Programme of activities design document form
(Version 09.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title of the PoA	Fuel Efficient Stoves in Africa
Version number of the PoA-DD	Version 9.5
Completion date of the PoA-DD	14/09/2020
Coordinating/managing entity	3 Rocks Ltd. (3RL)
Host Parties	Zambia, Zimbabwe
Applied methodologies and standardized baselines	AMS II.G. *Energy efficiency measures in thermal applications of non-renewable biomass; Version 11*
Sectoral scopes	3. Energy Demand

PART I. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

1. General operating and implementing framework of PoA

The proposed small scale PoA involves the distribution of fuel-efficient stoves by 3 Rocks Ltd. (3RL) in individual households in the Host Countries, as described in each of the PoA's Component Project Activity Design Documents (CPA-DD) and according to the requirements of the appropriate small-scale methodology: AMS II.G *Energy efficiency measures in thermal applications of non-renewable biomass, Version 11*.

The efficient stoves are based on designs approved by 3RL and will be distributed by CPA Implementers for recipient households. The stove design to be distributed in each CPA will be tested independently in accordance with a published Water Boil Test (WBT) methodology and certified by the manufacturer or an independent laboratory to determine the baseline thermal efficiency. 3RL is the Coordinating/Managing Entity (CME) for the PoA.

Traditionally, many families in Africa cook on an open fire or charcoal grate to heat pots. This method is inefficient and leads to the unsustainable use of non-renewable biomass in the process. The replacement fuel-efficient stoves will lead to a reduction in the annual usage of biomass for users. Many people in Africa do not have access to the market for fuel-efficient cooking stoves, mainly for economic reasons. Utilizing carbon finance, the proposed PoA aims to overcome this barrier to market entry for households, substituting baseline appliances for fuel-efficient stoves. The benefits of the stove and various user commitments will be clearly explained to prospective users during communication events at the CPA implementation stage.

Stoves will be distributed by CPA Implementers, or their local partners (collectively known hereafter as "CPA Implementer"), and distribution teams will be trained to distribute the stoves and capture the monitoring data from the distribution process; identifying each stove via unique end user information, including: owner name and/or government identification number, address or location, and GPS location reference. Each stove will be assigned a unique reference number in the monitoring database.

Data collected during the distribution process will be captured from the end-user on electronic devices, or via paper forms, and uploaded to the monitoring database. This database will be maintained digitally and backed-up securely. This system will be available for review by the Designated Operational Entity (DOE) during verification of the PoA.

3RL has completed stakeholder consultations at the PoA level, including national awareness raising meetings, regional meetings and user trials of prototype stoves. It is, furthermore, the intention of 3RL to run an ongoing, post-registration programme of awareness-raising of the optimal usage of the stove, allowing a further mechanism for feedback on its performance from recipients.

The PoA is funded entirely by private investment and does not form a part of any government-funded or supported programme in the Host Countries.

2. Policy/measure or stated goal of the PoA

The goal of the proposed PoA is to distribute fuel efficient cooking stoves in the Host Countries. The stoves will replace inefficient, traditional wood-fired baseline appliances. The stoves will help recipient households reduce their non-renewable biomass use, protect standing forests, and will help

limit valuable time spent gathering fuel. Greenhouse gases will be mitigated by reducing the harvesting of non-renewable biomass for use in cooking purposes.

3. Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity.

This PoA is a voluntary action, which will be implemented by 3RL. There is no law or policy in the Host Countries that mandates the use of fuel-efficient stoves.

4. Contribution to sustainable development

The proposed PoA contributes to the sustainable development of the Host Country economies in a number of ways:

i. Environmental
   - The PoA will help significantly reduce greenhouse gas emissions over its lifetime
   - The PoA will help reduce the use of non-renewable biomass from forests, assisting the maintenance of existing forest stock, protecting natural forest eco-systems and wildlife habitats[1]
   - The protection of standing forests will ensure the maintenance of watersheds that regulate water table levels and prevent flash flooding[2]

ii. Social
   - Considerably less time will need to be spent collecting wood fuel for the family home thereby reducing the work burden on families and presenting alternative opportunities for economic development
   - Cooking and heating with solid fuels on open fires or traditional stoves results in high levels of indoor air pollution. Indoor smoke contains a range of health-damaging pollutants, such as small particles and carbon monoxide[3]. Less carbon dioxide, carbon monoxide and particulates will be emitted by the fuel-efficient stove due to the decrease in total biomass burned, the increase in the efficiency of biomass burning and an increased fire temperature.
   - The stove provides a safer method for combusting biomass for cooking, helping to reduce burn injuries, especially for children, in the family home

iii. Economic
   - The PoA will help develop a section of the Host Country economy; in the installation of the stoves (including certain materials production; e.g. bricks and mortar) and monitoring activities.
   - The PoA will bring employment benefits and jobs will be created for its administration

The proposed PoA will deliver a long-term and secure contribution to sustainable development in the Host Countries that, without carbon finance, would not exist.

A.2. Physical/geographical boundary of PoA

The geographical boundary for the proposed PoA is the countries of Zambia and Zimbabwe. All CPAs included in the PoA will be implemented in Zambia and Zimbabwe.

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[1] https://www.illegal-logging.info/TOPICS/MAJOR-IMPACTS

[2] https://www.wri.org/blog/2016/08/watersheds-lost-22-their-forests-14-years-heres-how-it-affects-your-water-supply

[3] https://www.who.int/en/news-room/fact-sheets/detail/household-air-pollution-and-health

The Republic of Zambia lies within the latitude and longitude of 15 00 S and 30 00 E[4].

The Republic of Zimbabwe lies within the latitude and longitude of 20 00 S and 30 00 E[5].

A.3. Technologies/measures

The PoA will provide energy efficient cooking stoves.
This technology will ensure a minimum 20% thermal efficiency.

Stoves of different designs, produced by different manufacturers, may be distributed within CPAs. However, each stove model introduced into a CPA will be tested in accordance with a published Water Boil Test (WBT) methodology to prove its thermal efficiency meets the requirements of the methodology and the eligibility criteria for CPAs. That is, that each stove model introduced meets the minimum 20% thermal efficiency threshold.

Each stove model will be manufactured according to a standardized design and distributed by the CPA Implementer, or its partners. Teams responsible for the distribution of stoves in each CPA will

[4] https://greenwichmeantime.com/time-zone/africa/zambia/map-zambia/

[5] https://greenwichmeantime.com/time-zone/africa/zimbabwe/map-zimbabwe/

be trained accordingly in the distribution process outlined in each CPA-DD. A separate CPA Distribution Plan outlines how individual households will receive stoves and the approximate timescale for each CPA's implementation.

A.4. Coordinating/managing entity

3 Rocks Ltd. (3RL)

A.5. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Switzerland	Korea Carbon Offsets Ltd.	No
Switzerland	Korea Carbon Management Ltd.	No
Zambia (Host)	3 Rocks Ltd. (3RL)	No
Zimbabwe (Host)	3 Rocks Ltd. (3RL)	No

A.6. Public funding of PoA

There will be no public funding involved in the proposed PoA.

SECTION B. Management system

3RL has overall operational and management responsibility for the implementation and monitoring of the proposed PoA and is therefore acting as the sole PoA CME. 3RL will be responsible, in accordance with the PoA Standard (version 2), for the following operational and management activities related to each CPA included in the PoA:

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

The roles and responsibilities of the CME are:

— *3RL Board*: oversight of management system & sign-off on CPA inclusions and monitoring reports, review of competencies of team members
— *Technical review team*: technical review of process and documentation (CPA-DDs, monitoring reports etc.)
— *CDM Compliance Manager*: overseeing writing PDDs & monitoring reports, ensuring compliance of PoA operations with CDM rules

The roles and responsibilities of the CPA Implementer, or its local partners, are:

— *Project Director*: oversees operation of distribution centres and head office; execution of set up activities; works with project manager on all planning, accounting and monitoring database QA/QC; reports to CME.
— *Project Manager*: project planning and management; logistics; issue and risk management; recruitment and training; reporting of monitoring data;
— *Distribution team*: completing distribution process; ensuring quality stove distributions;
— *Monitoring team*: gathering compliance monitoring data; gathering marketing data; data input

Overall responsibility for the roles and responsibilities and associated below processes lies with the CME. The CME assesses the competencies of individuals responsible for each of the roles stated above.

A. Manufacturing and logistics

Overall responsibility for manufacturing and logistics lies with the CME and CPA Implementers. The process is as follows:

- Depending on the stove model, complete stoves or components for the stoves are manufactured (some imported, others produced locally) by a stove manufacturer
- Stoves are distributed to warehouses within each CPA
- CPA Implementers coordinate the distribution of stoves to recipient households

B. CPA household identification

- A process for identifying households is managed by CPA Implementers. This involves working with local community leaders and other partners to help identify recipient households suitable for the distribution of a stove;
- In partnership with community leaders, NGOs and other local organizations, CPA Implementers initiate a communication process to ensure that households understand the benefits of the stoves, that cultural issues are addressed and that users are trained in the optimal use and performance of the stove;
- Each stove is assigned a unique distribution number; this is used to determine the CPA into which the stove is included.

C. Distribution

- CPA Implementers train stove distribution teams to distribute stoves within each CPA
- CPA Implementers coordinate the receipt of stoves and components in the distribution process
- CPA Implementers will be trained in the distribution of the stove to a standardized procedure
- CPA Implementers will be responsible for physically distributing the stoves to the stove recipient

D. Data Capture

- The CPA Implementer checks the distribution is complete
- If complete, distribution data is collected by the CPA Implementer, which includes:
    - Username: the household family name, plus government identification number of the stove recipient (if available)
    - Location: the address and/or physical location description (i.e. village) of the household, plus a GPS location reference (if available and accurate)
    - Date and time of installation
- Distribution data is collected by the CPA Implementer and uploaded to the monitoring database
- The database will include a unique reference number for each stove

E. CPA Inclusion

CPA inclusions are the overall responsibility of the CME.

- Data from each CPA is provided by the CPA Implementer to the CME.
- The CDM Compliance Manager oversees the writing of each CPA-DD
- The CDM Compliance Manager submits to the 3RL technical team for technical review
- The technical team proposes the CPA inclusion to the 3RL Board for approval

F. Monitoring

Monitoring activities will be conducted as follows:

- Surveys completed in the field by trained local monitoring teams
- Data captured by the monitoring teams is passed to 3RL data administration team
- Data is checked for completeness, consistency and accuracy
- Project manager summarizes data in a report to the 3RL CDM compliance manager

- CDM compliance manager writes monitoring reports for each monitoring period
- Technical review by in-house technical team
- CME board approval
- Submission of issuance request to CDM Executive Board

b) Records of arrangements for training and capacity development for personnel

3RL conducts an ongoing programme of training and capacity development for key personnel. This training is premised on documentation that includes:

- Management Information Systems & Data Capture Process
- Stove Distribution Guidelines

Records of training and capacity development will be kept by the CME.

c) Procedures for technical review of inclusion of CPAs

The technical review of CPA inclusions will be undertaken by an in-house technical team. This review will be undertaken in accordance with the eligibility criteria outlined in this PDD and the most recent guidance issued by the CDM Executive Board.

Following its review, the technical team will affirm the CPA's compliance with the eligibility criteria and recommend its inclusion in the PoA to the CME board. The proposed inclusion will then be either approved or rejected by the CME board.

d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA)

Double-counting of emissions reductions will be avoided by the unique referencing of stoves included in each CPA. This will be done through:

— ***GPS references*****:** if possible, each stove will have a unique GPS-referenced location. During the verification process the DOE will be able to check the existence of stoves related to this GPS location reference.
— ***Name, location and/or ID number*****:** an additional check of double-counting may be made against the household name, location and/or government ID number of the stove recipient ascribed to each stove. This may be checked physically during the verification process.
— ***Unique reference numbers*****:** each stove will also have a unique reference number in the monitoring database. Only one stove will be installed per household. The DOE will be able to check this during the verification process.

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

The CME is responsible for managing the record and documentation system for each CPA under the PoA. In most cases data will be collected electronically and uploaded directly to the monitoring database. Where data is collected manually, it will be collated by the CME.

Distribution data will be collected from each CPA by the CPA Implementer and uploaded into the monitoring database. This will ensure that each stove is individually referenced and logged for monitoring and verification purposes.

Monitoring data will be collected by the monitoring team responsible and passed to the CME for collation. Periodic monitoring reports and emissions reduction calculations will be generated from this data.

All records will be securely maintained and backed-up by the CME.

f) Measures for continuous improvements of the PoA management system

Periodic reviews of the procedures noted here in this management system will be conducted at the behest of the CME. This will be conducted at the time of each annual or biennial monitoring activity.

g) Any other relevant elements

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

Each CPA under the proposed PoA will be exempt from a de-bundling check due to each independent subsystem/measure being less 1% of the small-scale methodology energy output threshold (as per guidance EB54 Annex 13).

This has been included as an eligibility criterion for the inclusion of each CPA in the PoA.

b) 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 has overall responsibility for managing and operating each of the CPAs. Therefore, CPA Implementers are legally contracted to the CME and are fully aware of, and have agreed that, their activity is being subscribed to the PoA.

SECTION C. Demonstration of additionality of PoA

As per the Project Standard, version 2, para 285: "*For renewal of the PoA period of a registered CDM PoA, the coordinating/managing entity is not required to reassess the additionality of the PoA nor update the section of the PoA-DD relating to additionality*".

Therefore, the following text remains unchanged from the previous PDD version.

The proposed PoA will reduce GHG emissions through the installation of fuel efficient stoves that reduce the total quantity of non-renewable biomass used by each recipient household for domestic purposes. The PoA is additional as it relies solely on carbon finance to ensure its implementation. There are no other sources of revenue from the project other than from the sales of issued Certified Emissions Reductions (CERs). There is no other incentive to undertake the PoA, nor is there any regulation in Zambia or Zimbabwe mandating this activity.

Prior Consideration of the CDM:

Prior consideration of the CDM was established at the time of initial registration of the PoA, as follows:

It may be demonstrated that the CDM was considered prior to the PoA's start date as an initial Global Stakeholder Consultation was undertaken prior to the starting date of the PoA. The starting date of the proposed PoA is 22/12/2010, which is the starting date of the first CDM programme activity. The initial PDDs were submitted to the UNFCCC's Global Stakeholder Process on 24/11/2010. In this way, the starting date of the programme activity is after the starting date of validation, giving clear evidence proving that incentive from the CDM was seriously considered in the decision to proceed with the programme activity.

(i) The proposed PoA is a voluntary coordinated action:

There is no mandated government programme or policy in Zambia ensuring the distribution of domestic fuel-efficient cooking stoves. Recipient households may only participate voluntarily in the Fuel Efficient Stoves in Zambia PoA. It is hereby confirmed that the proposed PoA is a voluntary coordinated action by 3RL. It is hereby confirmed that the proposed PoA is a voluntary coordinated action by the CME.

(ii) If the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA:

In the absence of the proposed PoA, the distribution of domestic fuel-efficient cooking stoves would not be undertaken. The implementation of the PoA relies solely on the revenues gained from the sale of its issued CERs. There are no other identifiable revenue streams from the PoA and therefore, the revenue from the sale of CERs was considered at the earliest stage of the PoA's development, as, without this revenue stream, project finance could not be sought.

Methodology Threshold Assessment:

The appendix of Tool 21 (Figure 1. Criteria for automatic additionality using provisions of small-scale (SSC) or microscale (MSC) additionally tools) indicates that Tool 19: Demonstration of additionality of microscale project activities, may be applied for the 'Application of microscale thresholds at unit level of CPAs'.

As per paragraph 14 & 15 of Tool 19, "*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 distributed cookstoves may be considered microscale units if they "*achieve energy savings at a scale of no more than 20 GWh per year"* and meet the criteria of para 12:

a. *The geographic location of the **UNIT** is in an LDC/SIDS or SUZ of the host country;*
b. *The **UNIT** consists of one or more of the following technology/measures related to energy efficiency where end users of the technology/measure are households, communities or SMEs:*
    I. *High efficiency biomass fired devices (e.g. energy efficient cookstoves)*
    II. *Micro-irrigation systems;*
    III. *Energy efficient pump-set for agriculture*

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.

The distributed cookstoves will meet this microscale unit criteria, which will be demonstrated at the CPA-level.

Additionality Assessment:

Additionality will be demonstrated at the CPA level via one of the following options:

1. Using the methodological tool 21 “Demonstration of additionality of small-scale project activities” version 13.0.

   The CPA may demonstrate automatic additionality according to the “Provisions of small-scale and microscale tools for automatic additionality” in the Appendix of Tool 21:

   A. Is CPA aggregate size <=SSC thresholds (15MW, 60GWh/y, 60ktCO2e/y)?
   B. Is CPA comprised of only units of size < = MSC thresholds (5MW, 20GWh/y, 20ktCO2e/y) as specified under MSC additionality Tool19?
   C. Does it meet one of the below conditions defined under tool19?
      i. Is it implemented in an LDC/SIDS or a SUZ?
      ii. Does it involve distributed units (=< 1500kW or =< 600 MWh/y or =< 600 tCO2e/y and end users are Households/communities/SMEs?
   D. PA/CPA is automatically additional

2. Using the methodological tool 19 “Demonstration of additionality of microscale project activities” version 9

   The CPA may demonstrate automatic additionality via paragraph 12:

   Energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year are additional if any one of the conditions below is satisfied:

   (a) The geographic location of the project activity is in an LDC/SIDS or SUZ of the host country;
   (b) The project activity consists of one or more of the following technology/measures related to energy efficiency where end users of the technology/measure are households, communities or SMEs:
   (i) High efficiency biomass fired devices (e.g. energy efficient cookstoves);
   (ii) Micro-irrigation systems;
   (iii) Energy efficient pump-set for agriculture.

   This approach may require the need to check the penetration rate of cookstoves in the Host Country as per the Appendix of Tool 19, where a CPA is not located in an LDC/SIDS or SUZ of the Host Country.

3. Using the methodological tool 21 “Demonstration of additionality of small-scale project activities” version 13.0.

   Alternatively CPAs may determine actual additionality by applying the provisions of additionality analysis in tool 21.

The PoA ensures that each CPA satisfies these conditions, which have been listed in the eligibility criteria for inclusion of CPA into the PoA. This will ensure that all CPAs under the PoA remain additional throughout the PoA lifetime.

SECTION D. Start date and duration of PoA

D.1. Start date of PoA

The starting date of the PoA is 22/12/2010, which is the date of commencement of ‘real action’ in the PoA. This date has been selected as it is the date when the first stoves were ordered under the

PoA. It is not earlier than the commencement of validation of the programme of activities, i.e. the date on which the PoA-DD is first published for global stakeholder consultation, which was 24/11/2010.

Individual CPAs may have a starting date prior to the registration of the PoA and this shall not be earlier than the commencement of validation of the programme of activities.

