

**ASB0041-2018**

## Standardized baseline

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# Fuel switch, technology switch and methane destruction in the charcoal sector of Rwanda

Version 01.0



**United Nations**  
Framework Convention on  
Climate Change

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## **1. Introduction**

### **1.1. Background**

1. This standardized baseline provides standardization of the baseline scenario, parameters for baseline emissions estimation and a positive list for fuel switch, technology switch and methane destruction in the charcoal production sector of Rwanda.

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

### **2.1. Scope and applicability**

2. The scope of this standardized baseline covers the standardization of the baseline scenario, parameters for baseline emissions estimation and a positive list for fuel switch, technology switch and methane destruction in the charcoal production sector.
3. This standardized baseline is developed using a combination of:
  - (a) The approach contained in the “Guidelines for the establishment of sector specific standardized baselines”,
  - (b) A methodological approach contained in small-scale methodology “AMS-III.BG: Emission reduction through sustainable charcoal production and consumption”, and
  - (c) A methodological approach contained in “TOOL30: Calculation of fraction of non-renewable biomass”.
4. This standardized baseline applies to Clean development mechanism (CDM) project activities and programmes of activities (hereinafter referred as project activities) implementing fuel and feedstock switch, switch of technology with or without change of energy source, methane destruction and any combination of these measures in the Republic of Rwanda.
5. Project activities shall apply this standardized baseline in conjunction with the latest approved version of the small-scale methodology “AMS-III.BG: Emission reduction through sustainable charcoal production and consumption”. All the applicability conditions of AMS-III.BG shall apply.

### **2.2. Entry into force**

6. This standardized baseline enters into force upon adoption by the CDM Executive Board on 20 December 2018. This standardized baseline is valid from 20 December 2018 to 19 December 2021.

## **3. Normative references**

7. This standardized baseline is based on the proposed new standardized baseline “PSB0045: Standardized baseline on sustainable charcoal production in Rwanda” submitted by the DNA of Rwanda.

8. This standardized baseline is derived from the small scale methodology “AMS-III.BG: Emission reduction through sustainable charcoal production and consumption” (version 3.0) and “TOOL30: Calculation of the fraction of non-renewable biomass” (version 1.0).
9. For more information regarding the proposed new standardized baseline 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

10. The definitions contained in the Glossary of CDM terms shall apply.
11. The definitions contained in AMS-III.BG shall apply.
12. The definitions contained in TOOL30 shall apply.

## 5. Parameters, values and positive list

13. The provisions in the methodology AMS-III.BG for determining the values of the parameters listed in Table 1 below do not apply. Instead, project participants shall use the standardized values provided in the Table 1 below<sup>1</sup>.

**Table 1 Standardized values**

Parameter	Unit	Description	Value	Source
$f_{NRB,BL,wood}$	Fraction	Fraction of biomass of type $i$ used in the absence of the project activity that can be established as non-renewable biomass	0.77	Calculated in accordance with TOOL30, based on data provided by the DNA in PSB0045.
$M_d$	tonne of CH <sub>4</sub> /tonne of raw material	Factor to account for any legal requirement for capture and destruction of methane in the charcoal production facility	0	Based on the data provided in PSB0045.
$SMG_{y,b}$	tonnes CH <sub>4</sub> /t charcoal	Specific methane generation for the baseline charcoal generation process in the year $y$	0.030	Default value as per AMS-III.BG.
$CF$	-	Default wood to charcoal conversion factor	7.7	Calculated based on data from the country specific study “Establishing a Green Charcoal Value Chain in Rwanda” (World Bank, 2012).

<sup>1</sup> The standardized baseline can be used together with future versions of methodology AMS-III.BG, as long as the requirements related to the parameters mentioned in table 1 do not change.

Parameter	Unit	Description	Value	Source
<b><i>NCV<sub>wood</sub></i></b>	TJ/t	Default net calorific value of wood	0.015	Based on AMS-III.BG.
<b><i>NCV<sub>charcoal,default</sub></i></b>	GJ/t	Default net calorific value of charcoal from coconut husks, bamboo and other purely woody source of biomass	29.5	Based on AMS-III.BG.
	GJ/t	Default net calorific value of charcoal from other sources such as mixed agricultural wastes	19.47	Based on AMS-III.BG.
<b><i>EF<sub>projected_fossilfuel</sub></i></b>	tCO <sub>2</sub> /TJ	Emission factor for the substitution of non-renewable woody biomass by similar consumers	81.6	Based on AMS-III.BG.

Table 2. Positive list

Measure	Description
Feedstock	Renewable biomass, as specified in the small-scale methodology AMS-III.BG.
Technology	<p>Metal kilns and other improved kilns, including but not limited to:</p> <p>a) Casamance Kiln: Earth mound kiln equipped with a chimney. The chimney allows a better control of air flow. The hot flue gas is partly redirected into the kiln which enhances pyrolysis.</p> <p>b) Adam retort sedimentary kiln: It redirects the flue gases back to the carbonization chamber. It burns the volatiles and the tar components almost completely. The retort is suitable for semi-industrial production.</p> <p>c) Carbo twin retort: This kiln is a semi-continuous production module. It consists of two carbonization chambers. The pyrolysis vapours from one chamber are combusted to heat-up the other chamber.</p> <p>d) Pyro 7 retort sedimentary kiln with or without briquetting process: It uses two chambers: one for pre-combustion, one for the production of charcoal. It is usually made of metal. It also incorporates air flow control and a chimney.</p>
Methane destruction	Capture and destruction of any level of methane emitted during the pyrolysis process.

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### Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	20 December 2018	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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