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Concept Note: Methodological approaches for calculating emission reductions from project activities, resulting in the reduced use of non-renewable biomass in households

CDM EB 105
Madrid, Spain, 25 to 28 November 2019

UNFCCC Secretariat

SDM programme

Procedural background

- CMP 14 (Katowice, Dec. 2018) encouraged the Board to **review methodological approaches for calculating emission reductions** from project activities, resulting in the **reduced use of non-renewable biomass in households**.

Cookstove methodologies AMS-I.E. and AMS-II.G.

- EB37 (in 2008) approved two cookstove methodologies:
  - "**AMS-I.E.** Switch from non-renewable biomass for thermal applications by the user" and
  - "**AMS-II.G.** Energy efficiency measures in thermal applications of non-renewable biomass"
- Key parameters included:
  - ✓ $EF_{projected\_fossilfuel}$**:** Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers (default 63.7 t CO2/TJ)
  - ✓ Fraction of woody biomass that can be established as non-renewable biomass (fNRB)

Clean cookstove CDM projects/PoAs

- With 65 PoAs registered, clean cookstoves are by far the most popular PoA type. 364 CPAs have been included in these PoAs and, in addition, 42 project activities are registered.
  - More than 6 million CERs have been issued for clean cookstoves

	Number	CERs issued (kCERs)
CDM projects	42	643
CDM PoAs	65	5,775
>> CPAs	364	
Total (projects + CPAs)	406	6,418

Source: UNFCCC and UNEP DTU Partnership (as of 01 Nov. 2019)

EB 102 guidance

EB 102 considered a concept note and requested MP to analyse:

a) The use of fossil fuel emission factor as surrogates for biomass combustion (Issue 5):

- To explore options for **revising the globally applicable default factor**, taking into account data on actual usage of various fossil fuels for cooking in different regions/countries of the world.
- To explore a method for providing **an option for PPs to determine the factor for their project or PoA,** based on geographic coverage of the project or PoA and fossil fuel usage in the region for cooking.

b) Non-CO_2 GHG emissions such as CH_4 and N_2O emissions (Issue 6):

- To explore including these gases in the project boundary, considering **the same mix of fossil fuels** that are identified under issue 5.

c) Harmonized standards for stove tests (Issue 8):

- To explore options for applying international (e.g. ISO) standards and national standards where they are available to determine the performance of the stoves.

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EB 103 considered a concept note and requested MP for further work:

a) The use of fossil emission factor

- To consider **additional sources of data** on the actual usage of various fossil fuels for cooking in different regions/countries of the world (e.g. IEA data).
- To consider, **besides the simple average** of country specific values currently applied, using other ways of calculating **a weighted average**.
- To consider **limiting the analysis to countries/regions with a registered project activity or a PoA** for clean cook stoves and take into account the greater use of fossil fuels for cooking in **urban** areas as compared to **rural** areas;

b) Harmonized standards for stove tests

- To continue to consider the issue (e.g. explore what guidance would be required when applying the ISO standards as an option for testing the efficiency of stoves) and make a recommendation.

EB 103 requested the MP to recommend **revised versions of the small-scale methodologies AMS-I.E. and AMS-II.G**. for approval, together with the **revised concept note**, for consideration by EB105.

EB102 Mandate: Explore options for **revising the globally applicable default factor**, taking into account data on actual usage of various fossil fuels for cooking in different regions/countries of the world.

- Fossil fuel emission factor ($EF_{projected\_fossilfuel}$) in AMS-II.G. and AMS-I.E. include a default value of **63.7 t CO2/TJ**
  - 9 % weight assigned for kerosene and 91 % for LPG.
- EB103 requested for further analysis:
  - Additional sources of data
  - Simple average, weighted average
  - Limited to countries/regions with CDM cookstove projects/PoAs
  - Urban and rural areas

EB102 Mandate: Explore including CH_4 and N_2O in the project boundary considering the same mix of fossil fuels that are identified under issue above.

Issue: Default global fossil fuel emission factor and Non-CO_2 GHG emissions

- No comprehensive data source other than DHS was found. Then, an emission factor per country, average per region (simple average, weighted average by population, simple and weighted average only for the countries where cookstove CDM POAs exist) are calculated.

