Annex 2

GUIDELINES ON THE CONSIDERATION OF SUPPRESSED DEMAND IN CDM METHODOLOGIES

(Version 02.0)

I. Background

1. The modalities and procedures for a clean development mechanism (CDM) (decision 3/CMP.1 paragraph 46) state that "the baseline may include a scenario where future anthropogenic emissions by sources are projected to rise above current levels, due to the specific circumstances of the host Party". This issue is also commonly referred to as "suppressed demand".

2. In decision 2/CMP.5, Parties encouraged the Executive Board (hereinafter referred to as the Board) of the clean development mechanism (CDM) to "further explore the possibility of including in baseline and monitoring methodologies, as appropriate, a scenario where future anthropogenic emissions by sources are projected to rise above current levels due to specific circumstances of the host Party."

3. In decision 3/CMP.6, Parties reiterated their encouragement to the Board to "further explore the possibility of including in baseline and monitoring methodologies, as appropriate, a scenario where future anthropogenic emissions by sources are projected to rise above current levels due to specific circumstances of the host Party."

4. In decision 8/CMP.7, Parties requested the Board to accelerate the implementation of guidelines on suppressed demand in baselines and monitoring methodologies, prioritizing those that are more applicable to the least developed countries, small island developing States, African countries and countries underrepresented in the clean development mechanism.

5. The first version of these guidelines were prepared in response to a request by the Board at its sixty-first meeting (EB61 report, para. 40) with an aim to achieve consistency in the methods to address the situation of suppressed demand in CDM baseline and monitoring methodologies where future emissions by sources may rise above current levels.

6. At its sixty-third meeting, the Board approved the work programme on suppressed demand, which envisages a revision to the guidelines for the further improvement of the clarity and level of detail contained in these guidelines.

II. Definitions, scope and applicability

A. Definitions

7. For the purpose of these guidelines, the following definitions apply:

(a) **Income effect**: this effect occurs when the demand for a service, such as energy services, would increase in the baseline scenario over time as a result of the increase of the income of the user of the service, even without access to a better quality service;

(b) **Rebound effect:** this effect occurs when the demand for a service, such as energy services, increases as a result of the decreased cost of the service per unit in the project scenario. For example, the benefits from savings in energy demand due to

technical efficiency improvement and hence reductions in greenhouse gas (GHG) emissions may result in an increase in the demand (e.g. extended operating hours in lighting);[1]

(c) **Minimum service level (MSL):** a service level that is able to meet basic human needs. In some situations, this service level may not have been provided prior to the implementation of the CDM project activity, indicating suppressed demand with a consequent future emissions increase due to income effect, rebound effect or other technical factors such as limited availability of a service (e.g. connection to a very weak grid) or low quality of a service (e.g. aversion to pollution caused by kerosene lanterns);

(d) **Basic human needs:** for the purpose of these guidelines, these include physical and physiological needs such as basic housing, basic energy services (including lighting, cooking, drinking water supply and space heating), sanitation (waste treatment/disposal) and transportation.

B. Scope and applicability

8. These guidelines provide generic approaches that should be used in CDM methodologies to address suppressed demand, with due adjustments to suit the particularities of a methodology. Approved methodologies using these guidelines shall include conditions to demonstrate the existence of a suppressed demand situation. For example, AMS-I.A "Electricity generation by the user" (ver. 15), and AMS-I.L "Electrification of rural communities using renewable energy" (ver. 01) require that project consumers are households which do not have access to any electricity before the project implementation. AMS-III.AV "Low greenhouse gas emitting water purification systems" (ver. 02) requires that the project is in a region with very low access to safe drinking water. Similarly AMS-III.F "Avoidance of methane emissions through composting" (ver. 11) lists conditions to demonstrate the absence of a basic waste treatment system.

