

**Gold Standard for the Global Goals
Key Project Information & VPA Design Document (PDD)**



July 2017, Version 1

KEY PROJECT INFORMATION

Title of Project:	VPA-01: Solar cooking in Chad, Iridimi VPA-01: GS 3445
Title of the PoA:	Solar Cooking in Chad
Brief description of Project:	The main aim of the program is to replace the demand of fuelwood for cooking with solar cookers. The proposed technology makes use of the abundant solar resource available and provide income for the refugees while decreasing health, safety and environmental risks involved with using biomass for cooking. The solar cookers are distributed with black pots, with each family receiving at least two cookers and two pots, which is sufficient to cook both the staple (e.g. maize meal, sorghum, rice) and a sauce.
Expected Implementation Date: Expected duration of Project:	01/01/2012 21 years (ending 31/12/2033) CP 1: 01/01/2012 to 31/12/2018 CP 2: 01/01/2019 to 31/12/2025
Project Developer:	FairClimateFund
Project Representative:	Mr. Gert Crielaard, FairClimateFund
Project Participants and any communities involved:	FairClimateFund
Version of PDD: Date of Version:	Version 11.0 23/09/2020
Host Country / Location:	The Republic of Chad
Certification Pathway (Project Certification/Impact Statements & Products)	Impact Statements & Products
Activity Requirements applied: (mark GS4GG if none relevant)	Community Services Activity Requirements
Methodologies applied:	The Gold Standard Simplified Methodology for Efficient Cookstoves v1.1 (April 2020)
Product Requirements applied:	GHG Emissions Reduction & Sequestration
Regular/Retroactive:	Regular
SDG Impacts:	SDG 1: No Poverty SDG 3: Good health and well-being SDG 7: Affordable and Clean Energy SDG 13: Climate Action
Estimated amount of SDG Impact Certified	SDG 1: 279,875,586 CFA Francs of saving / year SDG 3: 97.6% beneficiaries having less respiratory & eye diseases SDG 7: around 4,470 households benefiting from cleaner cooking technology SDG 13: 58,040 tCO _{2e} (over the 7 years period)

SECTION A. Description of project

A.1. Purpose and general description of project

>> (Provide a brief description of the project including the description of scenario existing prior to the implementation of the project.)

Since 2003, the war in Darfur has led to the influx of over 230,000 refugees into eastern Chad. These refugees are divided across 12 camps in the Wadi Fira region, bordering Sudan. The influx of refugees mobilized a response from the United Nations, with the United Nations High Commissioner for Refugees (UNHCR) and other humanitarian organisations working to improve the living conditions of refugees. The climate is semi-arid, and rainfall is scarce and irregular. Natural resources such as water and firewood are increasingly rare, requiring the refugee population to travel increasingly large distances to collect firewood. This is a high-risk activity, with many women assaulted or raped. More generally, Chad is among Sub-Saharan African countries with the highest percentage in traditional use of biomass and are largely depended on biomass based energy sources¹.

To help tackle this problem, the Project aims to meet basic domestic energy needs through the provision of solar cookers for use in the refugee camps.

This VPA, the first VPA includes solar cookers that have been installed in the **refugee camps of the Wadi Fira region, with a focus on Iridimi and Touloum refugee camps.**

As of March 2019, UNHCR reported around 340,000 Sudanese, 165,000 internally displaced and 100,000 Central Africans as refugees, internally displaced or asylum seekers. In the Wadi Fira region, there were 20,800 people in Iridimi; 25,831 in Touloum; 23,800 in Am Naback; 21,000 in Mile; and 20,000 in Kounoungou. There were also 31,110 refugees in Oure Cassoni and 25,392 in Gaga².

Iridimi and Touloum are two of the camps established by the Government of Chad to accommodate the refugees from Darfur. These camps are located in a semi-desert area where rainfall, and underground water, and thus growth of trees, is scarce. The World Food Program³ (WFP) supplies food (dried flour, beans, etc., that can stand a three month long overland transport). However, in this semi-arid area there is virtually no wood for cooking, and the little that was there originally was just sufficient for the local, often itinerant, population. UNHCR has been trucking in, at enormous cost, a very considerable amount of wood from other regions of Chad, but this is not a viable long-term solution, its transport is not environment friendly, and moreover this is harmful to the environment and population elsewhere.

In this project-area there is ample solar energy to allow the use of simple solar cookers, both for cooking the midday meal in the morning and the evening meal in the afternoon. The latter is kept warm in a locally made "guffa", a simple thermos basket made from empty WFP food bags and snippets from the manufacture of the cookers. The project has chosen the cheapest and easiest-to-make model of cooker, allowing its use by even the poorest and the possibility for users to make replacement cookers themselves, following training.

The adult population has the habit of eating nothing or very little in the morning, but small children are often given a small amount of porridge, that will have to be prepared either the day before or in the morning. When cooking on wood, the proportion of wood for the three meals is about 1/5 for the morning meal, 2/5 for the midday meal and 2/5 for the evening meal.

The purpose of the project is twofold:

- To train refugees in the manner of solar cooking, somewhat different from cooking on wood, and in the manufacture of cookers; and

¹ Review of Woodfuel Biomass Production and Utilization in Africa:
<https://wedocs.unep.org/bitstream/handle/20.500.11822/28515/WoodfuelRpt.pdf?sequence=1&isAllowed=y>, p.16

² UNHCR October 2019 report: <https://data2.unhcr.org/en/documents/download/72352>

³ WFP Chad Country brief:
<https://reliefweb.int/sites/reliefweb.int/files/resources/WFP%20COUNTRY%20BRIEF%20CHAD%20OCTOBER%202019.pdf>

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- To equip all households with two solar cookers, one for the main meal, one for the sauce. Big households may need an extra cooker and pot for a larger amount of the main-meal-food (we found that bigger cookers for bigger pots are less efficient in capturing the solar energy) but not for the sauce.

The cookers are made from cardboard and aluminium foil and sprayed with a water repellent on the back. Their lifetime is limited by the reflectivity of the aluminium foil and by the handling of the cooker each evening after use. The working life of a solar cooker is about two years. Thereafter the cookers need to be replaced. Users are instructed to contact members of CoBFoCuS or to go directly to the manufacturing facility if they require a replacement solar cooker. Any maintenance takes only a matter of minutes to complete. If they require to purchase a new solar cooker, receipt of the replacement cooker is recorded in a Replacement Record, which confirms the user's name, WFP food ration number, batch number of the cooker and the date of receiving the replacement. The date of receiving the replacement and new batch number are then entered into the project database to replace old solar cooker data.

The cost of the basic materials and labour for manufacturing for two cookers, not counting overheads, is in the order of USD 24. The refugees have virtually no possibility to earn money except for work within the camp due to there being, understandably, regulations to protect the scarce employment possibilities in the area for the Chadian population. The solar cooker activity provides this opportunity for remunerated work. Refugees are thus asked to pay a reasonable sum of 1,000 FCFA (XOF) to cover the cost of the work of making the replacement cookers. Carbon credits are sought to pay for the provision of the basic materials for manufacture (cardboard, aluminium foil, Arabic-gum for gluing, sticky tape to protect the cut edges of the cardboard from unfurling, eyelets to attach cords, held down by a few rocks, to protect cookers against movement in strong winds) and the implementation and management of the project.

