



**Programme of activities design document form
(Version 09.0)**

| BASIC INFORMATION | |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title of the PoA | Improved Cook Stove Programme in Fiji |
| Version number of the PoA-DD | 02 |
| Completion date of the PoA-DD | 05/06/2019 |
| Coordinating/managing entity | Korea Carbon Management Ltd. |
| Host Parties | Republic of Fiji |
| Applied methodologies and standardized baselines | <p>Applied Methodology: AMS-II.G.- "Energy efficiency measures in thermal applications of non-renewable biomass", Version 10.0, Reference: EB100, Annex-12, valid from 31/08/2018.</p> <p>Standardized Baseline: NA</p> |
| Sectoral scopes | 03 |

PART I. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

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The proposed Small-Scale Programme of Activities (i.e. SSC-PoA) titled “**Improved Cook Stove Programme in Fiji**” is a voluntary initiative to promote improved, clean and energy efficient cook stoves (also termed as ICS) in rural and urban households across different regions in the Republic of Fiji. The PoA has been proposed, designed, developed and to be implemented by **Korea Carbon Management Ltd.** (Hereinafter also referred as KCM), which is a Korean entity engaged in Carbon Asset Management & Trading.

The Republic of Fiji is a Small Island Developing State (SIDS) located in the South Pacific Ocean consisting of 330 beautiful islands, with a population of approximately 845,309 people (as per FBOS, 2015). Fiji’s forest cover¹ to be 1,014,0800 ha (56% of total land area), which includes a number of forest classes such as Closed Forest, Plantations (pine and hardwood) and 70% of Open Forest. The forestry sector in Fiji is managed mainly by the Ministry of Forests with the aim of adopting a more modern approach through a process known as multiple use management including the provision of timber resources, bio-energy production, habitat preservation, clean water production, biodiversity conservation, employment and most importantly carbon sink. However, the majority of the population in Fiji still relies on fuel wood (also referred as firewood or woody biomass) for their daily cooking practices. Especially, the rural population of Fiji is predominantly dependent on wood as primary fuel for cooking, and it is nearly always an open firing (also known as three-stone firing practice). The women in the communities mainly go to the forest areas for collection of fuel wood; more than 70% of rural households were still relying on fuel wood as the main cooking fuel, according to the 2007 Census conducted by Fiji’s Bureau of Statistics (2012b). At the same time, the charcoal remains the primary source of most energy used by urban households for cooking followed by intermittent use of firewood. As per study², the poor logging practices, firewood collection, and the burning of forests are the main drivers of deforestation and forest degradation in Fiji. The household cooking accounted more than 36% of total household demand in Fiji, which directly infers a large dependency on firewood across the rural as well as urban population of Fiji.

This large dependency on firewood as primary fuel for households adversely affects the forest resources leading to deforestation and degradation. Therefore, the key objective and purpose of the PoA is to reduce the consumption of firewood by adopting efficient cooking practices across the households in rural as well as in urban areas of Fiji.

The policy/measure or stated goal that the PoA seeks to achieve:

The goal of this SSC-PoA is to disseminate cleaner, more efficient improved cook stoves in an affordable and available manner to rural households, across Fiji, who at present, use simple three-stone fires or traditional pot supports that are inefficient and smoky in burning firewood. Also, the program keeps provision to promote cleaner and more efficient cook stoves in Urban and Semi-urban regions in Fiji in future where inefficient cooking practice prevails.

¹ As per estimates of The FAO Global Forest Resource Assessment (2010)

² As identified by the Fiji National REDD+ Programme

The end users of the program will be benefitted from not only having access and affordability of high-quality ICS but will also experience reduced indoor air pollution levels and various health risks associated with breathing polluted air, thus resulting in a range of social and economic benefits to users. ICSs to be distributed under this SSC-PoA may be locally made/built or may be imported from outside the country, including Annex I countries. Thus, technology transfer is envisaged and considered under this SSC-PoA. However, it is proposed that ICS will be distributed/installed on a non-commercial basis by CPA Implementer(s) that will help ensuring zero investment from the end users. Carbon Finance will be used to facilitate the purchase, distribution and marketing of stoves, and make the ICS available to users without any financial burden. Additionally, Carbon Finance will be used to cover ongoing project operations expenses. Therefore, without Carbon Finance, these activities would not take place.

The overall objective of the SSC-PoA is to reduce of greenhouse gases through efficient use of firewood, thereby to contribute to the conservation of forests and woodlands. It will also ensure improvement in the quality of life of the ICS end users through reduction of drudgery, time and money spent on fuel wood collection and throughout improvement of the indoor kitchen environment. Thus, it is envisaged that the proposed SSC-PoA will deliver a long-term, secure and simple contribution to sustainable development in Fiji that would not exist without carbon finance under this CDM.

A framework for the implementation of the PoA:

Korea Carbon Management Ltd. (KCM) is the Coordinating/Managing entity ("CME") for this SSC-PoA. KCM is a company registered in the Republic of Korea with company registration number 142-81-56603.

The ICS disseminated through this programme will replace the prevailing inefficient three-stone fires or traditional pot support with stoves that combust firewood more efficiently and improve thermal transfer to pots, thus saving fuel and lowering greenhouse gas emissions. The implementation framework proposes to include dissemination of ICS manufactured by or imported from appropriate ICS manufacturers or technology suppliers free of cost to the end user. Carbon revenues will be used to fund ICS purchases, distribution and cover all other associated costs of the programme.

The CME will communicate with the Executive Board and/or the Designated Operational Entity ("DOE") on all matters, including submission of the PoA, inclusion of CPA and making necessary arrangements for the distribution of Certified Emission Reductions. The CME will request the inclusion of new CPA(s) to the PoA through the DOE during the lifetime of the PoA.

The CME will coordinate with the end users of ICS through its representative in Host Country to ensure that all requirements with respect to the CDM PoA, such as assisting with validation and registration, data collection, recording, monitoring and survey of households as per desired intervals, periodic verification etc.

The end users will be informed that carbon finance is being generated by the use of the ICS and this finance is in turn used to manufacture/import ICS and entire distribution and management of the ICSs under the programme. It is proposed that at the time of distribution, the ICS user will be registered under a beneficiary agreement and all the necessary information regarding the ICS unit

and the end-user and the distributor/retailer of the ICS shall be recorded, allowing one (e.g. the CME or the DOE) to easily trace and identify each ICS when needed. This Information shall be recorded using a digital device and recorded data shall be populated to a central project database and will be stored by the CME in electronic format. There would be provision of extracting recorded data in excel and/or pdf format for further use in hard copy format, whenever needed. Such registration formality will also confirm its agreement to transfer the rights to the carbon credits or certified emission reductions (CERs) generated from the use of ICS to the CME and/or CPA Implementer as may be nominated.

Thus, the framework of the PoA aims to leverage carbon finance to build robust supply chains that enable previously underserved communities to gain access to improved energy saving technologies. Additional partners and networks will be progressively added to the project activities if required in due course. Local partnerships will allow for targeted campaigning and marketing to diverse distribution locations throughout the country. Each partner will be responsible for directly managing all parties under their partnership as well as collecting/maintaining appropriate monitoring and distribution records.

A confirmation that the PoA is a voluntary action by the coordinating/managing entity:

This SSC-PoA is a voluntary action, and will be implemented by KCM, the CME. There are no mandatory laws³, policies or mandatory targets in the host country of the SSC-PoA stipulating the adoption of ICS by households.

Contribution to sustainable development:

The use of inefficient cooking stoves (i.e. primarily three-stone fires practice) in homes causes considerable disease and death, particularly among women and children. The World Health Organisation⁴ has found that 40% of all childhood pneumonia can be attributed to exposure to smoke from fires in homes, and exposure to smoke has been found to cause chronic lung disease in women. Approximately 1.5 million people die from smoke inhalation each year; most are women and children in low-income countries. Moreover, ill health can result in loss of productivity and costs associated with health care.

The inefficient use of wood also places considerable and unnecessary pressure on local ecosystems and biomass resources, leading to deforestation in long run. Therefore, saving in consumption of firewood can reduce such risk as compared with the lag time to plant and manage trees to a harvestable age.

Therefore, the implementation of the SSC-PoA will contribute to overall sustainability of the region in various ways. Following are the key sustainable development attributes associated with the PoA:

Environmental well-being:

- The SSC-PoA will help reducing greenhouse gas emissions over its lifetime.

³This information can also be verified from the Fiji-NDC-Implementation-Roadmap, 2017-18.

⁴WHO World Health Report, 2002

- The SSC-PoA will help to reduce the use of non-renewable biomass⁵ from forests in Fiji, thereby assisting in the maintenance of existing forest stock, while protecting natural forest eco-systems and wildlife habitats.
- Also, the protection of standing forests will help to protect watersheds that regulate water table levels and prevent flash flooding.
- Due to reduction in kitchen smoke, indoor air quality improves which is direct impact on air of the immediate environment.

Social well-being:

- Direct benefit to health due to reduction in indoor pollutants from the burning of biomass in homes. Due to decrease in total biomass burnt and increase in temperature of combustion, there would be less carbon dioxide, carbon monoxide and particulates emission.
- Improved efficiency will result in considerably less time requirement for collecting wood fuel for cooking, thereby reducing the work burden on rural families, especially women and girls who are charged with drudgery. Thus saving in time will help them exploring alternative opportunities for economic development as well as education.
- Also, the ICS provides a safer method for combusting biomass for cooking, helping to reduce burn injuries, especially for children, in the families.

Economic well-being:

- Household expenditures on cooking fuel will be reduced through the use of ICSs.
- Saving in time directly results into saved household labour, which can be diverted to more productive economic activities to improve the economic conditions of families.
- During the distribution of ICS, CME will engage local people for various activities related to operations; thus direct employment opportunity will be created. Also, in case of local manufacturing of efficient stoves both local resources and local manpower will be used which will anyhow contribute to economical wellbeing of the communities.
- Forest in Fiji is one of the biggest natural resources and also is a source of various economy and trade. At national level, reduction in deforestation due to saving in firewood at household will directly and indirectly contribute to the national resource conservation (i.e. biomass) which is a positive contribution towards economical well-being of the nation.

Technical well-being:

- The SSC-PoA intends to promote more efficient and clean cooking practice across Fiji, especially the rural households in Fiji. Therefore, it will add new technology at household level leading to an access to technological self-reliance in the project regions.
- In case of import of ICS, there would be technology transfer into the country, which will bring technical well-being for long run.

A.2. Physical/geographical boundary of PoA

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The physical/geographical boundary of the SSC-PoA is considered as the national boundary of Republic of Fiji.

Fiji is a country in the South Pacific, an archipelago of more than 300 islands. It is famed for rugged landscapes, palm-lined beaches and coral reefs with clear lagoons. It has two major

⁵f_{NRB} factor in Fiji is 90.97%, as calculated from the official data provided by Ministry of Forest.

islands, Viti Levu and Vanua Levu; they contain most of the population. Viti Levu is home to the capital, Suva, a port city with British colonial architecture.

All CPAs (i.e. Component Project Activity to be included in this PoA) will be implemented within the territorial boundary of the Republic of Fiji, the Host Country of the PoA.

The Geo-coordinates of the Republic of Fiji are as follows:
17.7134° South and 178.0650° East.

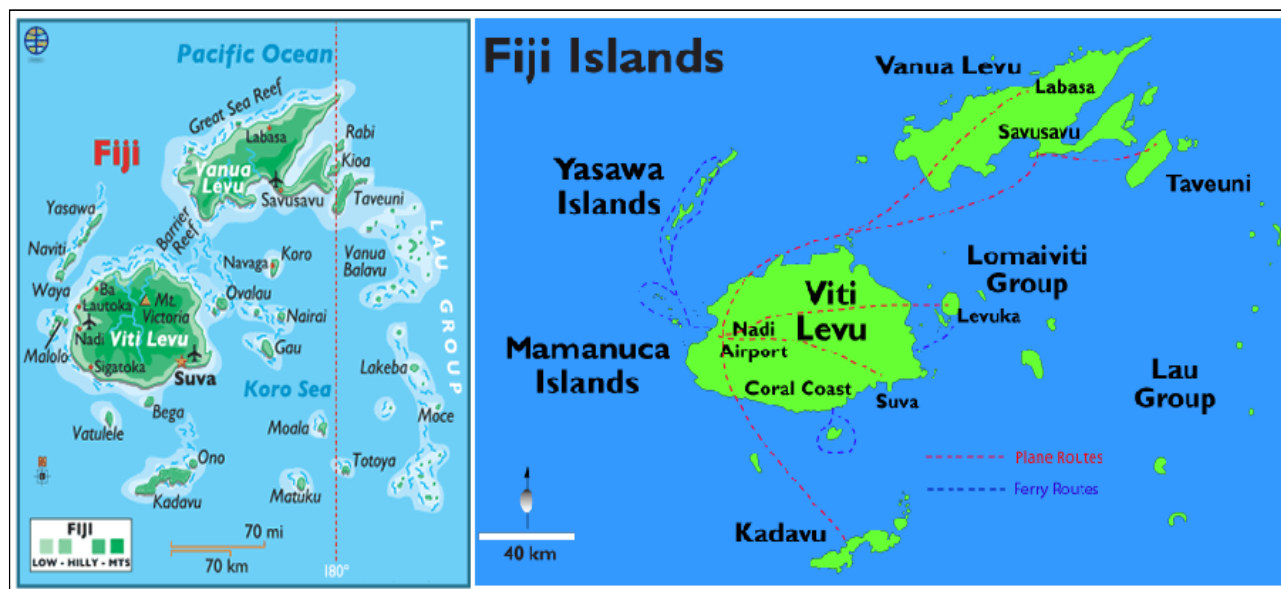


Image1: Map – Republic of Fiji

A.3. Technologies/measures

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The activities under the proposed SSC-PoA will promote improved cook stoves (ICS) for house cooking that result in reduced fuel consumption (i.e. firewood) and GHG emissions. The ICS used in this SSC-PoA have characteristics that improve the efficiency of combustion and thermal transfer to the pot compared with three-stone fires or traditional pot supports.

