CLEAN DEVELOPMENT MECHANISM

CDM-MP77-A01

Draft Standard

Establishment of sector specific standardized baselines

Version 01.0

United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The Executive Board of the clean development mechanism (CDM) (hereinafter referred to as the Board), at its ninety-sixth meeting, considered a revision of the "Guidelines for the establishment of sector specific standardized baselines" and requested the methodologies panel (MP) to work further on this item based on the guidance provided (EB 96 report, para. 27).

2. At MP 75, the MP launched a call for inputs and the draft was revised to address the inputs received.

3. The Board, at its 100th meeting, considered the revised draft and requested the MP to reclassify the document as a standard, consider the specific inputs and guidance provided to improve the clarity and consistency of the document, and to assess the consistency of approaches used to determine the standardized baseline for measures 3 and 4 with existing methodological approaches and revise the approaches for measures 3 and 4, as necessary.

2. Purpose

4. The purpose of the revision is to:

   (a) Reclassify the document as a standard;

   (b) Improve the clarity and consistency of the document;

   (c) Revise the approaches for measures 3 and 4 to ensure consistency with existing methodological approaches.

3. Key issues and proposed solutions

5. The MP, while considering the proposed changes in the revised draft, safeguarded the consistency of approaches for measures 3 and 4 with existing methodological approaches by:

   (a) Covering only the types of measures that are deemed automatically additional in current methodologies (for measure 3);

   (b) Determining that only measures that are either not mandatory or not enforced, and face barriers or are not financially attractive, can be deemed additional.

6. The MP discussed alternative provisions to address the concern regarding the consistency of measures 3 and 4 with existing methodological approaches and proposed that the Board incorporate elements of the revision recommended by the secretariat and the MP to the Board, at its eighty-first meeting (EB 81, Annex 5 to the annotations) as an

alternative, which presented a combination of measures 3 and 4 under one section (EB 81, Annex 5 to the annotations, section 6.3), covering:

(a) Destruction (via flaring and/or energy generation) of methane in the landfill gas recovered from existing closed landfills. The baseline scenario is the methane emissions from the existing closed landfills. The technology is additional if it achieves a higher level of methane destruction than that which is mandated in the local/national regulations;

(b) Methane abatement for fresh waste treatment, involving the consideration of different treatment options (i.e. alternative baseline scenarios);

(c) Fresh solid waste treatment, covering different technologies deployed for the treatment of the type of fresh solid waste;

(d) Wastewater and animal manure treatment, involving the ranking of facilities according to the greenhouse gas (GHG) emissions performance of the different technologies for wastewater and animal manure treatment.

4. Impacts

7. The standard will enhance the clarity of the framework and facilitate the establishment of standardized baselines by Designated National Authorities and standardized baseline developers.

5. Subsequent work and timelines

8. Upon the adoption by the Board of this document, the secretariat will prepare for the implementation of the revised standardized baseline framework, including the revision of relevant regulatory documents such as procedures, guidelines and forms.

9. Similar to this document, the Board may consider reclassifying the “Guideline: Establishment of standardized baselines for afforestation and reforestation project activities under the CDM” to a standard.

6. Recommendations to the Board

10. The MP recommends that the Board adopt this draft standard.

TABLE OF CONTENTS **Page**

1. INTRODUCTION 6
1.1. Background 6
1.2. Objectives 6
2. SCOPE, APPLICABILITY, AND ENTRY INTO FORCE 7
2.1. Scope 7
2.2. Applicability 7
2.3. Entry into force 7
3. NORMATIVE REFERENCES 8
4. DEFINITIONS 8
5. DEVELOPMENT OF STANDARDIZED BASELINES 9
5.1. Overview of the approach for standardized baseline ~~and additionality~~ 9
5.2. Steps for establishing standardized baselines 13
5.3. Measure 1: Fuel and feedstock switch 13
5.3.1. Level of aggregation 13
5.3.2. Additionality demonstration 13
5.3.3. Baseline identification 14
5.3.4. Baseline emission factor 14
5.4. Measure 2: Switch of technology with or without change of energy sources (including energy efficiency improvement) 14
5.4.1. Level of aggregation 14
5.4.2. Additionality demonstration 14
5.4.3. Baseline identification 15
5.4.4. Baseline emission factor 15
5.5. Measure 3: Methane destruction 15
5.5.1. Level of aggregation 15
5.5.2. Additionality demonstration 15
5.5.3. Baseline identification 16
5.5.4. Baseline emissions 16