The VPA will contribute to sustainable development in a number of ways:

Environmental

- The programme will reduce greenhouse gas emissions
- The programme will reduce deforestation and forest degradation in areas where non-renewable biomass is used as a source of fuel. This will contribute to the overall stability of all ecosystems, which support biodiversity and watersheds

Social

- Improved health and wellbeing: reduced combustion of firewood and fossil fuels in households will reduce indoor air pollution, thereby increasing the respiratory health of users, particularly women and children who spend a large portion of their time near the domestic hearth. The project will also greatly facilitate the life of handicapped persons.
- Improved security: in refugee camps the project will reduce the need for women to leave the security of the camp environment to search for wood and will reduce conflicts between persons seeking wood.
- Increased time to spend on other activities: the project will give women free time to look after their family or to do cash-generating handiwork and allow girls to attend school instead of searching for wood.

Economic

- Reduced end-user expenses from the purchase of firewood
- Provides a source of employment: locals are directly employed in the manufacture, distribution and maintenance of the solar cookers.

At the end of the 1st Crediting Period, the former CME (Agrometeorological Applications Associates - AAA) looked for an entity to replace it as a CME. On the 21st October 2019, for this purpose, a contract was signed between AAA and FairClimateFund (FCF).

The entities involved in the Project and their responsibilities are outlined below.

FCF: responsible for the overall management of the PoA, including:

- Marketing the programme internationally
- Overseeing project implementation and adherence to procedures
- Coordinating contributions of all entities involved

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- Quality control of annual monitoring reports and the organization of the monitoring effort
- Communicating with the validator/verifier and the Gold Standard Secretariat
- Communicating with potential carbon credit buyers
- VER commercialization
- Requesting the Gold Standard Secretariat to issue VERs into their registry

Hamerkop Climate Impacts (HCI): responsible for the overall carbon management and project technical support of the PoA, including:

- Providing ongoing support to the VPA Implementing Entity
- Ensuring the rules of the Gold Standard are followed by the VPA Implementing Entity
- Coordinating monitoring
- Drafting project documentation and monitoring reports

Implementing Entity (NGO): responsible for implementing the project on the ground (VPA-01), including:

- Marketing the programme locally
- Capacity building for users and solar cooker artisans
- Quality control of the product (solar cookers)
- Organizing annual monitoring efforts and writing monitoring reports
- Oversees the collecting of user information and distribution of solar cookers by the technology suppliers (artisans and CoBFoCuS, the 'Refugee Committee for the Good Use of Solar Cookers')
- Keeping a record of local financial transactions throughout the project
- Maintain the PoA/VPA-01 Database

The cookers manufacturers (artisans and CobFoCuS). They are responsible for:

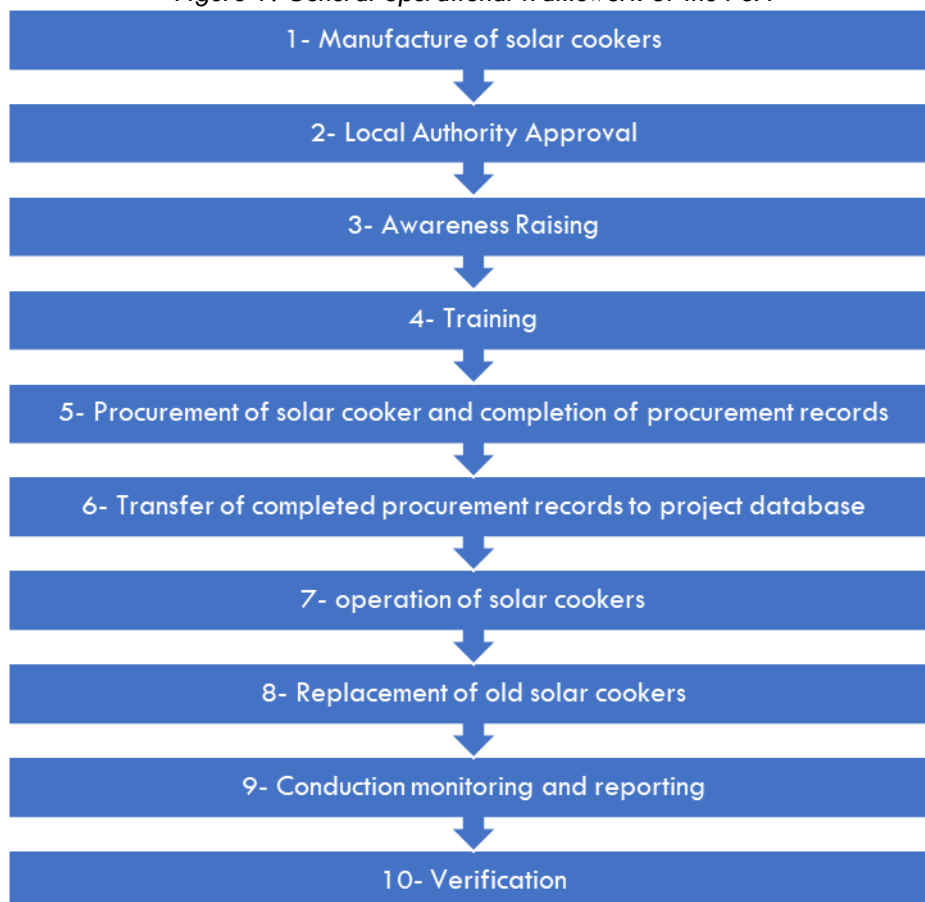
- Providing reliable solar cookers constructed to the specifications detailed during the training artisans receive
- Providing after-sale services to users, including maintenance, repairs and providing a replacement solar cooker at a reduced price to end-users when their existing solar cooker no longer functions
- Collecting user information and distributing solar cookers
- The transmission of grievances/ongoing feedback to the CME since they act as representative also acts as the intermediary between end-users and the Implementing Entity.

The activities will tend to follow the sequence of actions listed in

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Figure 1 below.

Figure 1: General operational framework of the PoA



1. Manufacture of solar cookers

All solar cookers are manufactured by trained artisans in designated production facilities. At manufacture, each solar cooker will receive a batch number, which includes a stamp specifying the location and date of manufacture.

2. Local Authority approval

Approval is first sought from the local authority to be allowed to conduct awareness raising exercises on solar cookers for the local population, including training on how to use them and marketing.

3. Awareness raising

Awareness exercises (including cooking demonstrations) are carried out with the target group, giving possible customers the opportunity to learn about solar cooking technology and determine if this is a technology they may wish to procure for their use at home.