The starting date of the crediting period of each CPA shall not be earlier than the date of its inclusion in the registered PoA

D.2. Duration of PoA

The PoA duration is 28 years from 22/10/2010.

It may be renewed every 7 years.

SECTION E. Environmental impacts

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

Environmental Analysis is done at PoA level

E.2. Analysis of environmental impacts

The PoA does not incur any negative environmental impacts and it is therefore reasonable to consider a single environmental analysis at the PoA level, rather than individual assessments for each CPA.

In accordance with Zambian and Zimbabwean regulations, an EIA is not required for typical CPAs included in the proposed PoA. This has been confirmed by the Environmental Council of Zambia and the Environmental Management Agency of Zimbabwe, indicating that the project has positive impacts on the environment.

See letters in Appendix 4 dated 16/03/2011 and 08/01/2019 respectively.

E.3. Environmental impact assessment

No negative environmental impacts have been identified from the proposed PoA.

3RL has identified a number of positive environmental impacts related to the implementation of the PoA, although these will not be specifically monitored over the lifetime of the PoA:

- Reduced air pollution related to the reduced, and more efficient, combustion of biomass
- Biodiversity protection, due to the reduction in deforestation rates and the subsequent protection of forest habitat[6]
- Maintenance of watersheds that regulate water table levels and prevent flash flooding, through reduced deforestation[7]

3RL has not identified any localized trans-boundary environmental impacts related to the proposed PoA. Despite significant deforestation, the supply of domestic fuel is provided for locally by the existence of sufficient biomass within the Host Countries, as identified in the baseline data.

[6] http://www.illegal-logging.info/approach.php?a_id=54

[7] http://www.meted.ucar.edu/hazwarnsys/ffewsrg/FF_EWS.Chap.2.pdf

Globally, the clear impact from the PoA is a reduction in greenhouse gases mitigating the risk of climate change, as evidenced in the emissions reductions calculations in each monitoring period.

SECTION F. Local Stakeholder Consultation (LSC)

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

Local stakeholder consultation is done at PoA level

F.2. Modalities for local stakeholder consultation

Stakeholder comments were invited at the PoA level to assess the appropriateness and acceptability of the proposed PoA design.

Zambia:

The boundary of the PoA is Zambia and, as CPAs are not defined geographically (only numerically, by total numbers of stoves), it was important to consult stakeholders at the PoA level to ensure that the consultations were inclusive.

3RL has undertaken the following activities to invite stakeholder comments:

Sept-Oct 2010 Regional stakeholder meetings and stove user trials in Nyimba District
March 2011 Regional stakeholder meetings and stove user trials in Katete District
March 2011 National level stakeholder meetings and feedback:

- GRZ Ministry of Community Development and Social Services
- GRZ Department of Energy
- Council of Churches
- Islamic Council of Zambia
- Zambian Civil Society Climate Change Network
- Green Enviro-Watch
- House of Chiefs

Stakeholders were invited to participate in consultations for the implementation of the PoA. These consultations were undertaken as meetings at various stages in the PoA's development. Each meeting was set-up using the following process:

1. Invitations
   Where appropriate, and dependent on local conditions, stakeholders were invited in one of the following ways:
   a. Public Invitation: a newspaper notice and/or radio announcement, placed in local media prior to the stakeholder meeting
   b. Public Notices: fliers placed at strategic locations inviting participants
   c. Personal Invitation: individuals were identified and invited personally with a written or verbal invitation.

   A 'tracking list' of invitations will be established for meetings to ensure that invitations are monitored and logged for responses.

2. Meeting Preparation
   The following must be in place prior to the actual meeting:
   a. Non-technical summary: a simple description of the project that stakeholders will understand
   b. Minute taker: an individual responsible for taking detailed notes of the meeting findings
   c. Participation forms: participants must sign this form to confirm their attendance

d. Evaluation forms: a simple evaluation form asks each participant to write down their feelings and concerns raised in the meeting and the proposed PoA
e. Agenda for the meeting
f. Translator (where required)

3. Meeting conduct

The meeting will largely follow an agenda according to a common approach:

a. Opening: introductions, goal of meeting, participation/evaluation form
b. Explanation of PoA: overview of goals, understanding CDM process, who is involved, project phases and timelines, monitoring requirements, emissions rights acknowledgement
c. Explanation of stove: the technology, how it is installed and used, the benefits
d. Questions & Answers: for clarification of key points
e. Closure: complete evaluation forms and thanks

Zimbabwe

a) The scope of local stakeholder consultation

The LSC was national in scope and intended to introduce the PoA and its aims to local stakeholders as a part of the process of including Zimbabwe as a Host Country.

b) The minimum group of stakeholders to be involved

Stakeholders were invited from a broad range of organizations within Zimbabwe. These were drawn up in an invitation list designated in the following categories:

- Government Agencies
- NGOs
- Private Sector
- Agencies
- Community Groups
- Church Groups

Individual meetings were also held separately with Government Departments, including the Department of Climate Change and the Environmental Management Agency.

c) The means for inviting stakeholders' participation

Stakeholders were invited by direct email where possible:

3 Rocks Ltd. (3RL) plans to implement a UNFCCC Clean Development Mechanism Programme of Activities (CDM PoA) titled: "Fuel Efficient Cookstoves in Africa". The PoA aims to disseminate energy efficient improved cook stoves in Zimbabwe. 3RL shall be the Coordinating/Managing Entity (CME) of the proposed PoA, supported by Rift Valley Corporation.

As a valued stakeholder in the PoA, you are requested to participate in the Local Stakeholder Consultation (LSC) to give your kind feedback. You are invited to an LSC meeting at The Venue, 23 Kenny Avondale at 08.00 on Tuesday 20th November 2018, to share your thoughts and opinion on the Programme.

Alternatively, please find attached the Non-Technical Summary (NTS) and Feedback form. We welcome your thoughts and suggestions and cordially request you to fill the form and return to us, to share your views on this project.

You are kindly requested to provide us with your valuable feedback within 7 days from the date of receipt of this mail.

If you have any questions, please don't hesitate to ask.

A newspaper advertisement was placed in the local press:

d) The information to be made available to stakeholders

A non-technical summary of the PoA was provided to all invitees and attendees of the LSC meeting, plus a feedback form provided to return comments to the CME. A presentation was created for the meeting.

e) The conduct of consultation

The meeting was held in a central location in Harare and refreshments were provided. The meeting commenced with all attendees and hosts introducing themselves, then the agenda was as follows:

1. What is Climate Change?
2. What is the response?
3. What are Carbon Projects?
4. The 3 Rocks project
    a. Scope
    b. Impacts
    c. The carbon project cycle
5. Questions and Feedback

F.3. Summary of comments received

Zambia

i. Comments from Nyimba meeting and user trials:

First stove recipient: explained that there are major advantages to using the efficient stove installed for her; she found that she only used three pieces of wood to cook within two days whereas previously this would have been used a lot more quickly. She also said there has been much less smoke and less mess due to containment of the ash.

The local councillor for Chiweza ward: has seen a big difference in the amount of wood that people are using and that when he had collected feedback himself it was all positive. He noted that the users don't need to chop down trees because sufficient fuel could be gathered into a basket. Another comment was that there was so little smoke that the family could eat together very soon after the cooking had finished; previously the amount of smoke would mean that it was some time until the room was habitable again after cooking. He stated that his family had more time together as a result.

He went on to say that there was visibly less soot in the room, which meant that the roof was likely to remain stronger for longer in his house[8].

Second stove recipient: she had used big pots and that she found it much better than her previous methods, adding that she thought that the cooking area was bigger than the one she had before.

Third stove recipient: made clear the safety aspect that she had noticed, with her three stone fire, there were regular accidents, of people tripping over protruding branches, spilling the water or standing on ash. With her efficient stove this was all solved.

Fourth stove recipient: was keen to mention the workload and the difference that it made to the quality of life for women. Previously she would be dragging a log, carrying a child and some tools to rush back to cook; now the small amount of wood required was making life much easier with less gathering time required.

Fifth stove recipient: mentioned that she could use the same piece of wood to cook the whole meal due to the efficiency of her stove. One impact that had not been mentioned was the fact that everything was cleaner and easier, including the washing of the pots, which looked like they had been using electricity and were very clean). Previously she would have to scrub using sand to clean them.

Sixth stove recipient: explained that he was particularly pleased with the safety advantages that this stove brings with no tripping hazards or issues with falling into the hot ash.

The following comments were received from the written feedback forms at the community meeting:

- I like it because there's reduction of labour to the women, also prevent from coughing. (Don't like) because it is one stove. *Agnes Daka*
- I think the meeting has been of great importance to us participants. I have liked the project because it reduces the cutting of trees, anyhow, and reduces the risk of women getting sick. *Joseph Beulani, Nyimba Central Orphans Project*
- All I can appeal is that if possible if you can make other stoves, women can have two plates so that when cooking nshima you can cook relish as well. *Gertrude Phiri, Mpeta village*
- It is my first time to hear about it but is very profitable to many lives. The project has come at a right time. *Selina Mumba, Nyimba Congregation, R.C.Z.*
- It's a very good meeting with the meaningful to people who use firewood to cook. I like this project because the cookstove which you have introduced to us is simple to use, and uses little firewood. (Don't like) Because once installed the cookstove you can't remove it. *Benson Zimba, Nyimba District Business Association*
- I like this project because we have been given some modern fire stoves which I didn't have before. What I wouldn't like is if promises are not fulfilled, it will bring a lot of problems to the communities. *Joseph Phiti, Area Councillor, Chiweza Ward*
- I have received it positively and very willing to make use of it with maximum care. It reduces the amount of firewood and natural resources like trees will be conserved, less smoke is produced, less labour is required. It is also free or not costly. (Don't like) the idea of having repairer or people working on them coming overseas. *Captain Clayford Nsana, Secretary, Salvation Army*
- It reduces labour in terms of firewood cutting, improves human health and reduces deforestation. (It is unfortunate) that the stove can only save on household basis and not big institutions like hospitals, schools, churches, community based groups etc. We are lucky because the stove is free of charge. *Evangelist William Daka, Youth Patron, Anglican Church, Nyimba*

[8] Soot can accumulate in the thatch roof, weakening it and also causing soot to fall on people anytime a rodent/insect comes through the roof. The roof needs more regular replacement as a result.

- The project will mostly address and reduce labour especially for women, as they tend to spend more time preparing meals for their families. As the stove manufacturers are not locally based but outside, it would be good to train local people to maintain the stoves. *Diana Kawanda Musaka, Ministry of Community Development and Social Services, Nyimba*
- It does not cater to the industries which are major causes of climate change, water and air pollution which are a major threat to human health. These stoves should only be given in rural areas where there is high use of charcoal and wood fuel because people in urban areas have cookstoves using connected power (national grid) and they can afford to pay the bills. *Rafael Monzita, SCORE Zambia*

ii. Comments from Katete meeting and user trials:

3RL explained the project to the District Commissioner, District Agricultural Officer and two Katete regional Chiefs. 3RL were was received and invited by the Chiefs to return to install stoves. All four leaders expressed initial support and indicated that the impact of the stoves – reduced pressure on forests, and time and labour savings for women – would be very positive for Katete households.

The community meeting raised a number of comments:

Question / Comment	Response from 3RL
Will people in town benefit?	People in town typically use charcoal. Rural villagers use wood for energy and therefore will be the project focus.
Will people need to supply cement and bricks?	3RL will supply cement and we will ask villagers to supply approximately 25 bricks per stove.
Will the stove heat like a brazier?	The stove is much more energy efficient and therefore keeps heat inside.
What is the lifespan? What happens after that?	If looked after the stove should last 7 years. 3RL intends to maintain a presence in the district through this time and we will make a decision at that point regarding whether to bring new stoves.
Can other organizations help to sensitize people about the project?	Yes, we would like you to get involved.
How can the smoke that is emitted be managed?	The stove will emit less smoke than the traditional fire and as such it can be placed anywhere in the household.
Can the stove be moved if a farmer moves household?	The stove should not be moved. People should contact us if they wish to move households and we'll look into the possibility of constructing a stove in the new home.
Why does the stove need to be built in?	It must be in a fixed location so we can keep track of it. Also, it looks nicer and its durability and security is improved if it is built in.
Well done for supplying the cement which is very expensive for rural people. As it is only 25 bricks people can supply these. (comment from DC)	Thank you
Are the stoves of uniform size?	Yes, we will build each stove to a standard. Each will be made from approximately 25 bricks. However, a user can add to the structure at a later stage.
The demand will be greater than 32000 stoves and people in other areas (Chipata and Petauke) will be interested. How will you manage this demand?	We are focused on Katete to begin with and will assess the project success at end 2011. At that time we will make a decision re where to go next.
Can the stoves be used for institutional use?	This is not the focus of our project.

iii. Comments from national stakeholder meetings:

Ministry of Community Development and Social Services
Contact: Ms. Sherry Thole, Permanent Secretary
Date: 21/03/2011

The PS responded positively to the idea of the project and displayed a familiarity with carbon markets. She suggested that 3 Rocks might benefit from coordinating a stove marketing session with a joint Ministry-UNDP event in Eastern Province.

Green Enviro-Watch
Contact: Mr. Abel Musumali, Chief Executive Officer
Date: 22/03/2011

This NGO is focused on addressing youth and employment-related issues in the context of climate change and low-carbon development. They are represented in 70 districts across Zambia, with 350 individual members, 36 member organizations and various connections to regional and international organizations. They have eight full-time staff and are donor-funded.

Questions and feedback which included:

- Who makes the stove? It would have been better for 3 Rocks to manufacture the stoves locally so as to allow Zambia to full benefit from a transfer of technology. Zambians should be involved to some extent in maintenance.
- The environmental and social benefits are clear and very positive.
- Giving stoves away for free is not an ideal approach.
- We will likely come across challenges getting people to switch to the stoves.
- It would be good to offer bigger stoves for cooking in larger pots for larger numbers of people.
- Long term ongoing sensitization and follow up will be necessary.

The two officers agreed enthusiastically that they would like to hear periodically from 3RL regarding the progress of the project, and would be available for support and guidance on community engagement or other challenges we might come up against.

Zambia Civil Society Climate Change Network
Contact: Mr. Machaya Chomba, WWF and ZCCCCN
Date: 24/03/2011

Specific questions and/or feedback included:

- What form the community trust will take and whether it would be possible for communities to buy into the project as 3 Rocks shareholders
- The communities must see the impact over time on their forests and some work by other organizations in the areas surrounding the project would be valuable in establishing environmental, health or social baselines and monitoring the impact of the project.
- It may be a problem for households to all supply bricks – we might consider using clay to install instead.
- 3RL should keep in mind the overall environmental impact of the project.

House of Chiefs
Contact: Chief Madzimawe, Chair of the House of Chiefs of Zambia
Date: 25/03/2011

The Chief said that he had just the day before been briefed by Zambia's Ambassador to the United Nations on issues that had come up during the UN General Assembly, including climate change.

The Chief spoke for several minutes about his concerns on climate change and indicated that he was receptive to hearing more about the project.

The Chief's questions and feedback included:

- Deforestation is a major issue – both for firewood and charcoal. What will our children use for cooking?
- He doesn't think anyone will be against the concept of the project as it will reduce the pace of tree-cutting and will have a positive impact on the health of our mothers.
- 3RL has his full support.
- 3RL can feel free to come back to him for guidance or specific assistance on communicating messages about switching to stove us and on distribution.
- It was very good for us to have started with engaging the Chiefs and traditional leaders – they will be our ambassadors. He will inform the Chiefs at their April-May 2011 seating (full meeting in Lusaka) and would like to invite us to come present the project to that audience.

Department of Energy
Contact: Mr. Oscar Kalumiana, Director
Date: 25/03/2011

Questions and feedback included:

- What will the benefits be to local economies?
- The Zambia Gender and Energy Network (ZGEN) might be a good organization to partner with
- CDM should clearly benefit local communities
- Technology transfer should be a key consideration for the project.
- 3RL should look at charging for the stoves, possibly on a monthly instalment plan such as has been used by the Lusaka Sustainable Energy CDM project.
- Energy efficient stoves are a very good idea; the Ministry itself had done some distribution of 200 gel-fuel stoves in Chipata and is very interested in how this project pans out. They'd like to see it succeed and would be interested in periodic updates going forward.
- There is an Energy Week in June 2011 and they would like 3 Rocks to demonstrate the stove. They would also be interested in sending members of their team to any launch events in Katete and might also like to join to observe some of the early installations.
- The concept is very good and the cast iron top will ensure the stove lasts a long time unlike the mud stoves the DoE has been promoting. The project will lessen burdens for women and children and will protect the environment.
- As long as people in Katete are convinced it appears to be a sustainable project.
- There may be political tension regarding distribution and 3RL must involve local chiefs and headmen in order to overcome this.
- All questions during this meeting have been adequately dealt with. It is good that 3 Rocks is being transparent from the outset.
- Sustainability may be an issue after the project moves out of an area – local communities tend to abandon project activities once it's no longer running. Change usually meets resistance as well. Need to leave in place a mechanism for follow-up by local leaders.
- We're happy to have another CDM project in the country.

Council of Churches in Zambia
Contact: Reverend Suzanne Matale
Date: 27/03/2011

The Council of Churches had a very positive response to 3RL's presentation of project plans. While they've traditionally focused on issues of social and economic justice, they have more recently begun to look at climate justice and it is now a core issue on which they are trying to be proactive. Questions and feedback included:

- It's good for households to provide bricks and sand but this isn't a long term sustainable approach.
- Are the stoves secure?
- What about employment and training?
- Will the information be translated? [Yes]
- It's been a challenge for the Church to bring climate change information to the village level. That this project will have the added benefit of informing thousands of people about climate issues is very good.
- It is good not to attempt to introduce a completely new technology – the stove seems to be a natural carry-on or "scaling up" of the 3 stone fire and will have better chance of acceptance.
- The Council of Churches can offer assistance in mobilization of human resources, and would be happy to provide a letter of support or of introduction.
- The project sells itself.
- There is a Climate Justice Network church conference to be hosted in Zambia this year and they would like 3RL to present the project there.

Zambia Islamic Community Services Trust
Contact: Mr. Ibrahim Yusuf, Spokesman
Date: 29/03/2011

The ZICST is the official community outreach arm of the Lusaka Muslim Society. It deals with community projects and charity work for vulnerable communities of any religion. It is the arm of the Muslim Society that engages with government.

The project and stove were presented, with questions and feedback included:

- This is a fantastic idea. They have always toyed with the possibility of distributing stoves but have never followed through.
- Mr. Yusuf is from Chipata (provincial capital near Katete) and grew up in the village and believes that the people there will be very happy with these stoves.
- It is good that the project will also be educating people about environmental issues like deforestation.
- The built-in design is better than a free-standing stove.
- Mr. Yusuf would be happy to facilitate contact with Muslim leaders in Katete and throughout Eastern Province, where there is a large population of Muslims.

