



CDM: Proposed new methodology expert form (version 04)

(To be used by methodology experts providing desk review for a proposed new methodology)

Name of expert responsible for completing and submitting this form

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Related F-CDM-NM document ID number

NM0116

Note to those completing this form, as applicable: Please provide recommendations on the proposed new baseline and monitoring methodologies based on an assessment of CDM-NMB and CDM-NMM and of their application in sections A to E of the draft CDM-PDD, desk reviews and public input. Please ensure that the form is entirely filled and that arguments and expert judgements are substantiated.

A. Evaluation of the proposed new methodologies by desk reviewers:

I. Evaluation of the proposed new baseline methodology:

Title of new baseline methodology:>> [Reduction in the use of Ordinary Portland Cement for concrete mix preparation](#)

i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):

>> [\(as proposed in methodology\)](#)

1. project activity involves reduction in ordinary portland cement (OPC) use for the preparation of concrete mix in a variety of construction applications, by substituting part of OPC content in concrete mix with alternate materials of less GHG intensity;
2. there are no existing regulations/ legislation that encourage or prohibit the reduction in OPC content in concrete mix preparation;
3. the project activity do not directly control baseline emission, project emission or emission reduction in OPC production process; it results in reduction of OPC requirement in concrete mix preparation and hence indirectly results in avoiding the need to produce more OPC in the cement industry, thereby avoiding CO₂ emissions from OPC manufacturing processes; and
4. the concrete mix prepared by the project activity should not adversely impact the functionality and is in compliance with applicable standards/ guidelines etc., on the functional characteristics of concrete mix.

Reviewers note: only 2 and 4 appear to be applicability conditions - 1 just described the project type, and 3 is more explanation of how emissions are reduced.

ii. Strengths and weaknesses of the methodology:

>> Strengths:

1. the methodology is simple and straightforward
2. most of the information would be easily available

Weaknesses:

1. the assumption that reduced OPC consumption will reduce production at 4 nearby plants tonne for tonne
2. difficulty of obtaining plant-specific fuel use at each OPC plant for baseline

iii. Any changes needed to improve the methodology:

a. Minor changes:>>

[Make variable names and labels less confusing \(see main body of review for detail\), and](#)

clarify that project emissions are related to total OPC used in the project scenario, not just the reduction in OPC use

Justify choice and number of OPC plants to monitor

Improve additionality testing description

Justify exclusion of on-site energy use emissions

b. Major changes:>>

- change in OPC production should be monitored, not simply assumed; and emissions factor of those OPC plants should be estimated annually throughout crediting period

- include OPC production plant within project boundary

II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >> Reduction in the use of Ordinary Portland Cement for concrete mix preparation

i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):

>> (from the meth):

1. project activity monitors of reduction in ordinary Portland cement (OPC) use for preparation of concrete mix in variety of construction applications;
2. project activity monitors preparation of concrete mix by substituting part of OPC content in concrete mix with alternate materials of less GHG intensity; and
3. project activity considers use of quality assurance and quality control (QA/QC) measures at the stage of concrete preparation and application.

ii. Strengths and weaknesses of the methodology:

>> Strengths:

1. the meth is simple and straightforward
2. most of the information would be easily available

Weaknesses:

1. assumptions about impact on OPC production and location of that production
2. may not be able to get fuel use at each OPC plant for baseline

iii. Any changes needed to improve the methodology:

a. Minor changes:>>

Make variable names and labels less confusing (see main body of review for detail), and clarify that project emissions are related to total OPC used in the project scenario, not just the reduction in OPC use

Justify choice and number of OPC plants to monitor

Clarify data sources - do not use "project proponents database" as generic source but specify where the info in the database is sourced

Quantities of OPC should be measured, not estimated, and the parameter Q_{RM_PA} is missing.

Make QA/QC explanation more specific

Major changes:>> Possibly include on-site energy emissions

B. Details of the evaluation of the proposed new methodology by the desk reviewer:**I. Proposed new baseline methodology (*specify title here*): >> [Reduction in the use of Ordinary Portland Cement for concrete mix preparation](#)**

(1) Short description of the methodology, including an assessment of which approach from paragraph 48 of the CDM modalities and procedures was used:

a) Describe the methodology:

>> The methodology proposes to estimate the emissions reduction from using less energy-intensive materials in concrete mix preparation based on the change in proportion of Ordinary Portland Cement used for the mix and a benchmark emissions factor for OPC production based on energy use, and therefore emissions, in nearby OPC plants.

b) State the approach selected:

>> [A](#)

c) Indicate (in summary form) why the approach selected is the most appropriate. Please provide your expert judgement on the appropriateness of the selected approach to the project category:

>> [Yes, this is appropriate for this project category](#)

(2) Basis for determining the baseline scenario:

a) State whether the documentation explains how the baseline scenario is to be chosen and identified:

>> The baseline scenario has two parts: what share of OPC would have been used in concrete mix in the absence of the project activity, and what emissions would have arisen the production of that OPC. The share of OPC for the baseline scenario is based on national and/or specific guidelines for specific applications, or, if not such standards exist, the terms of the construction tender documents. The emissions from OPC production are estimated ex-ante from national data, but calculated ex-post based on energy consumption of the nearest plants (up to 4) that produce OPC and national average emissions factor for clinker production.

b) State the basic underlying rationale for algorithms/formulae used (e.g. marginal vs. average basis) (see also section 4 below):

>> The underlying rationale is that construction companies would not use any more OPC than they are required to by industry standards or contracts, and that a given reduction in OPC consumption at a specific construction site will result in the same reduction in output by nearby OPC manufacturing plants. It also assumes that clinker-related emissions are similar at all plants in the country, and that the materials used for additives do not have any "embodied emissions" and are carbon neutral.

c) State whether the documentation explains how, through the use of the methodology, it can be demonstrated that a project activity is additional and therefore not the baseline scenario. If so, what are the tools provided by the project participants?

>> The additionality testing is based on the EB-approved tool. It includes a check for projects started in 2000-2001, a regulatory screen, investment analysis (although this is vague), barrier analysis, common practice assessment, and assessment of the impact of CDM registration.

d) State whether the basis for determining the baseline scenario and for assessing additionality is appropriate and adequate:

>> This basis for determining the baseline scenario is not adequate. While using national standards or construction tender documents is a reasonable basis for determining the baseline concrete mix use of OPC, the approach to OPC emissions is not adequate. It is not the case that reduction in demand at a specific construction site will result in a one-to-one reduction in supply - since this demands on the dynamics of supply and demand in that market.

Furthermore, it is not clear how the relevant supply plants should be determined (i.e. 4 plants, up to 4 plants, or how is this number decided?) and whether the market is such that the nearest four plants necessarily supply that site. This will depend on contractual relationships between the construction company and various suppliers, and whether there are OPC plants that have harbour access, since this allows longer range transport. All of the OPC might come from one plant that is the oldest and "dirtiest", for example. Furthermore, emissions from the production of clinker are not necessarily the same in all plants.

In summary, the project participants have not sufficiently justified that emissions from the nearest four plants are "under the control of the project participants that are significant and reasonably attributable to the CDM project activity.

The additionality assessment needs more elaboration on the investment analysis. The barriers analysis text is also difficult to understand. The project participants should rather refer to the full EB tool and just elaborate at each step any specific issues for this project category (e.g. likely alternative scenarios).

(3) Assessment of the description of the proposed methodology and its applicability

a) State whether the methodology has been described in an adequate manner:

>> Yes, it is described adequately

b) State whether the proposed methodology is appropriate for the referred proposed project

activity and the referred project context (described in Sections A - E of the draft CDM-PDD and submitted along with CDM-NMB):

>> Yes

c) State whether the application of the methodology could result in a baseline scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.

>> No

Please explain:

>> See section 2.d discussion of baseline scenario

(4) Assessment of algorithms/formulae and type of data needed:

a) State whether the description of the methodology includes algorithms and generic formulae that can be applied to other potential project activities (if not, the proposed new methodology will be considered as a project-specific methodology):

>> They can be applied to other potential project activities.

The description of the formulae for project emissions, however, and nomenclature are confusing. Project emissions should be based on OPC use by the project, which will vary according to whether admixtures, cementitious materials or both are used. To call OPC use by the project "Reduced proportion of OPC in unit volume..." makes it sound like variables such as RA, RAC, and RAA are reductions in OPC use (i.e. baseline use minus project use), rather than referring to actual OPC use under the project activity. Using an "R" for these variables adds to this confusion. Using It would be clearer to say something like

$$PQ_{C,G,Y} = PP_{C,G,Y} \times PVA$$

where PQ is quantity of OPC used in project, PP is the proportion of OPC used in the project case and PV is the volume made with additives only. Similarly, baseline quantity of OPC could be BQ, and baseline emissions BE and project emissions PE.

b) Explain the spatial scope of data used to determine the baseline and whether the scope is appropriate:

>> The spatial scope for the OPC in concrete mix is the project site; for clinker emissions it is the country; for fuel emissions from OPC production it is nearby plants (up to 4). As stated above, it is not clear whether using nearby plants (especially when it is not specified how to choose the number) is adequate for clinker fuel use, or whether a national average is sufficient for clinker process emissions.

c) Explain the vintage of data used (in relation to the duration of the project crediting period) and whether the vintage of data is appropriate, indicating the period covered by the data:

>> The vintage of the clinker process emissions factor is not specified, since it comes from a national source. For OPC fuel emissions, it is the most recent year. For the share of OPC in mix, it is the year of the issuance of the standard, or the current year of the construction contract. These are appropriate, except that some developing countries will have National GHG Inventories whose data is quite old so this could present a problem.

