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CDM Executive Board
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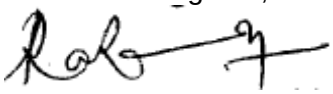
Sub: Submission of inputs on the General Guidelines on Sampling and Surveys (Annex 27, EB 47)

Honorable Members of the CDM Executive Board,

We appreciate the CDM Executive Board's call for public inputs on the *General Guidelines on Sampling and Surveys (Annex 27, EB 47)* and welcome the opportunity to contribute suggestions to enhance the practical application and user-friendliness of the draft document. The enclosed inputs are presented for consideration of the CDM Executive Board.

We would be happy to provide clarifications and contribute to further discussion on the subject if the Executive Board would consider this helpful.

With kind regards,



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General Guidelines on Sampling and Surveys

The World Bank welcomes the opportunity to contribute suggestions to enhance the practical application and user-friendliness of the draft *Guidelines on Sampling and Surveys (Annex 27, EB 47)* document (referred to as "the Guidance").

It is understood that the guidelines seek to provide ***general*** clarifications on implementing surveys; however, the guidelines as currently written appear theoretical and do not fully reflect practical requirements of the projects. We do consider the guidelines a useful and important document and recommend that revisions to the guidelines are made following consultations with organizations with survey and sampling experience in developing countries.

Improvements to draft Guidelines in terms of addressing the issues of non-response or circumstances of inadequate information will be useful. Furthermore we recommend identifying subsections within the guidance where appropriate sampling approaches are defined for different sectors since we understand that sampling and sampling issues vary across different sectors. For example, the sampling approach used in the transportation sector (e.g., area sampling), may differ considerably from what would be required for energy efficiency on the demand side type of project (e.g., household survey using cluster sampling).

We also recommend that a section be included that will clarify how this Guidelines should be used by DOE at validation and verification and this section should also be reflected in the VVM.

What follows are comments on general and specific aspects of the draft Guidelines. The purpose of this input is to support the development of a practical and user-friendly document that addresses on the ground issues faced by CDM project proponents. We hope our comments are useful. We would be happy to provide further clarifications on the inputs presented in this submission.

Issue	Comment	Recommendations
A. General Recommendations		
1. The guidelines could be made accessible to a wider audience of users (i.e. "user friendliness").	Currently, the guidelines present "theoretical" or text book view and do not ***fully*** address specific issues relating to the nature of CDM projects or the circumstances of countries seeking to implement CDM projects.	Consider restructuring the document in a format to addresses common questions of sample frame and survey. More examples of the project types demonstrating the application of sampling methods will be useful to provide hands on guidance for the relevant project types. A consultation process with stakeholders who have extensive CDM and survey experience could assist in implementing this aspect of the guidance. It is recommended that the guidelines include additional references for sampling and surveys in developing countries context (*e.g., O'Sullivan, K., and Barnes, D. 2007, Energy Policies and Multi-topic Household Surveys Guidelines, 2007).*
2. Survey options are often country specific. National	The Guidance should ensure that existing "in house" country	It is recommended that the guidance requires PPs to assess existing

level statistic bureaux (e.g. office responsible for taking Census) may well have defined approaches for establishing appropriate clusters. There may also be census and other specific data that is available and could be relevant. Additionally some countries may even have data from national sources, manuals on statistical approaches or procedures.	expertise and statistical experience is utilised as much as possible.	data/guidelines in country before doing a survey. The UNFCCC Secretariat could keep a list of countries that have statistical manuals and/or statistic offices and where possible make these documents available on the UNFCCC website. The guidelines should also provide procedures on the use of data from national sources for the purpose of CDM.
3. The issue of non-response has not been sufficiently addressed in the guidance.	Non-response occurs when a household selected for inclusion does not participate in the survey. The most common sources of non-response include: a) listing is outdated (e.g. household moved to a new dwelling, mortality),b) refusal, c) unable to locate. The best way to deal with non-response is to prevent it however sometimes this is not possible and guidance on how to deal with this issue is need in the Guidance.	The guidance should provide clear suggestions on how to prevent non-response occurring in a survey. Additionally it should advise how to correct for non-response, should preventive measure fail to stop its occurrence. Examples of such corrective measures might include: i. Replace non-respondents with household "similar" s ii. Increase the sample size to compensate for it iii. Use correction factors to account for non-response iv. Use imputation techniques (hot-deck, cold-deck, warm-deck, etc.) to simulate the answers of non-respondents.
4. It appears that this guidance identifies three reasons for implementing sampling approaches i.e. a) point Estimate for Engineering Calculations, b) Baseline Penetration, and c) Change in Technology). This is a useful start but further distinctions need to be made in order to help PPs and DOEs prioritize which sampling approach to implement and to address common issues arising from the application of different sampling approaches in different project circumstances.	Further consideration of additional parameters that could influence sample survey approach would make the guidance more practical E.g. it would be useful to distinguish between different sectors and distinguish between PoAs and other project types. The Guidelines are also applicable to DOEs who apply a sampling approach to verify projects or PoAs and issues related to verification could perhaps be distinguished from methodology implementation. (e.g., sampling across CPAs at verification in a PoA ;	We recommend that additional factors affecting sampling selection (e.g. different sectors, availability of information etc.) be identified. Ideally these factors could be identified as a result of an informal discussion with stakeholders who have extensive CDM and sampling experience. Additionally the Guidelines would benefit if some distinction is made for the use of sampling for verification and guidance on the sampling of CPAs when verifying PoA.