4. Training

Those who are interested in receiving a solar cooker are given training on the proper use, maintenance and storage of the solar cooker by a member of CoBFoCuS. This takes place via a cooking demonstration and includes communicating who to contact in the event that a solar cooker no longer functions or is in need of repair. Attendees will be instructed to contact this person as soon as the cooker needs replacement or repair. The user is also informed that a replacement cooker will be provided at a reduced price if the existing cooker becomes in-operational.

5. Procurement of cooker and completion of Procurement Record

Following training, those users that are interested in procuring a solar cooker may do so. Users will only receive a solar cooker if they can confirm they own a pot with which to use it, either by bringing a pot with them and painting it black (the paint to do this, is provided free of charge), or by purchasing a pot at the same time as the cooker. Users that cannot prove they own a pot for use with the solar cooker will not be allowed to procure a solar cooker.

The trainer and the end-user complete and sign a Procurement Record. The trainer is responsible for ensuring that the information is correct and complete. The Procurement Record will contain, at least, the following information:

- VPA number
- Date of the Procurement Record
- Name of the end-user
- Address of the end-user (in as much detail as possible)
- Mobile phone number/landline of the user (if available)
- WFP Food distribution number
- Type of solar cookers purchased
- Primary baseline cookstove used (3-stone/Banco/Save80/other)
- Acknowledgement that the user is aware that the solar cooker is operating as part of a PoA, and confirmation that they are not taking part in another registered PoA.
- Confirmation that the user assigns the right and title to the VERs to the CME
- Confirmation that the household already has a pot with which to use the solar cooker
- Confirmation that the user has received training on how to use the solar cooker
- Marks (or thumb print) of end-user confirming the above details are correct
- Name, company, contact details of the officer (Trainer) completing the Procurement Record.

6. Transfer of completed Procurement Record to Project Database

The hard copies of all Procurement Records will be filed by the Trainers, CoBFoCuS, and entered into the Project Database. The Project Database will be backed up once a month to reduce the risk of losing user details. A cross-check of data will also be carried out once per month, including a check for any double entries and a check for any errors in transfer of data from the hard copies of Procurement Records into the database. The person responsible for entering the data will be different from the person responsible for carrying out checks on the project database. Hard copies of all Procurement Records will be kept for a period of two years after the end of the crediting period and will be stored in chronological order by date and VPA number.

7. Operation of solar cookers

The end user will have been provided with the contact details of the Trainer (the member of CoBFoCuS for those VPAs in refugee camps) should the cooker need maintenance at any time during the project. It will be the user's responsibility to use the solar cooker as instructed during the training received at sale.

8. Replacement of old solar cookers

The working life of a solar cooker is about two years. Thereafter the cookers may need to be replaced. Users are instructed to contact members of CoBFoCuS or to go directly to the workshop if they require a replacement solar cooker. In case repairs are needed, users are instructed to contact members of CoBFoCuS or to go directly to the solar cooker workshop. Members of CoBFoCuS are integrated within the camps so regular contact is maintained (there is one representative for every 10 zones in a camp). Repairs are made on the spot and in the same day at the workshop, so that cooking is still possible. In the few cases that a cooker will not be available until the next day, a substitute cooker is lent to the user. If the cooker is not repairable, it can be exchanged for a small fee. If they require to purchase a new solar cooker, receipt of the replacement cooker is recorded in a Replacement Record, which confirms the following:

- Date
- User's name
- Food card number
- Type of solar cooker purchased

Before entering the new data into the Project Database (being the date of receiving a replacement cooker), the user's name and food card number are cross-checked to ensure the correct user data is entered into the project database to replace old solar cooker data.

9. Conduct monitoring and reporting

The CME will be responsible for organizing the annual monitoring effort and reporting results via a monitoring report.

10. Verification

The Gold Standard will verify the monitoring report(s) and will request clarifications on any issues that arise during this time before making a request for issuance.

A.2. Eligibility of the project under approved PoA

>> (Demonstrate how each VPA meets the eligibility criteria as defined in approved PoA)

The table below list all the criteria and conditions each VPA must meet to be deemed eligible under the PoA.

Table 1: Justification of applicability of 'Simplified Methodology for Efficient Cookstoves'

Criteria		Condition to meet	VPA-DD Indicator
1	Geographical boundary	All solar cookers listed in a VPA are located within the geographical boundaries of the Republic of Chad.	<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> • Sales Records (location of device) • Procurement Records
2	Specifications of the technology	The technology used and included in each VPA has the following characteristics: <ul style="list-style-type: none"> • The technology is solar cookers • Each new solar cooker is included in the VPA only once the user has a pot that can be used with the cooker (replacement cookers are issued without a pot) • The solar cookers are portable in operation 	<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> • Procurement Record
3	Condition that avoid double counting	The end-user location (address) of each solar cooker, as well as the name of the user, shall be recorded at sale. If available, the unique card with the food distribution number of the end-user will also be recorded.	<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> • Sales Records • Procurement Record
4	Start date	The start date of the VPA can be checked through documentary evidence by using the Sales Records, where the date of issue of each solar cooker plus pot is recorded.	<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> • Sales Records • Procurement Record
5	Demonstration of additionality	The project activity is located in a Land Locked Least Developed Country (LLDC), The Republic of Chad.	<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> • Sales Records • Procurement Record
6	Local stakeholder consultations	A local stakeholder consultation is being carried out either for a single VPA or a group of VPAs. For a VPA to be eligible to apply past consultations, the following must be true: <ul style="list-style-type: none"> • The target users are of the same nature (e.g. refugees) • The specifications of the technology are similar 	<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> • Section C of VPA-DD • Gold Standard Registry

Criteria	Condition to meet	VPA-DD Indicator
	<ul style="list-style-type: none"> The VPA is submitted within 5 years of the consultation 	
7	Official development assistance	The VPA does not receive Official Development Assistance on the condition that credits generated by the project are transferred, directly or indirectly, to the donor country.
		<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> ODA Declaration Template
8	Target group	The end-users included in the VPA are domestic users in rural or urban settings.
		<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> PoA Database Procurement Record
9	Sampling requirements	The sampling method applied in the VPA follows The Gold Standard Simplified Methodology for Efficient Cookstoves.
		<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> Section B.7.2. of the VPA-DD
10	Scale of the VPA	Emission reductions achieved by each one of the VPAs are limited to a maximum of 10,000 tCO ₂ e, in any year of their crediting period.
		<input checked="" type="checkbox"/> [tick when met] Verifiable evidence: <ul style="list-style-type: none"> PoA database (aggregate emission reductions)

A.3. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

>> (Justify that project owner has full and uncontested legal ownership of the products that are generated under Gold Standard Certification and has legal rights concerning changes in use of resources required to service the Project for e.g water rights, where applicable.)

The only products generated under this VPA are SDG 13 impacts in the form of VERs.

The CME of the PoA, FairClimateFund, is providing all the funding for the project and in return has the full legal ownership of the emission reductions generated under this VPA.