(5) Definition of the project boundary related to the baseline methodology:

a) *State how the project boundary is defined in terms of:*

i) *Gases and sources*

>> This is not clear. For OPC production, only CO₂ process and combustion emissions are included, but this is not within the product boundary

ii) *Physical delineation*

>> Concrete mix preparation on-site, plus storage of raw materials and concrete mix on-site

b) *Indicate whether this project boundary is appropriate:*

>> If emissions from OPC production are to be included in the calculations, then it is logical that these plants must be in the project boundary. The precedence for this is ACM0002, where the project boundary included all plants connected to the relevant grid.

(6) Key assumptions/parameters (including emission factors and activity levels) and data sources:

a) *List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:*

>> Assumptions:

1. Current construction documents or national standards will determine OPC use in concrete mix - OK
2. Process emissions from clinker production are the same regardless of where OPC is produced - problematic
3. Fuel use at up to four nearest plants is accurate proxy for fuel use for actual OPC that would have been used on site - problematic
4. the change in on-site energy emissions from increased admixtures and cementitious materials is negligible - need to test
5. the admixtures and cementitious materials substituted for OPC do not have any "embodied emissions" - OK

b) *State whether the key assumptions are arrived at in a transparent manner:*

>> they are clear, but not all appropriate

c) *Give your expert judgement on whether the assumptions/parameters are adequate:*

>> not adequate - see above

d) *Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):*

>> Clinker emissions factor: National Inventory or other national official source

OPC fuel use: publicly available records

Proportion of OPC used in concrete mix in baseline: national standards or construction tender documents

Net calorific value: IPCC

Oxidation factor: IPCC

Carbon emissions factor for fuel: IPCC

e) *Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:*

>> Clinker emissions factor: depends on how recent this work is and the variability across plants

OPC fuel use: it is not likely that this data is publicly available, and the use of those 4 plants could be problematic

f) State possible data gaps:

>>

(7) Assessment of uncertainties:

a) State whether the methodology includes an assessment of uncertainties regarding:

i) The basis for determining the baseline scenario:

>> limited - the meth does acknowledge that supply and demand relationships may mean the production is not reduced as proposed in the meth

ii) Algorithms/formulae:

>> no, but these are not necessary

iii) Key assumptions:

>> no

iv) Data:

>> no

b) State whether the uncertainties presented are reasonable:

>> the uncertainty in baseline scenario is not acceptable

(8) Leakage:

a) State how the baseline methodology addresses any potential leakage due to the project activity:

>> Leakage due to a change in transport of materials is considered, if the transport required for OPC and additives is greater than for OPC alone. Leakage due to decreased durability is excluded by the applicability conditions of the meth. The meth says that leakage due to increased consumption of OPC elsewhere (outside the product site) is unlikely and this should be demonstrated.

b) Indicate whether the treatment for leakage is appropriate and adequate:

>> It is unclear how project participants should demonstrate that OPC use will not change outside the product site.

(9) Transparency and “conservativeness”:

a) Indicate whether the baseline methodology was developed in a transparent way:

>> Most of it is transparent - the only challenging area is connecting reduced consumption at a particular project site with the same reduce production at 4 nearby OPC plants.

b) State whether the baseline methodology is conservative:

>> This is not possible to say without knowing the variation in OPC emissions factors across plants. Also, without monitoring of the actual OPC production at the relevant plants, it is not clear the meth can guarantee these reductions in emissions. Only including CO₂ emissions is conservative.

(10) Potential strengths and weaknesses of the proposed baseline methodology (please explain):

>> Strengths: the meth is simple and straightforward, and most of the information would be easily available
Weaknesses: assumptions about impact on OPC production and location of that production, may not be able to get fuel use at each OPC plant for baseline

(11) Other considerations, such as a description of how national and/or sectoral policies and circumstances have been taken into account (please explain):

>> National policies are taken into account is determining the standards of OPC use in concrete mix in the

baseline scenario. They are also considered in the additionality testing.

