Assessment Report for CDM proposed standardized baseline (Version 02.0)

*(To be **used** by the **UNFCCC secretariat** in assessing the quality of a proposed standardized baseline only when requested by eligible DNAs.)*

Title of proposed standardized baseline:	Standardized Baseline for Improved Institutional Cookstoves in Ethiopia
Reference of proposed standardized baseline:	PSB0046
Name(s) of the Party or Parties to which the proposed standardized baseline applies:	Ethiopia
Name(s) of the proponent(s) of the proposed standardized baseline:	The Designated National Authority of Ethiopia
History of the submission & assessment:	1) 21/06/2018: The first submission was received • 10/07/2018: The initial assessment was finalized and the proposed standardized baseline (PSB) was uploaded on the website. • 14/08/2018: Findings were raised in accordance with the requirements of "Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines" (QA/QC guideline). 2) 26/12/2018: The second submission was received • 07/03/2019: Further inputs from the DNA were requested. 3) 02/04/2019: The third submission was received • 04/06/2019: Further inputs from the DNA were requested. 4) 06/08/2019: The fourth submission was received • 15/08/2019: The additional submission was considered to be compliant with the approach used to develop the PSB. The submission was sufficient to prepare a final recommendation. • 20/08/2019: The draft standardized baseline (DSB) was sent to the DNA, which agreed to recommend the DSB to the Board for approval.

Conclusion: **(a) The quality assurance and quality control system complied with the provisions and data quality objectives of the valid "Guidelines for quality assurance and quality control of data in the establishment of standardized baselines"** **(b) The approach used by this proposed standardized baseline complied with one of the approaches referred to in the valid "Procedure for development, revision, clarification and update of standardized baselines":**	☒ Yes ☐ No ☐ N/A ☒ One of the four approved approaches: ☐ The "Guidelines for the establishment of sector specific standardized baselines"; ☒ A methodological approach contained in an approved baseline and monitoring methodology - AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass"; - AMS-I.E. "Switch from non-renewable biomass for thermal applications by the user" ☒ A methodological approach contained in an approved methodological tool; - TOOL30: Calculation of the fraction of non-renewable biomass ☐ The "Guideline: Establishment of standardized baselines for afforestation and reforestation project activities under the CDM".
Date when the assessment report is completed:	20/08/2019

SECTION A. Summary of Proposed Standardized Baseline

A.1. Scope and application of the proposed standardized baseline

1. The proposed standardized baseline (PSB) is developed for

   (a) ☒ Additionality demonstration;

   (b) ☒ Baseline identification;

   (c) ☒ Baseline emission estimation

2. This PSB applies to institutional cookstoves in Ethiopia.

3. The PSB applies to the following measures:

   (a) ☒ Fuel and feedstock switch;

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

   (c) ☐ Methane destruction;

   (d) ☐ Methane avoidance

4. Projects shall use the standardized baseline together with the valid approved methodologies (AMS-II.G. and/or AMS-I.E.).

A.2. Description of the proposed standardized baseline

5. Key data parameters and data sources:

Key data parameters *(e.g. total production of output, kiln technology, fuel type & consumption etc.)*	Data sources *(e.g. individual facilities, government documents, literature etc.)*
Baseline woody biomass consumption per person for cookstove	• Ministry of Environment, Forest and Climate Change, Ethiopia Forest Sector Review, Table 15 • East Africa Woodfuel Integrated Supply/Demand Overview Mapping (WISDOM), Methodology Spatial Woodfuel Production and Consumption Analysis of Selected African Countries, Annex 1 • Various PDDs 1) PoA 9672 Paradigm Sub Saharan Africa Cook Stove Programme, see CPA1 - ER calculation, 2007 (or 3.4545 t/HH) 2) PoA 9769, see CPA1, page 50 3) PoA 10045 Fuel Efficient Stoves for Ethiopia Programme of Activity CME: World Food Programme, see CPA1, section D.6.2 4) PoA 10268, see CPA1, section D.6.2 (6.15 t/HH, conversion factor is 5 person per HH following USAID: Trends in Demographic and Reproductive Health in Ethiopia. Figure 2.3. Accessed at <http://dhsprogram.com/pubs/pdf/TR4/TR4.pdf>) 5) PoA 10340 Gaia - see CPA1, section D.7.1 (4.40 t/HH, conversion factor is 4.6 person per HH following Demographic and Health Survey, 2016) • For Category 5: Injera bakers: 1) Gulilat, Anteneh, Stove Testing Results; calculated value from the total weight of food cooked: approx. 11 kg (table 1 and table 3) and 25-30 injeras per stove (page 6) 2) K.D. Adem, D.A. Ambie / Energy for Sustainable Development 41 (2017) 69–80, Table 1 and 2, <http://pendidikankimia.walisongo.ac.id/wp-content/uploads/2018/09/7-vol-41-december-2017.pdf>