Zimbabwe

Participants were requested to provide feedback via questions on the day, but also via the feedback form provided to each participant (along with the non-technical summary of the project) either on the day or up until 27th November 2018.

Attendee questions	CME answers
1. Who installs the stove?	3RL and/or the CPA implementer will put together a dedicated installation team that will go out into the communities and install the stoves
2. What would you like from the tobacco industry?	To become project implementation partners: to facilitate the distribution of cookstoves, make use of your contacts in the communities in which you operate; logistical and other support throughout the installation and monitoring process.

3. Where is Rift Valley involved?	Rift Valley will be involved on the above basis as a project implementation partner (PIP) and is seeking to engage the wider tobacco industry to join the project
4. What is the cost to the end user, the farmer in this case?	For wood stoves, there is no direct financial cost to the end user. The end user will contribute by: attending training and sign up days; providing material such as bricks, clay and water; providing labour on installation day.
5. What is the cost to the partners?	There is not expected to be any direct financial input from PIPs but they will see the CSR benefit that they will take away from this project. That could be an intro to the communities, assistance with infrastructure, facilitation, etc. We do not want it to be onerous. We could use the existing processes and people to collect data and install stoves. We are interested in the emissions reductions from the stoves and the partners and their communities will accrue the other benefits that come from the stoves
6. How many bricks are needed per stove?	Normal bricks = 20 – 25. Rural bricks (in Zambia) = 12-15. And we intend to use clay as cement, instead of actual cement.
7. How have you chosen the stove and why that one?	The liner is metal which gives it durability as it needs to last a number of years. There is a trade-off between efficiency and durability. The stove is bricked in because it needs to be in a fixed location so that it can be tracked for monitoring later. The stoves can be credited with emissions reductions as long as they are in use and operating at a minimum thermal efficiency.
8. What happens when a householder moves?	The project will not be credited for a stove that has moved with its owner from its original location, unless the owner notifies the CME and his/her new location is captured.
9. Why is the stove that size, as it looks a bit big for the rural kitchen?	We have tested the stove in a rural setting in Zambia and the users preferred the taller stove as the user does not have to bend over to use it. The stove design is still to be finalized and this feedback can be taken into account.
10. Will the communities use this stove?	We think that they will use the stove because it will reduce their wood fuel consumption and wood fuel is becoming scarce. Education will also be important in this regard.
11. Is the stove installed by the project or left with the owner to install?	The stove is installed by an installation team and the unique monitoring data related to the location and owner is captured.
12. When will the project start?	We intend to start rolling out stoves from 01 April 2019. We will agree the implementation plan and process with all partners before we begin installation.
13. Comment (tobacco industry): It is unlikely that we will be able to distribute and install these stoves alongside the other seasonal activities (input	In that case we will set up and manage a separate installation process for the stoves. We are aiming for the roll out to be completed by the end of 2020 and therefore need an efficient roll out process. We will not want to interrupt the day to day activities of implementation partners' core business.

distribution etc) that the industry undertakes.	
14. Why the end of 2020?	This is the visibility of the carbon market at present. The phase that we are in ends at the end of 2020.
15. We only have 40,000 tobacco growers between us (the potential partners in the meeting)?	We will distribute stoves to everyone in a village / area who wants a stove regardless of whether they are growers or not. That way we will reach more households that just grower households.
16. How will you select those that are issued with stoves?	They will be self-selecting. Anyone who wants a stove will get one as long as they fulfill some basic requirements such as attending info exchange days, have a kitchen, provide bricks and clay etc.
17. The stoves will be in high demand, so how will you select the areas in which you install?	The roll out strategy will be determined with partners and we intend to go to tobacco growing areas.

There were some latecomers to the meeting so an additional discussion/Q&A session was provided at the end of the session complete with translation into Shona language to facilitate responses. The following comments were noted:

- "people in rural areas must travel up to 10kms to cut wood from the forest, as deforestation has cleared forests from near the villages."
- "trucks are used to deliver woodfuel once per week, because there are few trees near the villages the forest has been destroyed"
- "it is positive for the community due to the benefits explained"
- "there would be no problem for the recipients to provide bricks in the village for construction"
- "it is OK to have a 1-pot stove, this would work well"
- "Most people have a kitchen in their house and the stove could be installed there"
- "Despite there being project to reforest the land, people are not looking after the trees or the seedlings provided and are still getting forest wood for cooking"

The following questions were asked:

Attendee questions	**CME answers**
1. How will the distribution work?	• Community meetings will be held to introduce the stove and people will be asked if they wish to participate and receive a stove • About 2 weeks later, the stoves will be delivered to villages with work teams helping to install them
2. What is the time frame to distribute the stoves?	• We hope to start the manufacturing of the stoves in January 2019 and begin distributions in April
3. How will the community engagement work?	• We will do sample installations in the villages and announce these via local radio stations, plus hold community meetings to introduce the stove
4. How are houses selected to receive a stove?	• The stoves will be offered to the community as a whole, with no exceptions

	• Everyone who wants a stove will get one, but they must have the materials (i.e. bricks) prepared for installation day
5. How long will it take to install the stoves?	• Approximately 30 minutes
6. Will you train local people to build the stoves?	• Yes, we will build installation teams at the local level • Plus we will utilize local transport companies to deliver stoves
7. Will you create employment?	• Yes, there will be jobs available when we are installing the stoves, plus also further jobs involved in monitoring the stoves after installation

F.4. Consideration of comments received

Comments were responded to in the following ways:

Zambia

- Installation of stove conducted by non-local people

It was explained that the installation of the stoves will be conducted by local Zambian supervisors in partnership with the recipients. In this way, the project will help to contribute to a local market economy and foster a sense of ownership of the stove for recipients.

- Stove design – non-movable and not robust enough; secure?

3RL explained that the stove is secured to ensure that there is no theft or damage incurred during its lifetime. It was explained that if a recipient moves home, they should inform 3RL to ensure that the ownership of the stove transfers to the new homeowner and allow 3RL to investigate the possibility of the original household recipient participating in the project at their new location. 3RL repeated that once stoves are built in to the brick and cement structure they would be secure from all but the most dedicated attempts to steal or damage them.

- Only one stove

It was explained that the stove is expected to replace the existing cooking appliance (i.e. a 3-rock fire) and that it should be used for all primary cooking and water heating needs. As the stove is more efficient than the existing fire, it was explained that it is able to be used for more purposes. It is not possible to distribute more than one stove per household.

- Only for households – not institutions or businesses

In the explanation of the project, it was made clear that the stove is only for household use. It was explained that there is the possibility of conducting this type of project in institutions and businesses, but that this would have to be considered separately.

- Education and training

3RL outlined in more depth employment and training plans for the PoA, including estimates of job creation. 3RL plans to conduct an ongoing awareness campaign to ensure the successful uptake and correct use of the stove.

- Economic benefits

3RL noted that there are direct and indirect economic benefits – a direct reduction of costs, if any, associated with buying wood; and indirect benefits of increased free time, improved health and a long term reduction of pressure on the surrounding environment.

Zimbabwe

- Stove type

As noted in the minutes, the stove type has not yet been finalized for Zimbabwe and the comments received will be taken into account during the CPA implementation phase

- Education and training

3RL outlined in more depth employment and training plans for the PoA, including estimates of job creation. 3RL plans to conduct an ongoing awareness campaign to ensure the successful uptake and correct use of the stove.

- Who receives a stove

It was emphasised that there is no criteria for a household to receive a stove other than agreeing to participation in the PoA and subsequent monitoring. This will be part of the education/training campaign associated with each CPA.

- Project implementation

Potential partners were advised that the project is open to establishing contractual relationships with distribution partners for the stoves. These would be established on a case-by-case basis at the point of CPA inclusion.
Community representatives were advised of the proposed process for distribution, timings and awareness raising activities.

- Project timing

Project timings were provided during the LSC, but it was noted that these were not fixed and exact timings would be agreed with each stove distribution partner at the start of the CPA implementation process.

Feedback forms were also received, and no negative comments were provided by respondents.

SECTION G. Approval and authorization

Approval for the PoA was received from:

Zambia: Ministry of Tourism, Environment and Natural Resources on 15th April 2011, and revised to show PoA name change on 09/06/2020

Zimbabwe: Ministry of Environment, Climate, Tourism and Hospitality Industry on 27/05/2020

PART II. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

Fuel Efficient Stoves in Africa ([CPA Implementer] CPA No. xx)

H.2. Reference number of generic CPA

[CPA Implementer] CPA No. xx

H.3. Purpose and general description of generic CPA

The proposed CPA involves the distribution of fuel-efficient stoves by [CPA Implementer] in individual households in [Host Country/ies]. This technology ensures a minimum 20% thermal efficiency. The stove design to be distributed in each CPA will be tested independently in accordance with a published Water Boil Test (WBT) methodology and certified by the manufacturer or an independent laboratory for its thermal efficiency.

Double-counting of emissions reductions will be avoided by the unique referencing of stoves included in the CPA. This will be achieved through:

- ***GPS references*:** if possible, each stove will have a unique GPS-referenced location. During the verification process the DOE will be able to check the existence of stoves related to this GPS location reference.
- ***Name, location and/or ID number*:** an additional check of double-counting may be made against the household name, location and/or government ID number of the stove recipient ascribed to each stove. This may be checked physically during the verification process.
- ***Unique reference numbers*:** each stove will also have a unique reference number in the monitoring database. Only one stove will be installed per household. The DOE will be able to check this during the verification process.

The CPA does not involve funding from Annex I parties and does not result in a diversion of official development assistance.

Contribution to Sustainable Development

The proposed CPA contributes to the sustainable development of the Host Country economy in a number of ways:

i. Environmental
   - The CPA will help significantly reduce greenhouse gas emissions over its lifetime
   - The CPA will help reduce the use of non-renewable biomass from forests, assisting the maintenance of existing forest stock, protecting natural forest eco-systems and wildlife habitats[9]
   - The protection of standing forests will ensure the maintenance of watersheds that regulate water table levels and prevent flash flooding[10]

ii. Social

[9] https://www.illegal-logging.info/TOPICS/MAJOR-IMPACTS

[10] https://www.wri.org/blog/2016/08/watersheds-lost-22-their-forests-14-years-heres-how-it-affects-your-water-supply

- Considerably less time will need to be spent collecting wood fuel for the family home thereby reducing the work burden on families and presenting alternative opportunities for economic development
- Cooking and heating with solid fuels on open fires or traditional stoves results in high levels of indoor air pollution. Indoor smoke contains a range of health-damaging pollutants, such as small particles and carbon monoxide[11]. Less carbon dioxide, carbon monoxide and particulates will be emitted by the fuel-efficient stove due to the decrease in total biomass burned, the increase in the efficiency of biomass burning and an increased fire temperature.
- The stove provides a safer method for combusting biomass for cooking, helping to reduce burn injuries, especially for children, in the family home

iii. Economic

- The CPA will help develop a section of the Host Country economy; in the installation of the stoves (including certain materials production; e.g. bricks and mortar) and monitoring activities.
- The CPA will bring employment benefits to the Host Country and jobs will be created for its administration

The proposed CPA will deliver a long-term and secure contribution to sustainable development in the Host Country that, without carbon finance, would not exist.

H.4. Technologies/measures

a. Technology to be employed by the CPA

The CPA involves the distribution of energy efficient biomass fuel-based ICS, with a minimum 20% thermal efficiency.

b. Types and levels of services provided by the ICS installed under the CPA

The ICS distributed under this CPA will meet the thermal energy requirements of the beneficiary households. They will replace traditional, inefficient cookstoves and have the following types and levels of service:

i. The installed capacity (the total number of ICS units included the CPA) shall (not) be limited (to xxx units), owing to xxx
ii. The rated/design thermal efficiency of ICS is xxx (not be less than 20%)
iii. The range of the age and average lifetime of the ICS is xxx years[12] for domestic usage[13]

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

AMS II.G. Energy efficiency measures in thermal applications of non-renewable biomass*;* Version 11

Standard: Sampling and surveys for CDM project activities and programmes of activities, version 8.0

[11] https://www.who.int/en/news-room/fact-sheets/detail/household-air-pollution-and-health

[12] It will be assumed that ICS continue to function unless otherwise demonstrated by ex-post monitoring surveys, as the CME plans to undertake a regular maintenance programme to ensure the continuity of ICS usage. Any ICS that is replaced in the project household will be removed from the project monitoring database, ensuring no further emissions reductions are claimed, and a new unique entry will be made for the replacement ICS provided.

[13] As a conservative measure, it is deemed that the ICS service level in case of installations at any SME's is also equivalent to domestic usage.

Tool 19: Demonstration of additionality of microscale project activities, Version 09.0

Tool 21: Demonstration of additionality of small-scale project activities, version 12.0

General Guidelines for SSC CDM methodologies, v.23.0

I.2. Applicability of methodologies and standardized baselines

Scope

"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 (cookstoves or ovens or dryers) to replace the existing devices and/or energy efficiency improvements in existing biomass fired cookstoves or ovens or dryers"

This methodology has been selected as the technologies and measures to be implemented in the proposed CPA include the introduction of high efficiency biomass-fired cooking stoves, as described above. The introduction of the efficient stoves is the stated goal of each CPA under the proposed PoA.

"In the case of cookstoves, the methodology is applicable to the introduction of single pot or multi pot portable or in-situ cookstoves with rated efficiency of at least 20 per cent. The Water Boiling Test (WBT) method shall be used to test the efficiency of the cookstove to meet this eligibility requirement, following the requirements indicated in "Data / Parameter table 11" which details the options for testing and certification as well as supporting documentation (e.g. certificate issued by third party or test results) that needs to be presented to the validating DOE"

As noted in the PoA-DD Section A.3:

The PoA will provide energy efficient cooking stoves.
This technology will ensure a minimum 20% thermal efficiency.

Stoves of different designs, produced by different manufacturers, may be distributed within CPAs. However, each stove model introduced into a CPA will be tested in accordance with a published Water Boil Test (WBT) methodology to prove its thermal efficiency meets the requirements of the methodology and the eligibility criteria for CPAs. That is, that each stove model introduced meets the minimum 20% thermal efficiency threshold.

This is listed as an eligibility criterion in the CPA-DD.

Applicability

i. 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.

AMS II.G version 11, paragraph 51 states:

"If the generic CPA consists solely of units that qualify as "microscale CDM units" as defined in the "TOOL19: Demonstration of additionality of microscale project activities", the conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs are not required."

The CPA is considered a "microscale CDM project activity" and the cookstoves distributed under the CPA are "microscale units" if either (as per paragraph 14 of Tool 19, v9):

1. The CPA is located in an LDC; or
2. The CPA consists of high efficiency biomass fired devices (energy efficient cookstoves)

Each microscale unit will not achieve energy savings at a scale of more than 20 GWh per year, as proven ex-post in the emissions reductions calculations. This is a CPA eligibility criterion.

Furthermore, the methodology threshold does not apply, as the cookstoves are considered "microscale units" according to paragraph 15 of Tool 19:

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 either.

ii. 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

The CPA will demonstrate here how the use of non-renewable biomass is commonplace in [Host Country] and can be reasonably concluded that has been the case since 31 December 1989.

xxx

iii. For cases where the biomass is sourced from renewable sources, the project participants should use a corresponding Type I methodology

Biomass in the CPA is not sourced from renewable sources.

iv. 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

No specific fuel is required for the project devices.

v. The CPA-DD shall explain the proposed method for distribution of project devices including the method to avoid double counting of emission reductions such as unique identifications of product and end-user locations (e.g. programme logo)

Stoves will be distributed in a variety of ways, or 'routes to market', depending on local conditions. Double counting will be avoided via the provisions laid out in the PoA-DD Section B and confirmed in the CPA eligibility criteria.

vi. The CPA-DD shall also explain how the proposed procedures prevent double counting of emission reductions, for example to avoid that project stove manufacturers, wholesale providers or others claim credit for emission reductions from the project devices.

The CPA Implementer will provide an assurance from the stove manufacturer that the stoves implemented in the CPA will not be included in another emissions reduction project and will provide evidence that the serial numbers are uniquely generated for CPA stoves.

I.3. Application of multiple methodologies

N/A

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

Proof that the small-scale CPA is located within the geographical boundary is described in the methodology as: *the physical, geographical site of the efficient systems using biomass*.

Under the proposed PoA, each CPA is located within the Host Countries and the physical, geographical site of each stove will be within a single household in the Host Country which will be identified by specific unique end user data, as noted in Section H3 above.

