CLEAN DEVELOPMENT MECHANISM

TOOL33

Methodological tool

Default values for common parameters

Version 03.0

United Nations
Framework Convention on
Climate Change

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1. Introduction

1. This tool serves as a repository of default values[1] of common parameters, which are applied in methodologies that refer to this tool.

2. Scope, applicability, and entry into force

2.1. Scope

2. This tool includes default values for the parameters listed under section 5 below.

3. The appendix 1 of this tool specifies the validity, process for update and timelines for the update of the default values.

4. The appendix 2 of this tool provides guiding principles of conservativeness that were applied to determine the default values included in this tool considering the level of uncertainty of underlying data.

2.2. Applicability

5. This tool shall be applied in conjunction with the methodologies which refer to this tool to source the default values to estimate the baseline emissions (e.g. from the use of diesel for off-grid power generation, from the use of kerosene for lighting, from the use of woody biomass for cooking).

6. The default values, as contained in section 5 of this tool, are valid up to 10 March 2025. Notwithstanding the provisions on the validity of new, revised and previous versions of methodologies and methodological tools in the “Procedure: Development, revision and clarification of baseline and monitoring methodologies and methodological tools”, there will be no grace period for the application of this tool and the validity of the default values after this date, including in cases where further default values are added to this tool through revisions of this tool before this date.

2.3. Entry into force

7. The date of entry into force is the date of the publication of the EB 125 meeting report on 12 June 2025.

3. Normative references

8. Not applicable.

4. Definitions

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

[1] The background information on the rationale for the default values is included under Annex 3 of MP87 meeting report and Annex 19 of MP 88 meeting report.

10. For the purpose of this tool, the following definition shall apply:

    (a) **Mini-grid system** – An integrated energy system consisting of interconnected loads and one or more energy resources with a total capacity not exceeding 15 MW (i.e. the sum of installed capacities of all electricity generating units connected to the mini-grid is equal to or less than 15 MW), which is not connected to a national or a regional grid.

5. Parameters

11. This tool provides default values for following parameters:

    (a) CO_2 emission factor for diesel generating system used for off-grid power generation purposes;

    (b) CO_2 emission factor for kerosene used for lighting applications;

    (c) Wood-to-charcoal conversion factor;

    (d) Average annual consumption of woody biomass per person for cooking;

    (e) Fraction of non-renewable biomass;

    (f) Efficiency of pre-project cooking device.

5.1. Carbon dioxide emission factor for diesel generating system used for off-grid power generation purposes

12. For a baseline electricity generating system, including the mini-grid system, where all generators use exclusively fuel oil and/or diesel fuel, the CO_2 emission factor for a diesel generating system of the relevant capacity operating at optimal load as given in Table 1 shall be considered.

Table 1. Emission factors for diesel generator systems (in kg CO_2/kWh[(a)])

Cases	**Mini-grid with 24 hour service**	**Mini-grid with temporary service (4 –6 hr/day); Productive applications; Water pumps**	**Mini-grid with storage**
Load factors [%]			
Size	25%	50%	100%
<15 kilowatts (kW)	1.0	0.9	0.8
>=15 <35 kW	1.0	0.8	0.8
>=35 <135 kW	1.0	0.8	0.8
>=135<200 kW	0.9	0.8	0.8
> 200 kW	0.8	0.8	0.8

[(a)] A conversion factor of 3.2 kgCO_2 per kg of diesel has been used (following 2006 IPCC Guidelines for National Greenhouse Gas Inventories)

5.2. Carbon dioxide emission factor for kerosene used for lighting applications

13. In methodologies where, in the baseline, kerosene usage for lighting purposes and usage of diesel generating system for meeting electricity demand is envisaged, the default emission factor is provided as follows:

    (a) For the first 55 kWh of electricity supplied to the user by the project electricity generating system in a given year, the emission factor is 2.72 kg CO_2/kWh (i.e. 2.72 t CO_2/MWh);

    (b) For the electricity supplied to the user by the project electricity generating system in a given year that is above 55 kWh, the emission factor is as specified in Table 1 above based on the diesel generator capacity and the load.

5.3. Wood-to-charcoal conversion factor

14. The default value for wood-to-charcoal conversion factor is 4.0 kg of fuelwood (wet basis) per kg of charcoal (dry basis).

5.4. Average annual consumption of woody biomass per person for cooking

15. The default value for the average annual consumption of woody biomass is 0.4 tonnes/person/year (wet basis).

5.5. Fraction of non-renewable biomass

16. The default values at national and regional (continental) levels are listed below. While the national values are recommended to be used in general; regional values may be used if the national values are not available. The stakeholders may also propose revision to these values through request for revision of this tool or may submit new methodological approaches for calculation of f_{NRB} values that result in further advancements in terms of accuracy and conservativeness, for consideration the Board.

17. The default values for the for the fraction of non-renewable biomass (f_{NRB}) at the regional (continental) level are listed below in Table 2.

Table 2. Regional (Continental) fNRB values

Region	f_{NRB} (%)
Asia	18%
Latin America	32%
Sub-Saharan Africa	40%

18. The default values for the fraction of non-renewable biomass (f_{NRB}) at the national level are listed below in Table 3.