5.6. Measure 4: Methane formation avoidance 16

5.6.1. Level of aggregation 16

5.6.2. Additionality demonstration 16

5.6.3. Baseline identification 16

5.6.4. Baseline emissions 16

5.7. Emission factors for ~~a sector~~ simultaneous sectoral measures 17

APPENDIX 1. VALUES FOR XA, XB, YA, YB 18

APPENDIX 2. EXAMPLES FOR DEVELOPMENT OF STANDARDIZED BASELINES 19

1. Introduction

1.1. Background

~~1. At the sixth meeting of the conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP 6) in Cancun, Parties agreed to decision 3/CMP.6 on the implementation of standardized baselines under the CDM.[1]~~

2. The sixth meeting of the conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP 6) defined a "standardized baseline" and decided that Parties, project participants, as well as international industry organizations or admitted observer organizations through the host country's Ddesignated Nnational Aauthority (DNA), may submit proposals for standardized baselines applicable to new or existing methodologies, for consideration by the clean development mechanism (CDM) Executive Board (hereinafter referred to as the Board).

3. CMP 6 also requested the Board to develop standardized baselines, as appropriate, in consultation with relevant ~~designated national authorities (~~DNAs~~)~~, prioritizing methodologies that are applicable to least developed countries ~~(LDCs)~~, small island developing states ~~(SIDS)~~, Parties with 10 or fewer registered CDM project activities as of 31 December 2010 and under-represented project activity types or regions, inter alia, for energy generation in isolated systems, transport and agriculture.

4. In response to the request from ~~the~~ CMP 6, the Board requested the secretariat to develop a general methodological framework for the development and assessment of standardized baselines.[2] This methodological framework (i.e. the "Guidelines for the establishment of sector specific standardized baselines") was initially adopted by the Board at its sixty-second meeting (EB 62, Annex 8).

5. The use of standardized baselines can potentially reduce transaction costs, enhance transparency, objectivity and predictability, facilitate access to the ~~clean development mechanism (~~CDM~~)~~, particularly with regard to under-represented project types and regions, and scale up the abatement of greenhouse gas (GHG) emissions, while ensuring environmental integrity.

1.2. Objectives

6. The objectives of the "standard: Establishment of sector specific standardized baselines" (hereinafter referred to as this standard) are to:

   (a) Provide requirements and approaches for the establishment of sector specific standardized baselines;

   (b) Ensure the quality of standardized baselines prepared by DNAs, project participants and relevant stakeholders.

~~[1] <http://unfccc.int/resource/docs/2010/cmp6/eng/12a02.pdf#page=2>.~~

[2] EB 60 report, paragraph 39(a).

2. Scope, applicability, and entry into force

2.1. Scope

7. ~~This framework is applicable to sectors where project activities are implemented for stationary sources.[3] It~~ This standard provides ~~guidelines for the development and assessment of~~ requirements and approaches for the establishment of sector specific standardized baselines (SBs), including additionality demonstration, baseline scenario identification and baseline emission determination.[4] ~~Specifically, determination of baseline emission factors and positive lists of additional measures, for a sector or part of a sector, in a country or a group of countries is covered, recognizing that one or several measures for GHG emission reduction may be undertaken within a sector. This framework allows for setting baselines that are not necessarily specific to one type of project activity in a sector, but can be applicable to most of the possible project activities in a sector. Additionality is not to be demonstrated for each individual project activity ex-post (after its formulation) but rather for types of measures and ex ante.~~

2.2. Applicability

8. This standard is applicable to determine SBs for mitigation measures that are implemented for stationary sources within a sector (target measures) and not necessarily restricted to one specific category of project activity.

9. ~~The framework is not exhaustive. It allows for exceptions and it~~ This standard is not exhaustive and may not be applicable to certain sectors or types of ~~emission reduction activities~~ target measures in its current form (e.g. the transport sector is currently not covered). ~~Project participants or other stakeholders~~ SB developers may propose revisions that further expand its applicability to include other approaches and measures.

~~10. In summary, this framework aims to elaborate consistent approaches to several types of measures, however is not mandatory and developers of standardized baselines are free to use other relevant approaches.~~

2.3. Entry into force

11. Version 01.0 of this standard enters into force on DD MM YYYY.

~~[3] These project activities do not include those related to afforestation or reforestation.~~

[4] A standardized baseline shall be developed according to the procedure "Development, revision, clarification and update of standardized baselines", using one of the following approaches:

(a) The approach provided in section 5.1 below, covering three dimensions: performance, market penetration and cost/barriers;

(b) A methodological approach contained in an approved, proposed new or revised baseline and monitoring methodology;

(c) A methodological approach contained in an approved, proposed new or revised methodological tool; or

(d) The approach in the "Guideline: Establishment of standardized baselines for afforestation and reforestation project activities under the CDM".