An ICS is a single or multi pot portable or in-situ cook stove with specified efficiency of at least 20% (as per methodology AMS-II.G. version 10.0). In line with the methodological prescription, the efficiency of an ICS shall be established by a national standard body or an appropriate certifying agent etc. recognized by that body; or alternatively manufacturers' specification shall be used. Any selection of such efficiency tests shall be approved by the CME prior to inclusion of ICS under any CPA.

The type of technology/measures and know-how transferred to the host country depend on the specific ICS type disseminated under each CPA and is thus further described in each CPA-DD. In case of locally manufactured ICS, there would not be any technology transfer; whereas for any imported ICS type the state-of-the art trainings by regional or international experts are proposed to be a part of the technology transfer under the program.

As a part of technology measures, it has been proposed that the project activity will continually assess biomass (and/or charcoal) stove technology options in order to achieve its goal of providing the high performing, clean, efficient and locally appropriate technologies for household cooking to the local environments. The framework of the PoA includes the vision that as the PoA expands several models of ICS (both fixed (in-situ) and/or portable) produced by ICS manufacturers (both locally manufactured and/or imported) may be included in the PoA. However, inclusion of such

stoves would be subject to compliance with requirements of the applied methodology and the eligibility criteria of the PoA. The CME is committed to investing in research and development for the improvement of the current stoves to be disseminated under the programme. Thus, during the lifetime of the PoA, research and development may result in dissemination of more efficient ICS models, which shall be absorbed by this SSC-PoA, subject to methodological and eligibility criteria of the PoA. Upon inclusion into the project activity, all appliances will remain valid throughout their operational lifetime until the CME chooses to discontinue crediting of the improved stoves.

A.4. Coordinating/managing entity

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“Korea Carbon Management Ltd.” (also referred as KCM) is the Coordinating/Managing Entity (CME) of the PoA. The contact details of KCM are provided in the Appendix 1 of this PoA-DD.

A.5. Parties and project participants

| Parties involved | Project participants | Indicate if the Party involved wishes to be considered as project participant (Yes/No) |
|-------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|
| Republic of Fiji (host party) | Korea Carbon Management Ltd. (KCM) (Private Entity) | No |

A.6. Public funding of PoA

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No public funding from Annex I parties to the United Nations Framework Convention on Climate Change (UNFCCC) are envisaged to be made available for the proposed SSC-PoA or for any CPA to be included under the proposed SSC-PoA⁶. If public funding from Annex I parties to the UNFCCC is provided, the CME shall confirm that the funding is not diversion of Official Development Assistance (ODA).

⁶CME has already confirmed via written statement about No ODA for the program.

SECTION B. Management system

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The CME will manage the overall PoA in terms of development of the PoA and CPA(s), shall be the in charge for operational and management arrangements for the implementation of the PoA across its crediting period of 28 years.

The management system of the PoA is designed as per CDM Project Standard for Programme of Activities (Version 02.0 EB101, Annex 03) and includes all relevant information as per paragraph 36 & 37 therein. The following is the flow chart and description of the operational and management arrangements established by the CME for the implementation of the PoA:

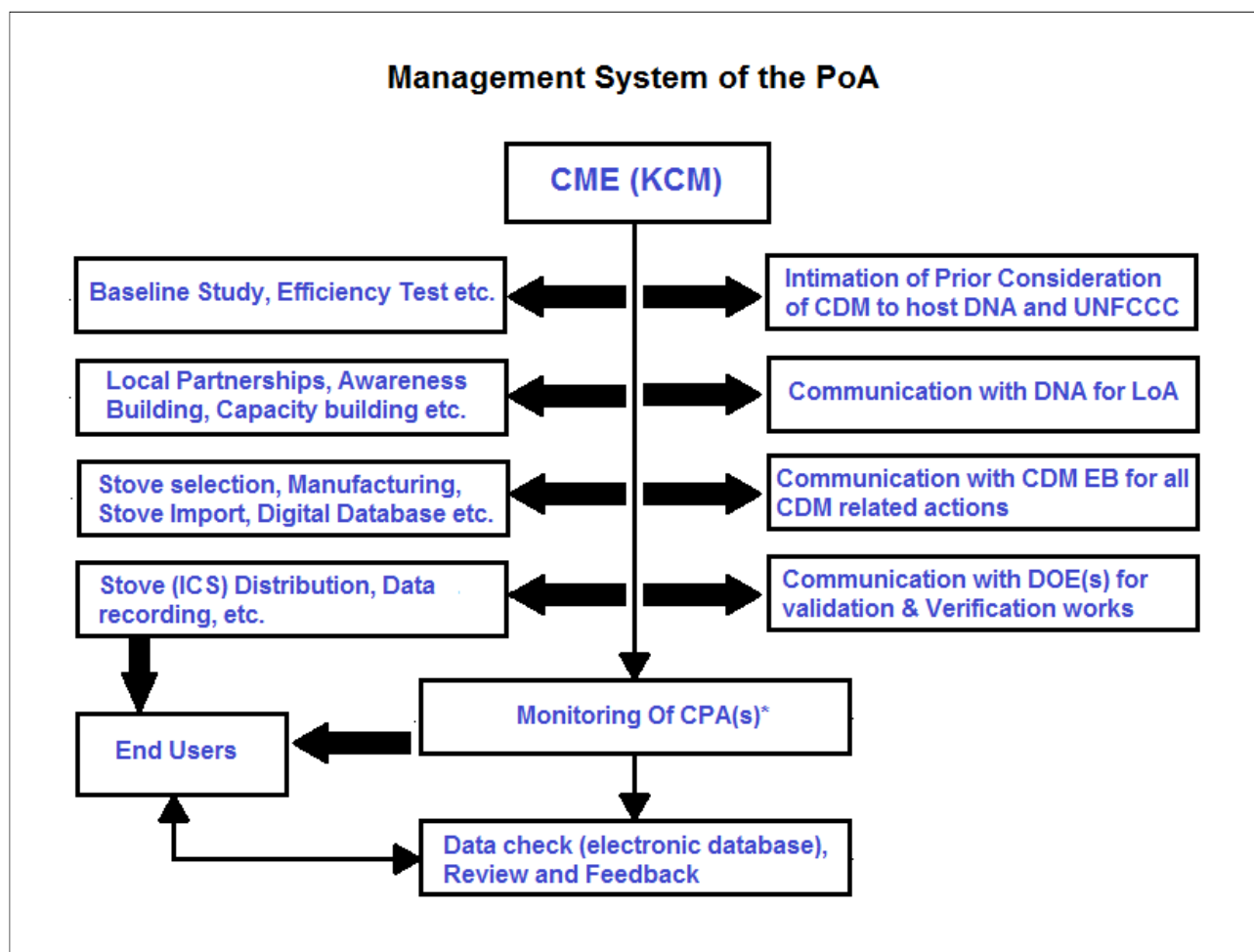


Image 2: Flow Chart – Management System (* currently micro-scale approach is considered)

- 1) **A clear definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;**

The programme is coordinated and managed by KCM, as the CME of the PoA. As shown under the flow diagram above, the overall responsibility of the PoA is controlled by KCM. However, in due course of the development, there will be different parties involved as a part of the management system to coordinate and deliver various activities for the smooth operation of the program. Therefore, the roles and responsibilities of different participants are proposed to be as follows:

| Entity/Person | Roles & Responsibilities |
|---------------|---------------------------------------------------------------|
| CME (KCM) | ✓ CDM documentation development (PoA-DD, CPA-DD, MR, ER etc.) |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> ✓ Communicate with Host Country DNA ✓ Communicate with UNFCCC for all CDM related matters ✓ Communicate with DOEs for validation & verification ✓ Engage consultant or any entity for CDM process (if required) ✓ Identify local partners for local representation and support ✓ Identify suitable ICS manufacturers (both local & for import) ✓ Design the distribution plan for on ground implementation of ICS ✓ Design the monitoring system (including data collection using digital tool & to collate in an electronic database) ✓ Training and development of local resources (as may be required) ✓ Regular Monitoring and quality assurance of data ✓ Technical review and due-diligence of CPA inclusion including the technical competencies of local teams. ✓ Monitor & Supervise on-ground distribution, etc. ✓ Annual Review meeting with Local Teams and other associated entity in order to ensure continuous improvements of the PoA system |
| Local Representative (to be referred as LR. LR can be any single or multiple entities nominated by KCM as per the need of the programme) | <ul style="list-style-type: none"> ✓ To support & assist CME in achieving the stated goal of the SSC-PoA ✓ Assist and facilitate CME in baseline data collection, efficiency testing, etc. ✓ To be the local representative and communicate, act and engage in implementation activities of CPA (i.e. to act as CPA implementing entity on behalf of CME or as may be nominated) ✓ To identify and deploy suitable local team and resources for ICS distribution, data collection, regular spot-check at households etc. ✓ Assist and facilitate CME during training of the Operational Team and capacity building across the end users. ✓ To bridge any gap in between end users of ICS and CME in order to ensure smooth operation of the program to achieve overall objective of the PoA. |
| Operational Team (to be referred as OT. OT can be any single or multiple teams, to be directly controlled by CME or under the supervision of LR, as may be required) | <p>The operational team(s) would consist of different members depending on the requirement at the time of dissemination of the ICS. A proposed team composition would be as follows:</p> <ul style="list-style-type: none"> ✓ CPA Manager(s) – each OT will have at least one manager who will oversee the implementation of the CPA and manage the entire team. ✓ ICS Distributor(s) – who will be responsible for deploying the ICS at household and register the end user in the digital tool. They will also be responsible for giving demonstration of ICS use, discussing with the end users on its benefits and educate them on continued use of ICS and discontinuation of the use of conventional/traditional open firing practice. They will also conduct periodic check at households to gather feedback, address to any technical concerns, collect necessary data and transmit the information to LR and/or CME for registering in the electronic database. |
| ICS Manufacturer or Supplier (PoA proposes to keep | <ul style="list-style-type: none"> ✓ To design and develop ICS as per required standard of CME ✓ To provide technical parameters and manufacturer's efficiency etc. at the time of supply ✓ To educate and train the OT(s) on the installation (delivery), |

| | |
|--------------------------------------------------------------------|-----------------------------------------------|
| provision of both locally manufactured as well as imported stoves) | uses, handling etc. of the ICS at households. |
|--------------------------------------------------------------------|-----------------------------------------------|

2) Records of arrangements for training and capacity development for personnel:

The CME, the Local Representative or an entity assigned by the CME shall conduct training and capacity building exercises for its own personnel based on any identified needs to ensure that continuous improvements of the PoA management system are taking place.

3) A procedure for technical review of inclusion of CPAs:

The CPA-DD shall be drafted by the competent personnel of CME or by an assigned third party (i.e. CDM Consultant as referred above). Before CPA-DD is forwarded to the DOE, the document will be checked internally by a third person for consistency and also to ensure if the eligibility criteria for CPA inclusion as specified in the registered PoA-DD are fulfilled.

Moreover, during implementation of the CPA, and as necessary, the CME personnel will make random visits in the CPA region to ensure all procedures outlined in the PoA are being followed, particularly on stove registration and database updating etc.

4) A procedure to avoid double counting:

Each ICS in each SSC-CPA included under this PoA will be identified by a unique ID comprising the stove type, serial number and geographical location etc. Also, the quality control and quality assurance procedures will minimize any possible double counting.

Each ICS' serial number will be registered digitally at the time of handing over to end user and then the same will be automatically entered into the electronic database. It will, thus clearly and unambiguously keep track of the unique stoves in each CPA. Since database will be digital no individual serial number can be re-used, so it will not be possible for one stove to be counted in two different CPAs. During each registration process of an ICS, the beneficiary (i.e. the end user) will acknowledge their actual condition/practice followed at baseline (i.e. that they previously used a three-stone fire or traditional pot support) and previously did not own any ICS in order to be included in the CPA. Registration data collected will be stored electronically and will be verified at regular interval by CME.