The transfer of ownership is done either way:

- At the point of distribution of new stoves, a 'contract' is to be signed that cedes ownership rights from end-users to FairClimateFund; or
- For cookers distributed before FairClimateFund took over as a CME (in 2019), a contract has been signed transfer the right from AAA (the former CME) to FairClimateFund

A.4. Location of project

A.4.1. Host Country

>>

The Republic of Chad

A.4.2. Region/State/Province etc.

>>

Region of Wadi Fira

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A.4.3. City/Town/Community etc.

>>

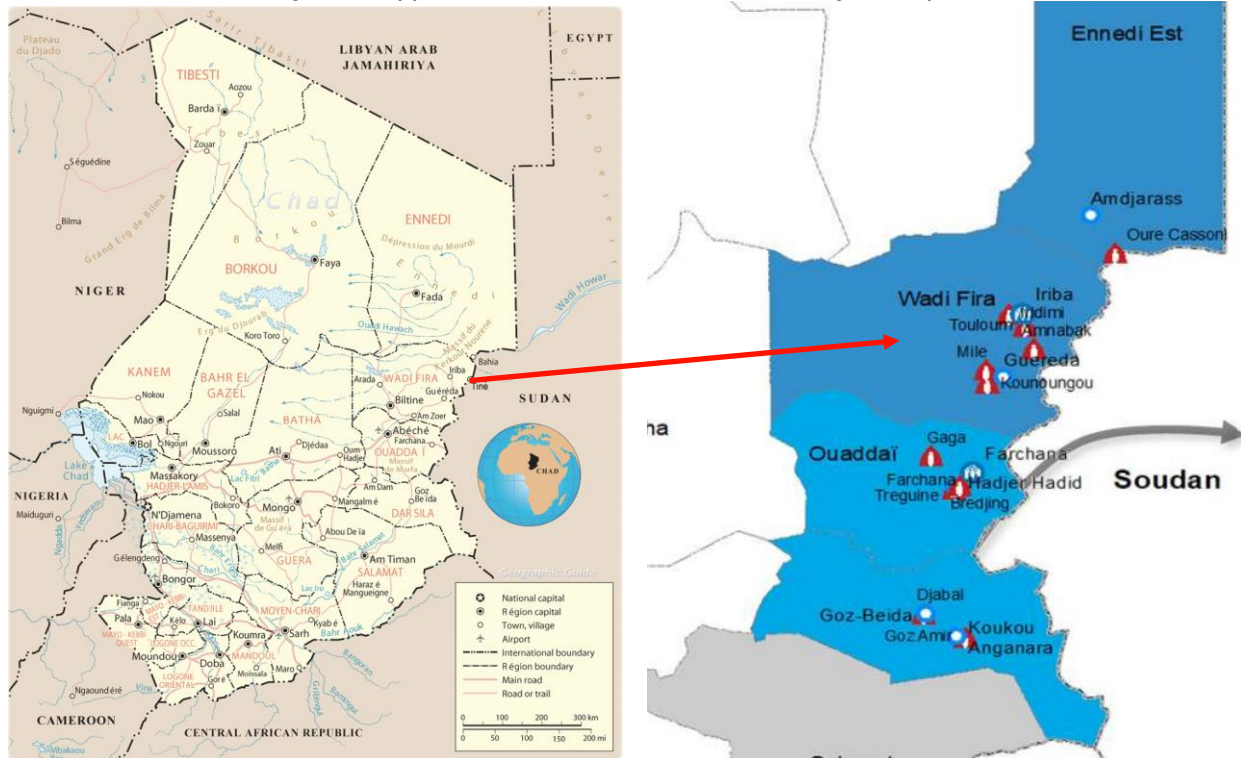
Refugee camps of the Wadi Fira region, with a focus on Iridimi and Touloum regugee camps

A.4.4. Physical/Geographical location

>> (Include information allowing the unique identification of this project.)

Its geographic coordinates are 15 08°N and 22 05°E. The approximate location is denoted in figure below.

Figure 2: Approximate location of the Iridimi refugee camp in Chad



A.5. Technologies and/or measures

>> (Describe the technologies and measures to be employed and/or implemented by the project, including a list of the facilities, systems and equipment that will be installed and/or modified by the project. Include information essential to understand the purpose of the project and how it will contribute positively to three SDGs.)

The technology implemented under this VPA covers solar cookers that use solar energy to replace the use of woody biomass for cooking in Chad. The solar cookers are distributed with black pots, with each family receiving at least two cookers and two pots. This is sufficient to cook both the staple (e.g. maize meal, sorghum, rice) and a sauce.

The solar cookers are manufactured by the local communities themselves following training. They are made of cardboard that is cut to a fixed size using a template. A layer of aluminium foil is glued to the cardboard and the edges secured with industrial tape to prevent fraying. Holes are punched through both layers and secured with metal rings to further secure the solar cookers against movement by wind. A thin rope is fed through these holes and tied to a fixed length. Finally, the backside of the cardboard is sprayed with a water-proofing agent to increase the robustness of the structure. Other models may be included in the future.

Figure 3: Women cooking with solar cookers



Figure 4: Solar cooker in use



The solar cookers have an average lifetime of around 24 months, if the user uses and maintains the cooker as per the training received. However, this could be extended further if the quality of the solar cookers is improved in the future.

Old solar cookers and snippets from manufacture are re-used as insulating material in 'gouffas', which are insulated baskets that keep food warm enough to be served for a later meal if needed. The gouffas are made of a hand-woven outer basket, or the empty 50 kg bags in which the food arrives in the camps, that is lined with the folded recycled solar cookers and secured in place by sewing a lining inside the gouffa. Each gouffa is large enough to hold one pot and can keep food warm for up to 4-6 hours.

Besides reducing emissions in line with the UN's Sustainable Development Goal (SDG) #13, this programme intends to provide long-term social, economic and environmental benefits to the beneficiaries and local communities. This VPA contributes to SDG 1 (No poverty) by providing a better access to economic good and service through the distribution and use of devices using renewable solar thermal energy that help save beneficiaries money otherwise spent on firewood; SDG 3 (Good health and well-being) by enabling households members in charge of cooking, mostly women, to cooking without inhaling harmful particles and suffering from lung and eye problems by offering a technology not leading to any hazardous air pollution; and SDG 7 (Affordable and Clean Energy) by providing a technology powered by a renewable source of energy.

A.6. Scale of the project

>> (Define whether project is micro scale, small scale or others. Justify the scale referring to relevant activity requirement.)

The project is a micro-scale. This VPA is not expected to reduce more than 10,000 tCO₂e per year.

A.7. Funding sources of project

>> (Provide the public and private funding sources for the project. Confidential information need not be provided.)

The project is fully funded on the expected sale of carbon offsets by corporates and organisations looking for premium VERs on the voluntary carbon markets.

SECTION B. Application of selected approved Gold Standard methodology

B.1. Reference of approved methodology

>>

The applicable methodology is The Gold Standard Simplified Methodology for Efficient Cookstoves v1.1 (April 2020).