9. A suppressed demand situation is applicable when a minimum service level to meet basic human needs, as defined above, was unavailable to the end user of the service prior to the implementation of the project activity. Hence, these guidelines are applicable when basic human needs were not met. For example, in the pre-project scenario, households may have had only very few kerosene lamps in place that were only operated for short time periods, thereby only partially meeting the basic lighting demand of the household.

10. These guidelines aim to facilitate a consistent and appropriate consideration of approaches for addressing suppressed demand. Although harmonization of such approaches across CDM methodologies is an important objective of these guidelines, it is recognized that a methodology applying these guidelines needs to reflect the specific characteristics of the project types and sectors covered for a realistic and conservative estimation of emission reductions.

11. These guidelines provide methodological approaches for two issues:

(a) The identification of the baseline technology/measure under a suppressed demand situation;

[1] A potential increase in the service level of other energy or non-energy services due to the rebound effect (e.g. fuel saved due to energy savings in lighting is used to meet previously suppressed cooking services) is considered as a sustainable development benefit to the host country and not considered in the calculation of emission reductions.

(b) The identification of the baseline service level that should be used to calculate baseline emissions in a suppressed demand situation.

12. These guidelines are not exhaustive and revisions to expand their applicability and to include other approaches may be proposed.

III. Methodological approaches

A. Identification of the baseline technology/measure

13. Methodologies for project types that face a suppressed demand situation should identify the baseline technology/measure through a step-wise procedure that builds on the elements outlined below. This step-wise approach is illustrated through an example for providing lighting to households.

Step 1: identify the various alternative technologies/measures available to the project proponent that satisfy the same need as the need satisfied by the proposed project activity. These alternatives include the technology/ies that is/are currently used in the region (i.e. that is used in the situation existing prior to implementation of the project activity), in similar social, economic, environmental and technological circumstances. In order to identify technologies/measures, interviews with relevant experts, official data from government agencies, independently commissioned studies by expert organizations/universities and surveys may be used.

Example: in the case of lighting, the following alternative technologies may be identified to satisfy the same needs: small wick lamps, large hurricane lamps or pressure lamps, incandescent lamps, compact fluorescent lamps (CFLs), light-emitting diode (LED) lamps.

Step 2: identify which alternatives technologies/measures identified in Step 1 are in compliance with the local regulations. If an alternative does not comply with all mandatory applicable legislation and regulations, follow the guidance in version 06 of the "Tool for the demonstration and assessment of additionality" (paragraph 20).

Example: all technologies are in compliance with local regulations and none of them is removed.

Step 3: rank the alternatives remaining after Step 2 in order of decreasing efficiency (e.g. lumen/Watt) or quality of the service provided, i.e. from the highest efficiency or quality to the lowest efficiency or quality.

Example: the technologies are ranked as follows:

1 LED lamps;

2 Compact fluorescent lamps (CFLs);

3 Incandescent lamps;

4 Large hurricane lamps or pressure lamps;

5 Small wick lamps.

Step 4: assess the alternatives in the sequence identified in Step 3 and eliminate in that sequence those alternatives that face barriers such as the ones listed below:

(a) Income barrier, i.e. inability to meet the capital cost;

(b) Lack of infrastructure (e.g. non-existence of supply/service infrastructure);

(c) Lack of skills to operate the alternative;

(d) Technological barrier, e.g. technologies with low market share with market penetration rates of less than 5%.

Example: LED lamps, compact fluorescent lamps (CFLs) and incandescent lamps are removed, as these face barriers due to a lack of infrastructure and technological barriers. The remaining two alternatives are the following:

1 Large hurricane lamps or pressure lamps;

2 Small wick lamps.

Step 5: The first alternative not eliminated by Step 4 and that is able to meet the minimum service level (see guidance below) under realistic[2] conditions is deemed as the baseline technology/measure. If several fuels can be used for the same technology, repeat the steps to identify the baseline fuel type.

Example: Large hurricane lamps or pressure lamps are identified as the baseline technology.