- **Case 1:** Simple average global/regional values;
- **Case 2:** Weighted average global/regional values, taking into account country's population along with fuel use;
- **Case 3:** Simple average global/regional values of the countries where cookstove CDM PoAs exist;
- **Case 4:** Weighted average global/regional values of the countries where cookstove CDM PoAs exist, taking into account country's population along with fuel use.

Issue: Default global fossil fuel emission factor and Non-CO_2 GHG emissions

- Fossil fuel emission factor (t CO_2/TJ)

	Case 1 (simple average)	Case 2 (weighted average)	Case 3 (simple average – CDM host countries)	Case 4 (weighted average – CDM host countries)
World (developing countries)	70.5	72.5	71.0	74.1
Arab States	63.7	63.6	No CDM PoAs exists	No CDM PoAs exists
East Asia and the Pacific	84.9	82.4	86.4	86.6
Europe and Central Asia	57.7	57.5	No CDM PoAs exists	No CDM PoAs exists
Latin America and the Caribbean	68.4	66.1	76.6	74.0
Asia	64.2	65.2	64.1	65.5
Sub-Saharan Africa	72.4	69.5	68.6	66.6

Issue: Default global fossil fuel emission factor and Non-CO$_2$ GHG emissions

- Fossil fuel emission factor (t CO$_2$e/TJ) incl. CH$_4$ and N$_2$O emissions

	Case 1 (simple average)	Case 2 (weighted average)	Case 3 (simple average – CDM host countries)	Case 4 (weighted average – CDM host countries)
World (developing countries)	71.0	73.7	72.0	75.6
Arab States	63.9	63.8	No CDM PoAs exists	No CDM PoAs exists
East Asia and the Pacific	85.7	84.9	88.1	89.7
Europe and Central Asia	57.8	57.6	No CDM PoAs exists	No CDM PoAs exists
Latin America and the Caribbean	68.6	66.3	76.9	74.2
Asia	64.4	65.4	64.4	65.8
Sub-Saharan Africa	73.2	70.2	69.7	67.2

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Issue: Default global fossil fuel emission factor and Non-CO2 GHG emissions

- The MP recommends **simple average regional values** calculated under Case 1 as it is the simplest method.
  - Calculated values in Case 3 and Case 4 do not consider the countries where currently there do not exist any CDM cookstove PoAs but PoAs may be developed in the future.

	Fossil fuel emission factor (t CO_2/TJ)	Fossil fuel emission factor (t CO_2e/TJ) incl. CH_4 and N_2O emissions
Arab States	63.7	63.9
East Asia and the Pacific	84.9	85.7
Europe and Central Asia	57.7	57.8
Latin America and the Caribbean	68.4	68.6
Asia	64.2	64.4
Sub-Saharan Africa	72.4	73.2

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<u>Mandate:</u> Explore a method for providing an option for PPs to determine $EF_{projected\_fossilfuel}$ for their project or PoA, based on geographic coverage of the project or PoA and fossil fuel usage in the region for cooking.

As an alternative to the use of the default value for the regional default fossil fuel emission factor, **the MP recommended a method.**
- A new formula has been proposed in the draft revision of AMS-I.E. and AMS-II.G.

Issue: Harmonized standards for stove tests

Mandate: Explore options for applying international standards (e.g. ISO) and national standards where they are available to determine the performance of the stoves.

- ISO has recently published a series of standards for harmonized lab and field tests of cookstoves:
  - ISO 19867-1:2018: Clean cookstoves and clean cooking solutions – Harmonized laboratory test protocols.
- During the practitioner workshop (06 May 2019), stakeholders requested the continued use and acceptance of the existing protocols (e.g. WBT, CCT, and KPT protocols listed in Clean Cooking Alliance) alongside the recently approved ISO Standards as there is limited experience in its application.

- The MP **recommends to include ISO 19867-1:2018 standard as an optional method** for testing the efficiency of stoves. Existing standards can continue to be used.

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Impacts

The improvement of the methodological approaches for the calculation of emission reductions by reducing use of non-renewable biomass will facilitate the implementation of CDM project activities and PoAs in the household cookstove sector, which have strong relevance for the regions that are underrepresented in the CDM.

Recommendation to the Board

The MP recommends that the Board consider the concept note and provide further guidance.

- The draft revision to the methodologies AMS-I.E. and AMS-II.G are proposed together with this revised concept note.