B.2. Applicability of methodology

>> (Justify the choice of the selected methodology(ies) by demonstrating that the project meets each applicability condition of the applied methodology(ies))

The applicability of the methodology is justified in Table 2 below. The introductory paragraph of the methodology states that the methodology is “applicable to micro-scale programmes and micro-scale activities that introduce new wood burning cookstoves to reduce the use of non-renewable firewood or switch from non-renewable to renewable firewood to meet thermal energy requirements of household cooking”. Whilst this is a solar cooking PoA/VPA, it therefore does not introduce new wood burning stoves. Instead, since it completely displaces the use of biomass, the Gold Standard confirmed that the methodology was applicable to this PoA/VPA at the time of the PoA/VPA registration / design certification.

Table 2: Justification of applicability of ‘Simplified Methodology for Efficient Cookstoves’

Methodology applicability requirement	Justification
<p>1) This methodology is applicable if:</p> <ul style="list-style-type: none"> • The baseline fuel is only firewood; and • The baseline stove is a three-stone fire, or a conventional device without a grate or a chimney i.e. with no improved combustion air supply or flue gas ventilation; and • The project stove is a single pot or multi-pot portable or an in-situ cookstove with a specified efficiency of at 	<ul style="list-style-type: none"> • Only households that used firewood as their baseline fuel shall be included in this VPA. • The baseline stoves are either a three-stone fire or a Banco, which is a conventional device without a grate or chimney. The Banco is a raised bundt-shaped ring of mud around a fire. UNHCR has also, in some cases, distributed an efficient cookstove, the Save 80. Emission reductions achieved shall be adjusted to account for the improved efficiency of the Save 80 stove via a weighted average of the stove efficiencies. • The solar cooker is a single pot portable cookstove with an efficiency of 100%

<p>least 20%.</p>	<p>due to the complete displacement of the use of woody biomass.</p>
<p>2) The project boundary can be clearly identified, and the cookstoves counted in the proposed project activity are not included in any other voluntary market or CDM project activity (i.e. no double counting takes place). The project proponent must have a mechanism in place together with the appropriate mitigation measures to prevent double counting.</p>	<p>The project boundary is the Republic of Chad. The location of all solar cookers is recorded in the Procurement Record and only those with an address within Chad will be included in the Programme.</p> <p>A procedure is in place to avoid double counting (see Section C).</p>
<p>3) The project proponent must clearly communicate if the entity is claiming the ownership rights to sell the emission reductions resulting from the project activity. This must be communicated to the cookstoves producers, retailers and end users by contract or clear written assertions in the transaction paperwork.</p>	<p>End-users are informed that they are participating in a carbon project, which is acknowledged in the Procurement Record at sale of a solar cooker. The terms of the Procurement Record shall be read out to the end-user (many of whom are illiterate) and the Procurement Record signed (or thumb printed) confirming agreement with the above.</p> <p>The contracts of all contracted entities, be these cookstove producers or retailers, will state the involvement of their activities as part of a PoA.</p>
<p>4) The use of the baseline cookstove, as a backup or auxiliary technology, in parallel with the improved cookstove introduced by the project activity is permitted as long as a mechanism is put in place to encourage the removal of the old cookstove (e.g. a discounted price for the improved cookstove) and there is a definitive discontinuity of its use. The project documentation must provide a clear description of the approach chosen and the monitoring plan must provide a good understanding of the extent to which the baseline technology (whether the existing baseline cookstove is not surrendered at the time of the introduction of the improved technology, or whether a new baseline cookstove is acquired and put to use by targeted end users during the project crediting period). The success of the mechanism put in place must therefore be monitored, and the approach must be adjusted if proven unsuccessful. If the baseline cookstove remains in use in parallel with the project cookstove, corresponding emissions must be accounted for as part of the project emissions, using the guidance given in Section III.</p>	<p>Since cooking on a solar cooker takes a number of hours, it is not feasible to expect users to completely relinquish use of their baseline stove, which must be retained to cook their breakfast meal. However, continued use of the solar cooker is encouraged through providing a discounted price on the replacement solar cooker.</p> <p>Emissions from the use of the baseline cookstove during the project are accounted for as part of the project emissions. The method for determining this is described in the monitoring section.</p>

B.3. Project boundary

>> (Present a flow diagram of the project boundary, physically delineating the project, based on the description provided in section A.5 above.)

For the purpose of GHG mitigation/sequestration, the following table is completed.

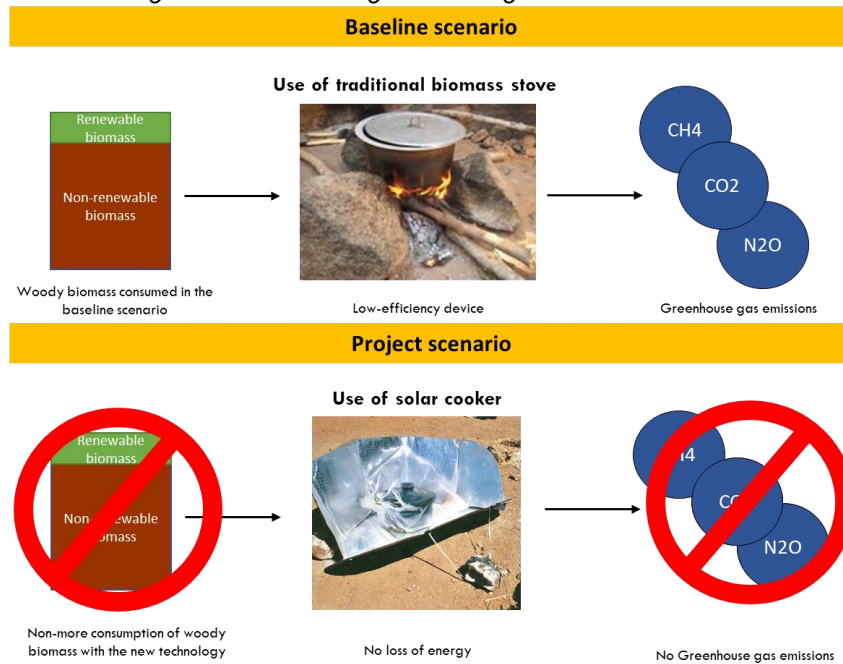
Table 3: Sources of greenhouse gas emission considered

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Combustion of woody biomass	CO ₂	Yes	Important source of emissions
		CH ₄	Yes	Important source of emissions (non-CO ₂ emission factor for firewood included in methodology)
		N ₂ O	Yes	Important source of emissions (non-CO ₂ emission factor for firewood included in methodology)
Project scenario	Combustion of woody biomass	CO ₂	Yes	Important source of emissions
		CH ₄	Yes	Important source of emissions (non-CO ₂ emission factor for firewood included in methodology)
		N ₂ O	Yes	Important source of emissions (non-CO ₂ emission factor for firewood included in methodology)

The project boundary of the VPA is within the geographical boundary of the Republic of Chad. The Project Database is managed by FCF and will record the address of each installed solar cooker as a way to confirm that the VPA covers only cookers located within this boundary

The flow diagram of the project boundary is presented in Figure 5 below.

