

**ASB0044-2019**

## Standardized baseline

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# Improved Institutional Cookstoves in Ethiopia

Version 01.0



**United Nations**  
Framework Convention on  
Climate Change

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## 1. Introduction

1. This standardized baseline provides values for input parameters such as baseline woody biomass consumption per person, to estimate emission reduction from Clean Development Mechanism (CDM) project activities for efficient institutional cookstoves in Ethiopia.

## 2. Scope, applicability, and entry into force

### 2.1. Scope and applicability

2. The scope of the standardized baseline covers the values of baseline woody biomass consumption per capita, the efficiency of pre-project institutional cookstoves, and the fraction of woody biomass that can be established as non-renewable biomass (fNRB) in Ethiopia. The standardized baseline is only applicable to cookstoves of the following type of institutions:<sup>1</sup>
  - (a) Category 1: Prisons, hospitals/clinics, refugee camps, military barracks;
  - (b) Category 2: Restaurants and other food services in rural areas;
  - (c) Category 3: Boarding schools, universities;
  - (d) Category 4: Day schools; and
  - (e) Category 5: Injera bakers using *Mirt* stoves.<sup>2</sup>
3. CDM project activities may apply this standardized baseline under the following conditions:
  - (a) The project activity is implemented in Ethiopia; and
  - (b) The approved CDM methodology applied to the project activity is small-scale methodology AMS-II.G. "Energy efficiency measures in thermal applications of non-renewable biomass" and/or small-scale methodology AMS-I.E. "Switch from non-renewable biomass for thermal applications by the user"; and

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<sup>1</sup> Commercial establishments such as restaurants and hotels (except restaurants in rural areas under Category 2) are excluded.

<sup>2</sup> Injera is a traditional flatbread that is widely consumed in Ethiopia. It is prepared by mixing teff flour with water and a starter that contains yeast to begin the process of fermentation and then letting the mixture ferment for a number of days. The fermented dough is then baked on a heated plate. The average thickness and size of injera is almost the same irrespective of the stove type used.

Injera bakers are specialized bakeries which only produce injera which is being supplied to supermarkets, retailers, restaurants, and public institutions such as universities, hospitals, prisons and others.

'*Mirt*' stoves is the local name given to Improved Cook Stoves (ICS) specifically designed for baking Injera.

- (c) The standardized values are not applicable to institutions using LPG and/or kerosene in the baseline as a cooking fuel;<sup>3</sup> and
  - (d) The standardized values are not applicable to standalone renewable energy based water treatment technologies under AMS-I.E.
  - (e) To use the default value under Category 5, the average weight of an injera is monitored once at the beginning of the crediting period and once every year, where required on a sample basis. It is demonstrated that weight of each injera is equal to or more than 0.368 kg (i.e. the number of injera per kg of injera baked should be equal to or less than 2.72). In addition, annual average number of injera baked per injera baker should also be monitored.
4. Project participants who do not wish to use this standardized baseline may alternatively estimate their own values, by applying the latest applicable version of the methodology or tool.

## **2.2. Entry into force and validity**

5. This standardized baseline enters into force upon adoption by the CDM Executive Board on 22 September 2019. This standardized baseline is valid from 22 September 2019 to 21 September 2022.

## **3. Normative references**

6. This standardized baseline is based on the proposed new standardized baseline PSB0046 “Standardized Baseline for Improved Institutional Cookstoves in Ethiopia” submitted by the designated national authority (DNA) of Ethiopia.
7. The proposed standardized baselines are developed using the following approved small-scale methodologies and tools:
- (a) AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass”;
  - (b) AMS-I.E. “Switch from non-renewable biomass for thermal applications by the user”;
  - (c) TOOL19: Demonstration of additionality of microscale project activities; and
  - (d) TOOL30: Calculation of the fraction of non-renewable biomass.
8. For more information regarding proposed new standardized baselines as well as their consideration by the CDM Executive Board, please refer to [http://cdm.unfccc.int/methodologies/standard\\_base/index.html](http://cdm.unfccc.int/methodologies/standard_base/index.html).

## **4. Definitions**

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

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<sup>3</sup> One way to demonstrate this condition is to check and record at the time of distribution of the project stove.

10. The definitions contained in the latest version of AMS-II.G. and AMS-I.E. shall apply.

## 5. Parameters and values

11. CDM project activities shall use this standardized baseline together with AMS-II.G. “Energy efficiency measures in thermal applications of non-renewable biomass”, version 9.0 or later and/or AMS-I.E. “Switch from non-renewable biomass for thermal applications by the user” version 8.0 or later.<sup>4</sup> The following conditions shall apply:
- (a) **Additionality demonstration:** The project activities that introduce improved institutional cookstoves in Ethiopia under AMS-II.G. or AMS-I.E. are deemed automatically additional,<sup>5</sup> as per the “Methodological tool for demonstration of additionality of microscale project activities”;
  - (b) **Baseline emission estimation:** For the estimation of baseline emissions of project activities, the provisions in the methodology AMS-II.G. version 9.0 or AMS-I.E. version 8.0 for determining the values of the parameters listed in Table 1 below do not apply. Instead, standardized values provided in the Table 1 below shall be used.

