List the category(ies) of project activities to which the methodology may apply. Use the list of categories of project activities and of registered CDM project activities by category available on the UNFCCC CDM web site. If no suitable category(ies) of project activities can be identified, please suggest a new category(ies) descriptor and its definition, being guided by relevant information on the UNFCCC CDM web site.

b) List any conditions which a proposed CDM project activity must satisfy in order for the methodology to be applicable: (e.g. project technology, sectoral circumstances, region). Applicability conditions must pertain to the type of proposed project activity and sector in which it takes place. Conditions should not substitute for steps that are necessary parts of the baseline methodology, such as defining the baseline. In this regard, they should not be conditions on a presumed baseline scenario (e.g., it is not appropriate for an applicability condition to be "The plant would continue to use the same fuel at the same efficiency without the project activity" as this is not a condition on the project activity, but a result of baseline assessment.).

c) In some cases, compliance with an applicability condition, such as "the project activity is a grid-connected wind power facility", 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 conditions is "The project should not result in the storage of biomass for more than thirty days", the methodology should explain how the applicability condition can be satisfied (e.g. through monitoring of storage facilities, if present), and how it will be reported.

d) Explain in the "explanations/justifications" section the choice of the project category and applicability conditions. Indicate if an approved methodology exists for the same conditions of application.

4. Summary description of major baseline and monitoring methodological steps

a) For the baseline and monitoring methodology, summarize the key elements of the proposed new methodology, including brief statements on how the proposed methodology:

   i) chooses the baseline scenario,

   ii) demonstrates additionality,

   iii) calculates baseline emissions,

   iv) calculates project emissions,

   v) calculates leakage,

   vi) identifies and collects monitoring data,

   vii) calculates emissions reductions.

b) In doing so, if relevant, describe how this methodology builds on, complements, and/or provides an alternative to approved methodologies. Please do not exceed one page. The detailed explanation of the methodology is to be provided in sections II and III of the CDM-NM form.

SECTION C: Baseline methodology description

1. Project boundary

a) Describe and justify the physical delineation of the project boundary (the phrase is taken from guidance provided in CDM-NM section of guidelines to complete CDM-PDD, CDM-NM) and the gases and sources included, bearing in mind that it shall encompass all anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the project activity:

   i) Explain the physical delineation. Use a figure or flowchart if it would be helpful.

   ii) Explicitly state all sources and gases included. Explain whether any sources related to the baseline or the project activity have been excluded, and if so, justify their exclusion. If possible use the table provided in the CDM-NM.

b) When defining which emission sources should be considered in the project boundary, in the baseline scenario and in the calculation of leakage emissions, project participants should make conservative assumptions, for example the magnitude of emission sources omitted in the calculation of project emissions and leakage effects (if positive) should be equal to or less than the magnitude of emission sources omitted in the calculation of baseline emissions. (EB22, Annex 2)

	Source	Gas	Included?	Justification / Explanation
Baseline	e.g. Boiler Fuel Use	CO_2		
		CH_4		
		N_2O		
		CO_2		
		CH_4		
		N_2O		
		CO_2		
		CH_4		
		N_2O		
Project Activity		CO_2		
		CH_4		
		N_2O		
		CO_2		
		CH_4		
		N_2O		

2. Procedure for selection of the most plausible baseline scenario

2.1 General Issues

a) The baseline is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity. Different scenarios may be elaborated as potential evolutions of the situation existing before the proposed CDM project activity. The continuation of a current activity could be one of them; implementing the proposed project activity without registration as CDM project activity may be another; and many others could be envisaged.

b) Provide a systematic, step-by-step procedure for determining the most likely baseline scenario. Explain in the "explanations/justification" section why the proposed procedure for determining the baseline scenario is appropriate for the project type and applicability conditions.

c) This procedure should describe a process for identifying the options to be considered as plausible candidate baseline scenarios. 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. Baseline methodologies shall require a narrative description of all reasonable baseline scenarios.