5) Records and documentation control process for each CPA under the PoA:

The CME will keep electronic files for each CPA under the PoA, which contains the following information per CPA:

- ✓ Name and ID of the CPA
- ✓ Type of ICS deployed
- ✓ Name and contact details of the registered IE's for the CPA
- ✓ Unique Serial Number/ID of each ICS
- ✓ Unique ID of all customers (in case the CPAs are implemented by other entity other than CME) belonging to the CPA
- ✓ Start & End date of the CPA crediting period
- ✓ CERs issued per verification period

This database will be updated as per the progress of the CPA. It's proposed that the record keeping system should collect as many information as necessary to facilitate the Verification of the CERs. At the current stage, the list of information mentioned above are ideal however may be

extended or modified depending on the actual requirement/condition of the implementation. Thus, the collection of all the details is not exhaustive and additional information may be collected as may be required.

6) Measures for continuous improvements of the PoA management system:

The CME will organize annual review meetings with local teams, staff and other associated entities to review the performance of the PoA management system, identify issues that needs to be addressed in order to obtain continuous improvements of the PoA management system. The minutes of such meeting will be kept on file for records.

7) Other relevant elements:

- **Determining the occurrence of de-bundling under a programme of activities(PoA)**

In line with the methodological tool 20, for the purposes of registration of a Programme of Activities (PoA), a proposed small scale CPA of a PoA shall be deemed to be a de-bundled component of a large scale activity if there is already an activity, which satisfies both conditions (a) and (b) below:

- (a) Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same technology/measure, and;
- (b) The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.

Now, for this PoA, the CME is KCM who is also going to be the CPA implementer. KCM does not have any other PoA (both small and large scale) within the host country, thus it does not satisfy any of the two conditions above; which confirms that the PoA is not a de-bundled component of any large scale activity.

- **The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity:**

In line with the methodological tool 20 and as demonstrated above, the CPA (or each CPA) to be included into this PoA is not a de-bundled component of another CDM programme activity(CPA) or CDM project activity. Also, as per guidelines, "If each of the independent subsystems/measures (i.e. each ICS) included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied then that CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large scale activity." The AMS-II.G threshold is a maximum energy saving of 180 GWh_{th}/year for SSC projects. The de-bundling rule does not apply to this SSC-PoA as the ICS (i.e. the independent subsystem) envisaged to be installed/distributed would not exceed 1% of the 180 GWh_{th}/year SSC thresholds. This particular criterion shall be demonstrated for CPA as a part of its inclusion criteria.

- **The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA;**

The CME/CPA implementers have the operational responsibility for implementing and monitoring the CPA(s) under this SSC-PoA. If appropriate, the CME will have legal contracts put in place with CPA Implementers and entities assisting with the implementation of the CPA. These legal contracts shall clearly state that the implementations of CPA activities are subscribed to this SSC-PoA.

At the end user level, at the time of distribution the households will be informed that their activity is being subscribed to the PoA and acknowledge that they cede all rights for the CERs to the CME. Thus, users are informed that the ICS is given to them due to CDM revenues stemming from emission reductions from using the ICS.

SECTION C. Demonstration of additionality of PoA

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The proposed PoA is a voluntary coordinated action by Korea Carbon Management Ltd. Under this PoA it has been proposed that ICS will be distributed to the targeted end users without any cost. Also, there is no mandatory law or requirement in the Host Country, Fiji, to foster the dissemination of improved cook stoves. Hence, this voluntary coordinated action would not be possible in the absence of revenue from CERs, due to the cost associated with the PoA development, implementation and overall management.

The additionality of the Programme of Activity (i.e. for the PoA) is demonstrated by a barrier analysis that is in line with EB 99, Annex 03, Tool 21 - "Demonstration of additionality of small-scale project activities" (Version 12.0). The PoA demonstrates the existence of an Investment Barrier.

Also, PoA is deemed to be auto-additional as per micro-scale guideline; as according to the CDM Tool 19 (Version 09.0), the proposed PoA is solely composed of isolated units where the users of the technology/measure (i.e. ICS) are mainly households or communities and where the size of each unit (i.e. ICS) is no larger than 600 MWh of the small-scale CDM thresholds. As the programme is proposed in an LDC and ICS will be used by individual household; having size of each ICS is less than 600MWh, the project is automatically additional. Furthermore, demonstration of compliance of the CPA with the small-scale thresholds at the aggregate level of the CPA is no longer required.

Investment barrier:

The proposed programme intends to distribute the ICS free of cost to users i.e. households; hence there is no financial return from the programme other than revenue from sale of CERs. As each ICS has certain costs associated with the production/purchase, distribution, monitoring and verification etc., the programme will not occur in absence of the carbon revenue. The action is not financially viable without the support of revenues from the sale of CERs. Currently, no similar technology penetration is there in Host Country. As the end-user does not benefit from a direct financial return and procuring ICSs requires capital, which is a barrier to rural consumers due to difficulties in accessing capital, a wide dissemination of ICSs in the Host Country is unlikely. The actions under the PoA will alleviate these barriers by promoting free distribution of ICSs to end-users. Hence in line with para 10 a) of EB99 Annex--03, the project faces investment barrier and hence it is considered to be additional.

Positive List of technologies for auto additionality:

In line with paragraph 14 of the 'Tool 19' (Version 09.0), which states that: *"for CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term 'project activities' in paragraphs 4, and 11 to 13 above shall be read as units"*.

The proposed PoA is solely composed of isolated units where the users of the technology/measure (i.e. ICS) are mainly households or communities and where the size of each unit (i.e. ICS) is no larger than 600 MWh of the small-scale CDM thresholds (which is equivalent to 1,800 MWh_{th} of annual energy savings). As the programme is proposed in an LDC and ICS will be used by individual household; having size of each ICS is less than 600MWh, the project is automatically additional. Consequently, CPAs under this PoA are not limited in size by CPA thresholds.

Additionality Check for CPA(s):

As part of the CPA inclusion check, it is proposed to be demonstrated for each CPA that it is exempted from performing the de-bundling check if each of the independent subsystems/measures (i.e. each ICS) included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied, which is 180 GWh(th)/year for SSC projects. Thus, the annual energy savings of each project device included under the CPAs will not be more than 1% of the small-scale CDM thresholds and hence satisfy the condition to qualify as a micro-scale CDM unit as per Tool 19 "Demonstration of additionality of micro-scale project activities" version 09.0.

Therefore, CPA will be auto-additional and demonstration of compliance of the CPA with the small-scale thresholds at the aggregate level of the CPA is no longer required.

The information presented here constitutes the demonstration of additionality of the PoA as a whole.

SECTION D. Start date and duration of PoA

D.1. Start date of PoA

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09/07/2018.

The start date of the PoA is considered as the date of publish of the prior consideration⁷ of CDM at UNFCCC.

D.2. Duration of PoA

>>
28 years, 00 months.

SECTION E. Environmental impacts

E.1. Level at which environmental impacts analysis is undertaken

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The environmental analysis is undertaken at the PoA level as the environmental impact does not depend on the specific geographical location where the ICS are used.

E.2. Analysis of environmental impacts

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The distribution of ICS will have no negative environmental impacts. All CPAs will use similar technology (i.e. ICS) and will be implemented in Fiji, which is a small and homogenous country. Therefore, environmental impacts can be expected to be similar in all CPAs, which is negligible.

E.3. Environmental impact assessment

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In accordance with the EIA Guidelines⁸ prepared by the Department of Environment in the Republic of Fiji, an EIA is not required for the distribution and implementation of ICS technology.

Also, no negative environmental impacts are expected by the PoA. No negative trans-boundary impacts were identified and as a whole the activities under the PoA will benefit the environment and contribute to the sustainable development of the host country as demonstrated under the section A.1.

⁷ https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html

⁸ <https://www.sprep.org/att/IRC/eCOPIES/Countries/Fiji/102.pdf> (The EIA Guidelines prepared by the Department of Environment determines which type of projects must execute an EIA and the necessary procedures. There is no mention of Cook stove project, thus it can be inferred that the cook stove project is not included into the category mandated for conducting Environmental Impact Assessment.

SECTION F. Local stakeholder consultation

F.1. Level at which local stakeholder consultation is undertaken

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The local stakeholder consultation has been undertaken at PoA level as all the CPAs under proposed PoA will have similar technologies and have similar impacts.

F.2. Modalities for local stakeholder consultation

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The CME has conducted a local stakeholder consultation on 06/10/2018 at Kasabias Nausori Warehouse, in Suva Fiji Islands with the help of its Local Partner/Representative "Kasabias Ltd"⁹. A press release was published on 26/09/2018 in two newspapers Fiji Sun and The Fiji Times to invite all relevant stakeholders belonging to different groups to attend the meeting and provide their comment/feedback on the PoA. Also, few personal invitation letters were also sent to local authorities. The local stakeholders and/or representatives of the following groups took part in the meeting:

- Traditional stove users (i.e. the end users)
- A charcoal stove user
- Representatives from Women Groups
- Local NGO representatives
- Team members of Local Representative/Partner
- Cook Stove (ICS) technical person, etc.

During the consultation, the representative of CME has explained in detail about technology (ICS) to be employed by this Programme and associated benefits. The attendees were educated on the need of use of ICS to replace their existing cooking practice, also imparted with the knowledge of sustainable developments associated with the programme in long run. There were discussions on overall process of CDM mechanism, carbon credits etc. to make them aware of their participation into the carbon mechanism. The technical details of ICS were discussed to make them understand about this improved technology and also a demonstration of the ICS was provided by the technical ICS expert.

F.3. Summary of comments received

>>

As a part of the consultation process, a question-answer and feedback round was conducted during the meeting. The participants were encouraged to ask questions so that any concerns or queries related to the ICS and the entire programme can be addressed in detail. Participants asked queries on their doubts which are basically related to the concept of PoA, if there is any cost involved to them, kind of pot and pot size can be used in the ICS, etc. and also appreciated the event and requested to educate them more via such events.

Further during the concluding stage of the event, a thorough discussion with stakeholders present was done on various impacts and sustainability of PoA; and based on discussion it was concluded that PoA is highly sustainable and will lead to positive development in the regions across the host country.

⁹Kasabias Ltd. is a private entity in Fiji, they are considered by CME as the local partner for support during the implementation of the programme in Fiji.

F.4. Consideration of comments received

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The questions and comments given by the stakeholders were appropriately answered by the representative of CME. Since all comments were positive, no change of the PoA design was required.

SECTION G. Approval and authorization

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CME has received the 'Letter Of Approval (LoA)' from the Host Country DNA "Ministry of Economy (Govt. of the Republic of Fiji)", on 3rd April 2019¹⁰.

¹⁰The copy of the LoA has been submitted to DOE, the original LoA letter was produced to DOE during the on-site audit.

PART II. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

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Improved Cook Stove Programme in Fiji – CPA[#]

H.2. Reference number of generic CPA

>>

Generic CPA [01]

H.3. Purpose and general description of generic CPA

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The main objective of the CPA is disseminate efficient improved cooking stove (ICS) across rural, as well as urban & semi-urban households of Fiji which will result in reduction of greenhouse gases through efficient use of firewood, thereby to contribute to the conservation of forests and woodlands. It will also ensure improvement in the quality of life of the ICS end users through reduction of drudgery, time and money spent on fuel wood collection and throughout improvement of the indoor kitchen air quality, which will positively impact the health of families. Thus, it is envisaged that the CPA will deliver a long-term, secure and simple contribution to sustainable development in Fiji as prescribed under the SSC-PoA.

The small-scale project type applicable to the CPA is Type II, i.e. an energy efficiency improvement project activity “that reduce energy consumption, on the supply and/or demand side, with a maximum energy saving of 60 GWh per year (or an appropriate equivalent) in any year of the crediting period. In this context, for project activities that improve thermal energy efficiency, the maximum energy saving of 60 GWh(e) per year is equivalent to 180 GWh(th) per year saving.”

An ICS is a single or multi pot portable or in-situ cook stove with specified efficiency of at least 20% (as per methodology AMS-II.G. version 10.0). The ICSs to be included in the CPA have characteristics that improve the efficiency of combustion and thermal transfer to the pot compared with three-stone fires or traditional pot supports.

The proposed CPA helps in achieving various co-benefits, which will contribute in sustainable development in host country, as mentioned in section A.1 of the PoA DD.

H.4. Technologies/measures

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[The detailed technological description, technical details of the project cook stove (i.e. an ICS), and representative diagram/photo etc. shall be given in the specific SSC-CPA-DD]

The technology promoted under CPA is energy efficient improved cook stove (ICS). An ICS is a single or multi pot portable and/or fixed cook stove which will have at least 20% efficiency. The proposed ICS can be locally manufactured by stove manufacturer or by trained professional; or can be imported from other countries.

The ICS proposed under the CPA is known as [XXX], is a very simple furnace, which can be used for cooking and heating at households to replace traditional open firing or three stone fire arrangement. It uses less wood than traditional open fire, can burn small pieces of wood, produce less pollution and can be easily constructed from cheap materials. As per water boiling test conducted by [XXX] the [XXX] is projected to have a lifespan of at least [XXX] years and thermal efficiency of [XXX]%.

