Issues and Challenges for Sampling

Soon Chan Hong
ADB
Sampling

- Acquiring and recording information about the selected subset of individuals in the population
- Therefore, not 100% accurate
- Complex and not easy to plan & implement
- Full monitoring (census) is sometimes not realistic and difficult to implement (e.g. 100 million CFLs)
- Crucial for successful monitoring of the micro scale CDM project activities

Current status of standards

- Sampling has been applied in many CDM project activities (small, large and PoA).
- The development of standard was quite recent.
- Further development is required/expected.

Standard for sampling and surveys for CDM project activities and programme of activities (EB 65 Annex 2)
Best practices examples focusing on sample size and reliability calculation (EB 67 Annex 6)
Key principle

- Sample set should be selected so that it can represent the population (unbiased and reliable).
- Sampling method depends on the characteristics of the population (simple random sampling, stratified random sampling, systematic sampling, cluster sampling, multi-stage sampling, etc.)
- Number of samples is closely related to the reliability of the estimate. (more samples → higher reliability)

Challenges

- Analysis of the population characteristics & choice of the most appropriate sampling method
- Determination of the sample size – sample size calculation depends on the sampling method and required level of accuracy (precision)
  e.g.) Required sample size for simple random sampling for the estimation of the mean value, with 90% confidence level and 10% relative precision

\[ n \geq \frac{1.645^2 NV}{(N-1) \times 0.1^2 + 1.645^2 V} \]

Where: \( V = \left( \frac{SD}{\text{mean}} \right)^2 \)
Challenges

• The problem is not the complexity of the calculation method, but the fact we need information about the population which we need to estimate through the sampling.
• To decide the sampling method, we need to know the characteristics of the population.
• To decide the required sample size, we need to know the population mean and standard deviation (or expected sample mean and standard deviation).

Suggestion

• Clear understanding of the requirements
• Proper sampling plan
  – Sampling method based on the population characteristics
  – Correct determination of the sample size
  – Proper frequency
  – Remedy measures
• Proper implementation of the sampling plan
• Immediate check after survey/monitoring
Thank You!

Soon Chan Hong
CDM Specialist (Consultant)
Asian Development Bank
E-mail: shong@cmp-adb.org