d) Highlight the key logical assumptions and quantitative factors underlying the procedure for determining the baseline scenario. Clearly explain the logical and analytical steps that must be followed in ascertaining the most likely baseline scenario from among the candidate baseline scenarios. State clearly which assumptions and factors have significant uncertainty associated with them, and how such uncertainty is to be addressed.

e) Ensure consistency between baseline scenario derived by this procedure and the procedure and formulae used to calculate the baseline emissions (below). The baseline scenario determination procedure should indicate for which baseline scenarios the overall methodology is applicable. This

situation would occur when baseline emissions section (below) does not include algorithms and/or parameters relevant to the baseline scenario identified by the procedure.

2.2 Consideration of national and/or sectoral policies and circumstances in baseline scenarios (EB16, Annex 3 and EB22, Annex 3)

a) A baseline scenario shall be established taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector.

b) As a general principle, national and/or sectoral policies and circumstances are to be taken into account on the establishment of a baseline scenario, without creating perverse incentives that may impact host Parties' contributions to the ultimate objective of the Convention.

c) The following two types of national and/or sectoral policies are to be taken into account when establishing baseline scenarios:

   i)   National and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels[2];

   ii) National and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programs)[3].

d) These two types of policies shall be addressed as follows:

   i)   Only national and/or sectoral policies or regulations under paragraph c) (a) above that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11 December 1997) shall be taken into account when developing a baseline scenario. If such national and/or sectoral policies were implemented since the adoption of the Kyoto Protocol, the baseline scenario should refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place.

   iii) National and/or sectoral policies or regulations under paragraph c) (b) above that have been implemented since the adoption by the COP of the CDM M&P (decision 17/CP.7, 11 November 2001) need not be taken into account in developing a baseline scenario (i.e. the baseline scenario could refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place).

3. Additionality

3.1 General issues

a) Provide a systematic step-by-step procedure for determining whether or not the project activity is, or is 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-PDD in order to make a logical and well-substantiated case for the project's additionality.

b) Examples of tools that may be used to demonstrate that a project activity is additional and therefore not the baseline scenario include, among others: (EB10 Annex1, Para 2&3)

   i)   A flow-chart or series of questions that lead to a narrowing of potential baseline options; and/or

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[2] So called type E+, policy that increase GHG emissions

[3] So called type E-, policy that decrease GHG emissions

ii) A qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely; and/or

iii) A qualitative or quantitative assessment of one or more barriers facing the proposed project activity (such as those laid out for small-scale CDM projects); and/or

iv) An indication that the project type is not common practice (e.g. occurs in less than [<x%] of similar cases) in the proposed area of implementation, and not required by a Party's legislation/regulations.

c) Present the procedures in each step in as much detail as needed, but avoid repetition that is not needed for reasons of clarity.

d) Justify in the "explanations/justification" section why the proposed procedure is an appropriate procedure for establishing the project's additionality. Highlight the key logical assumptions and quantitative factors underlying the procedure for demonstrating 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.

3.2 Use of the "Tool for the demonstration and assessment of additionality"

a) The use of the "Tool for the demonstration and assessment of additionality" is intended to facilitate the process of submitting methodologies, and that the use of the tool is not mandatory for preparing methodologies (Para 9 decision 12 CP.10, Para 28 Decision 7/CMP.1, EB 18, Para 20).

b) Project participants are encouraged to suggest further details on how to implement this tool to specific project types covered by the proposed methodology. If project participants suggest such further details, in the proposed methodology, they should refer to the tool and reproduce only the section(s) of the additionality tool, they propose to modify, clearly highlighting the proposed changes and/or additions to the tool. (EB 18, Para 20)

3.3 Relationship between the demonstration of additionality and the selection of the baseline scenario (EB17, Para 16)

a) The use of the "tool to assess and determine additionality" does not replace the need for the baseline methodology to provide for a stepwise approach justifying the selection and determination of the most plausible baseline scenario alternatives.

b) Project participants proposing new baseline methodologies shall ensure consistency between the determination of additionality of a project activity and the determination of a baseline scenario.