ICSs will be distributed to primarily rural households and also to urban & semi-urban households depending on the baseline situation, where they will be used for daily cooking & heating purposes in replacement of firewood based traditional open firing (three stone fire) or charcoal stoves (if any).

SECTION I. Application of methodologies and standardized baselines

I.1. Reference to methodologies and standardized baselines

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The PoA and its CPAs will apply a single approved small-scale methodology as mentioned below:

Type II : Energy Efficiency Improved Projects

Methodology : AMS-II.G.

Title : Energy efficiency measures in thermal applications of non-renewable biomass.

Version : 10.0

Sectoral scope: 03

Web link reference :

https://cdm.unfccc.int/filestorage/1/F/S/1FSPVQM7JWELKHB5U94DXR23TOC6AZ/EB100_repan12_AMS-II.G.pdf?t=RXB8cHVkOG1rfDAa0tNfqzYkv4ZBnU_H7L66

The applied methodology “AMS-II.G.” refers to application of the following tools:

- “Guideline: General guidelines for SSC CDM methodologies”,
- “TOOL21: Demonstration of additionality of small-scale project activities”, and
- “TOOL19: Demonstration of additionality of microscale project activities”

(The latest available versions are being applied, as referred in respective sections)

The methodology also refers to the latest approved versions of the following approved standards, methodology(ies) and tool(s):

- “TOOL30: Calculation of the fraction of non-renewable biomass”;
- “Standard: Sampling and surveys for CDM project activities and programme of activities”

I.2. Applicability of methodologies and standardized baselines

>>

The methodology measures below constitute the justification for the choice of the selected methodology by showing that each CPA meets each applicability condition of the methodology.

| Sl. No. | CDM Methodology Requirement | Project Justification |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | This methodology comprises efficiency improvements in thermal applications of non-renewable biomass. Examples of applicable technologies and measures include the introduction of high efficiency biomass fired project devices (cook stoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvements in existing biomass fired cook stoves or ovens or dryers | The proposed CPA will distribute high efficiency single or multi-pot improved cook stoves for thermal application of the non-renewable biomass, which will replace inefficient traditional cook stove i.e. three stone firing leading to saving of non-renewable biomass. All ICS in this CPA will replace existing traditional stoves; therefore, no greenfield |

| | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | installations are included. This criterion will be checked from data recorded on the baseline stove used prior to ICS installation. |
| 2 | In the case of cook stoves, the methodology is applicable to introduction of single pot or multi pot portable or in--situ cook stoves with rated efficiency of at least 20 per cent. | CPA shall include the single pot or multi pot portable or in situ improved cooking stoves that will have a specified efficiency of at least 20% as tested and certified by third party. Every type of ICS implemented in the CPA will present a certificate issued by manufacturer or an appropriate certifying agent at the time of CPA inclusion proving the thermal efficiency as required by the CDM methodology. |
| 3 | The aggregate energy savings of a single project activity shall not exceed the equivalent of 60 GWh per year or 180 GWh thermal per year in fuel input. | <p>The CPA to be included will be a type II category CPA. The General Guidelines for SSC methodologies, version 22.1, paragraph 4.17 states the following:</p> <p>In the case of CPAs solely composed of “microscale CDM units”, the coordinating/managing entity is not required to demonstrate compliance with the small-scale CDM thresholds at the aggregate level of the CPA. In such cases:</p> <p>The definition of ‘microscale CDM units’ provided under Tool 19, “Demonstration of additionality of microscale project activities” version 9.0, section 6, para 14 and 15, shall apply;</p> <p>For CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term ‘project activities’ in paragraphs 4 and 11-13 above shall be read as ‘units’. If each of the units contained in the CPA satisfies the condition to qualify as a ‘microscale CDM unit’, then the coordinating/managing entity is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of the CPA. In such cases, the requirements related to de-bundling stated in paragraphs 6 above do not apply.</p> <p>The annual energy savings of each project device to be included under the CPA(s) will not be more than 1% of the small-scale CDM thresholds and satisfy the condition to qualify as a micro-scale CDM unit i.e. energy savings of each project device shall not exceed 1800 MWh_{th}/yr as per Tool 19 “Demonstration</p> |

| | | |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <p>of additionality of micro-scale project activities" V 09.0.</p> <p>Therefore, demonstration of a compliance of the CPA with the small-scale thresholds at the aggregate level of the CPA is no longer required.</p> |
| 4 | Non-renewable biomass has been used in the project region since 31 December 1989, using survey methods or referring to published literature, official reports or statistics. | Non-renewable biomass has been used in the project region (i.e. in Fiji) since 31 Dec 1989, which is evident from the public data available from Ministry of Forest in Fiji. In addition, several public literatures and official reports confirm the same. Few public literature links are provided below in footnote ¹¹ . Additionally, Ministry of Forest in Fiji also submitted data related to forest area, growth rate, etc. for the purpose of calculation of fNRB. These official data from Ministry also confirms that non-renewable biomass has been used in Fiji since long (i.e. even before 31 Dec 1989). The official data are submitted to DOE. |
| 5 | For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology. | Not applicable. |
| 6 | If the project device requires a specific fuel for this device (e.g. briquettes, pellets, woodchips), the consumption of the fuel should be monitored during the crediting period. | Not applicable. The ICS doesn't require a specific fuel. |
| 7 | <p>The use of this methodology in a project activity under a programme of activities is legitimate if the following leakages are estimated and accounted for, as required on a sample basis using a 90/30 precision for the selection of samples:</p> <p>a) Use of non--renewable woody biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment quantifies a portion of non--renewable woody biomass saved under the project activity that is then used as the baseline of other CDM project activities then $B_{old,i,j}$ is adjusted to</p> | <p>The CME chooses to account for all leakage in the project activity by applying the adjustment factor of 0.95 to the $B_{old,i,j}$.</p> <p>For more details please refer to specific CPA-DD.</p> |

¹¹ <https://www.ircwash.org/sites/default/files/808-OCEA91-9152.PDF>
http://prdrse4all.spc.int/system/files/TR0364_0.pdf

| | | |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>account for the quantified leakage;</p> <p>b) Increase in the use of non-renewable woody biomass outside the project boundary to create non-renewable woody biomass baselines can also be a potential source of leakage. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass outside the project boundary then $B_{old,i,j}$ is adjusted to account for the quantified leakage;</p> <p>c) As an alternative to subparagraphs (a) and (b) $B_{old,i,j}$ can be multiplied by a net to gross adjustment factor of 0.95 to account for both leakages, in which case surveys are not required.</p> | |
| 8 | <p>To determine the value of the fraction of non-renewable biomass (f_{NRB}) to be applied in a component project activity (CPA) of a POA, use one of the two options as follows:</p> <p>(a) Conduct local own studies to determine the local f_{NRB} value (sub national values); or</p> <p>(b) Use default national values approved by the Board. The choice of which option to use shall be made ex ante.</p> <p>However, a switch from a national value of f_{NRB} (i.e. option (b)) to sub-national values (i.e. option (a)) is permitted, under the condition that the selected approach is consistently applied to all CPAs.</p> | <p>The CME has decided to adopt the option (a), i.e. to conduct local own studies to determine the local f_{NRB} value (sub national values). The CME has considered the Methodological tool 30, Calculation of the fraction of non-renewable biomass (version 02). As per the tool, the tool is applicable to DNAs to submit region/country-specific default f_{NRB} values.</p> <p>In this regard, CME has collected data from Ministry of Forest in Fiji and based on that official data, f_{NRB} has been calculated in line with the "Default values of fraction of non-renewable biomass for least developed countries and small island developing States" (as per Appendix 2 of the guideline, EB67, Annex 22).</p> <p>The given official data are at national level, therefore the calculated value of f_{NRB} is applicable to the entire nation, i.e. Republic of Fiji. Thus, f_{NRB} is applied at PoA level and shall remain applicable for all CPAs.</p> |
| 9 | <p>Monitoring approaches for $B_{savings,i,j}$ and values for parameters f_{NRB} (when Option (a) in paragraph 39 is chosen) and the quantity of woody biomass $B_{old,i,j}$ may be determined either at the CPA level before the inclusion of the CPA or at the PoA level before the registration of the PoA-DD.</p> | <p>The CME considers to determine the parameters f_{NRB} at PoA level and the parameter $B_{old,i,j}$ on the CPA level before the inclusion of the CPA in the POA.</p> |

I.3. Application of multiple methodologies

>>

Not applicable.

I.4. Project boundary, sources and greenhouse gases (GHGs)

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The project boundary of the SSC-CPA follows the definition in AMS-II.G, Version 10.0.

The project boundary is the physical, geographical area of the ICS that utilises biomass. The emissions sources to be included in, or excluded from, each SSC-CPA boundary in the CPAs are presented in the table below. The geographical boundary of CPA is same as of PoA.

| | Source | GHG | Included? | Justification/Explanation |
|------------------|-------------------------------------------------|------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------|
| Baseline | Combustion of non-renewable biomass for cooking | CO ₂ | YES | Main source of emission |
| | | CH ₄ | NO | Not considered as per the methodology, only CO ₂ Emission Factor for fossil fuels is considered. Exclusion is conservative. |
| | | N ₂ O | NO | Not considered as per the methodology, only CO ₂ Emission Factor for fossil fuels is considered. Exclusion is conservative. |
| Project activity | Combustion of non-renewable biomass for cooking | CO ₂ | YES | Main source of emission |
| | | CH ₄ | NO | Not considered as per the methodology for simplification |
| | | N ₂ O | NO | Not considered as per the methodology for simplification |

According to AMS-II.G (version 10), the spatial extent of the project boundary is the physical, geographical site of the efficient devices that utilize biomass. Also, as per methodology prescription a net to gross adjustment factor (i.e. default value of 0.95) has been considered in the PoA to account for leakages, as an ex-ante parameter. Therefore, no other emission sources for leakage emission are required in the project boundary, hence not included in the table above.

I.5. Establishment and description of baseline scenario

>>

As per the AMS-II.G version 10.0, it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. As specified in the methodology, default value 63.7 tCO₂/TJ is used as the emission factor for the substitution of non-renewable biomass by similar consumers ($EF_{projected_fossilfuel}$). Hence this default value will be used for baseline emission calculation for all CPAs.

The emission reductions are calculated by multiplying the thermal energy from annual biomass savings stemming from non-renewable biomass with an emission factor for fossil fuels.

The programme will include two different scenarios, the woody biomass savings will be calculated according to the following scenarios:

- i) Household users currently predominantly cooking with wood stoves (i.e. firewood as fuel)
- ii) Household users currently predominantly cooking with charcoal stoves (i.e. charcoal as fuel)

As per baseline study, the first scenario (i.e. firewood as fuel) is the prevailing practice across the rural households in the country. However, the second scenario is a probable scenario which may be the practice in semi-urban or urban regions. As the PoA covers the entire national boundary of Fiji, therefore both the scenarios are included in baseline.

In order to increase the readability of the document, the description of the identified baseline scenario and the equations used for calculating emission reductions of a SSC-CPA are combined in section I.6.1.

Currently, rural regions of Fiji are completely dependent on wood fuel and three stone open firing is the common practice¹². There is no national level law/regulation in the country to promote efficient use of firewood, whereas Fiji Forest policy¹³ has goal to sustainable management of Fiji's forest to maintain their natural potential and to achieve greater social, economic and environmental benefits for current and future generations. Also, there is no Fijian law or regulation that requires the sale/distribution or use of ICSs in Fiji.

Thus, it has been envisaged that PoA will adequately support the national as well as sectoral policies and circumstances of the host country by means of reducing deforestation rate with the help of clean and energy efficient cook stoves (ICSs).

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

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In accordance with para 21 of AMS-II.G, version 10.0, it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for cooking. The actual baseline scenario is the use of Non-Renewable Biomass (NRB). Since NRB has higher carbon intensity than the fossil fuels proposed in AMS-II.G, this assumption reduces the emission reductions significantly, making the outcome more conservative.

The quantity of biomass used in absence of the programme of activity for target consumers will be determined at the CPA level. Assessments, information used in initial CPAs may be used in subsequent CPAs in lieu of conducting fresh assessments at each CPA level.

Emission reduction calculation

According to paragraph 22 of methodology AMS-II.G, version 10.0, emission reductions would be calculated as:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y$$

¹² References: The baseline survey report by CME; and also as per publicly available literatures, e.g. World Bank Technical Paper Number 67 (<http://www.energycommunity.org/documents/HouseholdEnergyHandbook1987.pdf>), Fiji's Energy Scenario report by FDoE (<https://www.slideshare.net/a57/fijis-energy-scenario2009>), Fiji Fuel Sustainability Report by Project Everest (https://res.cloudinary.com/crowdcity-eu-cld/image/upload/171207_Business_Plan_02_JD_huui7y), etc.

