

Mr. Martin Hession
UNFCCC Secretariat
Martin-Luther-King-Strasse 8
D 53153 Bonn
Germany

Project Developer Forum Ltd.
100 New Bridge Street
UK London EC4V 6JA

Europe: +44 1225 816877
Asia: +65 6578 9286
Americas: +1 321 775 4870
office@pd-forum.net
www.pd-forum.net

To info@unfccc.int
From Gareth.Phillips@pd-forum.net
Date 17 October 2011
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Subject **Call for public inputs on sampling standard**

CHAIRMAN:
Gareth Phillips
t: +65 65789286
e: office@pd-forum.net

CO VICE CHAIRPERSONS:
Leo Perkowski
Leo.perkowski@pd-forum.net
Rachel Child
Rachel.child@pd-forum.net

Mr. Martin Hession,
Members of the CDM Executive Board,

The PD Forum would like to thank the EB for the opportunity to comment on the draft sampling standard. We provide the following input:

- 1) Minor editorial issue:
 - a) The cross references in paragraphs 26 and 27 are incorrect. We assume in each case the number should be cross referenced to the previous paragraph, i.e., the cross reference in para 26(a) should be to para 25 (i) not 26 (i).
- 2) Paragraphs 23 and 24. Paragraph 23 refers to the validation of sampling plans. However, in Paragraph 24 the requirements switch to verification. We suggest the paragraphs be clearly labelled with headers to reduce the potential for confusion. For example:
 23. *Validation of Sampling Plans*
 - (a) *The proposed sampling plans shall be...*
 - (b) *The validation will include determining...*
 - (c) *Recommended evaluation criteria are included...*
 24. *Verification of Sampling Plans*
 - (a) *DOEs shall verify whether PPs have...*
 - (b) *Sampling by a DOEs may fall under...*
 - (c) *The DOE shall make an assessment...*
- 3) Section II and Section V. Section II refers to being applicable to all CDM project participants and all CDM projects yet little to no validation/verification guidance is offered for non-POA project activities. For example Section IV refers to scenarios where a sampling plan has been established and executed by PPs. The section then goes on to how the DOE will audit the sampling plan. There exist however, numerous large and small scale multi-site projects where all parameters at all sites are monitored by the PPs. We feel in such cases, as presented in paragraph 25, guidance should be provided to the DOE to perform verifications audit based on a sample number of sites/parameters selected by the DOE. We propose that the following paragraph be inserted between paragraph 24 and 25:

XX. In cases of large and small scale multi-site CDM project activities and CDM PoAs where sampling had not been envisaged and 100% monitoring is employed, DOEs may apply verification sampling plans as suggested in paragraphs 25 and 26 below.

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- 4) Paragraph 26(a). The guidance refers to “project units,” then to “project size” and finally to “project sample” which is very confusing. First off, we recommend the terminology used in the guidance be consistent and well defined. Further, we recommend the use of standard industry terms such as “Sample Size,” “Population Size,” “Confidence Level,” “Confidence Interval” (also referred to as margin of error, sampling error, or level of precision), etc.
- 5) Paragraph 25, 26, and 27. In the case of 25(i), our interpretation of the guidance results in a DOE performing an audit on sample of a sub-population. Yet in 25(iii), the DOE performs a sample audit of the entire population. In numbers terms, if the population size were 500, the PP might perform a sample of 81 observations (95% confidence level, +/- 10 confidence interval). Since the sample size of 81 is less than 100 the DOE would perform a verification audit 25 observations. Under 25(iii) however the same scenario would result in an audit sample of 125 observations. This appears to effectively “penalize” those PPs for performing 100% monitoring. Is this interpretation accurate? Is this what we really want?
- 6) Paragraph 26. What supporting reference was used to establish the sample sizes? Versus instructing the DOEs to perform audits based on what appear to be arbitrary sample sizes, we recommend the following formula¹ be used to determine sample sizes based on actual population or sub-population size:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Sample Size,

N = Population size (project size/units), and,

e = Desired level of precision – use 0.10 for 10% precision

Finally, we would be grateful for the following text to be inserted as a footnote in the sampling standard when making an estimate of the mean:

When making an estimate of the mean value of a parameter it may be difficult to obtain an estimate of the standard deviation. In such a case, it may be possible to transform the parameter so that its values are bounded. For example, instead of estimating the number of operating hours of a piece of equipment, one could estimate the fraction of the total available hours during which the equipment operated. This parameter must have a value between 0 and 1. A worst case estimate of the standard deviation (i.e. the value that would lead to the highest value when calculating sample size) can be shown to be half the range of the parameter; in this case the estimated standard deviation would be 0.5.

As always, we thank the Board for the opportunity to comment on this important document.

Kind regards,

Leo S. Perkowski
Co Vice Chair, Project Developer Forum

¹ University of Florida, <http://edis.ifas.ufl.edu/pdffiles/PD/PD00600.pdf>