Emissions sources to be included in, or excluded from, each SSC-CPA boundary in the proposed PoA:

Source		GHG	Included?	Justification/Explanation
Baseline	Combustion of non-renewable biomass for cooking in baseline devices	CO_2	Yes	Major emission source
		CH_4	No	Minor emission source excluded as conservative measure
		N_2O	No	Minor emission source excluded as conservative measure
Project activity	Combustion of non-renewable biomass for cooking in project devices	CO_2	Yes	Major emission source
		CH_4	No	Minor emission source excluded as conservative measure
		N_2O	No	Minor emission source excluded as conservative measure

I.5. Establishment and description of baseline scenario

The baseline scenario is described as follows:

1. As per paragraph 23 of the AMS-II.G. version 11 methodology: *It is assumed that in the absence of the project activity, the baseline scenario would be the projected use of fossil fuels to meet similar thermal energy needs as those provided by the project devices.*
2. End users in the baseline scenario are served by appliances for cooking using biomass as a fuel. The replacement efficient cookstoves will provide the same type and level of service, by also using biomass on an improved device with a greater level of fuel efficiency.
3. The baseline scenario is transparently described as above and follows the provisions of the methodology

For the first renewal of the PoA crediting period starting 28/01/2020, the Tool 11 ("Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period ") was used:

PDD	Current situation	References
STEP 1.1: ***Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies***		
There is no mandated government programme or policy in Zambia ensuring the distribution of domestic fuel-efficient cooking stoves.	There is still no mandated government programme or policy mandating ICS for domestic usage and so the current baseline is compliant with all relevant mandatory national and/or sectoral policies.	"A … scheme ***may be*** tested to tax charcoal while reducing the cost of and promoting alternative clean or improved cooking energy" (Zambia's 7th National Development Plan 2017-2021)[14]
	There is currently insufficient international finance for Zambia to fully implement its Sustainable Forest Management Program. No discernible investment has been seen in the ICS sector at the household level, as evidenced by low ICS penetration rate (see below).	"Sustainable Forest Management Program involve implementing … Sustainable charcoal production to include improved kilns- Improved cooking devices to include improved biomass stoves, use of ethanol and LPG stoves, and switch to electric stoves"

[14] http://www.globalcrrf.org/crrf_document/7th-national-development-plan-2017-2021-zambia/

		"Zambia will require international support in form of finance, investment, technology development and transfer, and capacity-building to fully realize its intended contribution." (Zambia INDC 2016)[15]
Step 1.2 ***Assess the impact of circumstances***		
Zambia has a population of 9,885,591 according to the official 2000 census	The population in Zambia has increased significantly since the original PoA assessment.	Current population: 17,351,882 (World Bank data)[16]
Traditionally, the majority of Zambian families cook on an open fire, utilizing the 'three rocks' method for heating pots.	The original PoA baseline scenario remains the same: the continuation of the current practice without any investment.	"As of 2014, only 16% of Zambians had access to clean fuels and technologies for cooking…" (May 2018 UK DfiD)[17]
The majority of Zambians do not have access to the market for fuel-efficient cooking stoves, mainly for economic reasons.	Market characteristics in Zambia remain the same: the penetration rate for ICS has not improved.	"While precise data on the use of improved (e.g. higher efficiency) cookstoves is not available, our engagement with stakeholders suggests that the use of such cookstoves is very low (much less than 1%)." (May 2018 UK DfiD)
88% of rural households use wood as the primary fuel for cooking	Circumstances have not changed, and have worsened, since the establishment of the original PoA baseline. The use of wood fuel continues at the same rate / has increased in rural Zambia. Therefore, the original baseline is still valid / conservative.	1. 94.8% of rural households are using wood fuel (WISDOM Zambia Report 2014)[18] 2. 95% rural population using solid fuels (Clean Cooking Alliance)[19] 3. 51% of Zambians (85% in rural areas) use firewood as their main source of energy for cooking (CSO 2015 Living Conditions Monitoring Survey) 4. Rural wood fuel usage increased from 81.3% of households in 2010 to 84.5% of households in 2015 (CSO 2015 Living Conditions Monitoring Survey)
Step 1.4: ***Assessment of the validity of the data and parameters***		
Bold: 4.1 tonnes	The usage rate of wood fuel amongst Zambian households has	According to the more recent published data from various

[15] https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx

[16] https://data.worldbank.org/country/zambia

[17] https://www.gov.uk/dfid-research-outputs/energy-africa-zambia-technical-assistance-to-model-and-analyse-the-economic-effects-of-fiscal-policy-options-for-off-grid-technologies-in-zambia-final-report

[18] http://www.wisdomprojects.net/global/pub.asp

[19] https://www.cleancookingalliance.org/country-profiles/44-zambia.html

	increased considerably since the PoA-baseline was assessed.	public sources, the average household consumption of wood stands at 5.88 tonnes per household. See Appendix 4.
fNRB: 0.81	The fNRB value has been re-assessed using the CDM Tool 30 version 2.	Using more recent published data the fNRB rate for Zambia has been calculated as: 0.88 See Appendix 4.
Other values are methodology defaults or determined at CPA-level		

At present, there are no other national or sectoral policies in any Host Country that promote or mandate the distribution of efficient cooking technologies.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

Each CPA will involve the introduction of high efficiency biomass fired cook stoves and therefore will reduce the total amount of non-renewable biomass used by recipients for cooking purposes annually. Emissions reductions will be calculated as per the formulas provided in the baseline and monitoring methodology: AMS II.G. *Energy efficiency measures in thermal applications of non-renewable biomass; Version 11.*

The following methodological choices have been identified in AMS II.G version 11:

ERy is calculated using the following formula:

$$ER_y = \sum_i \sum_j ER_{y,i,j} - LE_y \qquad \text{Equation (1)}$$

Where:

i	=	Indices for the situation where more than one type of project device is introduced to replace the pre-project devices[6]
j	=	Indices for the situation where there is more than one batch of project device
ER_y	=	Emission reductions during year *y* in t CO_2e
$ER_{y,i,j}$	=	Emission reductions by project device of type *i* and batch *j* during year *y* in t CO_2e
LE_y	=	Leakage emissions in the year *y*

To account for leakages, a net to gross adjustment factor of 0.95 will be used, thereby eliminating the need for ex-post surveys to determine leakages, as per para 34 of the methodology.

$$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times \mu_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected\_fossil\ fuel} \qquad \text{Equation (2)}$$

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 (fNRB) [7]
$NCV_{biomass}$	=	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.
$N_{y,i,j}$	=	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 7 and 9 (fraction). Use 1.0 in other cases

$EF_{projected\_fossil\ fuel}$ will be taken from Table 2 in paragraph 25 of the methodology:

Table 1. Default regional values of the fossil fuel emission factor (CO_2 and non-CO_2 GHG emissions)

	Fossil fuel emission factor (t CO2e/TJ) incl. CH_4 and N_2O emissions
Middle East and North Africa	63.9
East Asia and the Pacific	85.7
Europe and Central Asia	57.8
Latin America and the Caribbean	68.6
South Asia	64.4
Sub-Saharan Africa	73.2

fNRB will be established ex ante in the CPA-DD

$B_{y,savings,i,j}$ shall be determined using option 3 (equation 7 in particular) as per para 32 of the methodology:

$$B_{y,savings,i,j} = B_{old,i,j} \times (1 - \frac{\eta_{old,i,j}}{\eta_{new,i,j}}) \quad \text{Equation (7)}$$

$$B_{y,savings,i,j} = B_{y=1,new,i,j,survey} \times (\frac{\eta_{new,i,j}}{\eta_{old,i,j}} - 1) \quad \text{Equation (8)}$$

Where:

$B_{y=1,new,i,j,survey}$	=	Quantity of woody biomass used by project devices in tonnes per device of type *i* and batch *j*

The loss in efficiency of the project device type *i* in each batch *j* due to aging shall be determined based on para 37 of the methodology. The approach selected will be specified in the specific case CPA.

To account for incidents where multiple project ICS are installed per household, Equation 10 will be applied to ex-post to the emissions calculations for each household:

$$B_{old,i,j} = B_{old,HH} \div N_{d,HH} \quad \text{Equation (10)}$$

Where charcoal is used as the 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).

ηold = A default value of 0.10 may be optionally used if the replaced system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney; for other types of systems a default value of 0.2 may be optionally used

ηnew =Efficiency of the system being deployed as part of the project activity (fraction), as determined using a WBT. Use weighted average values if more than one type of system is being introduced by the project activity.

Ly Leakage will be accounted for by applying the methodology gross adjustment factor (0.95) to emissions reduction calculations.

Monitoring will be conducted at least biennially.

I.6.2. Data and parameters fixed ex ante

Data/Parameter	$B_{old,HH}$
Data unit	Tonnes per annum
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	Baseline study
Value(s) applied	Zambia: 5.88 Zimbabwe: 6.95 Or CPA-specific value.
Choice of data or Measurement methods and procedures	Historical data, as per Option 2 of the Data/Parameter Table 3 of the methodology: *Based on the historical data or a sample survey conducted as per the latest version of "sampling and surveys for CDM project activities and programme of activities". If the monitoring period is shorter or longer than one year, the result may be extrapolated for the monitoring period.* These values may be selected for CPAs to be included in the PoA. Alternatively, a CPA-specific value may be selected where more accurate data is available, such as on specific fuel use (particularly charcoal) in specific regions within the Host Country. If a CPA-specific value is selected, a full justification for this value must be provided in the CPA-DD.
Purpose of data	Baseline emissions calculations
Additional comment	See Appendix 4

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	Zambia: C4 EcoSolutions report Zimbabwe: C4 EcoSolutions report
Value(s) applied	Zambia: 0.88 Zimbabwe: 0.92
Choice of data or Measurement methods and procedures	Calculated as per TOOL30: Calculation of the fraction of non-renewable biomass, version 2
Purpose of data	Baseline emissions calculations
Additional comment	See Appendix 4

Data/Parameter	$EF_{projected\_fossilfuel}$
Data unit	tCO2/TJ
Description	Emission factor for the fossil fuels projected to be used for substitution of non-renewable woody biomass by similar consumers
Source of data	Methodology default
Value(s) applied	73.2 (sub-Saharan Africa)
Choice of data or Measurement methods and procedures	AMS II.G, version 11
Purpose of data	Baseline emissions calculation
Additional comment	*intentionally left blank*

Data/Parameter	*Ly*
Data unit	Fraction
Description	Leakage
Source of data	Methodology default
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	AMS II.G, version 11
Purpose of data	Baseline emissions calculation
Additional comment	*intentionally left blank*

$B_{old,p}$ and $N_{p,HH}$ are not required as the $B_{old,HH}$ is being determined using historical data.

SC_{old} and $HC_{i,j}$ are not applicable in light of methodological choices made under the CPA.

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

A transparent, ex-ante calculation of emissions reductions is provided in a separate Emissions Reductions Calculation Sheet (ER Calc Sheet v.1) in spreadsheet format.

The following equation (2) from AMS II.G v11 governs the ex-ante calculations of emissions reductions:

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

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

Data / Parameter:	*Ny,i,j*
Data unit	Number
Description	Number of project devices of type i and batch j operating during year y
Source of data	Monitoring database and monitoring survey
Value(s) applied	[xx]
Measurement methods and procedures	CME shall maintain the database of all stoves distributed/installed. The number of operating stoves for each device i and batch j shall be determined on a sampling basis. The results from monitoring are used to calculate $N_{y,i,j}$ as follows: $N_{y,i,j} = (n_{i,j,operational} / n_{i,j,total}) * N_{y,i,j,installed}$ Where: N = number of stoves n = number of samples
Monitoring frequency	At least 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 para 22 of Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 8. In the case the desired precision is not met, as per the methodology para 46 which takes precedence in sampling requirements (as per the Sampling Standard version 8 para10) 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	Survey data may be used for up to 12 months after the date of the survey if conditions of para 27 of the General Guidelines for SSC CDM methodologies, v.23 are met. Instead of conducting a survey, the fraction of failure may be assumed at 0% during the first 12 months after the implementation of the first unit in the CPA if conditions of para 28 of the General Guidelines for SSC CDM methodologies, v.23 are met.

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	Monitoring survey records
Value(s) applied	[XX]
Measurement methods and procedures	Parameter Option 2 has been selected. The sampled households will be surveyed for the presence of a baseline (traditional) stove/three stone fire and any residual usage alongside the project ICS will be assessed. The survey will ask ICS users to estimate the number of meals that are cooked using each device (per day, week or month). A version of the Project Survey form in the Appendix of the methodology shall be used for data capture. For samples where a baseline stove is not found, or found not in use, then: $\mu_y = 1.0$ For samples where the baseline stove is found to be in use, then: μ_y = total usage of ICS / total usage of all devices For example, if it is found that the total average use of the ICS is 3 times per day and that of baseline stove(s) is 1 time per day, then: $\mu_y = 3/(3+1)$ or 0.75
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 para 22 of Standard: Sampling and surveys for CDM project activities and programmes of activities, Version 08 In the case the desired precision is not met, as per the methodology para 46 which takes precedence in sampling requirements (as per the Sampling Standard version 8 para10) lower bound values may be used against repeating the survey.
Purpose of data	To calculate baseline emissions
Additional comment	Survey data may be used for up to 12 months after the date of the survey if conditions of para 27 of the General Guidelines for SSC CDM methodologies, v.23 are met.

Data/Parameter	$\eta_{new,i,j}$
Data unit	Fraction
Description	Efficiency of the project device of each type i and batch j implemented as part of the project activity
Source of data	Certificate or Manufacturer's specification
Value(s) applied	[XX]
Measurement methods and procedures	Efficiency shall be measured/estimated as per one of the requirements (1-4) listed in parameter table 12 of AMS II.G v.11 CPAs can use any one of these options to determine thermal efficiency, but once selected the option is fixed for the CPA crediting period.
Monitoring frequency	Depending on option selection, either: i. Recorded at the time of commissioning/distribution ii. Adjusted for the loss of efficiency as paragraph 37 (of the methodology)
QA/QC procedures	Manufacturer's thermal energy efficiency specification or certification must be based on WBT protocol
Purpose of data	To calculate baseline emissions
Additional comment	Follow provisions in AMS II.G v.11 para 37 to account for loss in efficiency of the project devices

Data/Parameter	$NCV_{biomass}$
Data unit	TJ/tonne
Description	Net calorific value of the non-renewable woody biomass used in project devices.
Source of data	IPCC default
Value(s) applied	0.0156
Measurement methods and procedures	Fixed as per AMS II.G, version 11
Monitoring frequency	Yearly
Purpose of data	To calculate baseline emissions
QA/QC procedures	Baseline fuel use is captured during the stove installation process and recorded in the monitoring database to ensure that only households using woodfuel as a baseline are included in the project.
Additional comment	The project devices (ICS) will solely use biomass fuel (not briquettes. *Therefore*, the parameter if fixed for the crediting period.

Data/Parameter	$\eta_{old,i,j}$
Data unit	Fraction
Description	Efficiency of pre-project device, which is a three-stone fire using firewood (not charcoal), or a conventional device with no improved combustion air supply or flue gas ventilation, that is without a grate or a chimney; for other types of devices, a default value of 0.2 may be optionally used. Use weighted average values (taking the amount of woody biomass consumed by each device as the weighting factor) if more than one type of device is being replaced
Source of data	Methodology default
Value(s) applied	0.1 or 0.2
Measurement methods and procedures	Fixed as per AMS II.G, version 11
Monitoring frequency	Fixed for each individual household when included in the monitoring database
Purpose of data	To calculate baseline emissions
QA/QC procedures	Baseline device is captured during the stove installation process and recorded in the monitoring database to ensure that the appropriate value is applied.
Additional comment	*intentionally left blank*

Data/Parameter	Life Span
Data unit	Number of years
Description	The operating lifetime of the project device. The life span should be reported in cases where the PPs are opting to account the efficiency loss as per AMS II.G para 37.
Source of data	Manufacturer (certified by a national standards body or an appropriate certifying agent recognized by that body)
Value(s) applied	[XX]
Measurement methods and procedures	Each stove manufacturer will provide an estimate of the life span of each project device type
Monitoring frequency	Recorded at the time of distribution/installation of project devices
QA/QC procedures	NA
Purpose of data	To calculate baseline emissions
Additional comment	*intentionally left blank*

Data/Parameter	Date of commissioning of project device i
Data unit	Date
Description	Actual date of commissioning of project device
Source of data	Monitoring database
Value(s) applied	[XX]
Measurement methods and procedures	Each stove distribution will be recorded in the monitoring database along with the name of recipient, contact details, location of household (village, district etc.)
Monitoring frequency	Recorded at the time of distribution/installation of project devices
QA/QC procedures	Not applicable
Purpose of data	To calculate baseline emissions
Additional comment	*intentionally left blank*

Data/Parameter	$N_{d,hh}$
Data unit	Number
Description	Number of project devices distributed per household
Source of data	Monitoring database
Value(s) applied	[XX]
Measurement methods and procedures	At the point of distribution, the CPA implementer will make note of the number of ICS that are distributed per household and this will be recorded as a unique entry in the monitoring database. Under the PoA, the CME instructs each CPA implementer to distribute only 1 stove per household.[20]
Monitoring frequency	Recorded at the time of distribution/installation of project devices
QA/QC procedures	Not applicable
Purpose of data	To calculate baseline emissions
Additional comment	*intentionally left blank*

The following parameters as per the methodology are deemed not applicable:

$t_{y,i,j}$ = applicable only in case of use of equation (5) of the methodology

$SC_{new,i,j}$ = applicable only in case of use of equation (9) of the methodology

$B_{y=1,new,i,j,survey}$ = applicable only in case of use of equation (8) of the methodology

$B_{new,KPT,i,j}$ = applicable only in case of use of equation (6) of the methodology

fNRB = fixed ex-ante in Section I.6.2

Date of commissioning of batch j = not applicable[21]

I.7.2. Sampling plan

The intention of the sampling plan is to enable the discovery of unbiased and reliable estimates of monitored parameter values.

The design of the sampling plan is based on:

- Standard for Sampling and Surveys for CDM Project Activities and Programmes of Activities version 8 (the 'Standard'); and
- CDM Guideline: Sampling and surveys for CDM project activities and programmes of activities; version 4 (the 'Guideline').

a) Sampling Design

i. Objectives & Reliability Requirements

In accordance with the Standard, sampling activities will be undertaken at the PoA-level and the sampling plan presented here will apply to CPAs to be included in the PoA, either individually or in groups.

[20] As per PoA design and operational framework, only one device is envisaged in one household. At the time of installation or via ex-post monitoring, presence of existing project stove will be checked and recorded and any additional project device in a household will not be credited.

[21] The project ICS will distributed/installed in de-centralized approach, by various local partners, established under the PoA. For each ICS distribution/installation, the date of distribution/commissioning of ICS (deemed as date of installation) is recorded in the monitoring database and ERs shall be calculated accordingly from corresponding date of installation. However, for the purpose of sampling and determining ex-post thermal efficiency, project devices of type *i* installed in one calendar year will be deemed under one sampling frame or strata (aka batch).

In accordance with the Standard, samples will be calculated on a 95/10 confidence/precision basis as CPAs are solely comprised of micro-scale CDM units.

In cases where survey results indicate that 95/10 precision are not achieved, as per the methodology para 46 which takes precedence in sampling requirements (as per the Sampling Standard version 8 para10) the lower bound of the 95 per cent confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve the 95/10 precision.

Parameter values may be estimated by sampling in accordance with the Standard for a single or group of CPAs[22]. A single sampling plan covering a group of CPAs is justified when either the homogeneity of included CPAs relative to the parameters of interest can be demonstrated or the differences among the included CPAs is taken into account in the sample size calculation.

Efficiency of ICS may be monitored in a common survey with other monitoring parameters; therefore, a random sub-sample within the common survey can be taken for which stove efficiency is tested, as long as the required precision for stove efficiency is achieved.

The parameters requiring sampling during monitoring are:

$N_{y,i,j}$ number of stoves operating
$N_{d,hh}$ number of stoves distributed per household
μ_y usage of pre-project devices
$\eta_{new,i.j}$ efficiency of project devices

ii. Target Population

The Target Population is the combined unique entries of stove users by CPA in the monitoring database from which the sample is being drawn.

iii. Sampling Method

The sampling method for each survey is determined by using a simple random sample of the total population of installed stoves, from records generated in the monitoring database and based on the precision requirements listed above and required by the methodology, the Standard and the Guideline.

iv. Sample Size

The sample size for each monitoring activity will be calculated utilizing the population size as it exists at the time of the monitoring (i.e. the total number of stoves distributed and included in the monitoring database). The 'sample size calculation sheet' will be used to calculate the samples.

A sample size will be calculated separately for each of the sample groups: Stove Usage and Stove Efficiency. These will be calculated according to the Guideline.

A single simple random sample group will be selected for determining all parameter values and the parameter with the largest sample size will determine the total sample group size; other parameter values will be determined from sub-sample groups of this total sample group.

Oversampling will be conducted to ensure that the required level of precision is met.