B. Identification of the baseline service level

14. In baseline and monitoring methodologies, the service level used to determine baseline emissions can correspond to the following levels:

(a) **The service level provided prior to the implementation of the project activity:** this approach is used for project types for which there could be significant incentives from the certified emission reduction (CER) revenues to expand production (e.g. HFC-23 incineration from HCFC-22 production, N_2O abatement from adipic acid production). Capping the baseline service level to the historical level avoids such incentives. However, using the historical service level is less appropriate under a suppressed demand situation, given that the demand for the service is likely to rise over time even without the CDM, once the barriers are overcome;

(b) **The service level provided under the project activity:** this is the most commonly used approach: it is assumed that in the baseline the same service would be provided as under the project activity but with a different technology. However, this approach may not be realistic in some cases. For example, if a household receives 40 litres of clean water per person per day under the project scenario, it may not be realistic to assume that in the baseline 40 litres of water per person per day would be boiled, even if the income of the household would increase in the

[2] The baseline technology shall be already available in the region of the project activity although the widespread use of it might have been hampered by the initial upfront cost of purchase, low market penetration or the cost of operation.

future. Using the project service level may also face some practical barriers, such as the difficulty of measuring the service provided under the project as well as for the baseline. For example, measuring the light output of a kerosene lamp could be challenging;

(c) **A minimum service level:** globally applicable conservative thresholds as minimum service levels are defined in respective methodologies where applicable. Further guidance on determining this level is provided below.

15. In some situations, it may also be appropriate to use two or more service levels and respective baseline technologies/measures to cumulatively add up to the project service level. In this case, it is assumed that the minimum service level would be provided, as per the procedure outlined below, by the technology/measure that does not face the relevant barriers and can realistically provide the minimum service level (e.g. hurricane lamps) and that the difference between the project service level and minimum service level would be provided by another technology (e.g. incandescent lamps), once the income would have further increased. For example AMS-.I.E "Switch from Non-Renewable Biomass for Thermal Applications by the User" (ver. 04) and AMS-II.G "Energy efficiency measures in thermal applications of non-renewable biomass" (ver. 3) indicate that there is a ladder of choices in the progression toward the use of improved cooking services.

C. Determination of the minimum service level

16. The minimum service level should be realistic and reasonable.

17. For establishing a minimum service level the following approaches may be used:

(a) National/international peer-reviewed research or relevant studies (e.g. the World Health Organization recommendations on per capita safe drinking water);

(b) Benchmarks that take into account that emissions will rise to achieve the international/national development goals.

18. For example, in AMS-I.L "Electrification of rural communities using renewable energy" (ver. 01), the minimum level for electricity services such as lighting and provision of thermal comfort in rural households is based on national/international peer-reviewed research or relevant studies and benchmarks that take into account that emissions will rise to achieve the international/national development goals, i.e. a lighting service equivalent to two 15 W CFLs run for five hours per day for 365 days, one 100 W fan/TV run for five hours per day for 365 days and a 10 W radio run for five hours per day for 365 days leading to an estimated electricity consumption of 250 kWh per user per year is set (see the report of the 35th meeting of the Small-Scale Working Group, annex 5, para. 2).

19. Further, in setting the minimum service level, the following should be taken into account:

(a) Environmental integrity of the emission reductions has to be safeguarded;

(b) Climatic zones may be taken into account where feasible;

(c) Normative decisions have to be clearly referenced and explained;

(d) Decisions regarding suppressed demand have to be re-evaluated and updated periodically based on recent data to ensure they are based on realistic assumptions.

The financial viability of the CDM project cannot be a determining criterion in setting the minimum service level.