Figure 5: Sources of greenhouse gas emissions considered



B.4. Establishment and description of baseline scenario

>> (Explain how the baseline scenario is established in accordance with guidelines provided in GS4GG Principles & Requirements and the selected methodology(ies). In case suppressed demand baseline is used then same should be explained and justified.)

In the baseline, households mostly use firewood for cooking. The firewood is either provided by UNHCR or fetched further and further away from the camps. In 2005, when the situation was fairly similar to what it still is, it was reported that “there had been rising tension between refugees and the local population in eastern Chad because of access to resources such as fuel wood. It was reported that refugee women are often subjected to beating or rape when they go out in search of firewood⁴”. In 2004, the situation was already described by UNHCR as “water, firewood and productive land were extremely limited. There were no alternatives to traditional

⁴ Source: UNHCR Global Appeal 2005: <https://www.unhcr.org/41ab28c20.pdf>, p.107

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sources of water. The alternatives to firewood were expensive or unsustainable or both (e.g. kerosene stoves)⁵. Although UNHCR and local NGOs had distributed firewood in the past, the humanitarian efforts are massively underfunded in Eastern Chad refugee camps⁶.

The firewood consumed by households in the baseline is considered to be mostly non-renewable and in that sense meet the requirement of the methodology. The estimated value of fNRB using country-wide aggregated data is 96%. The methodology indicates that in order to provide an estimate for fNRB, the PD "shall estimate project specific national/regional value or apply the default fNRB value provided by the CDM Executive board". Given the uncertainty regarding the source of wood (until recently, some wood was donated by the UNHCR to households inside the refugee camps for their private consumption) and the fact that eastern Chad is mostly a dry, deserted area with very little woody biomass readily accessible, no reliable recent data that is specific to the project area seem to exist. As a result, the PD chose to calculate an estimate based on country-wide data from the FAO's 2020 Forest Assessment report for Chad.. Accordingly, as per the methodology baseline scenario definition, the baseline scenario is non-renewable firewood consumption to meet thermal energy requirement for household cooking.

As per The Gold Standard Simplified Methodology for Efficient Cookstoves Version 1.1, the quantity of firewood consumed in the baseline is the estimated average annual consumption of firewood per household (tonnes/year), which may be derived using any of the following options: (i) Historical data; (ii) Survey of local usage; or (iii) Minimum service level. During the 1st Crediting Period, the project has used the minimum service level as default baseline biomass consumption i.e. 0.5 tonnes per capita per year. The average size household using solar cooker was determined to be 4.62 persons in Iridimi during the 2019 monitoring surveys. Baseline firewood consumption would amount to 2.31 tonnes per households per year. The project will use the same approach and value for the 2nd CP.

In the refugee camps, three different types of stoves are used: a three-stone fire and the Save80 (an efficient cookstove distributed by UNHCR). For both the three-stone fire, the efficiency of the baseline stove will be given a default value of 10%. The Save80 cookstove, also used by households⁷, have an efficiency of 31.12%⁸.

The situation has not changed in the camps and the baseline scenario is assumed to be the same as during the 1st crediting period. The ongoing monitoring surveys carried out in 2019, have shown that all beneficiaries are using a biomass stove in addition to their solar stoves, which illustrates what stove they would rely on if they no longer had access to the solar stoves. This survey showed that 75.8%⁹ used 3-stone fires and 24.2% used a save80 stove. This lead to a combined efficiency of 16.1%, which is in line with the 1st crediting period calculation of 17%. The slightly lower use of the save80 stoves (compared to the 28% of the 1st CP baseline) may be due to the limited acceptance of the stove by users¹⁰.

B.5. Demonstration of additionality

>> (If the proposed project is not a type of project that is deemed additional, as stated below, then follow guidelines in section 3.5.1 of GS4GG Principles & Requirements to demonstrate additionality.)

⁵ Source: UNHCR Global Report 2004: <https://www.unhcr.org/42ad4d977.pdf>, p.181. Information confirmed in a more recent report by UNHCR (dated 2014): <https://www.unhcr.org/news/makingdifference/2014/7/53c53bb26/curbing-time-consuming-dangerous-searches-firewood.html> and in a 2017 article by Reuters on the situation of refugees throughout Chad (<https://www.reuters.com/article/us-climatechange-chad-water/global-warming-ground-zero-chad-grapples-with-climate-damage-idUSKBN1DA0OE>)

⁶ Source: The New Humanitarian (2016): <http://www.thenewhumanitarian.org/feature/2016/06/09/sudanese-refugees-chad-must-adapt-or-starve>

⁷ Source: Koundji-nan Mouyo (2011) Evaluation des actions du projet « cuisine solaire » de l'ONG « TchadSolaire »

⁸ Source: Akpootu, D. O., Muhammad, S. B., Sharafa, S. B., Bala, A., Sani, F., & Ajaero, C. C. (2014). Comparative analysis on the performance of four selected fuel wood stoves using water boiling test. The International Journal of Engineering and Science, 3(9), 26-30.: https://www.researchgate.net/publication/324694858_Comparative_Analysis_on_the_Performance_of_Four_Selected_Fuel_Wood_Stoves_Using_Water_Boiling_Test. A value of 31.12% was also found for the Save80 through Controlled Cooking Tests in Muhammad, S. B., Kaisan, M. U., Cyprian, O. U., Sani, F., & Abdulkadir, M. (2014). Performance Evaluation of a Save 80 Wood Stove using Controlled Cooking Test Method. Journal of Energy, Environment & Carbon Credits, 4(2), 25-30. : https://www.researchgate.net/publication/265162194_Performance_Evaluation_of_a_Save_80_Wood_Stove_using_Controlled_Cooking_Test_Method.

⁹ 25. out of 331 respondents. See 2019 Monitoring Survey RawData

¹⁰ Source: UNHCR Save80 stove distribution in Chad <http://energycop.safefuelandenergy.org/web/energycop/projects/-/project/48928>

The table below is only applicable if the proposed project is deemed additional, as defined by the applied approved methodology or activity requirement or product requirement.