Stove Usage Sample Group

[22] That is, the populations of all CPAs in the group are combined together, the sample size is determined and a single survey is undertaken to collect data

Parameter of interest is a percentage: the proportion of stoves still in operation during the monitoring period and the usage of pre-project devices. Therefore, Example 1 of Appendix 1 of the Guideline is chosen to calculate sample sizes:

Proportional parameter of interest (Cookstove project)
Example 1 – Simple Random Sampling:

- The proportional parameter of interest is estimated (for example based on CME's existing experience of monitoring stoves in the PoA)
- Population size is derived from the monitoring database
- The confidence level of 1.96[23] is selected to reflect the 95% Standard requirement.
- Relative precision is derived from AMS II.G version 11

In accordance with the Standard (para 13), if the sample size calculation returns a value of less than 30 samples, a minimum sample size of 30 shall be chosen when the parameter of interest is a proportion.

Stove Efficiency Sample Group

Parameter of interest is a mean value: the average efficiency of stoves still in operation during the monitoring period. Therefore, Example 5 of Best Practice Examples for Sample Size Calculations outlined in Appendix 1 of the Guideline is chosen:

Mean value parameter of interest (CFL project)
Example 5 – Simple Random Sampling:

- The mean value parameter of interest is estimated (for example, based on manufacturer's WBT, or previous monitoring results)
- The standard deviation is selected (for example, based on manufacturer's WBT, or previous monitoring results)
- Population size is derived from the monitoring database
- A confidence level of 1.96 is selected to reflect the 95% Standard requirement
- Relative precision is derived from AMS II.G version 11

In accordance with the Standard (para 13), 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.

v. Sampling Frame

The Sampling Frame will be the monitoring database which may contain information from multiple CPAs and therefore allows for sampling to be taken per CPA or as a group of CPAs.

b) Data to be Collected

i. Field Measurements

Field activities to be undertaken for each parameter to be monitored are as follows:

Each household in the stove usage sample group will be surveyed via a monitoring survey (based on the questionnaire in the methodology appendix) to determine if ICS is still in operation or has been replaced by an equivalent in service appliance:

[23] http://www.mypivots.com/dictionary/definition/233/z-score

For $N_{y,l,j}$:

- Monitoring staff shall complete an observational check to see that the stove is still located in the same place identified by the installation data and observe that it is still being used
- Monitoring staff shall ask users to confirm that the stove is being used for the recipient household's domestic purposes

For $N_{d,hh}$:

- Monitoring staff will complete an observational check to ensure that the number of stoves installed per household, as identified by the installation data, is accurate
- Staff will make a note of the number of ICS present in the household

For μ_y :

- Monitoring staff shall confirm that the baseline appliance has been effectively disposed of, and, if not;
- Monitoring staff shall ascertain residual usage of the baseline appliance and ask householders to estimate the proportion of usage

For $\eta_{new,i,j}$

- Sampled ICS will be tested according to the Water Boiling Test as required by the methodology.
- Data will be collected from each stove tested and an average efficiency value of sampled stoves will be calculated.
- The efficiency fraction will be applied to emissions calculations in each monitoring report.

ii. Quality Assurance/Quality Control

Data collection will be conducted by a dedicated monitoring team of trained individuals utilizing survey questionnaires and instruments required for WBT measurements.

In order to minimize non-sampling errors, such as non-responses and errors, the field team will practice over-sampling from the population to ensure a total number respondents that meets the required level of precision. This will ensure the integrity of the sample group and maintains the randomness of participant selection. All samples groups will be re-selected for each monitoring period / year, as appropriate for the parameter in question.

Where a survey may not be completed, or where there is a non-response, the reasons shall be clearly documented in the survey questionnaire. In order to account for outliers, the lowest 5% and the highest 5% of the surveyed values will be removed from the final calculation.

iii. Analysis

Completed questionnaires will be collected by the survey groups and delivered to a central office for processing. These shall be checked through for errors and completeness, and compiled into a survey report. Any incomplete or missing survey questionnaires shall be documented clearly. The survey report will include:

- A summary of activities undertaken, at which location and on which dates
- A summary of data collected and mean values
- A calculation of the parameter values to be utilized in emissions reduction calculations based on the sample mean values

c) Implementation

i. Implementation Plan

The implementation of monitoring each random sample selection will be the responsibility of the CME and its specifically trained monitoring team. This team will comprise local operatives who are

conversant in local languages and customs of the Host Country. Individuals will be selected based on their competence and experience for each monitoring activity.

There will be no incentives provided for these individuals for the type of data provided, to prevent any conflict of interest.

I.7.3. Other elements of monitoring plan

Not applicable

SECTION J. Crediting period type and duration

7 years, renewable

SECTION K. Eligibility criteria for inclusion of CPAs

As per the CDM project standard for programmes of activities (version 02.0) the following eligibility criteria must be met by each CPA to ensure its inclusion the PoA:

No.	Eligibility criterion - Category	Eligibility criterion - Required condition	Supporting evidence for inclusion
(a)	Geographical boundaries of CPAs consistent with the geographical boundary of the PoA	The geographical boundary of the CPA will be consistent with the PoA.	Monitoring database records showing locations of ICS
(b)	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo)	Double counting of emissions reductions will be avoided by the unique data collected during ICS distribution: — ***GPS location*****:** where possible, each stove will have a unique GPS location — ***End-user data*****:** the CDM implementer will collect unique distribution data from end-users including: household name, phone number, location and/or Host Country government ID number. — ***Barcode –*** if provided by the manufacturer, each ICS will have a unique barcode which is scanned into the data collection system at distribution — ***Unique reference numbers*****:** each stove will have a unique reference number in the monitoring database.	Monitoring database records

(c)	Conditions to confirm that CPAs are neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered	It may be possible that the CPA shares the same geographical boundary with other operating CDM projects/PoAs/CPAs of the same methodology. It will be proven that the implementation of the CPA will not lead to the discontinuation, or decrease of the emissions reductions, of other implemented CDM activities due to: 1. It not sharing the assets of any other CDM activity. Each stove is distributed in a unique household location as evidenced by the distribution data collected by the CPA Implementer 2. The type of stove replaced by the CPA stove must be documented at the point of distribution to ensure that no other CDM activity appliances or other improved stoves are discontinued	Research listing other CDM project activities sharing the same geographical boundary. Monitoring database records. Distribution data collected per household: • type of baseline appliance replaced • type of baseline fuel used
(d)	Specification of the technology/measure, such as the level and type of service as well as performance specification based on, inter alia, testing/certification	1) *Level of Service*: CPAs will provide ICS based on the 'rocket stove' design, delivering a level of service at least equivalent to the baseline appliance 2) *Type of service*: The technology will deliver a baseline thermal efficiency of at least 20%	Each model of ICS distributed under the CPA will be specified in the monitoring report and evidenced by a manufacturer's specification and WBT certificate.
(e)	Conditions to check the start dates of the CPAs through documentary evidence	The start date of the CPA will be the date when the first ICS are ordered for distribution under the CPA	Relevant stove purchase order
(f)	Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents	CPAs will comply with the small-scale methodology AMS II.G version 11	Evidenced by monitoring reports and emissions reductions calculations

(g)	*Conditions to ensure that CPAs meet the requirements for demonstration of additionality*	CPAs will demonstrate automatic additionality by applying Tool 19 version 09.0, whereby each ICS distributed is considered a 'microscale unit' and will not achieve energy savings at a scale of more than 20 GWh per year	Ex-post emissions reductions calculations will demonstrate the energy savings archived by each ICS distributed under the CPA
(h)	Conditions to ensure the compliance with other requirements of the applied methodologies, applied standardized baselines and the other the applied methodological regulatory documents	Not applicable - there are no further requirements of the applied methodology and a standardized baseline is not being applied.	Not applicable
(i)	The PoA-specific requirements including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	Stakeholder consultations and environmental impact assessment are demonstrated at the PoA-level	LSC reports (PoA-DD Section F)
(j)	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance	CPAs will affirm that there will be no funding obtained from Annex 1 parties.	Declaration from the CPA Implementer that ODA will not be obtained for the implementation of the CPA.
(k)	Target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off grid), and where applicable, distribution mechanisms (e.g. direct installation)	Proposed CPAs involve the distribution of domestic fuel-efficient stoves by [CPA Implementer] in [Host Country]. The efficient stoves will be directly distributed to recipient households.	monitoring database records
(l)	Conditions related to sampling requirements for the PoA in accordance with the "Standard: Sampling and surveys for CDM project activities and programme of activities"	Sampling of CPAs will be undertaken individually, or as a group, and in accordance with the methodology and the Standard	Sample size calculation sheet & monitoring report

(m)	conditions to ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs.	The generic CPA consists solely of units that qualify as “microscale CDM units” as defined in the Methodological tool: “Demonstration of additionality of microscale project activities”, these conditions are not required Only independent microscale CDM sub-units will be implemented in each CPA. Therefore Tool 19, version 9, paragraphs 14-15 apply. It will be demonstrated ex-post that each of the ICS microscale units distributed under the CPA will not exceed energy savings of 20GWh per annum.	Ex-post emissions reductions calculations and monitoring report
(n)	conditions for the debundling check based on the “Methodological tool: Assessment of debundling for small-scale project activities”	As per (m) above, the generic CPA consists solely of units that qualify as “microscale CDM units”, therefore these conditions are not required.	Not applicable

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

Coordinating/managing entity and/or project participants	☒ Coordinating/managing entity ☒ Project participant
Organization name	3 Rocks Ltd
Country	UK
Address	17a York Street, St. Hellier, Jersey JE2 3RQ
Telephone	+44 (0) 1534 601906
Fax	
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Website	www.icecapltd.com
Contact person	Mr. Nick Marshall

Coordinating/managing entity and/or project participants	☐ Coordinating/managing entity ☒ Project participant
Organization name	Korea Carbon Offsets Ltd.
Country	South Korea
Address	9F, N'deavor Tower, 45 Seocho-daero 74-gil, Seocho-gu, Seoul
Telephone	+82 2 3487 6050
Fax	
E-mail	info@korea-carbon.com
Website	http://www.korea-carbon.com
Contact person	Mr. Thomas Winklehner

Coordinating/managing entity and/or project participants	☐ Coordinating/managing entity ☒ Project participant
Organization name	Korea Carbon Management Ltd.
Country	South Korea
Address	9F, N'deavor Tower, 45 Seocho-daero 74-gil, Seocho-gu, Seoul
Telephone	+82 2 3487 6050
Fax	
E-mail	info@korea-carbon.com
Website	http://www.korea-carbon.com
Contact person	Mr. Thomas Winklehner

Appendix 2. Affirmation regarding public funding

No public funding will be made available for the proposed PoA, or any CPA under the proposed PoA.

Appendix 3. Applicability of methodologies and standardized baselines

Not applicable

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

A. $B_{old,HH}$

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.

i. Zambia

To establish B_{old},HH, the CME conducted both a baseline survey and research of publicly available reports in advance of the PoA registration, during 2010 & 2011. Then in 2013, a registered CDM PoA in Zambia published results of a baseline study. The following data was ascertained:

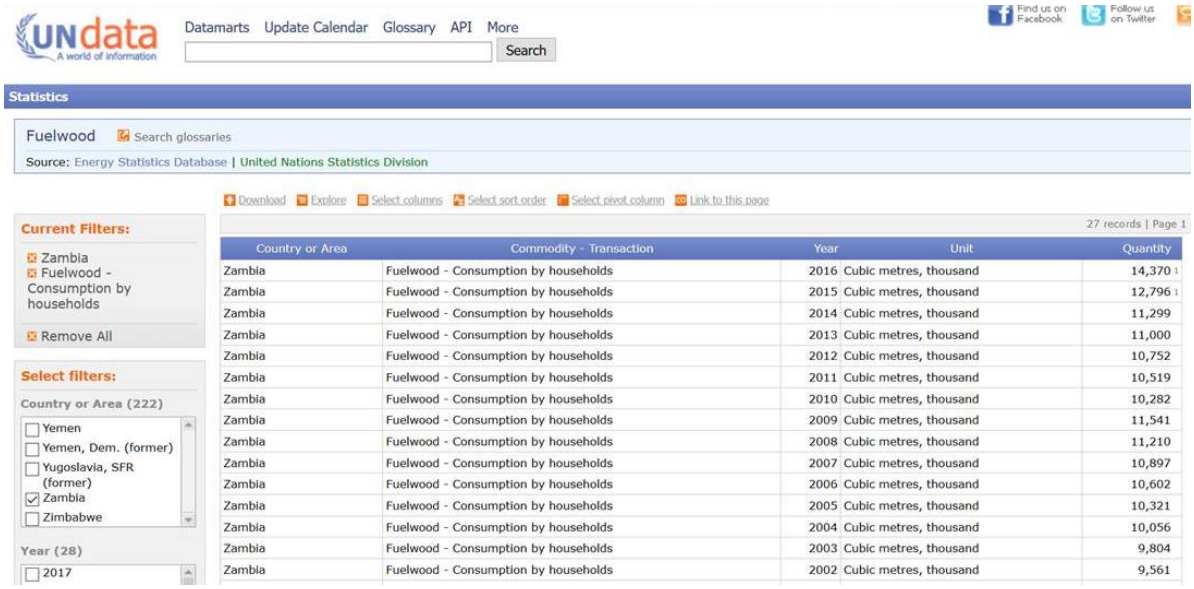
2010/11 survey: 4.1 tonnes

2011 study: 5.38 tonnes

2013 study: 5.7 tonnes

Owing to the observable changing circumstances and clear trends of increased fuel usage in Zambia (also outlined in Section I.5 of the PoA-DD), the baseline has been assessed considering the most recent available publicly published data. Although factors such as the percentage of people using wood and average household size have remained more or less static since the PoD-DD was first registered, the population of Zambia, average annual consumption of wood per capita and the overall consumption of wood fuel have increased dramatically in the intervening years.

Data was drawn from the most recently available official reports/statistics, in this case from the UN's Statistics Division to demonstrate both the recent trend in increase of woodfuel use at the household level, plus also the most recently available data (from 2016).



Country or Area	Commodity - Transaction	Year	Unit	Quantity
Zambia	Fuelwood - Consumption by households	2016	Cubic metres, thousand	14,370
Zambia	Fuelwood - Consumption by households	2015	Cubic metres, thousand	12,796
Zambia	Fuelwood - Consumption by households	2014	Cubic metres, thousand	11,299
Zambia	Fuelwood - Consumption by households	2013	Cubic metres, thousand	11,000
Zambia	Fuelwood - Consumption by households	2012	Cubic metres, thousand	10,752
Zambia	Fuelwood - Consumption by households	2011	Cubic metres, thousand	10,519
Zambia	Fuelwood - Consumption by households	2010	Cubic metres, thousand	10,282
Zambia	Fuelwood - Consumption by households	2009	Cubic metres, thousand	11,541
Zambia	Fuelwood - Consumption by households	2008	Cubic metres, thousand	11,210
Zambia	Fuelwood - Consumption by households	2007	Cubic metres, thousand	10,897
Zambia	Fuelwood - Consumption by households	2006	Cubic metres, thousand	10,602
Zambia	Fuelwood - Consumption by households	2005	Cubic metres, thousand	10,321
Zambia	Fuelwood - Consumption by households	2004	Cubic metres, thousand	10,056
Zambia	Fuelwood - Consumption by households	2003	Cubic metres, thousand	9,804
Zambia	Fuelwood - Consumption by households	2002	Cubic metres, thousand	9,561

This increase in fuelwood use at the household level has had a significant impact on the parameter values B_{old},HH and fNRB.

The density of fuel is not a time bound parameter, but data vintage from 2017 is selected for being most up to date.The revised calculation of B_{old},HH is summarized as follows:

Data Label	Description	Data	Unit	Source	Year
A	Household fuelwood consumption	12,796,000	m3	UN data	2015
B	Density of fuelwood	0.725	t/m3	FAO	2017
C	Household fuelwood consumption	9,277,100	t	*calculated (AxB)*	
D	Population of Zambia	15,879,361		World Bank	2015
E	% using wood fuel	50.7%		Zambia CSO	2015
F	Population using wood	8,050,836		*calculated (DxE)*	
G	Average annual consumption per capita	1.15	t	*calculated (C/F)*	
H	Average household size in Zambia	5.1		Zambia CSO	2015
	Bold,HH	**5.88**	t	*calculated (GxH)*	

The calculation approach complies with the General guidelines for SSC CDM methodologies, version 23 (ref. paragraph 23a), in that the PP *transparently listed and described the sources of values considered* and showed the value selected is from the latest *official reports/statistics*. *Original sources* were quoted (in this case, the UN Statistics Division's own published data) and *justified why the value is selected*: data was selected to be of the same Data Vintage and therefore comparable (2015).

This is a conservative approach, as more recent and accurate data for household fuelwood consumption is in fact available from UN Stat (from 2016) which would lead to higher emissions reductions, but it is not selected in order to keep data vintages equivalent.

Therefore, data to establish the parameter value has been selected based on:

- availability of published historical data;
- chronological proximity (equivalent Data Vintages); and
- conservativeness.

Source data is available for one single reference year (2015), so this is selected. For example, as noted in PoA-DD Section I.5 Zambia's population in 2018 was 17,351,822 and household fuel usage in 2016 was 14.37m cubic metres, and yet 2015 available data was selected due to chronological proximity and conservativeness.

Data Label References:

A: http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231#f_1

B: http://www.fao.org/3/a-i6935e.pdf

D: https://data.worldbank.org/country/zambia

E & H:
https://www.zamstats.gov.zm/phocadownload/Living_Conditions/2015%20Living%20Conditions%20Monitoring%20Survey%20Report.pdf

ii. Zimbabwe

The same approach is adopted to derive the B_{old},HH figure for Zimbabwe, using the latest available data from Data Vintages that are comparable:

Data Label	Description	Data	Unit	Source	Year
A	Household fuelwood consumption	21,786,000	m3	UN data	2016

B	Density of fuelwood	0.725	t/m3	FAO	
C	Household fuelwood consumption	15,794,850	t	*calculated (AxB)*	2016
D	Population of Zimbabwe	14,030,390		World Bank	2016
E	% using wood fuel	68.0%		UNFPA/ZimStat	2017
F	Population using wood	9,540,665		*calculated (DxE)*	
G	Average annual consumption per capita	1.66	t	*calculated (C/F)*	
H	Average household size in Zimbabwe	4.2		UNFPA/ZimStat	2017
	B_{old},HH	**6.95**	t	*calculated (GxH)*	

Data Label References:

A: http://data.un.org/Data.aspx?d=EDATA&f=cmID%3aFW%3btrID%3a1231#f_1

B: http://www.fao.org/3/X6760E/X6760E03.htm

D: https://data.worldbank.org/country/zimbabwe

E & H: https://zimbabwe.unfpa.org/sites/default/files/pub-pdf/Inter%20Censal%20Demography%20Survey%202017%20Report.pdf

Data label D was selected for conservativeness and proximity of data vintage to data label A. The population quoted in data label E&H is higher, which would lead to higher baseline emissions reductions, so this was avoided.

