



Training-Workshop on CDM Post-registration Changes (PRCs)
and Programme of Activities (PoAs)
12-14 February 2014 - Pretoria, South Africa

Key - PoA Case Study 3: Sampling

Case Study 3a

1. In your opinion, which sampling method would be appropriate to be used in the proposed PoA? What will be the target population?

Simple Random Sampling

Since it is supposed that the population is homogenous with respect to the continued use of the CFLs, simple random sampling would be an appropriate method to estimate the proportion of CFLs still in operation. (paragraph 10 and 28 of the *Guidelines-Sampling and surveys for CDM project activities and programmes of activities ver 3.0*)

The Target Population should cover only the households within the SSC-CPA area. As per the methodology, paragraph 1 and 17, only CFLs with an original marking for the PoA can be counted as installed.

2. What will be values for the variables N , p , δ in the context of this example? What will be confidence/precision required in case a single sampling plan covering a group of CPAs is undertaken?

Values for the variables N , p , δ

- Reliability requirements stipulated in the paragraph 10 of the sampling standard ver. 4.0 as below

10. Where there is no specific guidance in the applicable methodology, project proponents shall use 90/10 confidence/precision as the criteria for reliability of sampling efforts for small-scale project activities and 95/10 for large scale project activities.

- Reliability requirements stipulated in paragraph 20 of the small-scale methodology AMS-II.J

20. The following survey principles shall be followed for activities related to determining the number of CFLs placed in service and operating under the project activity and, if required, determining the number of operating hours of baseline and project lamps:

The sampling size is determined by minimum 90% confidence interval and the 10% maximum error margin; the size of the sample shall be no less than 100;

Therefore,

n	Sample size
N	Total number of households (420,000)



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p	Our expected proportion (0.50)
1.645	Represents the 90% confidence required
0.1	Represents the 10% relative precision ($0.1 \times 0.5 = 0.05 = 5\%$ points either side of p)

Substituting in our values gives:

$$V = \frac{0.5 \times (1 - 0.5)}{0.5^2} = 1 \quad (1)$$

$$n \geq \frac{1.645^2 \times 420,000 \times 1}{(420,000 - 1) \times 0.1^2 + 1.645^2 \times 1} = 271$$

- As per paragraph 20 of the *Standard for sampling and surveys for CDM project activities and programme of activities (Version 04.0)*, the simplified requirement for PoAs has been approved by the Board.

20. *Parameter values shall be estimated by sampling in accordance with the requirements in the applied methodology separately and independently for each of the CPAs included in a PoA except when a single sampling plan covering a group of CPAs is undertaken applying 95/10 confidence/precision for the sample size calculation.*

3. Assuming equation 1 gives a result of 271, what will be sample size if we expect a response rate of 80% from the sampled households?

Sample size at a response rate of 80% from the sampled households

The figure of 271 households means 271 households with data for analysis. If we expected the response rate from the sampled households to be 80% then we would need to scale up this number accordingly.

Thus we would decide to sample $271/0.8 = 339$ households. This is greater than 100, which is required by the methodology.

Case Study 3b

1. **Considering the guidance in the latest version of the sampling standard and guidelines, do you think the proposed sampling approach is clear?**



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It is 95% sure that the percentage of cook stoves that are still operational in this period is between 67.00% and 84.02%. Whilst the sample mean is the estimate that will be used in calculations, it is always advisable when presenting it in a report to do so along with its confidence interval.

Instead of taking additional samples, the PP may take the upper or lower bound of the 95% confidence interval. The choice of the upper or lower bounds to be used in estimating emission reductions shall be conducted in a manner that ensures conservativeness. The lower and upper confidence limits for 95% confidence interval are calculated below:

	Lower confidence limit	Mean	Upper confidence limit
95% confidence interval	67.00%	75.51%	84.02%

In order to ensure conservativeness in estimation of emission reduction, 67.00% is selected.