Table 4: Demonstration of additionality

<p>Specify the methodology or activity requirement or product requirement that establish deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).</p>	<ul style="list-style-type: none"> ▪ The Gold Standard Simplified Methodology for Efficient Cookstoves v1.1 (April 2020) ▪ Community services activity requirements
<p>Describe how the proposed project meets the criteria for deemed additionality.</p>	<p>There are currently no national or regional regulations requiring the implementation of solar cooking technologies in rural or urban areas of Chad, including distribution and manufacture of such technologies, and no such regulations are foreseeable. The programme is now run by FairClimateFund, who does not have any legal or other obligations to further spread the use of solar cookers. Therefore, its activities are undertaken purely voluntarily.</p> <p>As per the Principle 5 (Financial Additionality & Ongoing Financial Need) of the community services activity requirements, “projects that meet any of the following criteria are considered as deemed additional and therefore are not required to prove Financial Additionality at the time of Design Certification:</p> <ul style="list-style-type: none"> (a) Positive list (Annex B of this document) (b) Projects located in LDC, SIDS, LLDC (c) Microscale projects <p>All project activities are located within the Republic of Chad, a Land Locked Developing Country (LLDC) and a Least Developed Country (LDC) and can therefore be deemed additional with no further need for demonstration.</p> <p>All project activities are considered microscale and can therefore be deemed additional with no further need for demonstration.</p>

Furthermore, since 2013-14, the only source of funding for the project has been the expected sale of carbon offsets on the voluntary carbon markets. The project only sold its first and only significant batch of VERs (9,200) in June 2018. The previous CME used his personal savings to fund the running costs of the project since 2010-12 until these ran out. For these reasons, the previous CME saw the sale of carbon emission rights as critical to ensure the ongoing financial need (OFN) of the project from its inception. Since then, the economic model of the project has remained the same. The new CME, FairClimateFund, took over management of the project and the sale of carbon credits continues to remain critical to ensure its ongoing financial continuity in the coming years as the below demonstration shows. The project’s only source of revenue is indeed the sale of carbon credits through which the project management, material for stoves, training, awareness and all other project activities as well as the carbon certification and monitoring costs are paid for.

In order to further demonstrate OFN, figures from the 1st crediting period can be used as follows:

- In the 1st crediting period (01/01/2012 to 31/12/2018), the project issued a total of 52,271 credits, in other words, an average of 7,467 credits issues each year over 7 years.

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- Each credit issued was sold at an average price of 10 EUR. This is equivalent to a revenue of approximately 74,673 EUR/year.
- In parallel, as the attached project implementation annual budget (see attached excel spreadsheet) shows, implementation costs are approx. 70,000 EUR/year.
- In addition, annual certification cost is close to 7,000 EUR while carbon management cost by consultant is close to 10,000 EUR/year.

Hence, total annual running cost for the 1st crediting period was approximately 87,000 EUR (of which 80% are implementation costs; 8% certification costs and 11% carbon management costs), compared to an annual revenue from the selling of carbon credits of 74,673 EUR. The project was thus running an annual deficit of approximately 12,327 EUR in the 1st CP. This was cover by the equity of the CME at the time.

In the second CP, assuming that credits will be issued for the period running from 01/01/2019 to 14/05/2020 (documents for CP renewal were only submitted on 14/05/2020 due to difficulties faced by the project prior to this date - a separate deviation request will be submitted to the GS to request that credits be issued for this period-):

- the PD has estimated that an average of approx. 8,291 credits will be issued annually until 31/12/2025.
- VERs will be sold at a higher price point (e.g. 11 EUR). This is equivalent to 91,206 EUR of annual revenue
- Costs estimate would be the same as those described previously: total of 87,000 EUR/year.

Based on the above, the project would still be running an annual excess of approx. 4,000 Eur/year in the 2nd CP. This excess will be used to run addition revenue and pay overhead. It is hoped that the project will expand to a second refugee camp in the first or second monitoring period of the 2nd CP, thus increasing its total revenue base and allowing it to operate only on the basis of the carbon credits it issues.

At this stage however and for the foreseeable future, and as the above demonstration shows, the sale of carbon credits is material to the ongoing sustainability of the Project.

B.6. Sustainable Development Goals (SDG) outcomes

B.6.1. Relevant target for each of the three SDGs

>> (Specify the relevant SDG target for each of three SDGs addressed by the project. Refer most recent version of targets [here](#) .)

Table below presents the relevant SDG target(s) for each of the three SDGs addressed by the project.

Table 5: VPA's SDG targets

SDGs	Targets	Selected indicator	Justification
Goal 1. No poverty	<ul style="list-style-type: none"> • 1.4. By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to <u>economic resources</u>, as well as access to <u>basic services</u>, ownership and control over land and other forms of property, inheritance, natural resources, <u>appropriate new technology and financial services</u>, including micro-finance. 	<ul style="list-style-type: none"> • The solar cooking devices enable households to reduce their monthly spendings on fuel for cooking. As such, beneficiary households' monthly spendings will be monitored. The impact will be assessed through the cumulated money saving from all households using the project cookstoves in each project year 	<ul style="list-style-type: none"> • The project enables impoverished households to access better technology through cost-effective and subsidising financial mechanisms. These in essence, provide them with a better access to economic good and service. Energy access can be considered as a basic service and the project improves the quality of this access through the distribution and use of devices using renewable solar thermal energy.

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<p>SDG 3. Good health and well-being</p>	<ul style="list-style-type: none"> • 3.9. By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. 	<ul style="list-style-type: none"> • The frequency of eye and respiratory diseases within each beneficiary household will be monitored in the usage surveys • Stated decreases in eye and respiratory diseases by beneficiary household members, in particular women and girls, indicates that the project contributes to reducing the number of deaths and illnesses from hazardous chemicals and pollution in the air 	<ul style="list-style-type: none"> • The project enable households members in charge of cooking, mostly women, to cooking without inhaling harmful particles and suffering from lung and eye problems by offering a technology not leading to any hazardous air pollution.
<p>SDG 7. Affordable and Clean Energy</p>	<ul style="list-style-type: none"> • 7.1. By 2030, ensure universal access to affordable, reliable and modern energy services • 7.B. By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support 	<ul style="list-style-type: none"> • Proportion of population with primary reliance on solar cookers among beneficiary households compared to baseline scenario (total number of solar cookers distributed refugee camp) • Number of improved solar cookers distributed (sales record) 	<ul style="list-style-type: none"> • The project contributes to increasing access to an affordable, reliable and modern energy technology since solar cookers use solar energy for cooking.
<p>Goal 13. Climate Action</p>	<ul style="list-style-type: none"> • 13.B. Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities 	<ul style="list-style-type: none"> • Total project emissions reductions 	<ul style="list-style-type: none"> • The project contributes to raising capacity for effective climate change-related management by enabling a net reduction in CO₂e emissions in a least developed country and focusing on women and marginalized communities.

B.6.2. Explanation of methodological choices/approaches for estimating the SDG outcome

>> (Explain how the methodological steps in the selected methodology(ies) or proposed approach for calculating baseline and project outcomes are applied. Clearly state which equations will be used in calculating net benefit.)

SDG 1. No Poverty

SDG 1 impacts will not be certified as 'Certified Impact Statements' and therefore no specific methodologies for estimation and monitoring will be applied.

The impacts will be assessed through the cumulated money saving from all households using the project cookstoves in year y ($S_{p,y}$).

Indicator

Cumulated money saving from all households using the project cookstoves in year y ($S_{p,y}$).

$$S_{p,y} = N_p \times U_{p,y} \times S_{pi,y}$$

Where:

N_p = number of households who have received / acquired / using a solar cooker

$U_{p,y}$ = usage rate in project scenario p during year y

$S_{pi,y}$ = yearly cumulated money saving from an average representative household in year y

SDG 3. Good health and well-being

SDG 3 impacts will not be certified as 'Certified Impact Statements' and therefore no specific methodologies for estimation and monitoring will be applied.

