



**Approved baseline and monitoring methodology/  
methodological tool clarification response form  
(Version 02.0)**

**INFORMATION TO BE COMPLETED BY THE SECRETARIAT OR PANEL/ WG**

<b>Date and number of Panel/ WG meeting:</b>	14–17 October 2013, SSC WG 42
<b>Title/Subject of the request for clarification:</b>	Clarification on thermal efficiency monitoring requirements under AMS-II.G (versions 3.0, 4.0 and 5.0)
<b>Reference number of the request for clarification:</b>	SSC_695
<b>Exact reference (number, title and version) of the methodology or methodological tool to which the request for clarification applies:</b>	AMS-II.G Energy efficiency measures in thermal applications of non-renewable biomass --- Versions 3.0, 4.0 and 5.0
<b>Fast track or Regular track:</b>	<input type="checkbox"/> Fast track <input checked="" type="checkbox"/> Regular track

**Summary of the request for clarification**

Original text from PP/CME:

Dear CDM Small-Scale Working Group,

Through this letter we would like to kindly ask for clarification on thermal efficiency monitoring requirements under methodology AMS-II.G and to confirm the viability of monitoring plan changes to already registered CDM PoAs.

Certain PoA monitoring plans require the sampling of the improved cook stove thermal efficiencies by vintage. A vintage refers to a stove distribution year (e.g. one vintage would constitute all the stoves distributed in 2013 and a separate vintage would constitute all the stoves distributed during 2014). Paragraph 23 of methodology AMS-II.G version 05.0 outlines that “monitoring shall also consist of checking the efficiency of all devices or a representative sample thereof annually.” Our interpretation of this paragraph is that a single sampling exercise is sufficient to monitor the thermal efficiency of all the stoves contained in a project activity, and therefore, the sampling per vintage is an incorrect interpretation of the methodology.

We believe a representative sample – meeting the relevant statistical reliability requirements- of thermal efficiencies included in a project activity would already provide an accurate weighted average value for the thermal efficiencies of all devices deployed under such project activity. This weighted average value would, in turn, yield accurate emissions reductions estimates.

The “per vintage” monitoring also hinders the viability of monitoring and verifying emissions reductions. The available thermal efficiency testing standards approved by methodology AMS-II.G, such as the latest Partnership for Clean Indoor Air (PCIA) standards, require significant levels of effort for the testing of a single sample. For instance, in the Water Boiling Test Protocol (PCIA, version 4.1.2), conducting each test (excluding preparations) takes 2.25 to 2.75 hours, and these tests have to be repeated 3 times for each improved cook stove. Thus, each test would require a complete day of labor. The “per vintage” monitoring requirement would increase the sampling burden anywhere between 5 and 10 times, assuming improved cook stove useful lives are commonly between 5 and 10 years. We estimate that per vintage sample sizes are anywhere between 4 to 27. The “per vintage” sampling would then translate into an additional 16 to 243 Water Boiling Tests, the transaction cost and viability of which will be a question to any project proponent.

Therefore, we would like to kindly ask for clarification that the interpretation of thermal efficiency monitoring under AMS-II.G version 05.0 and previous versions is a single representative sample of all equivalent devices in a project activity is correct, which is different to conducting a monitoring sample for each stove vintage.

We would also like to hereby seek your confirmation on our understanding that as per para 130 (b) iii of

CDM Project Cycle Procedure, Version 04; the permanent changes in PoA monitoring plans can include changing the “per vintage” sampling to a single representative sampling that includes all vintages.

We appreciate your consideration of these two issues and thank you in advance for your response.

Sincerely,

Javier Lascurain

Carbon Analyst, C-Quest Capital LLC

**Additional clarifications requested 20-Sep-13:**

For our better understanding of your submission, you are requested to clarify the following:

It is understood that your proposal is to undertake "a single representative sampling that includes all vintages". Please elaborate your sampling plan, in particular clarifying whether you intend to take stratified approach (e.g. stratified random sampling) to consider different vintages.

Please provide the above information no later than Wednesday, 25 September 2013.