4. Project emissions, baseline emissions and leakage effects

4.1 General guidance

a) Elaborate all algorithms and formulae used to estimate, measure or calculate the project emissions, baseline emissions and leakage effects. 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:

 i) Explain the underlying rationale for algorithm/formulae (e.g. marginal vs. average, etc.).

 ii) Use consistent variables, equation formats, subscripts, etc.

 iii)Number all equations;

 iv) Define all variables, with units indicated;

 v) Justify the conservativeness of the algorithms/procedures; to the extent possible, include methods to quantitatively account for uncertainty in key parameters.

b) Elaborate all parameters, coefficients, and variables used in the calculation of baseline emissions, project emissions and leakage effects:

 i) For those values that are provided in the methodology:

  • Clearly indicate the precise references from which these values are taken (e.g. official statistics, IPCC Guidelines, commercial and scientific literature);

  • Justify the conservativeness of the values provided.

 ii) For those values that are to be provided by the project participant, 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, commercial and scientific literature, etc.);

  • The vintage of data that is suitable (relative to the project crediting period);

  • What spatial level of data is suitable (local, regional, national, international);

  • How conservativeness of the values is to be ensured.

c) For all data sources, specify the 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 5 years), and indicate a priority order for use of additional data (e.g. using longer time series) and/or fall back data sources to preferred sources (e.g. private, international statistics, etc.). (EB09, Annex 3, Para 6).

d) Use International System Units (SI units – refer to http://www.bipm.fr/enus/3_SI/si.html). (EB09, Annex 3, Para 6).

e) Note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions but are obtained through <u>monitoring</u>. Ensure consistency between the <u>baseline and monitoring methodologies</u>.

f) If the calculation of the baseline emissions is to be performed ex post, include an illustrative ex ante emissions calculation.

g) Ensure consistency between the elaboration of the <u>baseline scenario</u> (section 2) and the procedure for calculating the emissions of the <u>baseline</u>.

h) Explain in the "explanations/justifications" section any parts of the algorithm or formulae that are not self-evident. Justify that the procedure is consistent with standard technical procedures in the relevant sector. Provide references as necessary. Explain implicit and explicit key assumptions in a transparent manner. State clearly which assumptions and procedures that have significant uncertainty associated with them, and how such uncertainty is to be addressed. Describe the uncertainty of key parameters and, where possible, provide an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions. Methodology developers are also encouraged to refer to chapter 6 of the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories for more Guidance on analysis of uncertainty.

4.2 Transparency and conservativeness

According to paragraph 45 (b) of the modalities and procedures, a baseline shall be established in a "transparent and conservative manner". This means that assumptions are explicitly explained and choices are substantiated. In case of uncertainty regarding values of variables and parameters, the establishment of a baseline is considered conservative if the resulting projection of the baseline does not lead to an overestimation of emission reductions attributable to the CDM project activity (that is, in the case of doubt, values that generate a lower baseline projection shall be used). (EB05, Annex 3).

4.3 Output-linked baseline values (EB08, Annex 1, Para D8)

An output- or product-linked definition of baseline values (i.e. CO_2e per unit of output) shall be applied, unless the project participants can demonstrate why this is not applicable and provide an appropriate alternative.

4.4 Use of and/or reference to lifecycle analysis (EB22, Annex 2)

When referring to and/or making use of lifecycle analysis (LCAs) and/or LCA tools, project participants shall in a transparent manner provide all equations, parameterizations and assumptions used in the LCA and/or LCA tools to calculate baseline and monitoring methodologies. For example, this could be accomplished by highlighting the relevant sections in an attached copy of the referenced LCA and/or tool.

4.5 Ex-post calculation of baseline emission rates (EB09, Annex 3, Para 8)

The ex post calculation of baseline emission rates may only be used if proper justification is provided. Notwithstanding, the baseline emission rates shall also be calculated ex-ante and reported in the draft CDM-PDD in order to satisfy the requirements for identification of the elements of a baseline methodology agreed by the Executive Board at its eighth meeting.