5. Section III introduces different sampling types and provides a general description of sampling approaches. a) The list of approaches described is not exhaustive and the scope for use of non-parametric approaches has not been clarified. . b) Although the section is titled applicability it is not clear under which circumstances one approach should be prioritised in favour of another. c) Limited consideration is given to situations where information is limited or absent prior to sampling. The reference to sampling method for obtaining expected variance when no information is available is only given at the end of the guideline (see page 21 of current guideline). d) The draft does not provide guidance on either panel data (the current guidance is limited to one time surveys) or area sampling.	a) The list of approaches is not comprehensive. In particular non-parametric approaches have not been included although in some cases non- parametric approaches may be a good alternative to the approaches defined in the guidance draft. Non-parametric approaches permit the consideration of variables whose distribution is not known. In more technical terms, nonparametric methods do not rely on the estimation of parameters (such as the mean or the standard deviation) describing the distribution of the variable of interest in the population. Even if non-parametric approaches are not to be included, further guidance on how to deal with circumstances where there is limited information on the variables would be useful. The principles of panel data (require repeat surveys) would be relevant, which are not covered in the current guidance. The guidance provided refers only to list sampling. Therefore, it is useful to provide guidance on area sampling considering it may be required in some project types such as transport, waste, buildings, etc.	a) When considering situations where information is limited or absent it may be easier to apply non-parametric approaches. Consideration of the situations when non-parametric approaches may be considered valid would be useful b) In Section III Applicability, clarification regarding which types of methodologies or project circumstances should use a sampling approach according to available information and costs would be useful. c) Further consideration of what can be done in the face of data limitations should be provided in the guidance. d) Further guidance on panel data and areas sampling will be useful.

B. Specific Recommendations – Clarification needed		
1. The aim of the draft guidance is to clarify: a) How to apply sampling to CDM methodologies; and b) What is expected in the sampling plan (Page 1 Para 1).	The aim is not yet fully achieved. Currently the draft presents a summary of approaches and equations however it is not clear which sampling approaches are considered most appropriate for different situations.	It may be useful to revise the guidance to a format that addresses common questions of sampling and survey. Clarifications on the applicability conditions for different approaches under different circumstances (sector/type etc) will be useful.
2. Paragraph 4**:** *if the actual sample fails to achieve the target minimum precision level set by the Board, project implementers may be required to take supplemental sample to achieve it.*	Taking a supplemental sample may not always be feasible, due to potential high costs and time, specifically in the context of PoAs.	Taking a supplemental sample is one option for improving a minimum precision level. Alternative options that could be applied in the face of cost or information barriers would be useful. For example, an alternative to a supplemental sample could be the application of a discount factor in the calculation of ERs (applicable only for variables that correspond to a point of estimate for engineering calculations or for CPA sampling at verification).
3. Default Minimum level of precision for all projects is defined as a) 90/10 i.e. 90% interval with 10% margin of error for parameters directly affecting emissions. b) 90/30 i.e. 90% interval with 10% margin of error for parameters not directly affect emissions. (Pg 2 Para 8).	Further clarification of when a 90/30 precision level can be applied should be made.	Recommend including further clarification with regard to 90/30 precision that can be applied to the following kinds of parameters: a) Parameters used to assess Leakage effects. i.e., parameters that falls outside of the project boundary. b) DOEs may apply 90/30 when assessing parameters via sampling as part of project verification.
4. Further clarification regarding the statement on Page 3 in the sentence before Table 1 is needed. It states "future methodologies or amendments may call for estimating whether a field value is significantly different from a value based on laboratory tests or previous studies,"	Further clarification as to the reasons for this anticipated future amendment would be useful. Additionally, is it possible to identify the methodologies this amendment might apply to?	Further clarifications on sampling procedures in situations where methodologies subjected to revisions.
5. It states that a sample frame is "(an exhaustive list of all the cases in the population)". This definition	A *sampling frame* has the property that we can identify each element and include in the sample. The most straightforward type of frame is a	Further clarification of a sampling frame that notes that it may not be possible to identify the entire population would be useful either in