**Table 1. Standardized values for AMS-II.G. and AMS-I.E.**

Parameter	Unit	Description	Applicable values	Source				
<i>Bold,p</i> under AMS-II.G.	tonnes/ person/ year	Annual quantity of woody biomass that would have been used per person in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices	<table border="1"> <tr> <td>Institution type</td> <td>Value (tonnes/pers on/year)</td> </tr> <tr> <td>Category 1: Prisons, hospitals/clinics, refugee camps, military barracks</td> <td><b>0.91</b></td> </tr> </table>	Institution type	Value (tonnes/pers on/year)	Category 1: Prisons, hospitals/clinics, refugee camps, military barracks	<b>0.91</b>	Based on the data provided in PSB0046
Institution type	Value (tonnes/pers on/year)							
Category 1: Prisons, hospitals/clinics, refugee camps, military barracks	<b>0.91</b>							

<sup>4</sup> The standardized baseline can be used together with future versions of methodologies AMS-II.G. or AMS-I.E. as long as the requirements related to the parameter mentioned in table 1 do not change.

<sup>5</sup> Ethiopia is one of the least developed countries (LDC) and the tool cited includes automatic additionality for microscale projects located in LDCs.

Parameter	Unit	Description	Applicable values	Source																
$BC_{PJ,PP,y}$ under AMS-I.E.	tonnes/ person/ year	Average annual consumption of woody biomass per person in the pre-project devices during the project activity, if it is found that pre-project devices were not completely displaced but continue to be used to some extent	<table border="1"> <tr> <td>Category 2: Restaurants and other food services in rural areas</td> <td><b>0.3</b></td> </tr> <tr> <td>Category 3: Boarding schools, universities</td> <td><b>0.75</b></td> </tr> <tr> <td>Category 4: Day schools</td> <td><b>0.26</b></td> </tr> </table>	Category 2: Restaurants and other food services in rural areas	<b>0.3</b>	Category 3: Boarding schools, universities	<b>0.75</b>	Category 4: Day schools	<b>0.26</b>											
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Category 4: Day schools	<b>0.26</b>																			
$Bold,i,j$ under AMS-II.G.	tonnes/ year	Annual quantity of woody biomass that would have been used in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project device type $i$ and batch $j$	<p>For Category 5: Injera bakers, the default woody biomass consumption per injera is provided in the table below:</p> <table border="1"> <thead> <tr> <th>Institution type</th> <th>Value (kg/injera)</th> </tr> </thead> <tbody> <tr> <td>Category 5: Injera bakers</td> <td><b>0.307</b></td> </tr> </tbody> </table> <p>In order to <b>convert</b> the woody biomass consumption per injera (i.e. 0.307) to woody biomass consumption per injera baker (tonnes/year), the following equations shall be applied:</p> $B_{old,i,j} = B_{old,injera} \times n_{injera} \times 1/1000$ $B_y = B_{y,injera} \times n_{injera} \times \frac{1}{1000} \times N_{injera}$ <p>Where:</p> <table border="1"> <tr> <td><math>B_{old,injera}</math></td> <td>=</td> <td>Total woody biomass consumption per injera (kg/injera)</td> </tr> <tr> <td><math>B_{y,injera}</math></td> <td>=</td> <td>Total woody biomass per injera (kg/injera)</td> </tr> <tr> <td><math>n_{injera}</math></td> <td>=</td> <td>Annual average number of injera baked per injera baker</td> </tr> <tr> <td><math>N_{injera}</math></td> <td>=</td> <td>Number of injera bakers in the project activity (number)</td> </tr> </table>	Institution type	Value (kg/injera)	Category 5: Injera bakers	<b>0.307</b>	$B_{old,injera}$	=	Total woody biomass consumption per injera (kg/injera)	$B_{y,injera}$	=	Total woody biomass per injera (kg/injera)	$n_{injera}$	=	Annual average number of injera baked per injera baker	$N_{injera}$	=	Number of injera bakers in the project activity (number)	Based on the data provided in PSB0046
Institution type	Value (kg/injera)																			
Category 5: Injera bakers	<b>0.307</b>																			
$B_{old,injera}$	=	Total woody biomass consumption per injera (kg/injera)																		
$B_{y,injera}$	=	Total woody biomass per injera (kg/injera)																		
$n_{injera}$	=	Annual average number of injera baked per injera baker																		
$N_{injera}$	=	Number of injera bakers in the project activity (number)																		
$B_y$ under AMS-I.E.	tonnes/ year	Quantity of woody biomass that is substituted or displaced in tonnes																		

Parameter	Unit	Description	Applicable values	Source
$\eta_{old,i,j}$ under AMS-II.G.	fraction	Efficiency of pre-project cookstove	Use <b>0.12</b> for the efficiency of the pre-project device for woody biomass stove replacement projects	Based on the data provided in PSB0046
$f_{NR,y}$ under AMS-II.G. and AMS-I.E.	fraction	Fraction of woody biomass that can be established as non-renewable biomass	<b>0.76</b>	Based on the data provided in PSB0046; Calculated according to TOOL30

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### Document information

Version	Date	Description
01.0	22 September 2019	Initial publication.  This standardized baseline is approved by CDM Executive Board in accordance with the "Procedure for development, revision, clarification and update of standardized baselines" (CDM-EB63-A28-PROC).

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