4.6. Treatment of the output and lifetime of plants and equipment (EB08 and EB22, Annex 2)

a) If a proposed CDM project activity seeks to retrofit or otherwise modify an existing facility, the baseline may refer to the characteristics (i.e. emissions) of the existing facility only to the extent that the project activity does not increase the output or lifetime of the existing facility. For any increase of output or lifetime of the facility which is due to the project activity, a different baseline shall apply. (EB08)

b) Where a project activity involves the replacement or retrofit of existing equipment or facilities, project participants should take into account that the existing equipment could have been replaced, retrofitted or modified in the absence of the project during the crediting periods. In this case, a baseline methodology should provide a methodological approach to assess whether the existing equipment would in the absence of the CDM be replaced and, if this is the case, to reflect this in the calculation of emission reductions the replacement, retrofit or modification of the equipment in the absence of the CDM.

c) For a number of project types, it is reasonable to assume that after replacement or retrofit of the existing equipment in the absence of the project activity, the emission level would be similar to that of that of the project activity.

d) In this case, emission reductions resulting from a specific equipment replacement shall only be accounted from the date of replacement until the point in time when the existing equipment would have been replaced in the absence of the project activity or the end of crediting period, whatever is earlier.

e) In order to estimate the point in time when the existing equipment would need to be replaced in the absence of the CDM, a new methodology may consider the following approaches:

   i) A sector and/or activity specific method or criteria to determine when the equipment would be replaced or retrofitted in the absence of the CDM;

   ii) The typical average technical lifetime of the type equipment may be determined and documented, taking into account common practices in the sector and country, e.g. based on industry surveys, statistics, technical literature, etc.;

   iii) The practices of the responsible entity regarding replacement schedules may be evaluated and documented, e.g. based on historical replacement records for similar equipment.

f) The point in time when the existing equipment would need to be replaced in the absence of the project activity should be chosen in conservative manner.

g) In case of project activities that involve several replacements or retrofits, project participants may consider, inter alia, the following generic approaches:

   i) Determination of the technical lifetime on a case by case basis, for each equipment or equipment type that is being replaced. This approach may be appropriate if different types of existing equipment are involved; or

   ii) Assuming a conservative default technical lifetime for all equipment involved; or

   iii) For projects involving a large number of individual equipment installations, methodologies may use a baseline that reflects the expected improvements in emission characteristics (for the equipment type within the sector or industry in question) as a result of replacements or retrofits of equipment in the absence of the project activity.

4.7 Use of regression analysis (EB21, Annex 7)

a) Where methodologies propose using multiple regression analysis to estimate baseline emissions or project emissions, safeguards should be used in order to ensure conservativeness and rigor of the fitted regression model. General guidance to achieve such objectives are:

   i) In the process of fitting the regression, assumptions and requirements for regression models should be considered e.g. testing for multi-collinearity;

   ii) Independent variables that are likely to influence the dependent variable in question should be accounted for. Technical background information that may support the selection of such variables should be provided with the methodology for the review of the panel;

   iii) Testing for statistical significance for all independent variables should be done. Independent variables which are statistically significant at 95% confidence level should be selected in the regression model;

   iv) If the time series data is used to fit the regression, autocorrelation should be tested. I n case autocorrelation is found to be statistically significant, time series analysis should be used instead of regression.

4.8 Negative emission reductions (EB21, para 18)

In some cases and for some methodologies, project activities may temporarily result in "negative emission reductions" in a particular year, for example due to poor performance or due to leakage effects outweighing emission reductions. In these cases, proposed new methodologies should stipulate that if a project activity temporarily results in "negative emission reductions", i.e. baseline emissions minus project emissions minus leakage effects are negative, any further CERs will only be issued when the emissions increase has been compensated by subsequent emission reductions by the project activity.

