

JCM proposed methodology and its attached sheet are preliminary drafts and have neither been officially approved under the JCM, nor are guaranteed to be officially approved under the JCM.

JCM Proposed Methodology Form

Cover sheet of the Proposed Methodology Form

Form for submitting the proposed methodology

Host Country	Kenya
Name of the methodology proponents submitting this form	Energy Saving by Micro Flush Toilet
Sectoral scope(s) to which the Proposed Methodology applies	Energy Saving
Title of the proposed methodology, and version number	Energy saving by micro flush toilet, ver 1.0
List of documents to be attached to this form (please check):	<input type="checkbox"/> The attached draft JCM-PDD: <input type="checkbox"/> Additional information
Date of completion	

History of the proposed methodology

Version	Date	Contents revised

A. Title of the methodology

Energy saving by micro flush toilet

B. Terms and definitions

Terms	Definitions
Micro flush toilet	The toilet system which consists of lavatory basin, toilet seat, water tank etc. and has consumes water less than two (2.0) liters for one flush.
Flush water	Flush water uses for flushing solid waste and/or waste water from laboratory pan.
Water supply system	Water for micro toilet uses water is produced by water supply system which consists of intake, transmission lines, treatment plant and distribution lines etc.
CO2 emission factor for water supplied	CO2 emission factor for water supplied by the water supply system

C. Summary of the methodology

Items	Summary
<i>GHG emission reduction measures</i>	This methodology applies to the project that aims for saving energy by introducing micro flush toilet for the target facility, commerce facilities etc. in Kenya.
<i>Calculation of reference emissions</i>	Reference emissions are GHG emissions from using reference toilet, calculated with water consumption of project toilet and CO2 emission factor for water supplied.
<i>Calculation of project emissions</i>	Project emissions are GHG emissions from using project toilet, calculated with water consumption of project toilet and CO2 emission factor for water supplied.
<i>Monitoring parameters</i>	Water consumption of project toilet (micro flush toilet)

D. Eligibility criteria

This methodology is applicable to projects that satisfy all of the following criteria.

Criterion 1	Toilet is utilized for solid waste and urine.
Criterion 2	Water usage for one flush is less than two liters.
Criterion 3	Water for toilet is supplied by water supply system
Criterion 4	Waste water after flushing discharges to septic tank or sewerage system.
Criterion 5	Toilet shall be taken care of good hygiene.
Criterion 6	Proper maintenance service/framework, which consists of Manufacturer or agent who appointed from the manufacturer etc., shall be set.

E. Emission Sources and GHG types

Reference emissions	
Emission sources	GHG types
Power consumption by the water supply system	CO2
Project emissions	
Emission sources	GHG types
Power consumption by the water supply system	CO2

F. Establishment and calculation of reference emissions

F.1. Establishment of reference emissions

Reference emissions are calculated by multiplying water consumption of project toilet and CO2 emission factor for water supplied.

F.2. Calculation of reference emissions

$$RE_{i,p} = \Sigma (WC_{RE,p} \times CEF_{water} / 1,000)$$

$RE_{i,p}$: Reference emissions during the period p [tCO2/p]

$WC_{RE,i,p}$: Water consumption of reference toilet during the period p [liter/p]

CEF_{water} : CO2 emission factor for supplied water [tCO2/m3]

G. Calculation of project emissions

$$PE_{i,p} = \Sigma(WC_{PE,p} \times CEF_{water} / 1,000)$$

$PE_{i,p}$: Project emissions during the period p [tCO₂/p]

$WC_{PE,p}$: Water consumption of project toilet during the period p [liter/flush]

$CEF_{water,i,p}$: CO₂ emission factor for consumed water [tCO₂/m³]

H. Calculation of emissions reductions

$$ER_{i,p} = RE_{i,p} - PE_{i,p}$$

$ER_{i,p}$: Emission reductions during the period p [tCO₂/p]

$RE_{i,p}$: Reference emissions during the period p [tCO₂/p]

$PE_{i,p}$: Project emissions during the period p [tCO₂/p]

I. Data and parameters fixed *ex ante*

The source of each data and parameter fixed *ex ante* is listed as below.

Parameter	Description of data	Source
CEF_{water}	When project toilet consumes water supplied, CO ₂ emission factor for supplied water (CEF_{water}) is used with the following calculation. CEF_{water} [tCO ₂ /m ³] $= EF_{water-production}$ [kWh/m ³] * EF_{elec} [tCO ₂ /kWh]	Based on the official data /information from Kenyan organization, this value will be calculated.
$WC_{RE,p}$	Water consumption of reference toilet i during the period p [liter/flush] is selected six (6) liter from the data of reference scenario. Note : The above data is set tentatively and will be fixed by the completion of Final Report.	Specifications of reference toilets which are in widespread use in Kenyan market.