Table 3. Default values for fraction of f_{NRB} at National level

Country	f_{NRB} (%)
Afghanistan	10
Angola	27
Armenia	1
Azerbaijan	1

Country	f_{NRB} (%)
Bangladesh	39
Benin	34
Bhutan	30
Plurinational State of Bolivia	14
Botswana	35
Brazil	13
Burkina Faso	36
Burundi	35
Cambodia	20
Cameroon	38
Central African Republic	42
Chad	37
China	10
Colombia	7
Costa Rica	10
Côte d'Ivoire	19
Democratic Republic of the Congo	42
Djibouti	1
Dominican Republic	43
Ecuador	28
Equatorial Guinea	31
Eritrea	30
Eswatini	16
Ethiopia	33
Gabon	18
Gambia	55
Georgia	1
Ghana	35
Guatemala	41
Guinea	37
Guinea-Bissau	34
Guyana	0
Haiti	59
Honduras	33
India	7
Indonesia	9
Islamic Republic of Iran	5
Iraq	1
Jamaica	38
Jordan	1
Kazakhstan	7
Kenya	29
Kyrgyzstan	25
Lao People's Democratic Republic	47
Liberia	40
Madagascar	36
Malawi	48
Malaysia	39
Mali	45
Mauritania	65
Mexico	30
Mongolia	12
Mozambique	38

Country	f_{NRB} (%)
Myanmar	36
Namibia	28
Nepal	45
Nicaragua	26
Niger	61
Nigeria	38
Pakistan	8
Panama	21
Papua New Guinea	8
Peru	4
Philippines	55
Republic of the Congo	16
Rwanda	33
Senegal	61
Sierra Leone	41
Somalia	64
South Africa	18
South Sudan	35
Sri Lanka	45
Sudan	50
Syrian Arab Republic	3
Tajikistan	19
United Republic of Tanzania	51
Thailand	20
Timor-Leste	39
Togo	46
Türkiye	13
Turkmenistan	0
Uganda	39
Uzbekistan	15
Viet Nam	36
Zambia	40
Zimbabwe	21

5.6. Efficiency of pre-project cooking device

19. The default values for the efficiency of pre-project device used for cooking and/or water boiling applications are as follows:

    (a) For a three-stone fire using firewood (not charcoal), or a cookstove with no improved combustion air supply or flue gas ventilation (i.e. without a grate or a chimney), the default value is 0.15;

    (b) For other type of devices, the default value is 0.25.

Appendix 1. Process, criteria and timeline for the update of the default values

1. The validity of the default values included in this tool shall be re-assessed by the Methodologies Panel (MP) every three years.

2. The MP shall initiate the analysis of the default values at least 365 days prior to the expiry date of the default values, as referred to in paragraph 6 of this tool.

3. The MP shall review relevant information pertaining to the default values and prepare a recommendation on the continuation or update to the default values for consideration by the Board.

4. The Board shall decide on the continuation or update to the default values.

5. The Board may include additional default values in this tool at any point in time. In such cases, the validity of the default values added is limited to the remaining valid period of the default values, as indicated in paragraph 6 of this tool, and those default values are subject to review, as indicated in paragraphs 1–3 of this appendix.

6. Stakeholders may propose addition of default values in this tool following the process in section 6 'Revision of approved methodology or methodological tool' of the "Procedure: Development, revision and clarification of baseline and monitoring methodologies and methodological tools".

Appendix 2. Principles of conservativeness

1. Background

1. This appendix provides guiding principles of conservativeness that were applied to determine the default values included in this tool, considering the level of uncertainty of underlying data.

2. Principles of conservativeness

2. When defining default factors in the CDM context, the principle of conservativeness seeks to ensure environmental integrity and avoid the overestimation of emission reductions, while considering the most up-to-date information available that are of unbiased sources and seeking to reflect conditions that are grounded in reality.

3. In developing and proposing defaut values, a literature review of relevant information is undertaken. The preferred information sources are trusted sources such as the Intergovernmental Panel on Climate Change (IPCC) literature, databases and reports of UN Agencies, the World Bank, International Energy Agency, International Renewable Energy Agency and other comparable sources including publications from scientific journals with high impact factor.

4. Where feasible, data that fulfils the requirements and quality assurance and quality control (QA/QC) for primary data specified under the standardardised baseline framework is used (refer to, QA/QC guidelines at https://cdm.unfccc.int/Reference/Guidclarif/index.html).

5. In some cases there is a need to take a pragmatic approach without compromising the environmental integrity of the values developed. Noting the wide heterogeneity of data and information the original values require some process of transformation, i.e. conversion to a common format, using conversion factors and assumptions, etc.

6. After converting into the common format, the values from the most suitable dataset(s) that are relevant, complete, consistent, reliable, current, accurate and objective is considered. Where relevant, standard deviation of the data set is considered and adjustments to use the lower or higher bound values for conservative estimate of default values is undertaken.

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Document information

Version	*Date*	*Description*
03.0	12 June 2025	EB 125, Annex 2 Revision to include updated default national and regional f_{NRB} values.
02.0	8 September 2022	EB 115, Annex 5 Revision to: • Elaborate the principles of conservativeness of values that will be applied depending on the level of uncertainty of underlying data; • Include new default values for: wood-to-charcoal conversion factor, average annual consumption of woody biomass per person for cooking, fraction of non-renewable biomass, and efficiency of pre-project cooking device.
01.0	11 March 2022	EB 113, Annex 9 Initial adoption

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