is not accurate. Page 3 Para 13.	list of elements of the population (preferably the entire population) with appropriate contact information. E.g. in an opinion poll possible sampling frames include an electoral register or a telephone directory. However not all frames explicitly list population elements. For example, a street map can be used as a frame for a door-to-door survey; although it doesn't show individual houses, we can select streets from the map and then visit all houses on those streets. The sampling frame must be representative of the population and this question demands the judgment of subject matter experts.	a glossary or within the text Additionally, the sampling frame must be defined and justification for the frame provided in order to enable the DOE to validate and verify its appropriateness. Note – the word "cases" is not clear. It might be better to refer to unit or element rather than a case.
6. In Para 15 some indication of when simple random sampling should be used is defined. However further clarification regarding when to use and when not to use this approach is needed.	Simple random sampling may be vulnerable to sampling error because of the randomness of selection. It can also be cumbersome and expensive when sampling from a large target population.	Inclusion of further clarifications of when to use simple random sampling would be useful. E.g. Simple random sampling is not appropriate for projects with very large populations, in other words it is not appropriate for an assessment of baseline penetration or equipment characteristics in SSC projects or PoAs that implement micro technologies at the household level in large populations.
7. Pg. 5 Para 24 - Information level on cluster sampling is limited while this technique is highly used in developing countries context. This is because the main objective of cluster sampling is to reduce costs by increasing sampling efficiency. This contrasts with stratified sampling where the main objective is to increase precision. Additionally the example given is for motors, while currently none of the approved methodologies allow sampling of variable load equipment	Cluster sampling is broadly applied in many developing countries because of poor quality of household's listings and cost limitations. The current guidelines simply state on Page 5 para *25 "It is usually necessary to increase the total sample size to achieve equivalent precision in the estimates, but cost savings may make that feasible."*- Further guidance on what is an acceptable level of precision when using cluster sampling is necessary.	Further guidance on cluster sampling is needed to clarify what level of precision is considered to be "good enough". The guidance should also include advise how to a) define area or geographical territory for each cluster, b) apply a design effect factor (design effect correction factor in formula): c) how to select values used in formulas. Additionally further guidance on sampling approaches for variable power load equipment is recommended.

8 Section Guidance Para 32 Pag e 8 states "Those (sampling) plans should cover the topics summarized in the previous section:"	This is not clear – since what is included in the previous section is a summary of different approaches and a list of best practice recommendations. It appears that the contents of the plan are then summarised in the bullet points in Para 32 but it is not clear how this relates to the best practice guidance in the previous section.	Further clarification or editing of the para 32 is necessary.
9. Para 32 bullet point 4 – states "*Sample Method***.** The sampling method should be presented. That method should be consistent with the information contained in the frame.	No information or guidance has been provided to help PPs evaluate if a sampling method is consistent with the sampling frame.	Further guidance to illustrate how to assess if a sampling method is consistent with information within the sampling frame should be provided.
10. Para 32 bullet point 5 - *Desired Precision/Expected Variance and Sample Size***.** The plan should present and justify the target number of completed surveys or field measurements (the sample size). That justification should include a prediction of the variance of the variables of interest and basis for that prediction;	It is not clear what kinds of information will be considered sufficient for justification of the variance of the variables.	Further clarification regarding the preferred types of information such as national statistics, expert opinion etc would be useful. For PoA, sample size may only be available at CPA levels. It is important to make this distinction.
11. Para 32 bullet point 6 - *Procedures for Administering Data Collection and Minimizing Non-Sampling Errors.* It is unclear what the note means by *provision for maximizing response rate.* It is unclear why the following requirement was set: *documentation out of the population cases.*		Include clear guidance on how to prevent non-response occurring in a survey (see comment #3 in previous section of this document).

B. General Recommendations – Editing		
1. Annex 1 – Sampling formulas do not use standard notation for statistical variables. The section is repetitive - There is a paragraph which repeats the guidance section i.e., describes the approaches. In general the annex needs to be edited and more details given to ensure clarity.	1. Annex 1 – Sampling formulas do not use standard notation for statistical variables. The section is repetitive - There is a paragraph which repeats the guidance section i.e., describes the approaches. In general the annex needs to be edited and more details given to ensure clarity.	1. Annex 1 – Sampling formulas do not use standard notation for statistical variables. The section is repetitive - There is a paragraph which repeats the guidance section i.e., describes the approaches. In general the annex needs to be edited and more details given to ensure clarity.
2. General editing to ensure consistency in language to avoid unnecessary confusion	2. General editing to ensure consistency in language to avoid unnecessary confusion	2. General editing to ensure consistency in language to avoid unnecessary confusion

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