20. The minimum service level does not prevent the achievement of higher service levels through the implementation of the CDM project activity. As illustrated in the examples below, however, the minimum service level aims to recognize that realistic baselines need to be differentiated according to the attained level/quality of service. Referring to Figure 1, it may be realistic to assume that a few litres of purified water per person per day supplied by a purification device through the CDM project, in a region lacking water supply services and having low penetration of point of use water purification devices, would have a baseline comprising fossil fuel and/or non-renewable biomass (NRB) use for boiling water. However, when 40 litres of purified water per person per day are supplied through the CDM project, only the first few litres of purified water would qualify for the NRB/fossil fuel baseline and a different baseline would apply to the remaining quantity of water (e.g. emissions associated with a public distribution system).

Illustration 1: Water pyramid

Hierarchy of water requirements (after Abraham Maslow's (1908-1970) hierarchy of needs), WHO – Technical Notes for Emergencies Technical Note No. 9 Draft revised: 7.1.05 Minimum water quantity needed for domestic use in emergencies

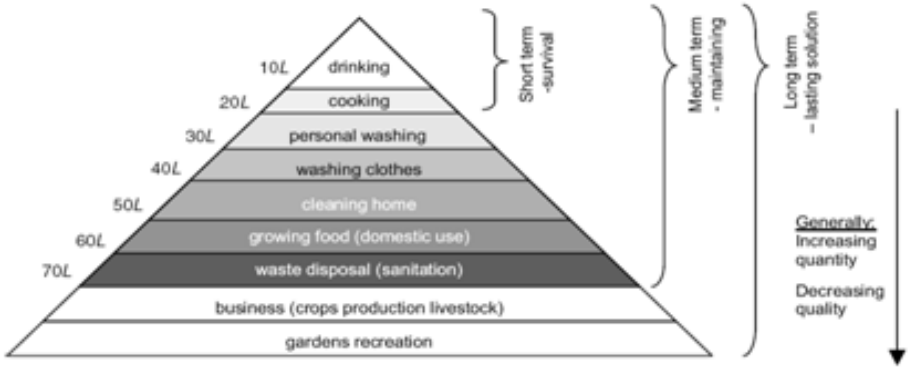
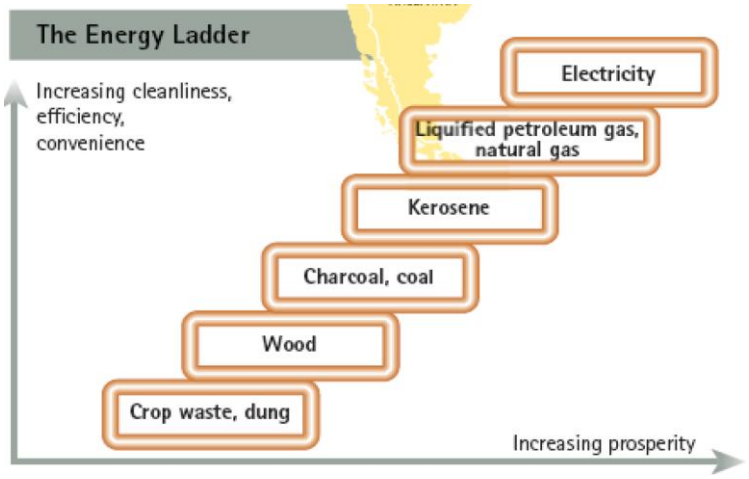


Illustration 2: Energy ladder

"Importance of Increasing the Usability of the CDM and Gold Standard Methodologies for Improved Cook Stoves" Brenda Doroski, Partnership for Clean Indoor Air, U.S. Environmental Protection Agency at the Practitioners Workshop on AMS-I.E, AMS-II.G and AMS-I.C: CDM methodologies for household cooking energy supply, 26 October 2009



- - - - -

History of the document

Version	Date	Nature of revision(s)
02.0	20 July 2012	EB 68, Annex 2 Revision to add: • Consistency in the definition of the MSL throughout the guidelines; • Sanitation and transportation as basic human needs; • Examples in several sections of the guidelines; • General clarifications and further guidance.
01	EB 62, Annex 6 15 July 2011	Initial adoption.
Decision Class: Regulatory **Document Type**: Guideline **Business Function**: Methodology		