¹³ <http://www.fao.org/fileadmin/templates/rap/files/meetings/2013/131103.01-fiji.pdf>

Where:

i = Indices for the situation where more than one type of project device is introduced to replace the pre--project devices

j = Indices for the situation where there is more than one batch of project device

ER_y = Emission reductions during year y in tCO₂e

$ER_{y,i,j}$ = Emission reductions by project device of type i and batch j during year y in tCO₂e

LE_y = Leakage emissions in the year y

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel}$$

Where:

| | | |
|------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $B_{y,savings,i,j}$ | = | Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y |
| $f_{NRB,y}$ | = | Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB}) |
| $NCV_{biomass}$ | = | Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried') |
| $EF_{projected_fossilfuel}$ | = | Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 t CO ₂ /TJ |
| $N_{y,i,j}$ | = | Number of project devices of type i and batch j operating during year y |
| μ_y | = | Adjustment to account for any continued use of pre-project devices during the year y when applying equations 6 and 8 (fraction) of the methodology. Use 1.0 in other cases |

$N_{y,i,j}$ is monitored directly, for $NCV_{biomass}$ and $EF_{projected_fossilfuel}$, the indicated default values are used. For calculation of leakage (LE_y), $B_{old,i,j}$ is multiplied with net to gross adjustment factor of 0.95. Whereas, the factor μ_y will be monitored.

Determination of $B_{y,savings,i,j}$

In line with para 23 of applied approved methodology AMS-II.G version 10.0, four options are given to determine $B_{y,savings,i,j}$.

Here, CME has chosen Option 3 i.e. "Water Boiling Test" (WBT) with corresponding formula given below:

$$B_{y,savings,i,j} = B_{old,i,j} \times LE_y \times [1 - (\eta_{old,i,j} / \eta_{new,i,j})]$$

Where,

| | | |
|------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $B_{old,i,j}$ | = | 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 |
| $\eta_{old,i,j}$ | = | Efficiency of the old devices being replaced by project devices of type i and batch j |

| | | |
|------------------|---|-----------------------------------------------------------------------------------|
| $\eta_{new,i,j}$ | = | Efficiency of the project device i and batch j |
| LE_y | = | leakage adjustment factor or 0.95 (as per default value) of AMS-II.G version 10.0 |

Other provisions, in line with the applied methodology, AMS-II.G, version 10.0:

- In line with the para 29 of applied methodology, in case more than one project device is deployed in household at project level, an adjusted formula shall be used.

For example, if 2 project devices are installed per household, 0.5 times the baseline woody biomass consumption per household ($B_{old,HH}$) is used as the total annual quantity of woody biomass that would have been used in the absence of the project activity in each device ($B_{old,i,j}$).

The baseline saving shall be determined as:

$$B_{old,i,j} = B_{old,HH} / N_{d,HH}$$

Where,

$B_{old,HH}$ = Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices (tonnes/household/year)

$N_{d,HH}$ = Number of project devices per household (number)

- In line with the para 30 of the methodology, the CME keeps that provision that where charcoal is used as the fuel by baseline (old) or project (new) devices, the quantity of woody biomass shall be determined by using a default wood to charcoal conversion factor of 6 kg of firewood (wet basis) per kg of charcoal (dry basis). Alternatively, credible local conversion factors determined from a field study or literature may be applied.

Determination of the Share of Non-Renewable Biomass:

As per para 44 of the methodology, the value of f_{NRB} can be calculated by using one of the two options as follows: (a) Conduct local studies to determine the local f_{NRB} value (sub national values) as per the "TOOL30: Calculation of the fraction of non-renewable biomass"; or (b) Use default national values approved by the Board. The choice of which option to use shall be made ex ante.

As already prescribed under the point 8 of the applicability criteria of the methodology (i.e. under section I.2), the option (a) above has been adopted by CME to calculate PoA-specific f_{NRB} value. The default national value of f_{NRB} as referred under the option (b) is also available, however the value given for Fiji is expired and new/revised value is yet to be submitted by host DNA.

Thus, according to methodological tool 30: "Calculation of the fraction of non-renewable biomass" version 02.0, para 8, equation 1, shall be used to calculate f_{NRB} :

$$f_{NRB} = NRB / (NRB + RB)$$

Where,

NRB = Quantity of non-renewable biomass (t/yr) determined as per paragraphs 10 and 11 of the tool.

RB = Quantity of renewable biomass determined as per section 4.2 (t/yr) of the tool.

The parameters NRB & RB are also referred under the "Default f_{NRB} guideline" which is based on this particular Tool30.

The CME has opted to calculate PoA-specific f_{NRB} value as per the guidance provided for "Default values of fraction of non-renewable biomass for least developed countries and small island developing States" which is referred by the applicability of the tool30. The values of various data

parameters required to determine NRB and RB (or DRB) are taken from the official records of Ministry of Forest in Fiji.

The calculated value of f_{NRB} for Fiji is found to be = 90.97%¹⁴.

Leakage:

According to AMS-II.G (version 10) the following potential sources of leakage have to be considered:

“Leakage related to the non-renewable woody biomass saved by the project activity shall be assessed based on ex post surveys of users and the areas from which this woody biomass is sourced (using 90/30 precision for a selection of samples). The potential source of leakage due to the use/diversion of non-renewable woody biomass saved under the project activity by non-project households/users that previously used renewable energy sources shall be considered. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass by the non-project households/users, that is attributable to the project activity, then $B_{old,i}$ is adjusted to account for the quantified leakage. Alternatively, $B_{y,savings,i,j}$ is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

Project activities switching from baseline device using firewood to efficient project device using charcoal or switching from firewood to efficient project device using processed biomass (briquette, pellets, and woodchips) shall take into account the leakage effects related to the charcoal or processed biomass production. A default value of 0.030 t CH₄/t charcoal may be used in accordance with “AMS-III.BG.: Emission reduction through sustainable charcoal production and consumption”.

The proposed PoA includes only replacement of baseline three stone fire with energy efficient stove (i.e. ICS). Thus, according to AMS-II.G para 34 the default net to gross adjustment factor of 0.95 is applied to account for leakage and therefore surveys are not required.

¹⁴Result can be referred from the detailed calculation sheet and official data received from Ministry of Forest in Fiji.

I.6.2. Data and parameters fixed ex ante

| Data/Parameter | $B_{old,i,j}$ |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | tonne/year |
| Description | 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 |
| Source of data | Calculated based on Survey report |
| Value(s) applied | 9.42 |
| Choice of data or Measurement methods and procedures | The annual quantity of wood that would have been consumed in absence of the project activity will be calculated as below: $B_{old,i,j} = B_{old,HH} / N_{d,HH}$ Where, $B_{old,HH}$ is determined through survey and $N_{d,HH}$ is a monitoring parameter to be monitored on actual |
| Purpose of data | Calculation of Baseline Emissions |
| Additional comment | CME plans distribution of only one ICS per households hence $B_{old,i,j}$ equals $B_{old,HH}$. Also, it is proposed that assessments, information and results established in initial CPAs may be used in subsequent CPAs in lieu of conducting fresh assessments at each CPA level in absence of new data. |

| Data/Parameter | $B_{old,HH}$ |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | tonne/household/year |
| Description | Annual quantity of woody biomass that would have been used in the household in the absence of the project activity to generate useful thermal energy equivalent to that provided by the project devices |
| Source of data | Calculated or determined using ex-ante baseline survey |
| Value(s) applied | 9.42 |
| Choice of data or Measurement methods and procedures | Combination of literature and/or field survey by a dedicated expert team/third party survey will be used to determine the annual quantity of woody biomass have been used per person in absence of the project activity. |
| Purpose of data | Calculation of Baseline Emissions |
| Additional comment | The value is fixed ex-ante. Assessments, information and results established in initial CPAs may be used in subsequent CPAs in lieu of conducting fresh assessments at each CPA level in absence of new data |

| Data/Parameter | η_{old} |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | % |
| Description | Efficiency of the system being replaced (Traditional Cooking Stoves) |
| Source of data | Default value as per applied methodology AMS-II.G version 10.0 |
| Value(s) applied | 10 |
| Choice of data or Measurement methods and procedures | The default value of 0.10 is used, as the replaced system is a three stone fire, or a conventional device with no improved combustion air supply or flue gas ventilation, i.e. without a grate or a chimney. |
| Purpose of data | Calculation of Quantity of woody biomass that is saved in tonnes per device |
| Additional comment | The value is fixed ex-ante. |

| Data/Parameter | NCV_{biomass} |
|------------------------------------------------------|----------------------------------------------------------------------------|
| Data unit | TJ/tonne |
| Description | Net calorific value of the non-renewable woody biomass that is substituted |
| Source of data | Default value as per applied methodology AMS-II.G version 10.0 |
| Value(s) applied | 0.0156 |
| Choice of data or Measurement methods and procedures | The default value as per methodological choice. |
| Purpose of data | Calculation of Emission Reduction |
| Additional comment | The value is fixed ex-ante. |

| Data/Parameter | EF_{projected_fossilfuel} |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | tCO ₂ /TJ |
| Description | Emission factor for the substitution of non-renewable woody biomass by similar consumers |
| Source of data | Default value as per applied methodology AMS-II.G version 10.0 |
| Value(s) applied | 63.7 |
| Choice of data or Measurement methods and procedures | This value represents the emission factor of the substitution fuels likely to be used by similar users, on a weighted average basis. The value is calculated, based on the global average ratio of cooking fuels (the normalized ratio of kerosene and liquefied petroleum gas (LPG) excluding coal), i.e. 9 per cent for kerosene (71.5 t CO ₂ /TJ) and 91 per cent for LPG (63.0 t CO ₂ /TJ) |
| Purpose of data | Calculation of Emission Reduction |
| Additional comment | The value is fixed ex-ante. |

| Data/Parameter | L_y |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | Fraction |
| Description | Leakage adjustment factor |
| Source of data | Default value as per applied methodology AMS-II.G version 10.0 |
| Value(s) applied | 0.95 |
| Choice of data or Measurement methods and procedures | As per the methodology AMS-II.G version 10.0, B _{old,i,j} can be multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required. |
| Purpose of data | Calculation of Emission Reduction |
| Additional comment | The value is fixed ex-ante. |

| Data/Parameter | f_{NRB,y} |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | Fraction (%) |
| Description | Fraction of woody biomass saved by the project activity during year y that can be established as non-renewable biomass |
| Source of data | Calculated from the official data received from Ministry of Forest, Fiji |
| Value(s) applied | 90.97 |
| Choice of data or Measurement methods and procedures | According to "methodological tool 30" (version 02) and in line with the "default f _{NRB} guideline" which is based on/referred by this particular tool30. |
| Purpose of data | Calculation of Emission Reduction |
| Additional comment | The value is fixed ex-ante and considered at PoA level. |

| Data/Parameter | Life span |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | Number of years |
| Description | The operating lifetime of the project device (i.e. ICS) |
| Source of data | Manufacturer specification and/or Lab test report by National Agency |
| Value(s) applied | XXX |
| Choice of data or Measurement methods and procedures | The value will be taken from manufacturer or third party test report conducted for specific ICS type at the time of CPA inclusion/distribution/commissioning. |
| Purpose of data | Calculation of baseline emission |
| Additional comment | The value is fixed ex-ante. |

I.6.3. Modalities for ex ante calculation of emission reductions:

>>

Emission reductions for each SSC-CPA will be calculated according to the following formula:

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel}$$

Where:

| | | |
|------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $B_{y,savings,i,j}$ | = | Quantity of woody biomass that is saved in tonnes per cookstove device of type i and batch j during year y |
| $f_{NRB,y}$ | = | Fraction of woody biomass that can be established as non-renewable biomass (f_{NRB}) |
| $NCV_{biomass}$ | = | Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.0156 TJ/tonne, based on the gross weight of the wood that is 'air-dried') |
| $EF_{projected_fossilfuel}$ | = | Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers. Use a value of 63.7 t CO ₂ /TJ |
| $N_{y,i,j}$ | = | Number of project devices of type i and batch j operating during year y |
| μ_y | = | Adjustment to account for any continued use of pre-project devices during the year y when applying equations 6 and 8 (fraction) of the methodology. Use 1.0 in other cases |

Here,

$$B_{y,savings,i,j} = B_{old,i,j} \times LE_y \times [1 - (\eta_{old,i,j} / \eta_{new,i,j})]$$

Where,

| | | |
|------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $B_{old,i,j}$ | = | 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 (9.42 Tonnes/HH/yr) |
| $\eta_{old,i,j}$ | = | Efficiency of the old devices being replaced by project devices of type i and batch j (10%) |
| $\eta_{new,i,j}$ | = | Efficiency of the project device i and batch j (28.98% - value considered for ex-ante calculation) |
| LE_y | = | leakage adjustment factor or 0.95 (as per default value) of AMS-II.G version 10.0 |

The sample calculation below is shown for single pot ICS (a reference ICS type called 'RK stove'¹⁵), considering 1 ICS per household.