B. *fNRB,y* Non-renewable biomass fraction

i. Zambia

The Republic of Zambia is a landlocked southern African country of over 75 million ha. Approximately three quarters of Zambia's total land area is covered by forests or shrubland (Figure 1) with an estimated direct ecosystem value of US$ 957.5 million (equivalent to ~5% of GDP). The positive contribution to numerous downstream sectors, such as ecotourism and non-timber forest products, raise this value even further. Nationally, contribute to an estimated 1.4 million jobs and 60% of rural households are dependent on the use of these resources to support or supplement their livelihoods[1].

It is estimated that >95% of the rural and ~60% of the urban population are reliant on woodfuel as a primary energy source[2,3]. A national survey of charcoal consumers found that mean domestic charcoal consumption doubled between 2013 and 2015, as a result of unreliable electricity supply[4]. The demand for domestic woodfuel and non-domestic woody biomass places an increasing burden on Zambia's natural resources. This demand has resulted in an accelerating rate of deforestation across every district[7], particularly over the last two decades (Figure 2).

This report estimates the fraction of non-renewable biomass (f_{NRB})[5] that is currently being harvested across Zambia; a critical variable in the calculation of emission reductions (see Box 1).

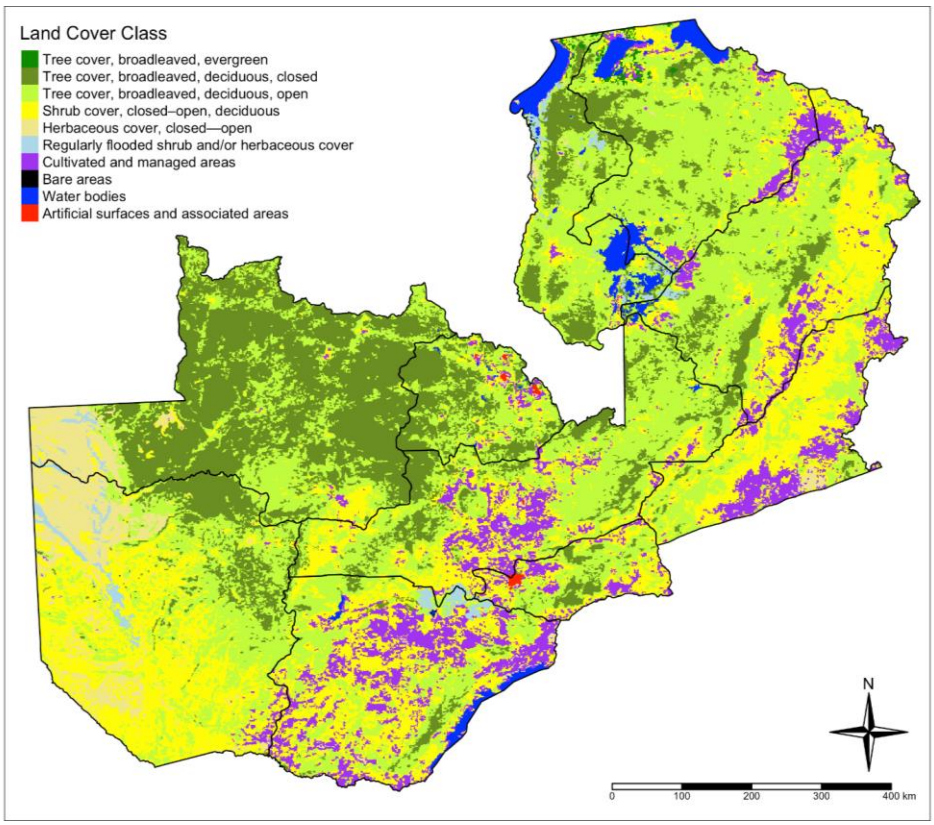


Figure 1. Land cover map for the Republic of Zambia based on the GLC2000 Earth observation data[6].

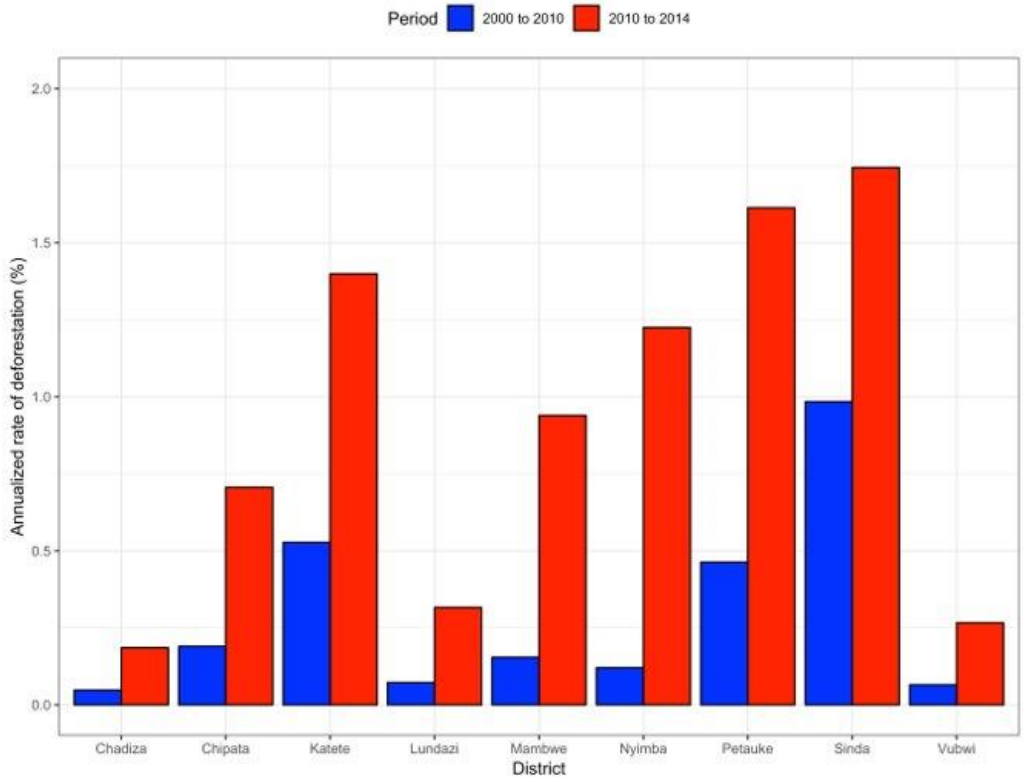


Figure 2. Annualized rate of deforestation in the districts of the Republic of Zambia between 2000 to 2010 (blue) and 2010 to 2014 (red) based on the Zambia Integrated Forested Landscape Program data[7].

The estimation of domestic fuelwood consumption was derived from the UN Statistics Division[8], with charcoal consumption converted to the equivalent wood biomass by the IPCC[9] default factor and the wood volume converted to metric tonnes using the FAO[10] default conversion factor (Table 1). The latest reported consumption statistics are for 2016 so the data since 2000 were projected to 2018 using orthogonal second order polynomial regression equations (Figure 3) in order to be comparable to the woody cover data. The analysis has been run on both 2018 and 2016 data, for comparison, with the more conservative of the two selected as the f_{NRB} estimate for further project development.

The non-domestic fuelwood consumption estimates provided by the UN Statistics Division[8] have been conservatively applied (Table 1), disregarding the additional deforestation likely occurring as a result of shifting agriculture and from informal or illegal harvesting[7]. This includes consumption by commerce, public services, manufacturing, construction, non-fuel industries and transformation in charcoal plants. The total 2018 woody biomass consumption estimate for Zambia is 34,021,062 t/yr in 2018, compared with 32,919,700 t/yr observed in 2016.

Table 1. Total 2016 and 2018 woody biomass consumption estimate (t/yr) for the Republic of Zambia.

Variable	2016	2018
Domestic fuelwood consumption		
Fuelwood consumption (m^3/yr)	14,370,000	13,696,543
Charcoal consumption (t/yr)	1,171,000	1,163,029
Non-domestic wood consumption		
Fuelwood consumption (m^3/yr)	20,642,000	22,770,482
Charcoal consumption (t/yr)	85,000	100,716
Conversion factors		
Wood density (t/m^3)	0.725	0.725
Charcoal to wood biomass factor	6	6
Total woody biomass consumption (t/yr)	**32,919,700**	**34,021,062**

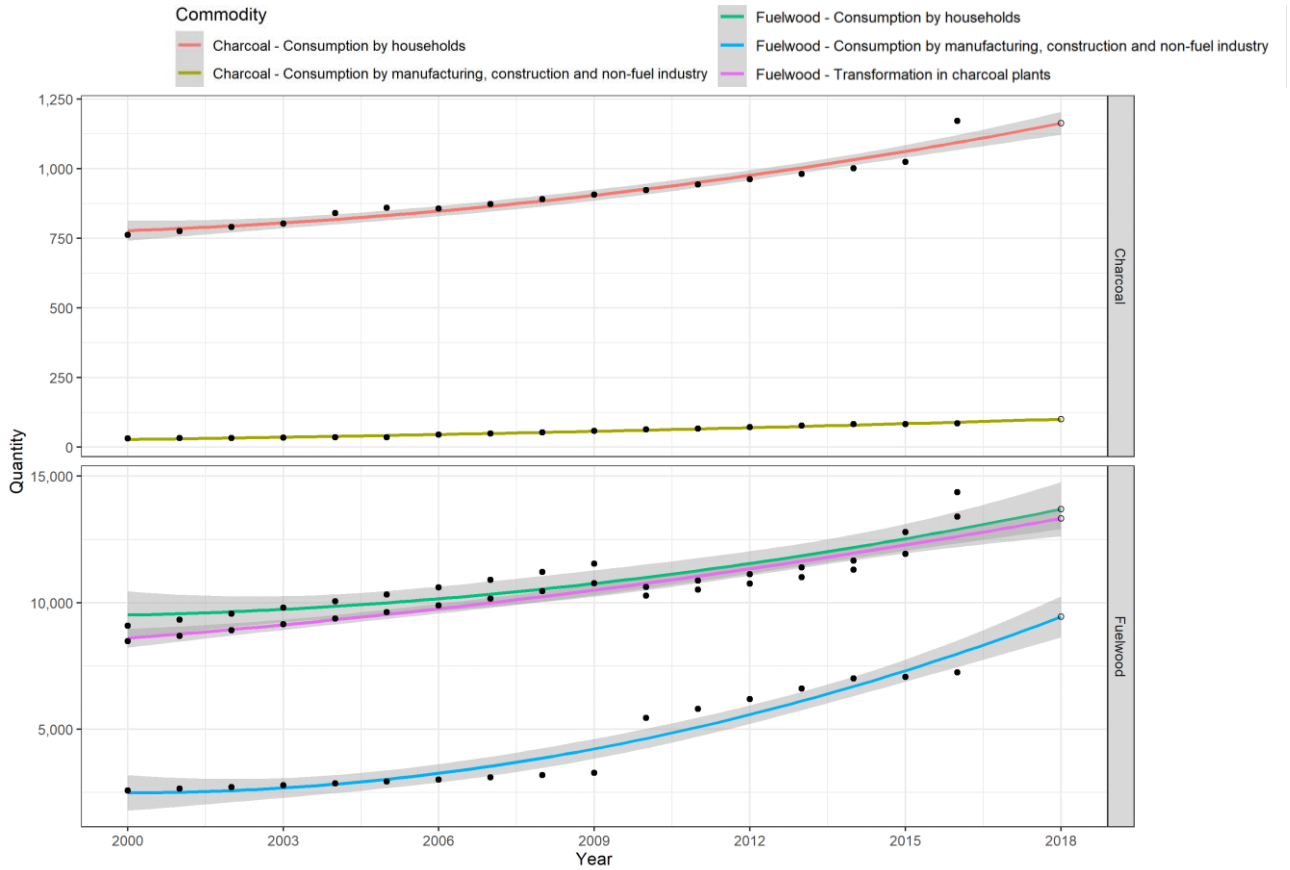


Figure 3. Sources of domestic and non-domestic biomass consumption from 2000 to 2016 (closed points) and projected to 2018 (open points) for the Republic of Zambia disaggregated by commodity and source. The quantity of consumption is reported in 1,000 metric tons and 1,000 m^3 for charcoal (top) and fuelwood (bottom), respectively, as reported by the UN Statistics Division[8].

Estimating renewable biomass and the fraction of non-renewable biomass

Geospatial data products for Zambia were analysed in R[11–15] to estimate Zambia's renewable biomass. The forest and other wooded land cover for 2000, 2016 and 2018 was estimated using Hansen/UMD/Google/USGS/NASA[16] spatial data, which is derived from Hansen et al.[17], and disaggregated according to the FAO[10] global ecological zones (Figure 4). The total woody cover extent, including forests and other wooded areas, was calculated for each ecological zone, within the protected areas and within areas that are either accessible or geographically remote (Table 3).

Box 1

The fraction of harvested biomass that can be established as non-renewable is the f_{NRB}. This fraction ranges between 0 and 1, where 0 indicates that 100% of harvested biomass is renewable (0% is non-renewable) and 1 indicates that 100% is non-renewable. The following equation is used to calculate f_{NRB}:

$$f_{NRB} = \frac{NRB}{NRB + RB} \quad (1)$$

Where:
f_{NRB} = Fraction of non-renewable biomass
NRB = Non-renewable biomass (t/yr)
RB = Renewable biomass (t/yr)

The quantity of non-renewable biomass (NRB) is the difference between the annual biomass consumption (H) and the quantity of renewable biomass (RB), calculated by the following equation:

$$NRB = H - RB \quad (2)$$

Where:
H = Total woody biomass consumption in the absence of project activity (t/yr)

Renewable biomass is the product of the mean annual increment of woody biomass growth and the total extent of the forest and other wooded area cover where wood extraction is not prohibited or geographically remote, calculated by the following equation:

$$RB = MAI \times (F - P) \quad (3)$$

Where:
MAI = Mean annual increment of woody biomass (t/ha/year)
F = Total extent of the forest and other wooded areas (ha)
P = Extent of the forest and other wooded areas where wood extraction is not permitted or is geographically remote (ha)

Geographically remote areas were determined to be areas beyond a harvestable distance from roads and settlements. Conservatively, it was assumed that forests and wooded areas adjacent to all roads within a distance of 2.5 km are harvestable, despite how geographically remote or inaccessible these roads may be. This threshold was determined based on the peer-reviewed literature on wood harvesting practices.

Banks et al.[18] found that woody biomass density increases significantly as a function of distance from the edge of a settled area. Beyond 450 m, average biomass density was found to increase from 2.1 to 16.6 t/ha. Jumbe and Angelsen[19] modelled fuelwood choice from household survey data. They found that the most significant determinants of fuelwood choice are source attributes (size and species composition) and distance to source. The mean harvesting distance for their study was

found to be 0.95 km. Bandyopadhyay et al.[20] matched household survey and remote sensing data to investigate woodfuel use in relation to poverty levels. They concluded that the one-way walk duration to woodfuel source for both poor and non-poor households is 0.6 hours. Assuming an average walking speed of 4 km/hr over uneven terrain, the average one-way distance to woodfuel source is less than 2.5 km. Areas beyond the harvestable distance were, therefore, determined to be geographically remote (Figure 5). Accessible areas are those that are not protected and not geographically remote, from which the annual renewable biomass production is calculated (Equation 3).

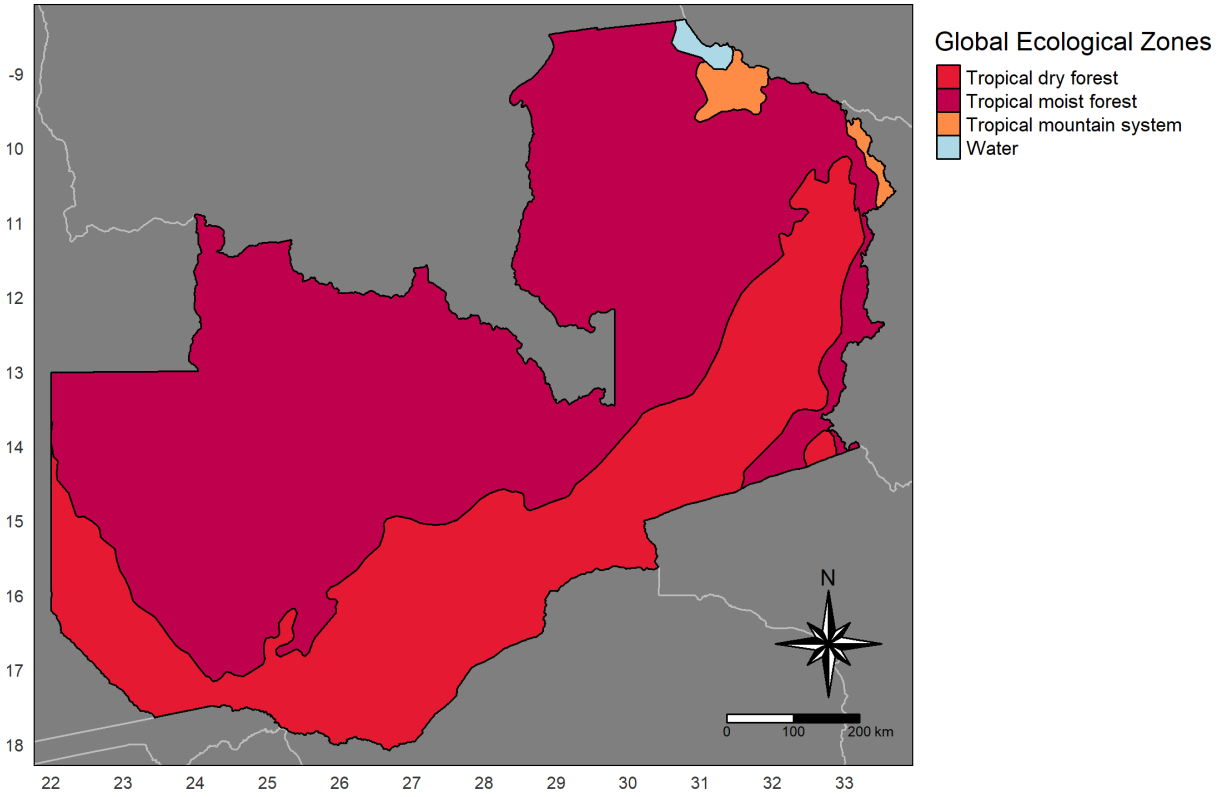


Figure 4. Distribution of the IPCC Global Ecological Zones[9] within the Republic of Zambia.

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the IPCC[9], was used for this study. The average MAI estimates for Zambia are 1.80, 1.31 and 1.26 t/ha/year for tropical dry forests, tropical moist forests and tropical mountain systems, respectively in both 2016 and 2018 (Tables 2 and 3). An area equivalent to 0.4% of Zambia is categorized by the IPCC global ecological zones as covered by water, but this doesn't perfectly align with the water bodies in the country. An average of the MAI estimates for the adjacent ecological zones were, therefore, applied to the woody cover included in this category.