4.9 Consideration of uncertainties when using sampling (EB22, Annex 2)

Methodologies employing sampling to derive parameters in estimating emissions reductions shall quantify these parameter uncertainties at the 95% confidence level. In addition, the choice of the upper or lower bounds to be used in estimating emission reductions shall be conducted in a manner that ensures conservativeness.

4.10 Consideration of carbon pools in CDM project activity (EB20, Annex 8)

a) The following approaches towards changes in carbon pools[4] due to CDM project activities should be taken into account:

   i) Where a project activity, which does not seek to obtain tCERs or lCERs from afforestation or reforestation project activities, may directly or indirectly results in a net decrease of carbon pools compared to what would occur in the absence of the project activity, such changes should be taken into account in the calculation of emission reductions subtracting the corresponding quantities from emission reductions;

   ii) Where a project activity, which does not seek to obtain tCERs or lCERs from afforestation or reforestation project activities, may directly or indirectly results in a net increase of carbon pools compared to what would occur in the absence of the project activity, this increase should not be taken into account in the calculation of emission reductions;

   iii) Where a project activity does seek to obtain tCERs or lCERs from afforestation or reforestation project activities, this activity should be treated as a separate project activity and shall fulfill the modalities and procedures for afforestation and reforestation activities under the CDM

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[4] Carbon pools referred are those defined in the modalities and procedures for afforestation and reforestation project activities under the CDM contained in the annex to decision 19/CP.9.

4.11 Specific guidance on leakage

Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases (GHG) emissions occurring outside the project boundary that is measurable and attributable to the implementation of the CDM project activity. Identify the sources of leakage. Explain which sources of leakage are to be calculated, and which can be neglected (EB20 Annex 2). Even if the calculation of the leakage is to be performed ex post, the procedure should include the calculation of an ex ante estimate.

4.12 Specific guidance on emissions reductions

a) Elaborate the algorithms and formulae used to estimate, measure or calculate the net emission reduction from the CDM project activity. In most cases, this will be simple equation with three terms: the baseline emissions, the project emissions, and the net leakage.

b) Even if the calculation of the emission reductions is to be performed ex post, the procedure should include the calculation of an ex ante estimate.

c) Ensure that the description of emission reductions is consistent with the proposed new monitoring methodology.

5. Changes required for methodology implementation in 2nd and 3rd crediting periods (EB20, Annex 7)

a) At the start of the second and third crediting period for a project activity, two issues need to be addressed:

   i) assessing the continued validity of the baseline, and

   ii) updating the baseline.

b) Provide a methodological procedure on how these two issues should be addressed.

Assessing the continued validity of the baseline

c) In assessing the continued validity of the baseline, a change in the relevant national and/or sectoral regulations between two crediting periods has to be examined at the start of the new crediting period. If at the start of the project activity, the project activity was not mandated by regulations, but at the start of the second or third crediting period regulations are in place that enforce the practice or norms or technologies that are used by the project activity, the new regulation (formulated after the registration of the project activity) has to be examined to determine if it applies to existing plants or not. If the new regulation applies to existing CDM project activities, the baseline has to be reviewed and, if the regulation is binding, the baseline for the project activity should take this into account. This assessment will be undertaken by the verifying DOE.

Updating the baseline

d) For updating the baseline at the start of the second and third crediting period, there shall be no change in the methodology for determining the baseline emissions. However, new data available will be used to revise the baseline emissions. For example, if the "average of 3 most recent years data" was used to determine the baseline emissions for the first crediting period, the baseline shall be updated using the average for the 3 most recent years prior to the start of the subsequent crediting period.

e) In the case of baselines where emission factors are determined ex ante (and not updated during a crediting period), the baseline emissions factor shall be updated for the subsequent crediting period. This shall not be necessary for baselines which are constantly updated. In both cases, the CDM project activities are not included in the revised estimation of the baseline emissions.

f) Project participants shall assess and incorporate the impact of new regulations on baseline emissions.