The assumption of values for ex-post parameters (as referred in section I.7.1) are discussed under the Appendix 5.

$$B_{old,i,j} = 9.42 \text{ Tonnes/HH/yr}$$

$$B_{y,saving,i,j} = 9.42 \times 0.95 \times [1 - (10\%/28.98\%)] = 5.859 \text{ Tonnes/HH/yr}$$

$$\begin{aligned} \text{Thus, } ER_y \text{ per ICS} &= 5.859 \times 1 \times 90.97\% \times 0.0156 \times 63.7 \text{ tCO}_2\text{e/yr} \\ &= 4.54 \text{ tCO}_2\text{e/yr.} \end{aligned}$$

As per the assumed details for ER calculation, the annual energy savings of the project device is less than 1% of the small scale CDM threshold i.e. <1800 MWh/yr; therefore it qualifies as Micro-scale CDM unit. Thus, for a total distribution of 60,000 ICS:

$$\begin{aligned} \text{Total } ER_y &= 4.54 \times 60,000 \text{ tCO}_2\text{e/yr} \\ &= 272,668 \text{ tCO}_2\text{e/yr (directly calculated value from the ER sheet).} \end{aligned}$$

¹⁵ The reference details of the 'RK stove' submitted to DOE. The WBT test has been performed on RK stove to demonstrate the ex-post efficiency of an ICS type proposed under the PoA.

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

In line with the PoA filling guidelines, the following data and parameters are included which are to be determined only once for the crediting period of the corresponding CPAs but that will become available only after the implementation of the corresponding CPAs. Also, the guideline prescribes to provide any relevant further background documentation in Appendix 5 of the document. Therefore, Appendix 5 includes the values applied for the following parameters as an estimate of the data or parameter that will be monitored during the crediting period of the corresponding CPAs, but is used for the purpose of calculating estimated emission reductions in the CPA-DDs of the corresponding CPAs.

| Data/Parameter | $N_{y,i,j}$ |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data unit | Number |
| Description | Number of project devices of type <i>l</i> and batch <i>j</i> operating during year <i>y</i> |
| Source of data | Stove distribution database and monitoring survey records |
| Value(s) applied | To be determined at CPA level |
| Measurement methods and procedures | <p>CME shall maintain the database of all stoves installed. The number of operating stoves for each device <i>i</i> and batch <i>j</i> shall be determined on a sampling basis. The results from monitoring were used to calculate $N_{y,i,j}$ as follows:</p> $N_{y,i,j} = (n_{i,j,operational} / n_{i,j,total}) * N_{y,i,j,installed}$ <p>Where: <i>N</i> = number of stoves <i>n</i> = number of samples</p> |
| Monitoring frequency | At least once every two years (biennial) |
| QA/QC procedures | For each CPA, CME and/or project implementer (if different than CME) shall maintain a distribution record in an electronic database to calculate this parameter. As per the prescribed in roles and responsibilities section under the Section B of the Part I; there will be regular training, guidelines and templates to facilitate accurate testing and record keeping. |
| Purpose of data | Calculation of baseline emission |
| Additional comment | <p>All data sources will be transparent and verifiable by DOE.</p> <p>If at the CPA-level it is assumed ex-ante that there is only one project stove being used per household for calculating $B_{old,i}$, then, ex-post sampling based monitoring shall also include assessment of presence of multiple operational project stoves in a sampled household. The number of project stoves in the CPA shall be adjusted accordingly to claim emissions reduction only for one operational project stove per household to ensure equivalence with the baseline established.</p> |

| Data/Parameter | <i>N</i> |
|------------------|------------------------------------------------------------------------------------------------------|
| Data unit | Number |
| Description | Number of project devices distributed |
| Source of data | Stove distribution database (proposed electronic database used for registering all ICSs distributed) |
| Value(s) applied | To be determined ex-post at CPA level |

| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement methods and procedures | Every time an ICS is distributed a sale agreement is filled (manually or via digital medium) with all details to uniquely identify each ICS. Based on the information collected into this electronic database, the number of ICSs distributed is determined. |
| Monitoring frequency | Recorded at the time of commissioning/distribution of project devices |
| QA/QC procedures | - |
| Purpose of data | Calculation of baseline emission |
| Additional comment | To be determined ex-post. All data sources will be transparent and verifiable by DOE. |

| | |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data/Parameter | $\eta_{new,i,j}$ |
| Data unit | % |
| Description | Efficiency of the device of each type i and batch j implemented as part of the project activity |
| Source of data | Manufacturer's Specification or/and Certification by a national standards body or an appropriate certifying agent recognized by that body. |
| Value(s) applied | To be determined at CPA level |
| Measurement methods and procedures | <p>For each types of ICS disseminated under the programme, the efficiency will be sourced from either of the options below:</p> <ul style="list-style-type: none"> i) Test reports/Certificate on efficiency carried out for different types and models of ICS by national standards body or an appropriate certifying agent recognized by that body. The value obtained from the third party test report will be used to calculate the emission reductions of the systems. ii) Manufacturer's specifications on efficiency based on water boiling test (WBT) may be used. The WBT shall be carried out in accordance with national standards (if available) or international standards or guidelines (e.g. the WBT procedures specified by the partnership for clean indoor air (PCIA):<http://www.pciaonline.org/testing>. The sampling test of stoves by such certification bodies/agents or manufacturers shall be conducted following a 90/10 precision in accordance with the "Standard for sampling and surveys for CDM project activities and programme of activities". <p>Additionally, in line with the methodology – following simplified approach may be used, when the efficient cook stoves are produced by a manufacturer with a good quality management system in place to ensure that the individual equipment produced do not vary beyond the range of acceptance limits (e.g. characteristics such as materials, critical dimensions):</p> <ul style="list-style-type: none"> a) Conduct a sample test on three cook stoves with three tests conducted for each stove. The test can be carried out by project proponents by themselves or stove manufacturers; b) If the standard deviation of the nine test results indicated above is very small and 90/10 precision requirement is met, the efficiency determined is acceptable, otherwise more sample tests would be required until 90/10 precision is met. |
| Monitoring frequency | <p>(i) Recorded at the time of commissioning/distribution</p> <p>(ii) Adjusted for the loss of efficiency as [XXX]% per annum as per para 32 of AMS-II.G. version-10.0.</p> |
| QA/QC procedures | The value will be used from third party report or source, hence not required. |
| Purpose of data | Calculation of baseline emission |

| | |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional comment | If any sample stove is found to be operating below the 20% efficiency, the proportionate number of stoves of that type included in the CPA will be considered to be non-operational and not accounted for ER calculation. |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data/Parameter | Date of commissioning of batch j |
| Data unit | Date |
| Description | To establish the date of commissioning, the CME may opt to group the devices in "batches" and the latest date of commissioning of a device within the batch shall be used as the date of commissioning for the entire batch |
| Source of data | Distribution record of ICS (Electronic Database) |
| Value(s) applied | dd/mm/yyyy (To be determined at CPA level) |
| Measurement methods and procedures | For each batch the date of distribution of last ICS will be recorded and used as date of commissioning for that batch. |
| Monitoring frequency | Recorded at the time of commissioning/distribution of first ICS of the batch |
| QA/QC procedures | NA |
| Purpose of data | To consider Start date of CPA |
| Additional comment | The record to be kept for crediting period + 2 years |

| | |
|-----------------------|--------------------------------------------------------------------------------------|
| Data/Parameter | μ_y |
| Data unit | Fraction |
| Description | Adjustment to account for any continued use of pre-project devices during the year y |
| Source of data | Stove distribution database (electronic) and Sample Survey Records |
| Value(s) applied | To be determined at CPA level |

| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement methods and procedures | <p>The total number of pre project operational stoves shall be calculated as the fraction of stoves of type i found operational in the sampling survey multiplied by total number of stoves of type i in the project database.</p> <p>CME proposed that the sampled households will be checked for presence of baseline stove and if it was being used along with project stove for cooking.</p> <p>In line with the methodology, this parameter shall be monitored using one of the following methods:</p> <ol style="list-style-type: none"> 1. If the pre-project devices are decommissioned and no longer used, as determined by the monitoring survey its value is 1.0. If both the project devices and pre-project devices are used together, measurement campaigns shall be undertaken using data loggers such as stove utilization monitors (SUMs) which can log the operation of all devices (recording the situation of the device being used or not during any day 'd' of the measurement campaign) in order to determine the average device utilization intensity (to establish the relative share of the usage of the devices). The measurement campaign shall be conducted in at least 10 randomly selected participant households of the project activity or the component project activity (CPA) for at least 90 days during the year y. If seasonal variation is observed, the average value determined through the campaign shall be annualised taking into account seasonal variation of device utilization. 2. Alternatively, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices. For example, if there were 3 pre-project devices per household and it was determined during the survey that use of one of them continues during the crediting period then a conservative adjustment factor of 0.66 is applied for the relevant monitoring period. Another example would be the case where there was only one pre-project device per household and its use during the project period continues along with the project stove to meet 25% of the cooking needs of the household in which case the adjustment factor will be 0.75. Where a more precise data is available i.e. the thermal capacity of the project and pre-project devices and respective utilization hours, a weighted average adjustment factor may be used |
| Monitoring frequency | At least once every two years (biennial) |
| QA/QC procedures | A 95 /10 confidence / margin of error shall be achieved for the sampling parameter irrespective of annual / biennial monitoring frequency as per Sampling standard. In the case the desired precision is not met, lower bound values shall be used against repeating the survey to determine the operational fraction of stoves. |
| Purpose of data | To calculate baseline emissions |

| | |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional comment | <p>The record to be kept for crediting period + 2 years.</p> <p>Additionally, the methodology also prescribes that –</p> <p>a) If equation (6) under option 3 (WBT) is used combined with direct measurement of Biomass new, then μ_Y may be assumed as 1.0.</p> <p>b) When the data loggers are used, the days when only project devices or only pre-project devices are used will be attributed accordingly. The days where both devices have been used, if the data loggers are able to detect and record the time each device has been used (e.g. in hours), the share in the total duration of utilization will be used to attribute a fraction of this day to one or to the other device. Alternatively, if the data loggers are not able to determine the duration of the utilization, but only the situation of the device being on or off (i.e. used or not used during that day), the share of 50:50 may be used</p> |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Data/Parameter | $N_{d,HH}$ |
| Data unit | Number |
| Description | Number of project devices distributed per household |
| Source of data | Stove distribution database (electronic) |
| Value(s) applied | To be determined ex-post at CPA level |
| Measurement methods and procedures | Recorded at the time of commissioning/distribution of project devices and it can be crosschecked with user details having number of ICS. |
| Monitoring frequency | Recorded at the time of commissioning/distribution of ICS |
| QA/QC procedures | The procedure will be developed in electronic system to record number of ICS provided to particular household in any CPA. |
| Purpose of data | To calculate baseline emissions |
| Additional comment | The record to be kept for crediting period + 2 years |

I.7.2. Sampling plan

>>

CME has proposed to have/develop a proper sampling plan (in line with applicable Sampling Standard) at PoA level.

The proposed sampling plan is as follows:

The sampling monitoring plan is designed to monitor the parameters listed in Section above, which are required for calculation of the actual GHG emission reduction achieved by the CPA using ex post sampling survey. The share (or numbers) of operating stoves and their efficiency will be determined based on sampling procedures as outlined below. The CME will be responsible for conducting the sampling surveys and maintaining a database with all operating stoves. However, no monitoring is required for leakage through competitive uses of biomass as the parameter $B_{old,i,j}$ is multiplied by 95% to account for leakage.

In order to establish the sampling plan, the 'Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, version 04' (which also has normative reference to Sampling Standard, version 07) has been referred. The following parameters have been determined using sampling approach:

1. η_{new} – Operating efficiency of distributed project ICS
2. $N_{y,i,j}$ – Number of project devices of type i and batch j operating during year y
3. μ_y – Adjustment to account continued use of displaced traditional cook-stove

The samples shall be picked through ‘simple random sampling’ approach from homogeneous stoves population. Here, one particular type of stove (i.e. ICS model type) will be considered for sample frame to select homogeneous samples, as target beneficiaries shall be rural households with three-stone fire as baseline.

Sampling Design:

Due to the large number of ICS envisioned to be distributed as part of the CPA(s) to be included in the PoA, it is not economically feasible to monitor each individual ICS unit distributed. Therefore, representative sampling will be undertaken as part of a PoA-wide Sampling Plan (by grouping and sampling across CPAs) that is designed in line with the requirements of the “Sampling and surveys for CDM project activities and programme of activities”, version 04.

(i) Objective and Reliability Requirements:

The objective is to obtain an unbiased and reliable estimate of the proportion or mean value of the following key variables over the course of the crediting period, and with 95/10 confidence/precision for annual and 95/5 for biennial sampling across CPAs (as per Methodology AMS-II.G version 10.0). In case a single CPA is sampled 90/10 confidence/precision for annual and 95/5 confidence/precision shall be required for biennial sampling.

Also, as per the Sampling Standard (version 9), it states that *“in the case of CPAs solely composed of “microscale CDM units” as defined in the Methodological tool “Demonstration of additionality of microscale project activities”, 95/10 confidence/precision shall be applied for sampling surveys in all cases, even when they are conducted at the CPA level”*. Therefore, as per the applicability the reliability of confidence/precision shall be considered at the time of sampling design.