Key data parameters *(e.g. total production of output, kiln technology, fuel type & consumption etc.)*	Data sources *(e.g. individual facilities, government documents, literature etc.)*
	3) Gaia association (2014), Tables 6.1.11 and 6.1.13, Table 6.2.13, Table 5.1
Efficiency of pre-project institutional cookstove	• Gaia association (2014), Tables 6.1.11 and 6.1.13, Table 5.1
Fraction of woody biomass that can be established as non-renewable biomass (fNRB value)	• Ethiopia Forest Sector Review, Table 43: FSR verified values in 2013, Table 44: Historical annual deforestation rates (from 2000 to 2013) • East Africa Woodfuel Integrated Supply/Demand Overview Mapping (WISDOM), Methodology Spatial Woodfuel Production and Consumption Analysis of Selected African Countries, Annex 1 • Global Forest Watch data • World Bank, <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=ET> • Government of Ethiopia (2011): Ethiopia's Climate-Resilient Green Economy. Green economy strategy. GoE, <https://www.uncclearn.org/sites/default/files/ethiopia_crge.pdf>, page 104 and page 119

6. The scope and coverage of the data:

(a) The scope of the standardized baseline is institutional cookstoves in Ethiopia. It is applicable to the cookstoves of the following type of institutions:

(i) Category 1: Prisons, hospitals/clinics, refugee camps, military barracks;

(ii) Category 2: Restaurants and other food services in rural areas;

(iii) Category 3: Boarding schools, universities;

(iv) Category 4: Day schools; and

(v) Category 5: Injera bakers.

(b) The data on the above parameters (i.e. baseline woody biomass consumption, efficiency of pre-project institutional stove, and fNRB value) represents all regions in the country.

SECTION B. Summary of Assessment

B.1. Assessment process

7. The purpose of assessment conducted by the secretariat is: i) to ensure that the QA/QC system implemented by the DNA complies with the provisions and data quality objectives of the "Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines" (hereinafter referred to as QA/QC guidelines); and ii) to ensure that the PSB complies with AMS-II.G. "Energy efficiency measures in thermal applications of non-

renewable biomass" and AMS-I.E. "Switch from non-renewable biomass for thermal applications by the user".

8. The assessment consisted of the following:

   (a) Review of the documents submitted;

   (b) Identification of issues (assessment findings) and drafting of the assessment "findings and resolution" note;

   (c) Communication of findings of the assessment to the DNA and request for their resolution and response;

   (d) Direct communication with DNA through calls*;*

   (e) Review of the additional documents and/or responses provided by DNA;

   (f) Closing the findings;

   (g) Conclusion of the assessment report.

9. A desk review was performed on the following data/information submitted as part of the PSB:

   (a) First submission dated 21/06/2018;

   (b) Second submission dated 26/12/2018;

   (c) Third submission dated 02/04/2019;

   (d) Fourth submissions dated 06/08/2019.

10. Review of the additional submissions clarified all the issues raised by the secretariat.

B.2. Assessment opinion

11. In accordance with the QA/QC guidelines, the secretariat concluded that all of the following requirements were met by this PSB:

   (a) QC system (resource/procedure) was implemented to check the data quality before/during/or after data collection;

   (b) QC activities were clearly documented in the submitted report;

   (c) The consultation process was clearly documented in the meeting notes and the QC report provided by the DNA;

   (d) All relevant documents and data were available for assessment;

   (e) The key data sources were checked. To reconfirm the data values and statements, other literature have been also been referred to. Thereby, the credibility and accuracy of data sources was verified;

   (f) The data scope was comprehensive enough to produce "true and fair" representative SB in the sector;

   (g) The key data and information are consistently presented, e.g. the excel database to determine the proposed values;

   (h) The assumptions and conservative approaches for data processing and calculations were justified;

   (i) There were no confidential data for which data security provisions were necessary.

12. The details of issues (assessment findings) identified by the secretariat and the responses provided by the DNA are provided in Appendix-1 to this document.

13. The secretariat concluded that the PSB complied with the requirements of AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass” and AMS-I.E. “Switch from non-renewable biomass for thermal applications by the user”.

Appendix 1. Findings and resolutions

CL No.	Request for Clarification (CL)	Responses and corrective actions of DNA	Conclusion (open/closed)
1	The DNA proposed 3 year validity with an exception of 5 years validity for fNRB value. However, under the "procedure for development, revision, clarification and update of standardized baselines", it is not permitted to have two different validities within one SB.	The PSB was revised to a consistent validity for all values of 3 years.	Closed
2	In Table 5 of the PSB, average fuelwood consumption values reported by registered PoAs in Ethiopia are listed. For PoA 10268, a conversion factor of 4.6 person per HH, following the Demographic and Health Survey (2016), was used to calculate fuelwood consumption per capita. However, the assumption made in the same PoA, based on USAID 2005 data was "**5 people per household**", which was used as the basis for the estimated consumption value of 6.15 t/HH. The DNA is requested to clarify the use of a different conversion factor (4.6) to the one applied in the PoA of 5 people per household. If the DNA decides to revise this value, the updated woodfuel consumption value should also be used in Table 12 of the PSB for calculation of fNRB.	The PSB and the related calculation was revised to use the same conversion factor for household size as applied under the PoA (i.e. 5 persons instead of 4.6).	Closed
3	In Table 7 of the PSB, total woody biomass consumption was calculated at the national level, weighted across rural and urban areas. However, since there is a considerable difference in the specific fuel consumption values between the rural and	According to the UNFCCC website, "the determination of baseline and demonstration of additionality are by far the most complex and time consuming aspects related to the evaluation of mitigation outcome in terms of Greenhouse Gas (GHG) emission reduction project activities under CDM for individual project activities or PoA. A standardized baseline (SB) simplifies these	Closed