3. Normative references

12. Relevant provisions from the recent versions of the following documents should be applied when this standard is implemented, which are all available at <http://cdm.unfccc.int/>:

(a) "Guideline: Quality assurance and quality control of data used in the establishment of standardized baselines";[5]

(b) "Procedure: Development, revision, clarification and update of standardized baselines";

(c) "Standard: Determining coverage of data and validity of standardized baselines";[6]

(d) "Standard: Sampling and surveys for CDM project activities and programme of activities";

(e) "Guidelines for objective demonstration and assessment of barriers";

(f) "TOOL02: Combined tool to identify the baseline scenario and demonstrate additionality";

(g) "TOOL04: Emissions from solid waste disposal sites";

(h) "TOOL07: Tool to calculate the emission factor for an electricity system";

(i) "TOOL21: Demonstration of additionality of small-scale project activities".

4. Definitions

13. The definitions contained in the Glossary of CDM terms shall apply.

14. ~~For the purpose of this framework~~ In addition, the following definitions apply:

(a) **Level of aggregation** - The level of aggregation measures the extent to which consolidation of information from any parts or units to form a collective whole is undertaken. This consolidation is usually done within a common sector, to provide information at a broader level to that at which detailed observations are taken. Information on categories can be grouped or aggregated to provide a broader picture when this does not lead to misrepresentation. It can also be split or disaggregated when finer details are required by too much non-homogeneity;

[5] DNAs should ensure that the data quality for the development of SBs is in accordance with the data quality objectives and documentation provisions as well as the stepwise guidance specified in the guideline.

[6] DNAs should comply with the data coverage and currentness requirements when developing SBs and should update approved SBs in a timely manner in accordance with the requirements specified in this standard.

(b) **Measure** (for emission reduction activities) - a broad class of GHG emission reduction activities possessing common features. Four types of measures are currently covered in the framework:

(i) Fuel and feedstock switch;

(ii) Switch of technology with or without change of energy source (including energy efficiency improvement);

(iii) Methane destruction;

(iv) Methane formation avoidance;[7]

(c) **Output** - goods or services that are delivered/provided with comparable quality, properties, and application areas (e.g. clinker, street lighting, residential cooking, milled rice, solid waste collection and disposal, wastewater treatment);

(d) **Facility** - a set of equipment and associated process to provide the output for which the SB is to be developed. If one plant produces two outputs in two separate processes with separate feedstocks and energy inputs and both outputs are for consumption outside the facility, these two processes of the plant are considered to be two separate facilities; for example, one steel production plant would be divided into a cold-rolled steel facility and a hot-rolled steel facility;

(e) **Positive lists** - lists of emission reduction activities/mitigation measures that are considered automatically additional under certain conditions (e.g. location, technology/measure, size);

(f) **Sector** - a segment of a national economy that delivers defined output(s) (e.g. clinker manufacturing, domestic / household energy supply). The sector is characterized by the output(s) O_i it generates, comprising activities or facilities that produce a defined output O_i within the defined level of aggregation (e.g. all the power generation facilities connected to the national or regional grid or all the facilities to produce charcoal for household consumption in the country);

(g) **Standardized baseline** - a baseline established for a Party or a group of Parties to facilitate the calculation of emission reduction and removals and/or the determination of additionality for clean development mechanism (CDM) project activities, while providing assistance for assuring environmental integrity.[8]

5. Development of standardized baselines

5.1. Overview of the approach for standardized baseline and additionality

15. Selecting an appropriate level of aggregation is important to ensure that the SB standardized baselines is representative of the applicable types of project activities.

[7] An example of methane formation avoidance is the use (e.g. for energy generation) of biomass that would have been left to decay in a solid waste disposal site. The measure prevents the formation of methane.

[8] Decision 3/CMP.6.

~~Geographical parameters may account for a substantial portion of the differences in GHG intensities and the cost of and potential for emission reductions. Local conditions can have a large influence on the level of baseline emissions and whether a project (type) is additional.~~[9]

~~16. Fuel/feedstock switches are conducted for a given technology.~~

~~17. The baseline technology and the baseline energy source are to be identified simultaneously and the positive list is a positive list of technologies using given energy sources.~~

~~18. For grid connected electricity generation where information on the output (i.e., electricity generated) and the fuels consumed by individual power plants are available, it may be preferable to establish the baseline emission factor for the sector based on the actual emissions of the connected power plants instead of baseline technology under the design conditions, as specified by the "Tool to calculate the emission factor for an electricity system".~~

~~19. According to this framework, additionality may be demonstrated *ex ante* for a variety of measures rather than for each proposed project activity. For project activities that include multiple types of independent measures, the additionality of each measure is demonstrated by checking against the positive list of measures. If the implementation of one measure m_1 (e.g. electricity generation using landfill gas) requires the implementation of another measure m_2 (e.g. destruction of the methane contained in the landfill gas) then the two measures are inherently linked. In this case, the additionality is demonstrated for the group of linked measures collectively as well as for each measure separately e.g. electricity generation from landfill gas and destruction of methane in the landfill gas. If m_1 is not additional, then m_2 cannot be additional.~~

~~20. In essence, additionality is not required to be demonstrated for each individual project activity *ex-post* (i.e., after its formulation) but rather for types of measures and *ex-ante*.~~

21. A SB shall be developed for and applicable to clearly defined target measures in a clearly defined sector.

22. The target measure shall be defined considering the main elements (e.g. key equipment or technology) of a certain sectoral activity or facility and its associated GHG emissions, taking into account input/output ratios.