(ii) Target Populations:

- a) The target population for the proportion of ICS still in operation ($N_{y,i,j}$) of this POA are all households in the POA database which are using project ICS distributed under the POA for cooking.
- b) The target population for pre project appliances (μ_y) is the set of old stoves still in use under CPAs database.

(iii) Sampling Method:

The CME proposes to select “Simple Random Sampling” method. As defined in the sampling guideline, ‘simple random sampling’ is suited to populations that are homogeneous. A simple random sample is a subset of a population (e.g. villages, individuals, buildings, pieces of equipment) chosen randomly, such that each element (or unit) of the population has the same probability of being selected. The sample-based estimate (mean or proportion) is an unbiased estimate of the population parameter.

The target beneficiaries under the PoA are rural population having baseline of three-stone fire cooking practice. However, there could be single or multiple types of ICS technologies under the CPA(s). Therefore, ‘simple random sampling’ will be selected for each type of ICS separately from the stove database. It means, at the time of monitoring & verification

simple random sampling will be applied and in case of single ICS type there will be only one single sample (size and samples will be different for different parameters) and in case of multiple ICS types there will be separate samples for each ICS type, to be randomly selected.

To ensure a random selection of ICS, random number generators shall be applied. Each ICS in the target population is uniquely identifiable by its unique ID number. Each ICS can thus be allocated a Sample Selection Number in each monitoring period, starting at 1 and increasing up to the total number of ICS in the Database for that pre-defined sampling frame. Applying the random number generators, the ICS can then be randomly chosen from the defined population up to the required sample size as calculated by the CME.

To determine the parameters, sampling will involve the following approaches (outcome in brackets):

$N_{y,i,j}$: Visual inspection of the premises to see if ICS is operational and in use. Interview with end user if required to verify that ICS is still in use (Yes/No)

μ_y : Pre-project device only is in use then fraction to be used to calculate total number, however if pre project device is used along with project ICS, proportion of usage of each will be determined by cooking habits evaluated by survey questionnaire during the monitoring period.

Using the formulas in the section “Sample Size” below, the CME will randomly sample the required number of ICS from the primary sampling units. It is important to note that for μ_y where partial usage of both old stoves and project ICS are observed, for each household under sample cooking habits must be taken into consideration.

(iii) Sample Size:

The procedure to determine the sample of households will ensure that they adequately represent the broader project population, minimizing sampling error. Using, a 95 per cent confidence level, and a 10 per cent margin of error, random samples will be selected from each Primary Sampling Unit.

There are two parameters that will be estimated through sampling: the number of stoves still in operation during the monitoring period as determined by the monitoring survey (**$N_{y,i,j}$**), and the continued use of old stoves, (**μ_y**). In line with AMS II.G version 09.0, both can be sampled in a single survey with a random sample of households using the above described confidence/precision levels depending on annual or biennial monitoring frequency. The **$N_{y,i,j}$** and **μ_y** requires proportion/percentage parameters, however the average usage percentage of pre project device along with project device will be a mean value.

In order to calculate the required sample size estimates, values for the proportions, mean values, and standard deviations are required. As per Sampling Guidelines, there are different ways available to obtain the estimates of the parameter of interest:

- (a)** Refer to the result of previous studies and use these results;
- (b)** In a situation where information from previous studies is not available, a preliminary sample as a pilot could be conducted and use that sample is used to provide the estimates;
- (c)** Use best guesses based on the researcher’s own experiences.

To estimate the sample size for parameters $N_{y,i,j}$ the following equation is used:

$$n \geq \frac{1.96^2 N \times p (1-p)}{(N - 1) \times 0.1^2 \times p^2 + 1.96^2 \times p (1 - p)}$$

Where:

- n = Sample size
- N = Population size (Total number of households/ICS)
- p = Expected proportion
- 1.96 = Represents the 95% confidence required
(In the case of 90% confidence, 1.645 shall be used)
- 0.1 = Represents the 10% relative precision

Parameter μ_y :

For the purposes of determining sample size in the first monitoring period, the percentage use of old cookstoves will vary. To estimate the sample size for parameter $\mu_{y,i}$, the following equation is used:

$$n \geq \frac{1.96^2 NV}{(N - 1) \times 0.1^2 + 1.96^2 \times V}$$

Where,

- V = $(SD/mean)^2$
- n = Sample size
- N = Population size (Total number of households/ICS)
- Mean = Expected mean of ICS thermal efficiency
- SD = Expected standard deviation
- 1.96 = Represents the 95% confidence required
(In the case of 90% confidence, 1.645 shall be used)
- 0.1 = Represents the 10% relative precision

Moreover, the efficiency of project ICS is proposed based on WBT which is a monitoring parameter and WBT testing has also been performed based on simple random sampling. The similar equation as above used for parameter μ_y shall be applied and sample size shall be calculated for η_{new} .

In case the resulting sample size to achieve the desired confidence/precision levels is smaller than 30 ICS, a minimum sample size of 30 shall be chosen when the parameter of interest is a proportion. However, in line with the Sampling Standard (version 07), if the parameter of interest is a numeric mean value (i.e. not a proportion or percentage) the Student's t distribution shall be used if the resulting sample size is less than 30.

The CME may choose to use the same samples to monitor more than one parameter, where parameters have same units. Sampling more than one parameter within the same sample (household) helps reduce travel needs for monitoring and the associated costs. At the same time this approach ensures the random selection of samples for every parameter.

Oversampling is also encouraged, not only to compensate for any attrition, outliers or nonresponse associated with the sample, but also to prevent a situation at the analysis stage where the required reliability is not achieved and additional sampling efforts would be required. The sample size shown above will be adjusted upwards to account for non-

responses, CME shall determine the appropriate non-responses rate based on previous experience.

(iv) Sample Frame:

To ensure the homogeneity of the CPA(s) included for a single sampling plan, two sampling frames shall be defined. Overall, all CPA(s) will have same group of end users which is from rural area. The CPA(s) to be implemented in rural area, thus it is expected that the geographical locations do not have influence on the parameter of interest. Therefore, all above mentioned parameters can be assumed to be highly homogeneous for each ICS model regardless of how the end user group and distribution/installation location is defined.

Sampling frame for proportion of ICS in operation ($N_{y,i,j}$):

The sample frame refers to all the information sources on the Database. There are two primary mechanisms for data collection: the Registration Process for newly distributed/installed ICS and the Monitoring Survey (which includes a household questionnaire and visual inspection of ICSs) that will be used throughout the lifetime of the PoA. The detailed information collected from Registration Process is used to populate the stoves Database and the Monitoring Survey follows “Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 04.

As proposed CME shall be the CPA Implementer, the same ICS model can therefore be grouped together and form a Primary Sampling Unit. In the event the POA has CPAs with two different CPA Implementers using the same ICS model, these form two different Primary Sampling Units. Same is true if the same CPA Implementer has two different ICS models being implemented – this will form two Primary Sampling Units. This is justified by the fact that CPA Implementer might vary in terms of performance and it is important for the CME to collect and monitor accurate data for each CPA Implementer distributing each stove model.

Sampling frame for continued use of pre-project devices during the year (μ_y):

In line with applied approved methodology AMS II.G version 10.0, as installing data logger is not practical and if any use of pre project device can be monitored in a common survey with other monitoring parameters; therefore, a random sub-sample within the common survey can be taken to determine continued use of old cook stoves and its proportional usage by including suitable questionnaire.

There will be two situations 1) project ICS are completely discarded 2) the old stoves used along with project ICS. Hence in first case it will be simple multiplication of fraction of total number of project ICS displaced by old cook stoves by total number of cook stoves in CPA, to achieve precise results based on survey result sample size calculation can be repeated. However for second case, surveys may be conducted if the use of data loggers to record the continued operation of baseline devices is demonstrated to be not practical, for example when the baseline device is the three-stone fire. The surveys should be designed to capture the cooking habits and stove usage of households in the region, including quantification of use of baseline devices, by formulating questions and/or collecting evidences to determine the frequency of usage of both the project devices and baseline devices.

Survey Team: The CME proposes to have experienced and independent samplers and testers to be involved in the sampling and survey; preference will be to hire local personnel for local language interactions which will enable full understanding of any responses given by users and to record data/results in errorless manner.

Monitoring Report: The survey report will set out the data for emission reduction calculation. The CME will produce a monitoring report.

I.7.3. Other elements of monitoring plan

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The PoA involves a number of key elements as a part of the monitoring plan that ensures that the CME have high-quality, transparent, unbiased and reliable information regarding the performance of the project in terms of implementation and outcomes, and for the purposes of calculating Certified Emission Reductions (CERs) following AMS-II.G version 10.0. The key elements are the following:

- ✓ Project Database Management
- ✓ Spot Checks of ICS
- ✓ Sample Plan for the Monitoring Survey
- ✓ Data Quality, Consistency and Checks for double-accounting
- ✓ Monitoring Reporting

Project Database Management:

Each CPA will have a specific CPA Database where information on ICS installed under that CPA will be recorded; and that will be centrally linked with a common electronic database of CME. At the time of distribution of ICS, each user of ICS will be registered under a beneficiary agreement and all the necessary information regarding the ICS unit and the end-user and the distributor/retailer of the ICS shall be recorded, allowing one (e.g. the CME or the DOE) to easily trace and identify each ICS when needed. This registration and information recording process shall be executed using a digital device (e.g. mobile devices to operate in both online & offline mode) and recorded data shall be populated to the central electronic project database.

The electronic database will have provision to check, download/extract records of each stove user separately. The database will be designed in such a way that no double entry of serial number is possible. All project ICS manufactured/imported for distribution under a CPA shall have entries in the electronic database under separate inventory section before any distribution work starts. In case at the point of distribution, the person using digital device wrongly enters the device serial no./ID (say wrong Serial no. or pre-used serial no.), then electronic database will identify this as error and hence submission of recorded data from device to electronic database will not be completed. Thus, any error or duplication of data will be avoided at the beginning itself and also will not be possible to duplicate any entry at later stage due to the well-designed electronic database. ICS with end-user details recorded will serve as the sampling frame for monitored parameters.

In case a replacement stove is being issued to a customer already registered on the project database, a new registration will not be required. The replacement stove will be recorded in the project database in such a way that it clearly reflects that the replaced stove ceases to be included in the CPA; and the replacement stove is associated with the customer's details as a new stove, and is included in the CPA as a new stove with a new serial number.

All technical staff/team responsible for installation and maintenance of the stoves will be trained in terms of the understanding the requirements of CDM on the monitoring system. The technical, operational and maintenance trainings provided for the personnel will be described in each monitoring report. The CME shall review the efficacy of information gathering techniques and information flow and assess enumerator and partner feedback to make improvements as deemed necessary.

Spot Checks of ICS:

Apart from regular/periodic visit to households, the trained field staff will randomly select households included in the database and visit them to cross-check the information on the database. Any inconsistencies found (e.g. change in the address of a user) will be informed to CME and shall be updated on the project database. In cases where ICSs are found to be no longer in use, they will be clearly marked "discontinued" and excluded from emission reductions calculations. The spot check will be performed during first year of operation of the CPA, wherein for

each CPA random selection of household will be done through central database system, afterwards a team will visit to each household selected and will confirm the information as per registered database. In case any change in information the same will be updated and an action will be decided based on changes observed. These spot checks will also be used as part of sample required establishing the ICS in operation and if any use of pre-project devices along with ICS.

SECTION J. Crediting period type and duration

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Type : Renewal Crediting Period

Duration : 7 years 00 months x 3, total duration of 21 years, 00 months.