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	urban areas, it is suggested that both values (rural and urban), are kept separately in the standardized values.	aspects by defining a standardized baseline scenario, baseline emission factor and/or additionality criteria for a sector, which could potentially be applicable to all mitigation activities in this sector." As such, the differentiation into rural and urban households would be partially against the idea of standardized baselines. In addition, ICS primarily serve low-income segments also of urban populations. Further aspects such as household income, region in the country, etc. can have further impacts not reflected by the differentiation into rural and urban areas. However, all these aspects are inherent considered by applying an average national value. Therefore, the DNA prefers to keep the weighted single value, and would only agree to revise the related calculation to show separate values for rural and urban households if the CDM team deems this as unacceptable.	
4	In Table 8 of the PSB, the efficiency of baseline stoves was calculated at the national level, weighted across rural and urban areas. However, since there is a considerable difference in the baseline stove efficiency values between rural areas and urban areas, it is suggested that both values (rural and urban) are presented separately in the standardized values.	As described under CL3, the DNA agrees to revise the PSB and the related calculation to show separate values for rural and urban households only if the CDM team does not accept the arguments for a single weighted value in the response to CL3.	Closed
5	As per Tool 30 "Methodological tool: Calculation of the fraction of non-renewable biomass", consideration of the parameters **Pforest** (Extent of non-accessible area within forest areas) and **Pother** (Extent of non-accessible area within other wooded land areas) are optional. If DNAs wish to consider non-accessible areas, they shall provide justifications. Otherwise, a value of zero may be used.	The PSB and the related calculation was revised in order to differentiate protected areas with forest area and with non-forest area based on the information provided by a database run by Global Forest Watch. The database indicates that 30% of the forest in Ethiopia lays within protected areas. For further information, see supporting information note on forest / protected area.	Closed

CL No.	Request for Clarification (CL)	Responses and corrective actions of DNA	Conclusion (open/closed)
6	The host country determines the parameters to define a forest area in their respective country provided they fall within the ranges provided under the CDM definition. Given the CMP definition of a forested area as provided in the glossary of CDM terms, the definition of the forest area provided by the Ethiopia Forest Sector Review is acceptable. However, the Meth Panel is of the view that applying the 30% factor as determined by the Global Forest Watch for extent of forest within protected areas, may not be conservative, given that it was determined for forest areas where trees are 5 metres in height. The Panel is of the opinion that the 30% factor may be applied to the ¨High Forest¨ and the ¨Woodland¨ categories, but applying it to ¨Shrubland¨ area seems questionable and may require further justification. In the absence of further justification from the DNA, the Panel proposes that the 30% factor should only be applied to the ¨High Forest¨ and the ¨Woodland¨ categories. Hence, the Panel recommends for the DNA to submit a revised calculation based on applying the 30% on the "High Forest" and "Woodland" excluding "Shrubland". If the DNA wishes to maintain the same proposal, additional justification for applying the 30% to the "Shrubland" needs to be submitted.	The DNA is of the opinion that the "Shrubland" category includes protected forested areas that should be considered. However, due to insufficient data, it is difficult to justify a specific factor for these areas. Therefore, for the time being, the DNA **accepts the recommendation by the Meth Panel**. As a result, the 30% factor is now applied only to "High Forest" and "Woodland" categories and not to "Shrubland" anymore as it has been recommended by the Meth Panel. This correction results in a revised fNRB of 76.8%.	Closed
7	Assumed fuel consumption for injera baking may not be conservative.	The calculation was revised considering new data sources in a conservative manner. The total woody biomass consumption is now 307 g/injera (before it was 337). The underlying average weight per injera is already conservative (around 368 g/injera) compared to values provided by table 3.3. of 374 to 392 g/injera of the "EXPERIMENTAL INVESTIGATION ON PERFORMANCE CHARACTERISTICS AND EFFICIENCY OF ELECTRIC INJERA BAKING PANS („MITAD“)".	Closed

CL No.	Request for Clarification (CL)	Responses and corrective actions of DNA	Conclusion (open/closed)
8	The equation/parameters applied for Bold for injera bakers may not be in line with AMS-II.G.	The approach was revised to comply with AMS-II.G. Bold is now based on injera bakers (persons).	Closed
9	Some general background about injera bakers should be provided	Corresponding background information has been added to the SB form.	Closed

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Document information

Version	*Date*	*Description*
02.0	01 June 2015	Modified in order to take into account the Board's decision and improve clarity and consistency
01.0	27 May 2013	Initial publication.

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