23. Depending on the target measure, the SB may be based on the GHG emissions performance of the fuel (e.g. tCO_2/GJ), feedstock (e.g. tCO_2/t) or output (tCO_2/t), or the energy efficiency of the technology (e.g. GJ/tOutput).

24. The level of aggregation shall be determined and proposed by DNAs, taking into account the following:

    (a) A default level of aggregation shall comprise the facilities producing the same type of output within the geographical boundaries of one country. The level of

~~[9] It is recommended that readers consult 'Chapter 2, Approaches to Data collection, *2006 IPCC Guidelines for National Greenhouse Gas Inventories*'.~~

aggregation could be expanded to a group of countries with similar circumstances relating to the output;[10]

(b) A default group of facilities should be disaggregated when significant dissimilarities exist in the performance of facilities or groups of facilities in the country/region. In this case, the disaggregation should be carried out according to relevant criteria, such as production scale, installed capacity or age of the facilities[11], and SBs should be developed for each group of similar facilities or for one prioritized group;

(c) The selection of the final level of aggregation may be an iterative process;

(d) Disaggregation should not result in SBs with overlapping applicability (e.g. overlap would occur in the case of an SB for energy efficiency in commercial buildings, and another SB for energy efficient lighting in commercial and residential buildings).

25. A SB may result in a country-specific or region-specific positive list of technologies, fuels and/or feedstocks, where all the included technologies/fuels/feedstocks are additional. By applying such positive lists, project proponents are not required to undertake further demonstration of additionality when seeking registration of a project activity. The development and application of positive lists shall take into account the following:

(a) The positive lists are not limited to technologies/fuels/feedstocks available and used in the country/region, and may include other technologies/fuels/feedstocks not yet available or used in the country/region that meet all the criteria for positive lists (e.g. performance, and barriers or cost);

(b) For facilities involving multiple pieces of equipment and integrated processes, the differentiation of technologies should be based on the technical features of the key equipment and their performance, so that such characteristics of one technology do not overlap with those of another technology;

(c) When the target measure involves a combination of technologies/fuels/feedstocks, the positive list shall also address eligible combinations (for further guidance, please refer to section 5.7 below).

26. A SB shall be developed for one output, and the GHG emissions and performance data are collected for that output. In case multiple outputs (including main product, co-product and by-product) are simultaneously produced within the same facility with a common feedstock and/or energy inputs, it may not be possible to allocate the emissions to each of the multiple outputs and to develop SBs for those outputs. Taking into account the circumstances of the country and the production process and equipment of the facility

[10] Refer to the approved standardized baseline ASB0001 for which the level of aggregation comprises power generation facilities from a group of countries.

[11] A DNA may propose other criteria for disaggregation which may demonstrate dissimilar performance.

producing multiple outputs, the emissions shall be apportioned applying one of the following approaches:

(a) By market prices: allocation of the emissions in proportion to the market prices of the main product and the by-products or co-products;

(b) Substitution approach (or system expansion): the alternative production process(es) of each by-product or co-product is/are identified (i.e. how they would have been produced) and the emissions associated with the alternative production process are respectively allocated to the co-product or by-product;

(c) By energy content: allocation of the emissions in proportion to the enthalpy of the main product and the by-products or co-products. This rule can only be applied in cases where the main product and all co-products or by-products are fuels (e.g. petroleum products produced by an oil refinery).

27. When multiple measures are to be implemented (e.g. biogas recovery and electricity generation), the following options should be applied:

(a) Refer to existing SBs applicable to each component or to the combination of the measures, if available;

(b) Develop a new SB for each measure or for a certain number of measures (e.g. biogas recovery); and/or

(c) Use an applicable CDM methodology for the measures that are not covered by the SB (e.g. electricity generation).