SECTION K. Eligibility criteria for inclusion of CPAs

>>

The eligibility criteria for inclusion of CPAs are considered in line with the “CDM project standard for programmes of activities, version 02”. However, few criteria prescribed under the standard are not applicable to the project activity under this PoA, hence those criteria are not required.

| No. | Eligibility criterion - Category | Eligibility criterion - Required condition | Supporting evidence for inclusion |
|-----|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Geographic Boundary | The ICS under the CPA must operate within the geographical boundary of the PoA i.e. Republic of Fiji | Location and boundary is specified in the specific CPA-DD stating that the ICS location is limited to Fiji and is supported by Distribution records of ICS. |
| 2 | Double Counting | Carbon emission reductions claimed by the CPA should be unique and not counted more than once. | Each ICS shall be assigned a unique serial number which shall be displayed at the beneficiary location to identify each stove uniquely. The unique numbering or identification regime is included in the specific CPA-DD and will be verifiable by the DOE. |
| 3 | Exclusiveness of CPA | The CPA shall not be previously: <ul style="list-style-type: none"> ✓ Registered as a CDM project activity ✓ Included as a CPA in any other registered PoA, or deregistered as a CPA of a PoA | Confirmation by CME |
| 4 | Specifications of Technology/Measure | <p>Type - The program will promote dissemination of wood-fuel ICS in Fiji. The CPA consists of replacement of conventional firewood cook-stoves (i.e. open firing or three-stone fire) for biomass fired ICS as defined in the PoA-DD.</p> <p>Capacity - The rated annual thermal energy savings of ICS included under the CPAs shall not be more than 1.8GWh_{th}.</p> <p>Key Design Features – The stove shall be fixed or portable type. The rated efficiency of technologies included under the program will be at least 20%.</p> | Technical details of the ICS (including thermal efficiency) will be provided in the specific CPA. As specific CPA may have progressive distribution plan and new models may be introduced during the course of the CPA, this may be checked at the time of subsequent verification w.r.t. for new models/incremental installations. |
| 5 | Start Date | <p>Date on which first ICS was installed under the CPA.</p> <p>The start date of any proposed CDM CPA will be on or after the start date of the proposed CDM PoA, i.e. date of publish of Prior CDM Intimation of PoA at UNFCCC.</p> | Records of end user agreement /registration details/ installation report etc. for the first ICS installed in the CPA. |

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| 6 | Applicability of the methodologies | <p>CPA must follow AMS.II-G version 10.0.</p> <p>The applicability of methodology at CPA level has already been demonstrated in section I.2. Technology related requirements have been specified in criteria #4 above.</p> | CPA-DDs applying AMS-II.G. Version 10.0 |
| 7 | Additionality | <p>The additionality of the project activity for CPA(s) is demonstrated based on Micro-Scale criteria, in accordance with the thresholds referred to in paragraph 128 below and applies the “Methodological tool 19: Demonstrating additionality of microscale project activities” regardless of the scale of methodologies applied.</p> <p>Thus, as demonstrated under the Additionality section C of the PoA DD, CPA is exempted from performing the de-bundling check if each of the independent subsystems/measures (i.e. each ICS) included in the CPA is no larger than 1% of the small-scale thresholds defined by the methodology applied, which is 180 GWh_{th}/year for SSC projects. Thus, the annual energy savings of each project device included under the CPAs will not be more than 1% of the small-scale CDM thresholds and hence satisfy the condition to qualify as a micro-scale CDM unit as per Tool 19 “Demonstration of additionality of micro-scale project activities” (version 09.0).</p> | <p>The requirements listed below are proven to define the CPA as automatically additional. The specific CPA is eligible when all evidences are documented:</p> <p>a) The project activities are solely composed of isolated units where the users of the technology/measure are households or SMEs substantiated via distribution database.</p> <p>b) CPA-DD to show description of the technology and specifies target population, and;</p> <p>c) Where the size of each unit is no larger than 600MWh of the small-scale CDM thresholds: CPA-DD to show energy saved by the ICS is less than 600MWh/year or 1.80 GWh_{th}/year.</p> |
| 8 | Combination of Methodologies | If the generic CPA applies a combination of large-scale methodologies or large-scale and small-scale methodologies, and the combination results in changed cash-flow for individual measures in comparison to the situation where the measures are implemented separately, the conditions shall be such that additionality is demonstrated for the measures both individually (i.e. for each of the measures) and collectively (i.e. for the combination of the measures) | <p>NA.</p> <p>Since the PoA is based on single baseline methodology (i.e. AMS II G, version 10) hence this criterion is not applicable.</p> |

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|----|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 | A/R methodology | If the generic CPA applies large-scale or small-scale A/R methodologies, the conditions shall derive from the requirements contained in the additionality section of the applied methodologies | NA. Since the PoA does not apply any A/R methodology, hence this criterion is not applicable. |
| 10 | Standardized baseline | If the generic CPA applies a standardized baseline that standardizes additionality, the conditions shall ensure that the applicability condition of the standardized baseline are met; | NA. The PoA does not apply any Standardized baseline; hence not applicable. |
| 11 | Other conditions of methodological regulatory requirements | Conditions to ensure the compliance with other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents; | NA. The PoA does not include any standardized baseline; hence not applicable. |
| 8 | LSC and EIA | The local stakeholders consultation is conducted at the PoA level (As referred in section F of the PoA-DD). An environmental impact analysis is not required (section E of the PoA-DD) | NA |
| 9 | Public Funding | The CME and the CPA operator (in case of being different from the CME) shall confirm that in case of public funding, there is no diversion of Official Development Assistance. | Declaration from CME and CPA operator that no funds for official development assistance will be used for program implementation |
| 10 | Target Group and Distribution Mechanism | Distribution mechanisms have been specified in the PoA-DD by means of the "General operating and implementing framework of PoA" at the PoA level. The distribution mechanism is the direct distribution of ICS through the CME or local partners. | Distribution database and information reported in CPA-DD as per provision of PoA-DD. |
| 11 | Sampling | Monitoring of all CPAs will adhere to all requirements related to sampling for a PoA in accordance with the sampling guidelines including all annexes and amendments till EB 86Annex 04. | Specification of the sampling methods applied and compliance with the sampling requirements are established at the PoA-DD. For each CPA-DD Sampling will be undertaken as part of the PoA Sampling Plan, and in the CPA-DD describes how the PoA Sampling Plan is to be applied. |

| | | | |
|----|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12 | De-bundling check | If each of the independent subsystems/measures (i.e. ICS) included in the CPA of the PoA is no larger than 1% of the small-scale thresholds defined by the methodologies applied, then this is exempted from performing de-bundling check (EB 83, Annex13) 1% of SSC limits correspond to energy savings of 1.8 GWh _{thermal} per annum. This criterion corresponds to the Methodological tool 19, i.e. Microscale condition. | Confirmation that each subsystem used in the CPA is no more than 1% of the small-scale threshold of 180 GWh thermal saved per annum. This condition is also justified as a part of the additionality criteria as per micro-scale condition. |
| 13 | Approval of CPA by CME | The CME approves each CPA to be included into its registered PoA. | Statement of CME giving approval for the CPA to be included into its registered PoA. |
| 14 | CER ownership | Each CPA will assure ownership of the CERs is secured by the CME. | The default contract for end users is including the provision that emission reductions generated under the PoA are owned by the CME. |

Appendix 1. Contact information of coordinating/managing entity and project participants

| | |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Coordinating/managing entity and/or project participants | <input checked="" type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Project participant |
| Organization name | Korea Carbon Management Ltd. |
| Country | Republic of Korea |
| Address | 9F, N'deavor Tower, 45, Seocho-dearo 74-gil, Seocho-gu, Seoul, 06626, Republic of Korea |
| Telephone | +82 2 3487 6050 |
| Fax | +82 2 3487 6051 |
| E-mail | info@korea-carbon.com |
| Website | www.korea-carbon.com |
| Contact person | Mr. Thomas Winklehner |

Appendix 2. Affirmation regarding public funding

The proposed PoA does not envisage to utilise public funding or ODA, thus No public funding is involved in the PoA. CME has submitted an official declaration stating the same.

Appendix 3. Applicability of methodologies and standardized baselines

For applicability of Methodology, please refer section I.2 of PoA--DD.

Appendix 4. Further background information on ex ante calculation of emission reductions

Please refer section of generic CPA.

Appendix 5. Further background information on monitoring plan

Please refer section of generic CPA.

For the purpose of ex-ante estimation, following values have been considered for the ex-post parameters to be monitored at CPA level (as referred under the section I.7.1):

| Parameter | Source/Reference (assumed for ex-ante ER estimation purpose) | Value | Unit |
|------------------|----------------------------------------------------------------------|--------|------|
| $N_{y,i,j}$ | To be based on sampling survey | 100 | % |
| $\eta_{new,i,j}$ | WBT based on sampling (proposed for a reference ICS type 'RK stove') | 28.98 | % |
| μ_y | Adjustment factor for continued use of baseline stove (proposed) | 85.8 | % |
| $N_{d,HH}$ | Number of ICS distributed per household | 1 | # |
| N | Total number of ICS distributed (proposed) | 60,000 | # |

Thus, based on the above ex-post assumptions for a reference ICS type "RK Stove" and based on ex-ante parameters reported under the section I.6.2, the ex-ante estimation of emission reduction is as follows:

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel}$$

$$B_{old,i,j} = 9.42 \text{ Tonnes/HH/yr}$$

$$B_{y,saving,i,j} = 9.42 \times 0.95 \times [1 - (10\%/28.98\%)] = 5.859 \text{ Tonnes/HH/yr}$$

$$\begin{aligned} \text{Thus, } ER_y \text{ per ICS} &= 5.859 \times 100\% \times 85.8\% \times 90.97\% \times 0.0156 \times 63.7 \text{ tCO}_2\text{e/yr} \\ &= 4.54 \text{ tCO}_2\text{e/yr.} \end{aligned}$$


As the project qualifies as micro-scale CDM unit, thus the CPA is not limited in size by CPA thresholds. Thus, for a total distribution of 60,000 ICS:

$$\begin{aligned} \text{Total } ER_y &= 4.54 \times 60,000 \text{ tCO}_2\text{e/yr} \\ &= 272,668 \text{ tCO}_2\text{e/yr (calculation can be referred in the ER sheet).} \end{aligned}$$

Appendix 6. Summary report of comments received from local stakeholders

Please refer section F of POA-DD.

A few samples of summary reports of comments received from stakeholders are provided below:

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Korea Carbon Management Ltd 9F, N'deavor Tower 45, Seocho-daero 74-gil Seocho-gu Seoul 06626 Korea +82 2 3487 6050 info@korea-carbon.com |  |
| Feedback Round: | |
| Project Ref.: Improved Cook Stove Programme in Fiji (CDM PoA) Project Developer and Coordinating & Managing Entity: Korea Carbon Management Ltd. (Korea) Date of Consultation: 6th Oct 2018 | |
| Location/Venue: Kasabias Nausori Warehouse, Suva Fiji Islands. | |
| Question/ Comments/ Feedback: | If my community use coconut shell, leaves chopped into chip form ganyava sticks. |
| Given by (Name & Contact): | Rohini Kumar 9455367. |
| Response/Acknowledgement: | Thanked ministry for their initiative for this programme to the community. |
| Question/ Comments/ Feedback: | 1) Can the size be made larger to cater for big pots. |
| Given by (Name & Contact): | ANA CAVILLAN - Nakakala Mothers Club. 9206942 Verata |
| Response/Acknowledgement: | Appreciate this consultation. |

Korea Carbon Management Ltd
9F, N'deavor Tower
45, Seocho-daero 74-gil
Seocho-gu
Seoul 06626
Korea
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info@korea-carbon.com



| | |
|-------------------------------|--------------------------------------------------------------------------------------------------|
| Question/ Comments/ Feedback: | More of this kind of workshop. |
| Given by (Name & Contact): | Tania Damvileu 9437644 |
| Response/Acknowledgement: | Thank you for making us aware of the new technology that and its friendly use. Thank you Kasobio |

| | |
|-------------------------------|--|
| Question/ Comments/ Feedback: | |
| Given by (Name & Contact): | |
| Response/Acknowledgement: | |

These comments were recorded in presence of/in front of:

Name: Sign:



Appendix 7. Summary of post-registration changes

Not Applicable.

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Document information

| <i>Version</i> | <i>Date</i> | <i>Description</i> |
|----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09.0 | 31 May 2019 | Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN); • Make editorial improvements. |
| 08.1 | 28 June 2017 | Revision to: <ul style="list-style-type: none"> • Remove a duplicated instruction; • Make editorial improvement. |
| 08.0 | 7 June 2017 | Revision to: <ul style="list-style-type: none"> • Improve consistency with the “CDM project standard for programmes of activities” and with the PDD and CPA-DD forms; • Make editorial improvement. |
| 07.0 | 25 May 2017 | Revision to: <ul style="list-style-type: none"> • Ensure consistency with the “CDM project standard for programmes of activities” (CDM-EB93-A07-STAN) (version 01.0); • Incorporate the “Programme design document form for small-scale CDM programmes of activities” (CDM-SSC-PoA-DD-FORM); • Make editorial improvement. |
| 06.0 | 15 April 2016 | Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A04-STAN) (version 01.0). |
| 05.0 | 9 March 2015 | Revision to: <ul style="list-style-type: none"> • Include provisions related to choice of start date of PoA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Add exception for generic CPA where technology is under positive lists; • Make editorial improvement. |
| 04.1 | 5 August 2014 | Editorial revision to correct the document information table. |

| <i>Version</i> | <i>Date</i> | <i>Description</i> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 04.0 | 25 June 2014 | <p>Revision to:</p> <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the project design document form for CDM programme of activities (these instructions supersede the Guideline: Completing the programme design document form for CDM programme of activities (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the PoA in B.4 and Appendix 1; • Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Appendix 6; • Change the reference number from F-CDM-PoA-DD to CDM-PoA-DD-FORM; • Make editorial improvement. |
| 03.0 | 3 December 2012 | <p>EB 70</p> <p>Revision to reflect changes to the <i>Guideline: Completing the programme design document form for CDM programmes of activities</i>(EB 70, Annex 6).</p> |
| 02.0 | 13 March 2012 | <p>EB 66</p> <p>Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, annex 12).</p> |
| 01.0 | 27 July 2007 | <p>EB 33, Annex 41</p> <p>Initial publication.</p> |
| <p>Decision Class: Regulatory</p> <p>Document Type: Form</p> <p>Business Function: Registration</p> <p>Keywords: programme of activities, project design document</p> | | |