(12) Applicability of the proposed methodology across project types and regions (please indicate):

>> If revised, the meth would be applicable across any construction site in any region - again, the key issue is whether the 4 plants are representative

(13) Any other comments:

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

>> no

b) Indicate any further comments:

>> The methodology often confuses the amount of additives and OPC used in the project and baseline with a REDUCTION in OPC use. It should be clear that both baseline and project emissions are based on total volume of concrete produced and the relevant proportions of different materials. Total emissions from the baseline scenario are not based on the avoidance of OPC, as stated in D.6.

The nomenclature is confusing because P is used in baseline emissions (e.g. $PB_{C,G,Y}$).

II. Proposed new monitoring methodology (specify title here): >> Reduction in the use of Ordinary Portland Cement for concrete mix preparation

In respect of the proposed new monitoring methodology, evaluate each section of CDM-NMM to the draft CDM-PDD. Please provide your comments section by section:

(1) Brief description of new methodology:

Describe new methodology:

>> The methodology monitors the tonnes/cubic metre of admixtures and cementitious materials added to the OPC to make concrete, as well as the total volume of concrete produced, to determine how much OPC was replaced. The baseline emissions factor for the concrete is based on ex-ante assumptions about the proportion of OPC in concrete mix and ex-ante estimates fuel use in nearby OPC plants. The project emissions factor is based on monitored use of OPC and other materials in the concrete and the same OPC emissions factor as for the baseline.

(2) Key assumptions/parameters:

a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:

>> Assumptions:

1. Current construction documents or national standards will determine OPC use in concrete mix (BC) - OK
2. Fuel use at up to four nearest plants is accurate proxy for fuel use for actual OPC that would have been used on site, and these only need to be measured before the project begins - problematic
3. the change in on-site energy emissions from increased admixtures and cementitious materials is negligible - need to test
4. the admixtures and cementitious materials substituted for OPC do not have any "embodied emissions" - OK

b) State whether the key assumptions are arrived at in a transparent manner:

>> As in baseline meth, there is no justification for ex-ante selection of plants or why they are proxy for actual fuel use for displaced OPC.

c) Give your expert judgement on whether the assumptions/parameters are adequate:

>> see above - 2 and 4 are problematic

(3) Data sources and data quality:

a) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):

>> OPC use in different project sites, based on how much admixture and cementitious material is added: plant records

Volume of concrete of different mixes: plant records

Proportion of OPC used in concrete mix in baseline: national standards or construction tender documents

Gross volume of concrete in baseline: plant records

OPC fuel use and production from nearby plants: publicly available records

Net calorific value: IPCC

Oxidation factor: IPCC

Carbon emissions factor for fuel: IPCC

b) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:

>> As mentioned several times, not only will OPC fuel use for nearby plants potentially be difficult to obtain, but it is not clear that this is the right proxy for reduced emissions due to using less OPC. Also, it might be necessary to track this data on an annual basis throughout the project rather than only at the beginning.

Source for BC says "project proponents database" - this is not an appropriate source. It must be clarified where this data is sourced.

c) State possible data gaps:

>>

(4) Assessment of the description of the proposed methodology and its applicability:

a) State whether the proposed methodology has been described in an adequate manner:

>> same confusing nomenclature and naming of variables as in the baseline meth

b) State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context (described in Sections A - E of the draft CDM-PDD and submitted along with CDM-NMM):

>> Yes

c) State whether this proposed monitoring methodology is compatible with the proposed baseline methodology described in CDM-NMB of the draft CDM-PDD:

>> Yes

(5) Leakage (please elaborate, if appropriate):

>> the quantities of OPC should be measured, not estimated, and the parameter Q_{RM_PA} is missing. the use of the "project proponents database" is not an appropriate data source - the meth must say how the vehicle emissions factor and distances will be measured.

(6) Quality assurance and control procedures (please explain):

>> The explanation of QA/QC is very general - not clear whether more specific guidance should be included.

(7) Potential strengths and weaknesses of the proposed monitoring methodology (please explain):

>> Strengths: the meth is simple and straightforward, and most of the information would be easily available

Weaknesses: assumptions about impact on OPC production and location of that production, may not be able to get fuel use at each OPC plant for baseline

(8) Applicability of the proposed methodology across project types and regions *(please indicate):*

>> [should be widely applicable if revised as suggested.](#)

(9) Any other comments:

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

>> [no](#)

b) Indicate any further comments:

>> [see comments on baseline methodology](#)

Signature of desk reviewer

Date: / /

Information to be completed by the secretariat

F-CDM-NMEx doc id number	
Date when the form was received at UNFCCC secretariat	
Date of transmission to the Meth Panel and EB	
Date of posting in the UNFCCC CDM web site	