28. The collection of information should cover either all facilities in the sector or a sample of the facilities, determined according to the defined level of aggregation as per the "Standard: Sampling and surveys for CDM project activities and programmes of activities", including:

(a) Activity data: actual production of output (Oi) and the actual consumption of fuels, electricity and/or feedstock;

(b) Parameters that describe the properties or characteristics of the inputs: net calorific values (NCV) of the fuels, emission factor of the fuel/electricity source/ feedstock;

(c) Reference data: as an alternative to activity data, design data on specific energy consumption (e.g. GJ/t output, GWh/t output) and/or design data on specific feedstock consumption (e.g. t feedstock/t output);

(d) General information on the facilities: name, location, implementation year (establishment/upgrading/expansion), design production capacity and description of relevant equipment.

29. When appropriate, the ranking of facilities shall be conducted according to the GHG emissions performance, based on parameters that are relevant for the measure (e.g. for a fuel switch measure, the performance is based on the associated GHG emissions per unit of energy of the respective fuels (tCO_2/GJ) used at the facility).

30. The data and information related to performance and market penetration from each of the operational facilities should be collected in line with the "Standard: Determining coverage

of data and validity of standardized baselines" and the "Guideline: Quality assurance and quality control of data used in the establishment of standardized baselines".

5.2. Steps for establishing standardized baselines

31. The following steps ~~should~~ shall be applied to establish ~~standardized baselines~~ SBs for each of the four measures:

    (a) Step 1: Identify host country(ies), sectors, output(s) and measures;

    (b) Step 2: Establish additionality criteria for the identified measures (e.g. positive lists of fuels/feedstocks and technologies);

    (c) Step 3: Identify the baseline for the measures (e.g. baseline fuel, technology, level of GHG destruction);

    (d) Step 4: Determine the baseline emission factor where relevant.

5.3. Measure 1: Fuel and feedstock switch

5.3.1. Level of aggregation

32. The ~~relevant region is the~~ geographical area ~~of the sector producing the output Oi in a~~ is the country or a group of countries where the sectoral activity takes place. If there are fuels/feedstocks that are not available to some regions within the country,[12] further disaggregation is needed and additionality and baseline fuels/feedstocks should be established for regions where the same set of fuels/feedstocks are available.[13] ~~Other levels of aggregation may be proposed to the Board if considered more appropriate.~~

5.3.2. Additionality demonstration

33. The cumulative percent of output O_i produced based on the fuels/feedstocks is arranged in descending order of ~~carbon intensity~~ the CO_2 emission factor of the fuels/feedstocks ~~(see example 2 below)~~.

34. Fuels/feedstock with lower ~~carbon intensity~~ CO_2 emission factor than the fuels/feedstock used to produce aggregately~~,~~ more than a sector specific percentage (Xa) ~~%~~ of the output O_i ~~of the sector~~ based on technology(ies) T_j, ~~but~~ and facing barriers that can be objectively demonstrated[14] and/or that are less commercially attractive, should be included in the positive list of fuels/feedstocks. A switch to any of the fuels/feedstocks in the positive list using technology(ies) T_j is deemed to be additional.

[12] For example, natural gas may only be available to some regions covered by a distribution network for natural gas.

[13] Other means of aggregation may be proposed.

[14] "Guidelines for objective demonstration and assessment of barriers" and guidance given for barrier analysis in "TOOL02: Combined tool to identify the baseline scenario and demonstrate additionality" should be taken into account.

35. Fuels/feedstock are deemed less commercially attractive[15] if their price per unit of output is higher than that of all fuels/feedstocks used to produce aggregately more than Xa% of the output(s) O_i of the sector based on technology(ies) T_j, and:

    (a) There is no national or sub-national enforced regulation mandating the use of the fuels/feedstock;

    (b) The Board's clarifications on the consideration of national and or sectoral policies and circumstances in baseline scenarios is taken into account.

5.3.3. Baseline identification

36. Identify the fuels with the highest carbon emission factors and contributing to produce in aggregate Xb% of the output O_i produced in the sector based on technology(ies) T_j The existing facilities shall be ranked in descending order of the CO_2 emission factors of their fuels in order to identify the sector specific percentage (Xb) of the output O_i produced. The fuel with the lowest carbon CO_2 emission factor among them the fuels used for Xb percentage of the output is the baseline fuel.

5.3.4. Baseline emission factor

37. The baseline emission factor shall should be determined based on the baseline fuel/feedstock identified above.

38. Xa and Xb are sector specific and should be defined by the Board starting with the sectors considered as priority sectors. The vintage for the calculation as well as the frequency of the update of the percentage of output produced based on the different fuels are also sector specific and should be defined by the Board.

5.4. Measure 2: Switch of technology with or without change of energy sources (including energy efficiency improvement)

5.4.1. Level of aggregation

39. The relevant region is the geographical area of the sector producing the output O in a is the country or a group of countries where the sectoral activity takes place.[16] Other levels of aggregation may be proposed to the Board if considered more appropriate.