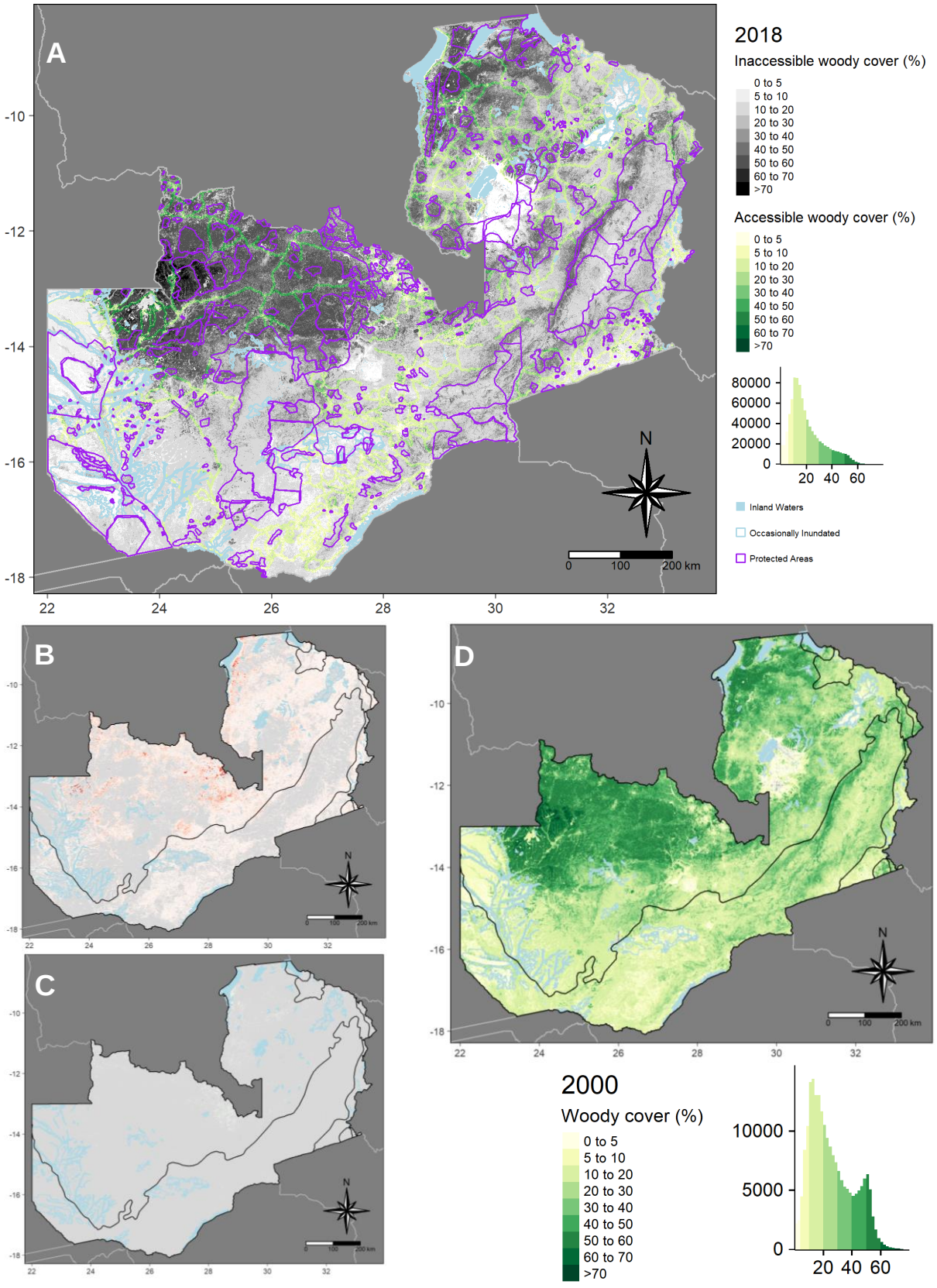


Figure 4. Distribution of remote (including protected) and accessible woody cover in 2018 (A), woody cover loss (B), woody cover gain (C) and total woody cover in 2000 (D), based on Hansen/UMD/Google/USGS/NASA data[16].

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable (Equation 2). Non-renewable biomass utilisation in Zambia is, therefore, estimated to be 29,087,467 and 30,246,483 t/yr for 2016 and 2018, respectively (Table 4).

The fraction of non-renewable biomass is the quotient of the non-renewable and the total biomass (Equation 1). The fraction of non-renewable biomass for Zambia is, therefore, estimated to be 0.88 and 0.89 for 2016 and 2018, respectively (Table 4).

Table 2. Forest and other wooded area total, protected and remote cover extent, mean annual increment and renewable biomass by ecological zone for the Republic of Zambia in 2016.

Ecological Zone	Total forest cover (ha)	Protected cover (ha)	Remote cover (ha)	MAI (t/ha/yr)	Renewable biomass (t/yr)
Tropical dry forest	4,128,171	2,258,095	1,336,467	1.80	960,602
Tropical moist forest	13,947,198	4,455,030	7,379,674	1.31	2,768,319
Tropical mountain system	222,500	29,133	122,965	1.26	88,663
"Water"	50,893	18,079	21,413	1.28	14,650
Total	**18,348,762**	**6,760,337**	**8,860,517**	**-**	**3,832,233**

Table 3. Forest and other wooded area total, protected and remote cover extent, mean annual increment and renewable biomass by ecological zone for the Republic of Zambia in 2018.

Ecological Zone	Total forest cover (ha)	Protected cover (ha)	Remote cover (ha)	MAI (t/ha/yr)	Renewable biomass (t/yr)
Tropical dry forest	4,112,108	2,252,702	1,329,480	1.80	953,972
Tropical moist forest	13,794,782	4,431,533	7,288,368	1.31	2,719,268
Tropical mountain system	218,618	28,741	120,942	1.26	86,826
"Water"	51,847	17,931	22,622	1.29	14,513
Total	**18,177,355**	**6,730,906**	**8,761,413**	**-**	**3,774,579**

Table 4. Summary of the fraction of non-renewable biomass (fNRB) calculation for the Republic of Zambia in 2016 and 2018.

Variable	2016	2018
Total woody biomass consumption (t/yr)	32,919,700	34,021,062
Renewable biomass (t/yr)	3,832,233	3,774,579
Non-renewable biomass (t/yr)	29,087,467	30,246,483
Fraction of non-renewable biomass	**0.88**	**0.89**

Conclusion

The conservative f_{NRB} calculation of 0.88 for 2016 indicates that the consumption of biomass within Zambia is greater than the country's capacity to renewably, or sustainably, supply. This finding is supported by the negative annual rate of change of woody cover reported by the FAO[10] and the literature[21,22]. It can be concluded there is considerable potential to reduce the rate of degradation and deforestation in Zambia by reducing the national demand for woodfuel.

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ii. Zimbabwe

Forested areas in the Republic of Zimbabwe are the dominant land cover class (Figure 1) and an important component of the national development strategy. The 2015 forest extent was estimated to be approximately 14 million ha or half the total area of Zimbabwe[1]. Miombo woodlands, which account for two-thirds of the total forest area, are rich in valuable timber species that are extensively traded both locally and internationally[2].

Wood fuels account for more than 85% of the final energy consumption in Zimbabwe, with the residential sector accounting for almost two-thirds of energy use[3]. The FAO Forest Resources Assessment estimates the rate of deforestation in Zimbabwe to be 324,100 ha/year, one of the fastest rates reported[1]. The land use change and forestry (LUCF) sector is the leading source of emissions in Zimbabwe, accounting for 59% of national emissions (34 $MtCO_2e$/year)[4]. For impoverished households, particularly in rural areas, wood harvesting can be an important source of income, lighting and heating energy[5].

The primary drivers of deforestation and forest degradation are complex but include land clearance

for agricultural expansion, wood energy collection, logging and tobacco curing — all of which are expected to intensify as a result of climate change[6,7]. The primary energy source used by households differs across provinces according to rurality, with more than three in four households relying on wood as their primary energy source in Masvingo Province (rural) but fewer than one in ten in Bulawayo Province (urban).

In support of Zimbabwe's national targets and multi-lateral commitments, the development of projects that reduce the demand for woody biomass is required. The use of improved cooking stoves (ICS), for example, can significantly reduce the demand for firewood and charcoal, in addition to health and financial co-benefits. Reduced demand for domestic wood fuels can directly reduce the rate of deforestation and the associated greenhouse gas emissions where the baseline consumption of biomass is greater than the available biomass production. The fraction of non-renewable biomass (f_{NRB}) is a critical variable in determining the extent to which consumption is unsustainable (see Box 1)[8]. This report aims to estimate the national f_{NRB} for the Republic of Zimbabwe.

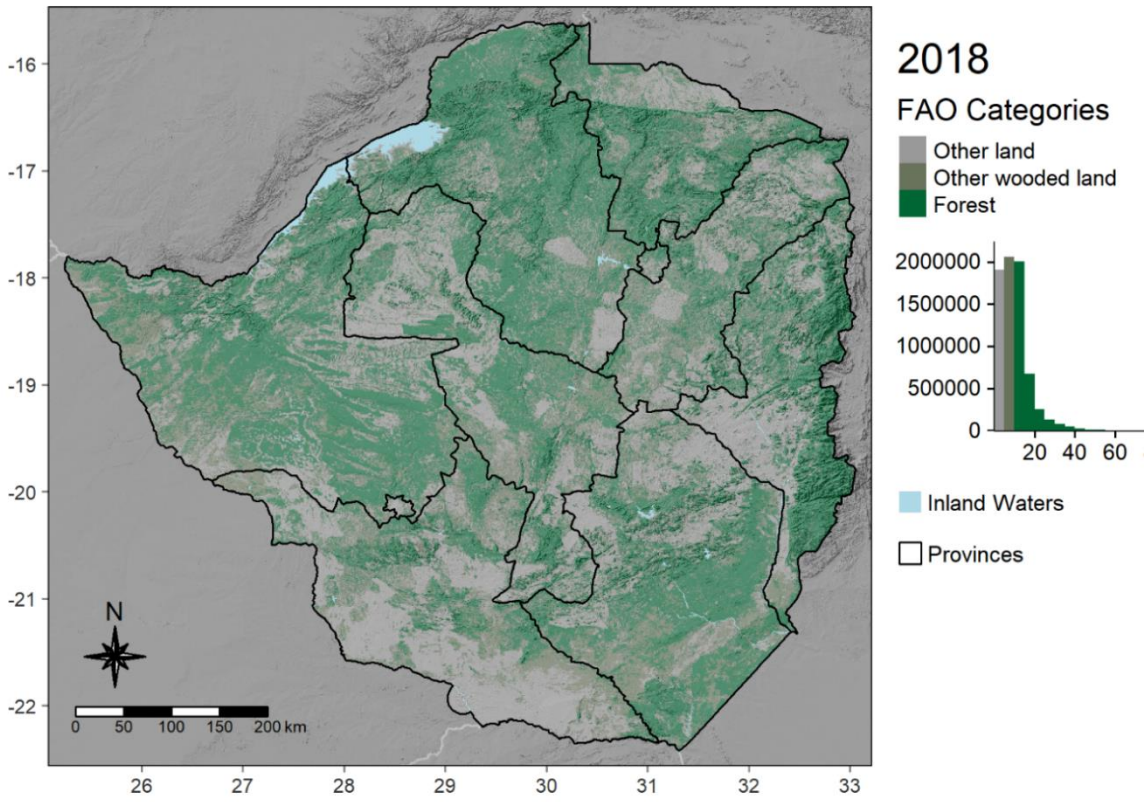
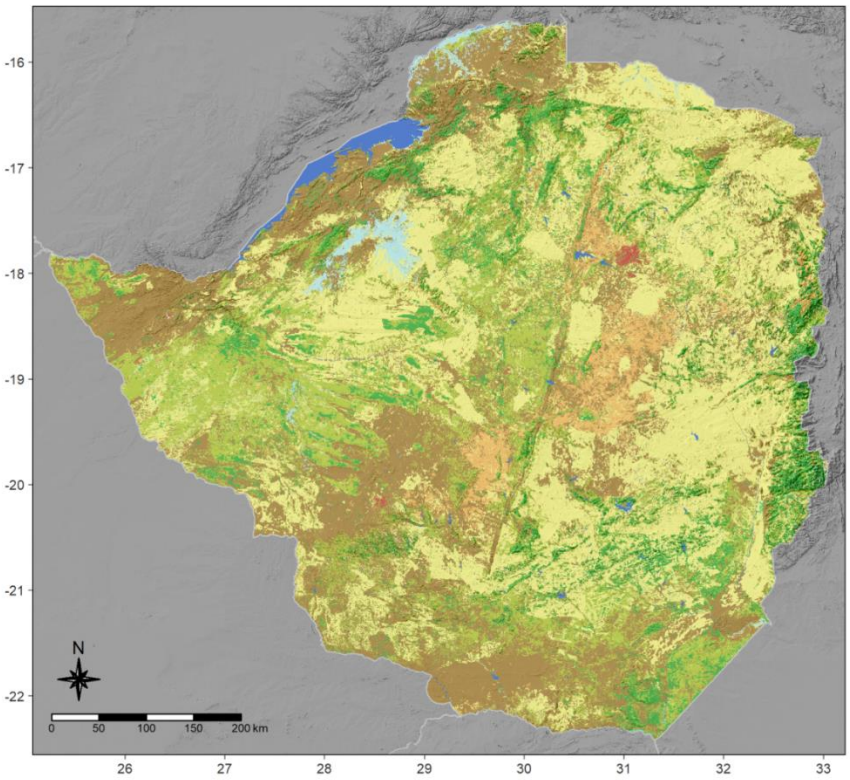


Figure 1. Extent of 2018 forests and other wooded lands[9], according to FAO definitions.



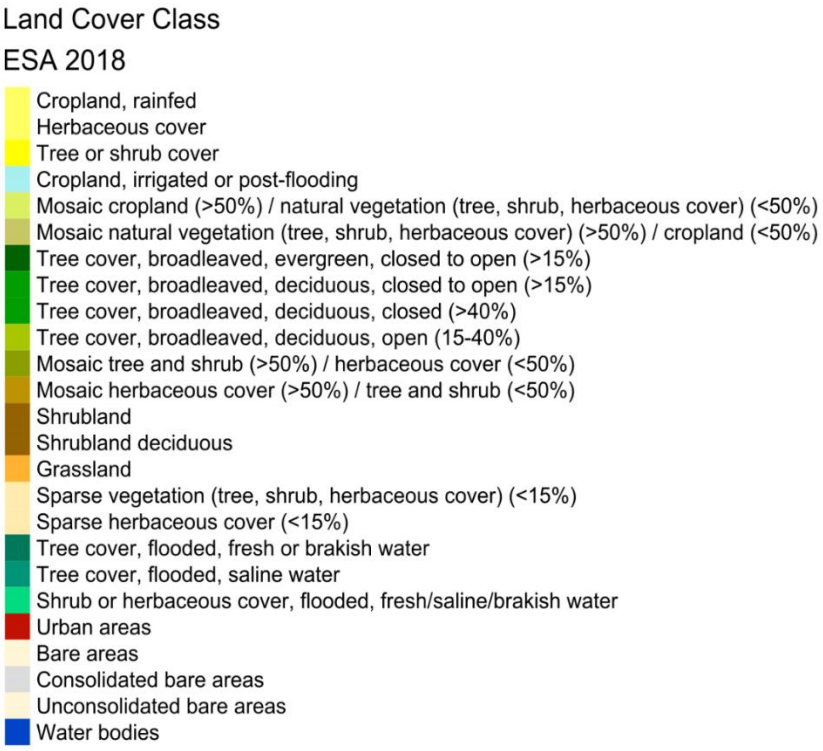


Figure 2. Land cover map for the Republic of Zimbabwe in 2018[10].

Estimating Zimbabwe's woody biomass consumption

The estimation of domestic consumption was derived from the UN Statistics Division wood consumption[11,12] and population[13] statistics, in combination with the national average per capita woody biomass consumption (Table 2~~Table 1~~). An inverse correlation between family size and per capita fuelwood consumption has been observed, with per capita consumption increasing by 39% for families of three individuals compared with those of five[14]. The average household size in

Zimbabwe has last been estimated to be 4.2 persons and on the decline[15]. The expected increase in energy intensity is not considered in this analysis. In contrast to many other countries in the region, per capita charcoal consumption for domestic use, even in urban areas, is limited (Table 2~~Table 1~~). Charcoal consumption has been converted to the equivalent wood biomass by the IPCC[16] default factor and the wood volume converted to metric tonnes using the FAO[1] default conversion factor (Table 3~~Table 2~~). For instances in which there are multiple estimates reported in the literature, the mean has been conservatively applied for this analysis.

Table 2~~1~~. Fuelwood consumption per capita (t/cap/yr) in the Republic of Zimbabwe.

Fuel source	Rural	Urban	Source
Firewood	1.427	n/a	Tshikalanke 2007[17]
Charcoal	n/a	0.001	Tshikalanke 2007[17]
Firewood	1.3	0.4	Castelli et al. 2016[14]
Firewood	1.479	n/a	Morales et al. 2018[18]

The non-domestic fuelwood consumption estimates provided by the FAOSTAT[19] have been conservatively applied (Table 3~~Table 2~~), disregarding the additional deforestation likely occurring as a result of shifting agriculture and from informal or illegal harvesting[6]. This estimate also conservatively excludes many wood-based industries, such as paper, veneer sheets, particleboard and plywood. Non-domestic consumption reported by UN Statistics Division[11,12] has been excluded due to apparent double accounting with domestic consumption. The total woody biomass consumption for Zimbabwe is conservatively estimated to be 23,520,035 t/yr.

Table 3~~2~~. Total 2018 population, woody biomass consumption and per capita consumption estimates for the Republic of Zimbabwe.

Variable	Value	Source
Population		
Urban	4,993,375	UN Statistics Division[13]
Rural	9,962,261	UN Statistics Division[13]
Domestic		
Fuelwood consumption (m^3/yr)	22,313,279	UN Statistics Division[12]
Charcoal consumption (t/yr)	9,000	UN Statistics Division[11]
Domestic (based on per capita consumption)		
Urban	2,027,310	Calculated
Rural	13,967,588	Calculated
Non-domestic		
Fuelwood	9,296,849	FAOSTAT[19]
Charcoal	11,865	FAOSTAT[19]
Industry (e.g., logging)	821,540	FAOSTAT[19]
Conversion factors		
Wood density (t/m^3)	0.725	FAO[1]
Charcoal to wood biomass factor	6	IPCC[16]
Per capita wood biomass consumption		
Urban fuelwood (t/cap/yr)	0.40	Table 2~~Table 1~~
Urban charcoal (t/cap/yr)	0.001	Table 2~~Table 1~~
Rural fuelwood (t/cap/yr)	1.40	Table 2~~Table 1~~
Rural charcoal (t/cap/yr)	-	Table 2~~Table 1~~
Total woody biomass consumption (t/yr)	**23,520,035**	**Calculated**

Estimating renewable biomass (RB), non-renewable biomass (NRB) and the fraction of non-renewable biomass (f_{NRB})

Geospatial data products for Zimbabwe were analysed in R[20–24] to estimate Zimbabwe's renewable biomass. The woody cover from all areas defined as "forest" (>10% cover), "other wooded land" (5-10% cover) as well as "other land" (<5% cover), according to the FAO definitions[25] for 2000 and 2018 was estimated using Hansen/UMD/Google/USGS/NASA[9] spatial data, which is derived from Hansen et al.[26] As no woody cover was excluded from the analysis based on a threshold of minimum

cover, the woody cover data are reported in total, not by FAO forest categories. The woody cover was disaggregated according to the FAO global ecological zones[27] (Figure 3~~Figure 3~~) and the total woody cover extent was calculated for each ecological zone (Figure 4~~Figure 4~~), within the protected areas and within areas that are either accessible or geographically remote (Table 4~~Table 3~~). The woody cover is estimated as a percentage for the whole country within 30 x 30 m resolution grid cells. The woody cover extent for each cell is therefore calculated as the woody cover percentage multiplied by its area (0.9 ha).