6. Data and parameters not monitored

a) Contextual explanation

b) This section should include a compilation of all data needed to calculate project emissions, baseline emissions and leakage emissions that is not monitored throughout the crediting period but that is determined only once and thus remains fixed throughout the crediting period. 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 or default values specified in the methodology should not be included in the compilation.

c) Use the table provided in the CDM-NM to provide the following information for each data (EB09, Annex 3, Para 6):

i) Under "data / parameter", the variable used in equations in the baseline methodology.

ii) The International System Unit (SI units – refer to http://www.bipm.fr/enus/3_SI/si.html).

iii) A clear and unambiguous description of the parameter;

iv) A description of data sources that should be used to determine this parameter. Clearly indicate how the values could be selected and justified, for example, by explaining:

- What types of sources are suitable (official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature, etc.);

- The vintage of data that is suitable (relative to the project crediting period);

- What spatial level of data is suitable (local, regional, national, international);

- How conservativeness of the values is to be ensured.

- The 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 5 years), and indicate a priority order for use of additional data (e.g. using longer time series) and/or fall back data sources to preferred sources (e.g. private, international statistics, etc.).

v) A description of the measurement procedures or reference to appropriate standards;

d) The following table provides an example for a simple parameter.

Data / Parameter:	EG_{3y}
Data unit:	MWh
Description:	Quantity of electricity generated by the project plant prior to the project implementation during the three most recent historical years
Source of data:	On-site measurements and electricity sales receipts
Measurement procedures (if any):	On-site electricity meter
Any comment:	

e) The actual choice of data and, where necessary, justifications for the choice should be documented in the CDM-PDD.

SECTION D : Monitoring methodology description

1. Monitoring procedures

a) The <u>monitoring methodology</u> 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 emissions occurring within the <u>project boundary</u>,

   ii) Determine the <u>baseline</u> emissions, and

   iii) Identify increased emissions outside the <u>project boundary</u>.

b) The <u>monitoring methodology</u> should reflect good monitoring practice appropriate to the type of <u>project activity</u>.

c) Explain how the monitoring plan should be implemented, the responsibilities of various parties, and the management and operational structure supporting monitoring by the project participant.

2. Data and parameters monitored

a) The <u>monitoring methodology</u> should provide a complete listing of the data that needs to be collected throughout the crediting period for the application of the methodology. 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. Data that is determined only once and remains fixed throughout crediting period should be considered under "Data and parameters not monitored".

b) Use the tables provided in the CDM-NM to provide the following information for each data (EB09, Annex 3, Para 6):

   i) Under "data / parameter", the variable used in equations in the baseline methodology.

   ii) The International System Unit (SI units – refer to http://www.bipm.fr/enus/3_SI/si.html).

   iii) A clear and unambiguous description of the parameter;

   iv) A description which data sources should be used to determine this 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, commercial and scientific literature, etc.);

   - The vintage of data that is suitable (relative to the project crediting period);

- What spatial level of data is suitable (local, regional, national, international);

- How conservativeness of the values is to be ensured.

- The 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 5 years), and indicate a priority order for use of additional data (e.g. using longer time series) and/or fall back data sources to preferred sources (e.g. private, international statistics, etc.).

v) A description of the measurement procedures or reference to appropriate standards;

vi) A description of the frequency of monitoring (e.g. continuously, annually, etc);

vii) A description of QA/AC procedures.

c) The following table provides an example for a simple parameter.

Data / Parameter:	$EG_{PJ,y}$
Data unit:	MWh
Description:	Quantity of electricity generated by the project plant during the year y
Source of data:	On-site measurements and electricity sales receipts
Measurement procedures (if any):	On-site electricity meter
Monitoring frequency:	Continuously
QA/QC procedures:	Meter should be calibrated regularly according to standard ISO*****. Measurement results should be cross-checked with the quantity of invoices from the grid operator.
Any comment:	

Annex 1. List of standard variables

THIS ANNEX CONTAINS STANDARD VARIABLE NAMES DRAWN FROM APPROVED METHODOLOGIES AND IPCC GUIDELINES THAT SHOULD BE USED FOR ALL NEW BASELINE AND MONITORING METHODOLOGIES. FOR EASE OF EVALUATION AND USE OF METHODOLOGIES, THESE NAMES SHOULD BE USED WHEREVER POSSIBLE, UNLESS THERE ARE SPECIFIC REASONS THAT A DIFFERENT DESIGNATION IS REQUIRED. ISO OR OTHER STANDARDS COULD ALSO BE A REFERENCE, WHERE APPROPRIATE.