Response from PP/CME submitted 23-Sep-13:

We hereby provide further clarification on the text: “a single representative sampling that includes all vintages”, as requested.

The objective of the text is to eliminate the need to stratify the data collection for each vintage of stove distributed by grouping all stoves of all vintages (i.e. not to differentiate the year in which stoves were installed) together into a single population and conducting a single sampling exercise for that population. For example, under our PoA existing monitoring plans, we stratify thermal efficiency monitoring by stove model and by stove vintage. The proposed changes are to amend the monitoring plan so the project implementer continues to stratify the population by stove model, but removes the vintage stratification as this requirement imposes very heavy burdens which jeopardize our ability to verify carbon credits.

Below is an example of how the proposed amendment would positively impact the monitoring process:

Case: the PoA has stove models X and Y. Stoves of model X were distributed in years 2010, 2011 and 2012. Stoves from model Y were distributed in years 2010 and 2011.

Sampling under current monitoring plan:

The current monitoring plan would entail stratifying vintages by model and by stove vintage. Therefore, the following sampling exercises would have to be conducted:

1. Model X vintage 2010
2. Model X vintage 2011
3. Model X vintage 2012
4. Model Y vintage 2010
5. Model Y vintage 2011

As per this example and following the current monitoring model, stratifying by stove model and vintage would result in 5 different sampling exercises to monitor the thermal efficiency of improved cook stoves under the PoA. This would obviously entail a greater number of houses to be visited and stoves to be tested, which put great financial barriers on project implementers.

Sampling under the proposed monitoring plan:

The proposed monitoring plan continues to stratify by stove model, but no longer by vintage. The sampling exercises that would be conducted are the following:

1. Model X vintages 2010, 2011, and 2012
2. Model Y vintages 2010 and 2011

Based on this example, sampling under the proposed model would consist of 2 sampling exercises for thermal efficiency of improved cook stoves under the PoA. The sample would still be representative of the entire population as the proportion of each vintage in the sample would be the same as the proportion in the entire population. All other reliability requirements would be complied with.

**Clarification by the secretariat or Panel/ WG**

The small-scale working group (SSC WG) of the Executive Board (hereinafter referred to as the Board) of the clean development mechanism (CDM) would like to thank the author for the submission.

In general, while simple random sampling is suitable to apply to populations that are homogeneous, stratified random sampling is better suited for situations when the population is not homogeneous but instead consists of several subpopulations which are known (or thought) to vary. In the case of your programme of activities (PoA), it is understood that the monitoring plan covers the stoves that have been distributed in different years i.e. different vintages. Thus, the SSC WG agreed to clarify that it may be more suitable to undertake a stratified random sampling (considering the vintage as one of the criteria to determine the stratification of the sample). The SSC WG was of the opinion that when the efficiency of the cook stoves drops significantly over the years, the population for the sample survey may not be a homogeneous population.

With regard to your request for the changes to the already registered CDM PoAs, project participants should submit a request for approval of changes to the secretariat through a designated operational entity as per applicable paragraphs (e.g. paragraph 138, 139 and 140) of the "Clean development mechanism project cycle procedure".

However, the SSC WG noted the concern on the transaction cost for undertaking separate sample surveys for different vintages and types of stoves. Please note that the SSC WG prepared the draft revision to "AMS-II.G: Energy efficiency measures in thermal applications of non-renewable biomass", which includes further simplification on the determination of thermal efficiency, as contained in annex 4 of the report of the 42<sup>nd</sup> meeting of the SSC WG. The SSC WG recommended that the Board launch a call for public inputs on the draft revision to AMS-II.G. Therefore, you may wish to provide your inputs accordingly.

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	18 July 2013	Revised to remove the row "Date and signature of the chair and vice chair of Panel/WG (in case of clarification by Panel/WG)"
01.0	4 July 2013	Initial publication. This document supersedes and replaces the following documents: <ul style="list-style-type: none"> <li>• Recommendation Form for Small Scale Methodologies (F-CDM-SSCwg) (Version 01.1)</li> <li>• Recommendation Form for Small Scale A/R Methodologies and Procedures (F-CDM-SSC-AR) (Version 01.1)</li> </ul>

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