Box 1

The fraction of harvested biomass that can be established as non-renewable biomass is the f_{NRB}. This fraction ranges between 0 and 1, where 0 indicates that 100% of harvested biomass is renewable (0% is non-renewable) and 1 indicates that 100% is non-renewable. The following equation is used to calculate f_{NRB}:

$$f_{NRB} = \frac{NRB}{NRB + RB} \quad (1)$$

Where:
f_{NRB} = Fraction of non-renewable biomass
NRB = Non-renewable biomass (t/yr)
RB = Renewable biomass (t/yr)

The quantity of non-renewable biomass (NRB) is the difference between the annual biomass consumption (H) and the quantity of renewable biomass (RB), calculated by the following equation:

$$NRB = H - RB \quad (2)$$

Where:
H = Total woody biomass consumption in the absence of project activity (t/yr)

Renewable biomass is the product of the mean annual increment of woody biomass growth and the total extent of the forest and other wooded areas of the country where wood extraction is not prohibited or geographically remote, calculated by the following equation:

$$RB = MAI \times (F - P) \quad (3)$$

Where:
MAI = Mean annual increment of woody biomass (t/ha/year)
F = Total extent of the forest and other wooded areas (ha)
P = Extent of the forest and other wooded areas where wood extraction is not permitted or is geographically remote (ha)

Geographically remote areas were determined to be areas beyond a harvestable distance from roads and settlements. Conservatively, it was assumed that forests and wooded areas adjacent to all roads within a distance of 2.5 km are harvestable, regardless of how geographically remote or inaccessible these roads may be. This threshold was determined based on the peer-reviewed literature on regional wood harvesting practices.

Banks et al.[28] found that woody biomass density increases significantly as a function of distance from the edge of a settled area. Beyond 450 m, the average biomass density in their study area was found to increase from 2.1 to 16.6 t/ha. Jumbe and Angelsen[29] modelled Miombo fuelwood choice from household survey data and found that the most significant determinants of fuelwood choice are source attributes (size and species composition) and distance to the source. The mean harvesting distance for their study was found to be 0.95 km. Bandyopadhyay et al.[30] matched household surveys and remote sensing data to investigate Miombo fuelwood use in relation to poverty levels. They concluded that the one-way walk duration to fuelwood source for both poor and non-poor households is 0.6 hours. Assuming an average walking speed of 4 km/hr over uneven terrain, the average one-way distance to fuelwood source can be conservatively estimated to be less than 2.5 km. Areas beyond the harvestable distance were, therefore, determined to be geographically remote. Accessible areas are those that are not protected and not geographically remote, from which the

annual renewable biomass production is calculated (Equation 3).

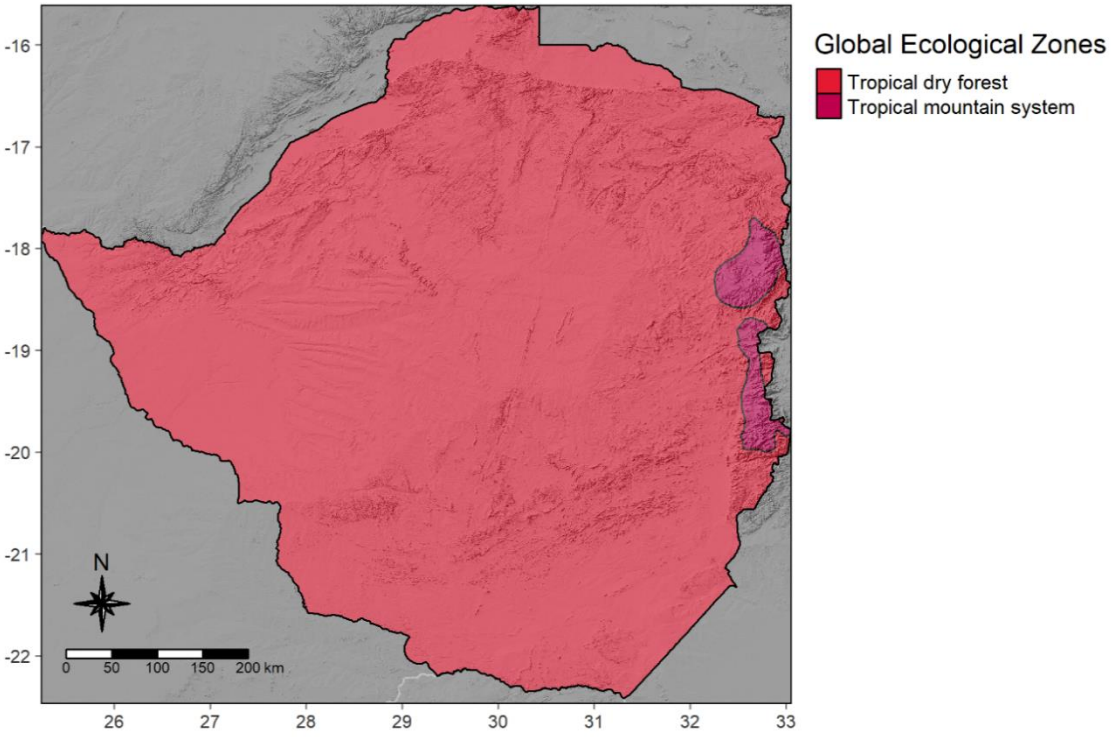


Figure 3. Distribution of the FAO Global Ecological Zones[27] within the Republic of Zimbabwe.

The default age-weighted mean annual increment (MAI) estimates of each ecological zone, as reported by the IPCC[16], were used for this study. The proportion of forest stand ages above and below 20 years old were estimated for each ecological zone by extrapolating the observed forest gain extents between 2000 and 2012 to a 20-year period. The resulting average MAI estimates for Zimbabwe are 1.81 and 1.80 t/ha/year for tropical dry forest and tropical mountain system zones, respectively (Table 4~~Table 3~~).

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Table 4~~3~~. Total, protected and remote forest cover extent, mean annual increment and renewable biomass by ecological zone for the Republic of Zimbabwe.

Ecological Zone	Total forest cover (ha)	Protected cover (ha)	Remote cover (ha)	MAI (t/ha/yr)	Renewable biomass (t/yr)
Tropical dry forest	3,823,898	1,149,294	1,639,901	1.80	1,870,226
Tropical mountain system	179,355	34,622	81,332	1.81	113,875
Total	**4,003,253**	**1,183,916**	**1,721,234**	**-**	**1,984,101**

The difference between woody biomass consumption and renewable biomass is considered to be non-renewable (Equation 2). Non-renewable biomass utilisation in Zimbabwe is, therefore, estimated to be 21,535,934 t/yr (Table 5~~Table 4~~).

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The fraction of non-renewable biomass is the quotient of the non-renewable and the total biomass (Equation 1). The fraction of non-renewable biomass for Zimbabwe is, therefore, estimated to be 0.92 (Table 5~~Table 4~~).

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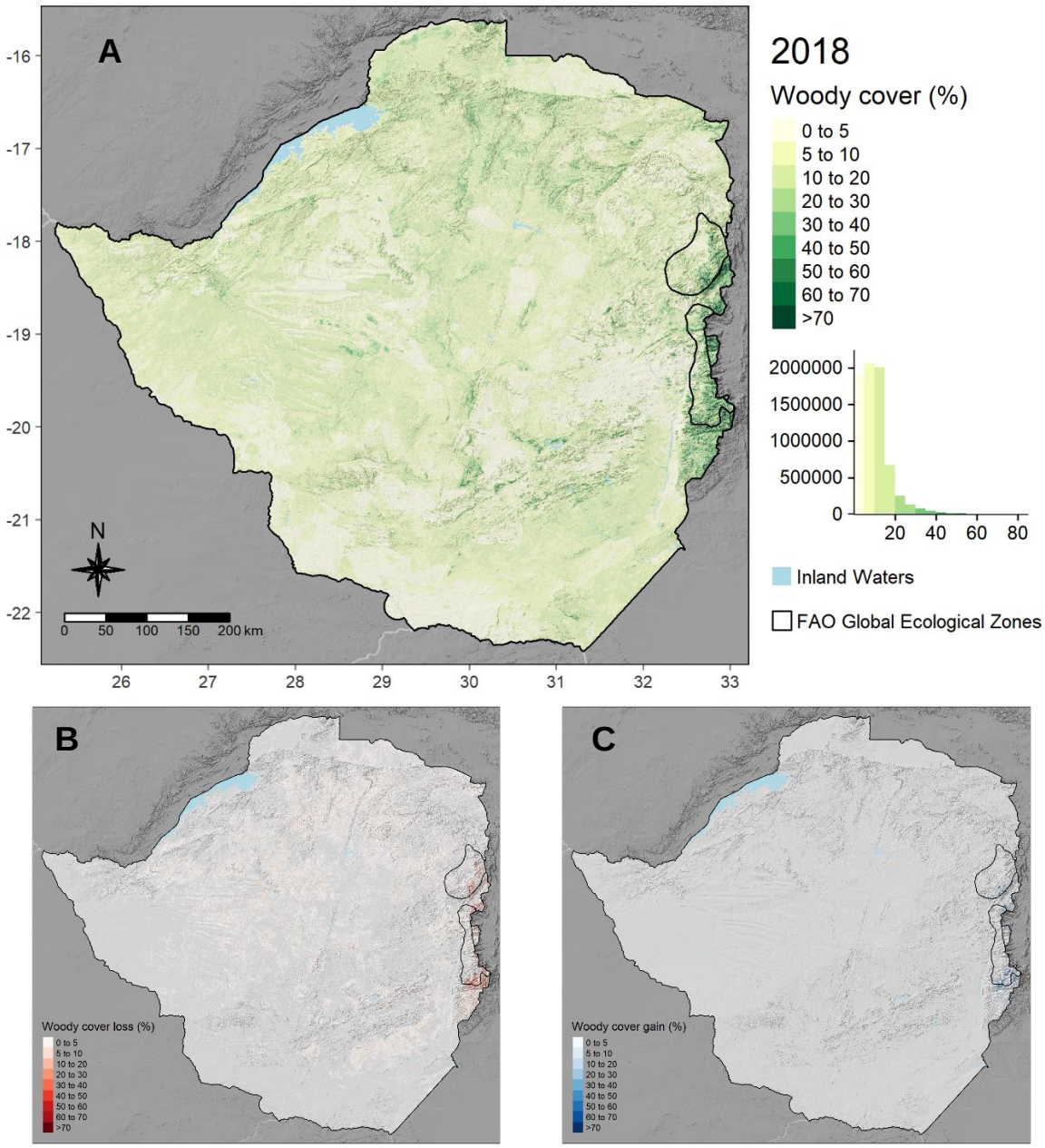

Figure 4. Distribution of woody cover in 2018 (A), woody cover loss since 2000 (B) and woody cover gain since 2000 (C), based on Hansen/UMD/Google/USGS/NASA data[9].

Table 54. Summary of the fraction of non-renewable biomass (fNRB) calculation for the Republic of Zimbabwe.

Variable	Value	Source
Total woody biomass consumption (t/yr)	23,520,035	Table 1
Renewable biomass (t/yr)	1,984,101	Table 2
Non-renewable biomass (t/yr)	21,535,934	Calculated
Fraction of non-renewable biomass	**0.92**	**Calculated**

Conclusion

The calculated f_{NRB} of 0.92 indicates that the consumption of woody biomass within Zimbabwe is greater than the country's capacity to renewably, or sustainably, supply. This finding is supported by the consistent and widely reported deforestation rate observed for the country[1–7,31–34].

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Environmental Impacts:

iii. Zambia:

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In reply please quote
ECZ/INS/101/4/1
No. .....

March 16, 2011

The Programme Coordinator
Africa Carbon Credit Exchange (ACCE)
4th Floor, Godfrey House
Kabelenga Road
P.O. Box 390035
Lusaka, Zambia

Dear Madam,

ENERGY EFFICIENT STOVE PROJECT (ZAMBIA)

Reference is made to your e-mail of 15th September 2010 in which you requested for environmental clearance to allow the Africa Carbon Credit Exchange, in cooperation with ICECAP (a UK-based carbon project developer), to prepare and submit a PDD for a carbon offset project that will involve the distribution of high-efficiency wood fuel cookstoves to rural households in Zambia.

With reference to the information provided by yourselves in the Project Idea Note, ECZ has no objection to the proposed project and therefore there is no need for an environmental impact assessment to be carried out. This is because the negative impacts associated with the project are insignificant while the positive environmental impacts to be enhanced are considerable.

This is in line with the Environmental Impact Assessment Regulations, Statutory Instrument No. 28 of 1997 where ECZ draws powers to identify which projects require environmental assessment.

All correspondence to be addressed to the Director - Head Office

Do not hesitate to contact the undersigned should there be any issues herein that you would wish to clarify.

Yours faithfully,

Maxwell Nkoya
Acting Manager - Inspectorate
For/Director
ENVIRONMENTAL COUNCIL OF ZAMBIA

iv. Zimbabwe:

ENVIRONMENTAL MANAGEMENT AGENCY

All communications should be addressed to "The Director General"
685/686 Lorraine Drive/Fabar Road, Bluffhill,
P O Box CY 385, Causeway, Harare
Harare
Telephone 08677006244 ; (04) 305550 /310084; 306543
E-mail: ema@ema.co.zw

17/1/1/3

08 JANUARY 2019

JAMES EGREMONT LEE
4 – 12 PAISLEY ROAD
SOUTHERTON
HARARE

PROPONENT: 08677 007 128
jegremontlee@riftvalley.com

REF: REQUEST FOR SUPPORT LETTER FOR COOKSTOVES PROJECT
The above matter refers.

The Agency has received your email with supporting documents dated 19 December 2018 requesting for support letter for your cook stove project. Having considered the scope of your project, you are exempted from carrying out a full Environmental Impact Assessment (EIA). However you are advised to ensure compliance with the Environmental Management Act CAP 20:27 and its statutory instruments during the implementation of your project.

Please note that the exemption is only for the cookstove project and any other developmental activities of prescribed projects should undergo the EIA process.

Please do not hesitate to contact us on any environmental issues related to the implementation of your project.

ENVIRONMENTAL MANAGEMENT AGENCY
P. O. BOX CY 385
CAUSEWAY, HARARE
24 JAN 2019
TEL: 305550 / 306300

Thank you.

C MUSHAVA
DIRECTOR – ENVIRONMENTAL PROTECTION
For: DIRECTOR GENERAL

RECEIVED BY: ..... DATE: .....
DESIGNATION: ID NUMBER:
CONTACT NUMBER: .....

TOGETHER - PROTECTING THE ENVIRONMENT

Ambassador Z. Nsimbi (Chairperson); Ms S. Nyamudeza (Vice Chairperson); Mr A. Mlalazi (Member); Mr F.F. Moyo (Member); Mr N Mushangwe (Member);); Mr H.G. Mazaiwana (Member); Dr N. Chanza (Member); Mr E. Samuriwo (Member); Mrs S Sidambe (Member); Mrs J Chiketa (Member); Ms M Mayahle (Member); Mr C Chitindi (Member); Mr L Muoni (Member); Mrs C Paradza (Member); Mr.A Chigona (Member);

Appendix 5. Further background information on monitoring plan

Not applicable

Appendix 6. Summary report of comments received from local stakeholders

Not applicable

Appendix 7. Summary of post-registration changes

Actual post-registration changes are listed here:

1. PoA name, version number and date changed to reflect multiple Host Countries
2. Zimbabwe parameter values added (B_{old},HH, fNRB), new meth version parameter values added ($EF_{projected\_fossil\_fuel}$) in Section I.6.2
3. New default emission factors added in Section I.6.1
4. The provision is included for allowing CPA-level establishment of Bold in Section I.6.2, where more accurate region-level data is available
5. Provisions for the use of survey data and the fraction of stove failure in year 1 are included in Section I.7.1, as per the General Guidelines for SSC CDM methodologies, v.23
6. PoA updated to reflect new Methodology version 11
    a. Default regional emissions factors used (Section I.6.1)
    b. Monitoring Plan (Section I.7)
    c. Efficiency loss of project devices (N_{new}) as per para 37 (Section I.7.1)
7. PoA updated to reflect new Sampling Standard version 8
    a. Sampling Plan (Section I.7.2)
8. Zimbabwe LSC summary included (section F)
9. Charcoal conversion factor added in Section I.6.1

Furthermore, according to Paragraph 242 of the Project Standard version 02.0, the CME reports the following on the impacts of the PRC:

PS para 242 requirements:	**CME reporting on impacts:**
The applicability and application of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents, with which the PoA or CPA has been registered or included	The PoA- & generic CPA-DDs have been updated to account for the requirements of the latest available version of the methodology the sampling standard and the General Guidelines for SSC CDM methodologies, v.23. The impacts on programme design are listed above

	on a section-by-section basis in the PoA- & generic CPA-DDs.
The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents	The PoA- & generic CPA-DDs have been updated to account for the requirements of the latest available version of the methodology the sampling standard and the General Guidelines for SSC CDM methodologies, v.23.
The level of accuracy and completeness in the monitoring of the PoA or the CPA compared with the requirements contained in the registered monitoring plan	The PoA- & generic CPA-DDs have been updated to account for the requirements of the latest available version of the methodology the sampling standard, although this has not had a direct impact on the accuracy and completeness in the monitoring plan.
The additionality of the PoA or CPA	There has been no change to the additionality argument, although reference has been made to the updating of the methodological tool 21 “Demonstration of additionality of small-scale project activities” from version 12.0 to version 13.0
The scale of the CPA	No change
The eligibility criteria for inclusion of CPAs in the PoA	The eligibility criteria have been updated show that CPAs must adhere to the Version 11 of the methodology and to demonstrate that the geographical boundary of the CPA may now exist within a new Host Country (i.e. Zimbabwe) and not just Zambia.