Emissions, emission factors and global warming potentials

Variable	Symbol	Units	Comment
Baseline emissions (total)	BE_y	tCO_2e	
Component of baseline emissions	$BE_{XX,y}$	tCO_2e	XX should be 2-3 letters or a word signifying the source of emissions (e.g. BE_{LW},y = baseline emission from land-filled waste)
Component and specific gas of baseline emissions	$BE_{GHG,XX,y}$	tCO_2e	GHG should be gas name; XX should be 2-3 letters or a word signifying the source of emissions
Project emissions	PE_y	tCO_2e	
Component of project emissions	$PE_{XX,y}$	tCO_2e	XX should be 2-3 letters or a word signifying the source of emissions
Component and specific gas of project emissions	$PE_{GHG,XX,y}$	tCO_2e	GHG should be gas name; XX should be 2-3 letters or a word signifying the source of emissions
Leakage emissions	LE_y	tCO_2e	
Component of leakage emissions	$LE_{XX,y}$	tCO_2e	XX should be 2-3 letters or a word signifying the source of emissions (e.g. $LE_{VH.y}$ = leakage emissions from vehicles)
Component and specific gas of leakage emissions	$LE_{GHG,XX,y}$	tCO_2e	GHG should be gas name; XX should be 2-3 letters or a word signifying the source of emissions
Carbon dioxide emission factor	$EF_{CO2,XX}$	tCO_2/TJ	XX should refer to fuel type, and could be i to signify several possible fuel types (e.g. $EF_{CO2,i}$ or $EF_{CO2,coal}$, $EF_{CO2,NG}$, $EF_{CO2,oil}$)
Methane emission factor	$EF_{CH4,XX}$	tCH_4/TJ	XX should refer to fuel type or process
Nitrous oxide emission factor	$EF_{N2O,XX}$	tN_2O/TJ	XX should refer to fuel type or process
Carbon dioxide equivalent emission factor	$EF_{CO2e,XX}$	tCO_2e/TJ	XX should refer to fuel type or process
CO_2 emission factor for electricity	$EF_{CO2,ELEC,y}$	tCO_2/MWh	
Global warming potential	GWP_{XX}	tCO_2e/t gas	XX should denote the gas (CH_4, N_2O)
Other emission factors	$EF_{XX,YY}$	tGHG/unit of output	XX should specify the gas (where necessary), YY is product output or service (e.g. $EF_{CO2,clinker}$: emissions factor for clinker in tCO_2/t clinker; $EF_{N2O,NA}$: emissions factor for nitric acid in tN_2O/t nitric acid)

Note that standard IPCC emissions factors refer to emissions per unit of *energy*. If the methodology also uses emission per unit of mass, then different variable names should be used for this, or the equation should include the net calorific value to convert to energy units. If the methodology refers to emissions per unit of production or service, this should be indicated as described above under "Other emission factors".

General

Variable	Symbol	Units	Comment
Production output (project or baseline)	$P_{xx,zz,y}$	tonnes or m^3	XX indicates the product, y is year. ZZ represents baseline and project production of same product, if needed, use subscripts BL and PJ for baseline and project respectively (e.g. $P_{NH3,PJ,y}$ = production of ammonia in the project activity)
Density	ρ_x	t/m^3	e.g. ρ_{CH4} = density of methane
weight fraction or weight concentration	$w_{GHG,XX}$	volume or mass %	GHG is the gas; XX indicates where concentration sample is taken and/or substance measured (e.g. $w_{CH4,PJ}$ = concentration of methane in project gas stream)
Flow rate	$FR_{XX,YY}$	m^3/time	XX should denote the gas, YY the type of flow stream (e.g. $FR_{CH4,flare}$)
Days	d	days	
Hour, year	h, y		