5.4.2. Additionality demonstration

40. The cumulative percent of output Oi, produced based on technologies is arranged in descending order of carbon intensity CO_2 emission factor of the involved technologies.[17]

41. Technologies that have lower greenhouse gas intensity associated GHG emissions than any of the technologies used to produce aggregately more than a sector specific

[15] The financial analysis should be based on parameters that are standard in the sector, but not necessarily linked to the costs incurred at an actual facility.

[16] Other means of aggregation may be proposed.

[17] In cases where the involved technologies do not prescribe the use of a specific fuel, the output Oi can be arranged in terms of energy intensity.

percentage (Ya)% of the output(s) Oi of the sector and are less commercially attractive than any of these technologies, are deemed additional.

42. Technologies are deemed considered to be less commercially attractive if when their cost per unit of output is higher than that of all technologies used to produce aggregately more than Ya% of the output(s) Oi of the sector, and:

(a) There is no national or sub-national enforced regulation mandating the use of these technologies;

(b) The Board's clarifications on the consideration of national and or sectoral policies and circumstances in baseline scenarios is taken into account.

5.4.3. Baseline identification

43. Identify the technologies with the highest emission factors and contributing to produce in aggregate Yb% of the output Oi produced in the sector. The existing technologies shall be ranked in descending order of their emission factors in order to identify the sector specific percentage (Yb) of the output Oi produced in the sector. The technology with the lowest carbon CO_2 emission factor among them is the baseline technology.

44. Ya and Yb, should be defined by the Board starting with the sectors considered as priority sectors. The vintage for the calculation as well asand the frequency of the update of the percent of output produced based on the different technologies are also sector specific and should be defined by the Board.

5.4.4. Baseline emission factor

45. The baseline emission factor shall should be determined based on the baseline technology identified above.

5.5. Measure 3: Methane destruction

46. This measure may include methane destruction in landfill, biogas digesters to treat manure or wastewater including recovery, flaring, and use of methane captured covers the flaring of methane generated in landfills or anaerobic treatment of manure or wastewater.

5.5.1. Level of aggregation

47. The level of aggregation is a region (within a country), a country, or a group of countries where the required level with equivalent levels of methane destruction is the same required by enforced regulations.[18]

5.5.2. Additionality demonstration

48. If the level of methane destruction undertaken projected by a measure is higher than what is mandatory required and enforced in the area defined under according to paragraph 34 above 47 above, then that measure of methane destruction is deemed additional.

[18] Other means of aggregation may be proposed.

5.5.3. Baseline identification

49. The baseline level of destruction in the area defined ~~under~~ according to paragraph ~~34 above~~ 47 above is the percentage of methane whose destruction is ~~formed that~~ mandated and enforced ~~for destruction shall not be eligible for crediting~~.

5.5.4. Baseline emissions

50. Baseline emissions shall be calculated in accordance with an approved CDM methodology and may be determined based on the monitoring of the actual amount of methane captured.

5.6. Measure 4: Methane formation avoidance

51. This measure ~~may include landfill aeration to avoid anaerobic conditions, composting,~~ covers the avoidance of methane formation through aerobic treatment of waste or wastewater and the use of ~~agriculture~~ biomass residues that would have been left to decay in a solid waste disposal site.

5.6.1. Level of aggregation

52. The level of aggregation is a region (within a country), a country, or a group of countries ~~where the sources forming methane are disposed and treated with similar methods~~ with similar practices for the management and disposal of biomass residues, waste or wastewater.[19]

5.6.2. Additionality demonstration

53. If the proposed disposal and treatment method is ~~either~~not mandatory or not enforced, ~~but~~ and faces barriers that can be objectively demonstrated and/or is not financially attractive, then the measure is deemed additional.

5.6.3. Baseline identification

54. The baseline ~~is the most commonly used disposal and treatment method. The corresponding EF is determined from the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" or relevant IPCC methods, or from peer reviewed literature~~ shall be determined taking into account the common practices for the management and disposal of biomass residues, waste or wastewater.

5.6.4. Baseline emissions

55. The baseline emissions and corresponding emission factors shall be determined in accordance with an approved CDM methodology or methodological tool, including "TOOL04: Emissions from solid waste disposal sites".

[19] ~~Other means of aggregation may be proposed.~~

5.7. Emission factors for ~~a sector~~ simultaneous sectoral measures[20]

56. When multiple measures are simultaneously applied in a sector or ~~in a section of the~~ sub-sector, it is necessary to derive a baseline emission factor that integrates the combined effect of all the measures applied and other influencing factors, e.g. fuel/feed stock and respective ~~Net Calorific Values~~ ~~(~~NCV~~)~~, baseline technology and its design features such as electricity/heat consumption/generation capacity, grid emission factor of electricity consumed. For example, in the cement sector there can be several GHG emission reduction actions associated with cement production such as: (a) substitution of fossil fuels with alternative fuels~~,~~; (b) use of alternative raw materials~~,~~; (c) decrease ~~of~~ in the clinker content in the cement production mix~~,~~; (d) energy-efficiency improvements; and e) electricity generation from waste heat and renewable energy. A baseline emission factor for this sector in a region may be determined through a calculation based on the following information: baseline fuel/feed stock and its ~~carbon~~ CO_2 emission factor and NCV, baseline feed stock and its ~~carbon~~ CO_2 emission factor, baseline technology (particularly its specific fuel/feedstock/electricity consumption as per its design) and the grid emission factor of the electricity.

57. When applying ~~one~~ two or more ~~of the~~ measures ~~described in preceding sections~~ in a sector, ~~one may encounter a situation where the sector as a whole may not be homogenous however~~ it ~~is~~ may be possible to disaggregate the sector into homogeneous ~~sections~~ sub-sectors. In such instances, separate emission factors are established for each of the homogeneous ~~section~~ sub-sectors depending on the level of aggregation used in the identification of the baseline fuel/feedstock, technology, etc.[21]

~~58. Notwithstanding the above, in cases where data from the operations of units in the sector needed to calculate the current emission factor of output Oi is available and easily accessible, then the emission factor may be calculated using these actual data instead of the approach proposed above.~~

[20] This provision is applicable when the baseline technology can work in combination with the baseline fuel and or feedstock.

[21] ~~For example, if for fuel switch the sector at the country level has to be further disaggregated into two parts (e.g. the country is divided into two sub-regions).~~

Appendix 1. Values for Xa, Xb, Ya, Yb

1. The following ~~interim~~ values shall be used ~~in these Guidelines for the data vintage, the frequency of update and~~ for Xa, Xb, Ya, Yb:

Table. Values for Xa, Xb, Ya, Yb

Sector~~sal~~ scopes	**Xa**	**Xb**	**Ya**	**Yb**	**~~Data vintage~~**	**~~Frequency of updates~~**
Energy for household; Energy generation in isolated systems; Agriculture	80%	80%	80%	80%	~~Most recent 3 years~~	~~3 years~~
Other sectors	90%	90%	90%	90%	~~Most recent 3 years~~	~~3 years~~

~~2. All the standardized baselines developed based on these interim values shall have an identification code in their version number.~~

~~3. The baseline of CDM projects using standardized baselines developed based on these interim values shall be updated after three years, using the most recent standardized baselines with updated values of X and Y.~~

Appendix 2. Examples for development of standardized baselines

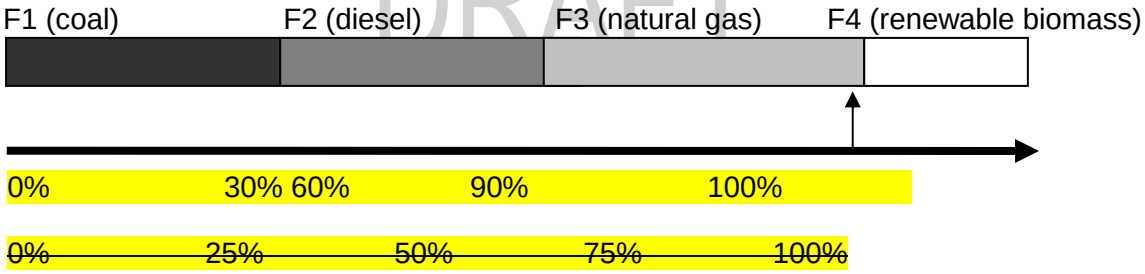
1. Example 1 - Fuel and feedstock switch

~~1. Example 1. In country C, fuel switches to diesel, natural gas or biomass for the production of clinker are additional. The baseline fuel for clinker production in country C is coal.~~

2. The DNA of country C1 develops a SB applicable to fuel switching measures for steam generation, from fuels with higher emission factors (e.g. coal and diesel) to fuels with lower emission factors (e.g. natural gas and renewable biomass).

3. ~~Example 2.~~ Fuels ~~is~~ are arranged in descending order of ~~carbon~~ emission intensity from F1 to F4, as per the figure below. ~~Based on the following Figure, if Xa % is set by the Board at 75% then fuel F4 is additional. If Xb is set by the Board at 50% then the baseline fuel is F2 (diesel).~~

4. The applicable value for Xa is ~~8~~90%, then fuel F4 is additional. If Xb is set at ~~8~~90% then the baseline fuel is F3 (natural gas).