Energy

Variable	Symbol	Units	Comment
Energy efficiency	η_{XX}	%	useful energy output/total energy input, also used for power plants and all boilers (e.g. η_{BL} = energy efficiency of piece of equipment in the baseline)
Electricity generation	EG_y	MWh	Project and baseline generation should include subscripts (e.g. $EG_{PJ,y}$)
Heat production	HG_y	GJ	Project and baseline generation should include subscripts (e.g. $HG_{BL,y}$)
Electricity consumption	EC_y	MWh	
Heat consumption	HC_y	GJ	
Net calorific value	NCV_{XX}	GJ/t	XX is the fuel or oxidized substance; XX could be i if there are many alternatives; standardised to lower heating value (e.g. NCV_{NG} = net calorific value of natural gas)
Fuel quantity combusted	FC_{XX}	t or m^3	XX is the fuel type (e.g. $FC_{Biomass}$ = quantity biomass combusted, FC_{NG} = quantity natural gas combusted)
Oxidation factor for fuel combustion	$OXID_{XX}$	%	XX is the fuel type, e.g. $OXID_{NG}$ = oxidation factor for natural gas
Specific energy consumption	SEC_{XX}	GJ/tonne production	e.g. $SEC_{clinker}$ = energy consumption per tonne of clinker produced
Specific fuel consumption	SFC_{XX}	tonne fuel/tonne production	e.g. SFC_{OPC} = fuel consumption per tonne of ordinary Portland cement production

Variable	Symbol	Units	Comment
Specific energy consumption in transport	$SEC_{YY,XX}$	GJ/t-km or passenger-km	YY is transport mode and XX is fuel
Weighting of operating margin	w_{OM}	-	
Weighting of build margin	w_{BM}	-	
Electricity generated by plant i on grid	$EG_{GRID,i,y}$	MWh	i is plant, y is year
Load factor	LF_x	%	x is plant identification
Operating hours	T_x	hours	annual operating hours for plant/equipment x
Enthalpy	h	kJ/kg	used in particular for steam

Financial/economic

Variable	Symbol	Units	Comment
Internal Rate of Return	IRR	%	
Discount rate	dr	%	
Net Present Value	NPV	$ or LCU	

Agriculture, waste and fugitive methane emissions

Variable	Symbol	Units	Comment
Methane gas destroyed in baseline	$GD_{CH4,BL,y}$	tCH_4	
Methane gas destroyed in project scenario	$GD_{CH4,PJ,y}$	tCH_4	
Flare efficiency	$\eta_{flare,t}$	%	this may have a time or period component t, if efficiency is measured and varies over time
Fraction of methane destroyed in baseline	$FD_{CH4,BL,y}$	%	Used if the baseline specifies a percentage rather than absolute baseline estimate
Methane Conversion Factor	MCF	%	for landfill site or wastewater treatment plant
Chemical oxygen demand	COD_y	t COD	for effluent stream
Biological oxygen demand	$BOD_{i,y}$	t BOD	i is stage of treatment
Maximum methane production capacity	B_0	tCH_4/t input	"input" could be COD, or mass of waste stream (e.g. manure)
Degradable Organic Carbon	DOC_j	Fraction	j is part of waste stream (e.g. slow vs fast degrading materials)
Fraction of DOC dissimilated	DOC_F	Fraction	
Methane conversion factor for treatment of manure	$MCF_{manure,i}$	%	i is stage of treatment
Volatile solid excretion rate	VS_p	kg dry matter/animal-day	p is the population targeted

Industrial production

Variable	Symbol	Units	Comment
Weight fraction of CaO or MgO	$w_{CaO,x}$/ $w_{MgO,x}$	fraction	x can indicate clinker or raw material