2. Example 2 - Switch of technology

~~5. Example 1. In country C1, a switch to electricity generation from mini or micro hydro technology is additional:~~

~~(a) To displace diesel generation in off-grid locations with corresponding emission factor (EF) of X tCO2/ MWh;~~

~~(b) To displace grid electricity in other locations with corresponding grid emission factor.~~

~~6. Example 2. In country C2, technology switches to improved cook-stoves with efficiency higher than P% are additional. The baseline cook-stove (CSb) is a cook-stove with efficiency of Pb%.~~

7. The DNA of country C2 developed a SB applicable to switch of technology in the residential lighting sector, involving the distribution of efficient lightbulbs (CFLs and LEDs) in replacement of incandescent lamps.

8. The following data were collected from a representative sample of lamps in country C2:

   (a) Historical activity data: annual usage hours;

   (b) Source of electricity;

   (c) The design-specific energy consumption (i.e. the reciprocal of the luminous efficacy) in watts per lumen and the lamp power in watts, as the actual electricity consumption of the individual lamps is not monitored;

   (d) The type of lamp;

   (e) Location.

9. The positive list was developed based on the "TOOL21: Demonstration of additionality of small-scale project activities" (version 12).

10. As all residential buildings in country C2 are connected to the national grid, the following were considered:

   (a) The technology switch does not require a switch of the electricity source;

   (b) The design-specific energy consumption of the lamps allows the impact of the switched technology to be distinguished from the impact of the energy source (electricity) on the performance of the lamps;

   (c) All the lamps are connected to the national grid.

   (d) The lamps are ranked according to their efficiency (watts per lumen).

11. For each lamp, the output (lumen-hours/year) is calculated as the lamp power (watts) x luminous efficacy (lumens/watt) x annual usage hours (hour/year). To simplify the bar chart below, the incandescent lamps, the CFLs and the LEDs are grouped together and represented by the total output from each group.

12. The baseline threshold Xb is set at the 80th percentile for this priority sector, i.e. energy for households.

13. CFLs and LEDs are more efficient than the lamp at the 80th percentile and are not financially attractive. Therefore, the positive list may consist of CFLs and LEDs.

14. The baseline emissions of a project lamp should be calculated by multiplying the design-specific energy consumption (watts per lumen) of the lamp at the 80th percentile, the

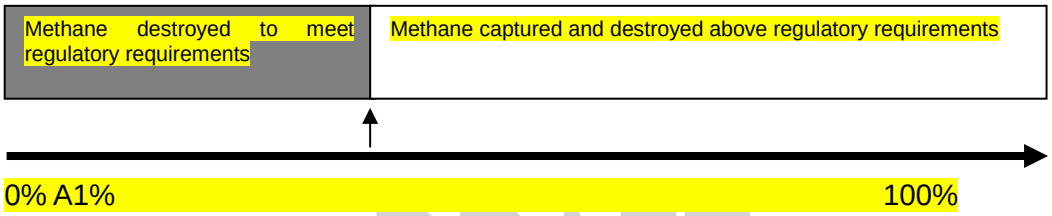
annual usage hours of the project lamp, the grid emission factor, the project lamp power (watts) and the luminous efficacy of the project lamp (lumens/watt).

3. Example 3 - Methane destruction

~~15. In country C1, the regulation requires the capture and destruction of A1% of the landfill gas and is enforced. Any capture and destruction of methane emitted from landfill above A1% is additional.~~

16. The DNA of country C3 developed a SB applicable to methane destruction measures in the municipal waste sector, involving landfill gas recovery and flaring.

17. The country's applicable regulation requires the capture and destruction of A1% of the landfill gas for health and safety reasons and this regulation is enforced.



18. The amount of methane recovered from the landfills and destroyed by landfill above the mandatory regulatory requirements is additional.

4. Example 4 - Methane formation avoidance

~~19. In country C, avoiding methane emissions through composting of green waste is additional.~~

~~20. The baseline disposal and treatment method for green waste is landfilling. The related methane EF is determined from first order decay model of IPCC.~~

21. The DNA of country C4 developed a SB applicable to methane formation avoidance measures in the waste sector, involving the aerobic composting of green waste.

22. In country C4, if composting of green waste is not mandatory and faces barriers due to not being financially attractive, then the measure is deemed additional.

23. The baseline treatment method for the green waste in country C4 is to be disposed in landfills. The related emission factors are determined in accordance with the first order decay model of IPCC.

- - - - -

Document information

Version	*Date*	*Description*
01.0	19 October 2018	MP 77, Annex 1 To be considered by the Board at EB 101. This document has been reclassified from a guideline to a standard. Previous version was “Guidelines for the establishment of sector specific standardized baselines (version 02.0)” (EB 65, Annex 23). The changes in the document incorporates feedback from the Board (EB 100, para. 37).

Decision Class: Regulatory
Document Type: Standard
Business Function: Methodology
Keywords: assessment of standardized baseline, standardized baselines