The impacts will be assessed through the beneficiaries' perception of health benefits (frequency of respiratory- and eye-related illness).

Indicator

$$(1) RDR_{p,y} = RD_{p,y}$$

Where:

$RDR_{p,y}$ = % of beneficiary perceiving an improvement in their respiratory diseases during year y

$RD_{p,y}$ = number of households experiencing fewer respiratory diseases after adopting solar cooking during year y

$$(2) EDR_{p,y} = ED_{p,y}$$

Where:

$EDR_{p,y}$ = % of beneficiary perceiving an improvement in their eye infections during year y

$ED_{p,y}$ = number of households experiencing fewer eye infections after adopting solar cooking during year y

SDG 7. Affordable and Clean Energy

SDG 7 impacts will not be certified as 'Certified Impact Statements' and therefore no specific methodologies for estimation and monitoring will be applied.

The impacts will be assessed through the additional number of persons having access to clean technology for cooking compared to the baseline scenario (P_{access}).

Indicator

$$P_{\text{access}} = N_p \times U_{p,y}$$

Where:

- P_{access} = number of additional persons having access to clean cooking technology
- N_p = number of households who have received / acquired / using a solar cooker
- $U_{p,y}$ = usage rate in project scenario p during year y

SDG 13 (Climate Action)

The SDG 13 outcome will be quantified as CO₂e emission reductions and certified as ‘Certified SDG 13 Impact Statement’ allowing the generation of carbon credits (VERs).

For the calculations and estimation of emission reductions, the Gold Standard Simplified Methodology for Efficient Cookstoves v1.1 (April 2020) is used.

Indicator

As per the methodology the below formula was applied to determine the emission reduction values.

$$ER_y = \sum_{t=0}^{xoy} N_{p,y} * P_y * U_{p,y} * (f_{NRB,y} * EF_{b,fuel,CO_2} + EF_{b,fuel,non_CO_2}) * (1 - DF_{b,Stove,y}) \dots$$

Where:

- $N_{p,y}$ = Number of project cookstoves of each age group operational in the year y
- P_y = Quantity of firewood that is saved in the year y (tonnes per household in year y)
- $U_{p,y}$ = Usage rate for project cookstoves in year y, based on adoption rate and drop off rate revealed by usage surveys (fraction)
- $f_{NRB,b,y}$ = Fraction of non-renewable biomass, used in year y for baseline scenario.
- $EF_{b,fuel,CO_2}$ = CO₂ emission factor of firewood that is substituted or reduced.
- $EF_{b,fuel,non_CO_2}$ = Non-CO₂ emission factor of firewood that is substituted or reduced.
- $DF_{b,Stove,y}$ = Usage of baseline cookstove during the year y (fraction) in project scenario
- x = $y - 1$
- y = Year of the crediting period

with quantity of fire wood that is saved (P_y) estimated as follows: $P_y = B_{b,y} * (1 - \eta_b / \eta_{p,y})$

Where:

- $B_{b,y}$ = Quantity of firewood consumed in baseline scenario during year y (tonnes per household per year)
- $\eta_{p,y}$ = Efficiency of project cookstove in year y (fraction)
- η_b = Efficiency of the baseline cookstove being replaced (fraction). A default value of 10% shall be used if the replaced cookstove is a three stone fire, or a conventional device without a grate or a chimney i.e., with no improved combustion air supply or flue gas ventilation

B.6.3. Data and parameters fixed ex ante for monitoring contribution to each of the three SDGs

(Include a compilation of information on the data and parameters that are not monitored during the crediting period but are determined before the design certification and remain fixed throughout the crediting period like IPCC defaults and other methodology defaults. Copy this table for each piece of data and parameter.)

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter	$EF_{b,fuel,CO_2}$
Unit	tCO ₂ /tonne of firewood
Description	CO ₂ emission factor arising from use of firewood in baseline scenario

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Source of data	Section 4 of The Gold Standard Simplified Methodology for Efficient Cookstoves
Value(s) applied	1.747
Choice of data or Measurement methods and procedures	Factor recommended by the methodology.
Purpose of data	Deriving the greenhouse gas emissions released by non-renewable biomass saved.
Additional comment	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter	$EF_{b,fuel,non-CO2}$
Unit	tCO ₂ /tonne of firewood
Description	Non-CO ₂ emission factor arising from use of firewood in baseline scenario
Source of data	Section 4 of The Gold Standard Simplified Methodology for Efficient Cookstoves
Value(s) applied	0.53
Choice of data or Measurement methods and procedures	Factor recommended by the methodology.
Purpose of data	Deriving the greenhouse gas emissions released by non-renewable biomass saved.
Additional comment	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter	η_p
Unit	Fraction
Description	Efficiency of the cookstove being used in the project scenario
Source of data	The cookers do not use fuel per say and so has no loss of energy being used.
Value(s) applied	100%
Choice of data or Measurement methods and procedures	-
Purpose of data	Feeding the calculation for quantity of firewood that is saved in year y.
Additional comment	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter	fNRB
Unit	Fraction
Description	Fraction of non-renewable biomass
Source of data	Values from the FAO 2020 Chad Forest Assessment Report. http://www.fao.org/3/cb0151fr/cb0151fr.pdf
Value(s) applied	96%
Choice of data or Measurement methods and procedures	Estimate calculated on the basis of country-wide aggregated data from the FAO, 2020.

Purpose of data	Considering only the non-renewable portion of biomass as subject to emission reductions.
Additional comment	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter	$B_{b,y}$
Unit	tonnes firewood per household per year
Description	Firewood consumption for cooking in baseline
Source of data	Derived from the minimum service level (MSL) or KPT
Value(s) applied	MSL: 0.5 tonnes per capita per year (MSL method)
Choice of data or Measurement methods and procedures	For MSL, the household size is assessed during the usage survey carried out on a yearly basis: Option (c) of the methodology for the Quantity of firewood consumed in the baseline scenario.
Purpose of data	Feeding the calculation for quantity of firewood that is saved in year y .
Additional comment	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter	L_y
Unit	Fraction
Description	Leakage adjustment factor period y
Source of data	Default value
Value(s) applied	0.95
Choice of data or Measurement methods and procedures	According to GS Simplified methodology leakage related to NRB saved by project activity is not considered for micro-scale project activities. However, for micro-scale PoA the net emission reductions shall be discounted by a factor of 0.95 to account for leakages related to non-renewable biomass saved by the project activity.
Purpose of data	Taking into account leakages related to non-renewable biomass saved by the project activity.
Additional comment	-

B.6.4. Ex ante estimation of outcomes linked to each of the three SDGs

>> (Provide a transparent ex ante calculation of baseline and project outcomes (or, where applicable, direct calculation of net benefit) during the crediting period, applying all relevant equations provided in the selected methodology(ies) or as per proposed approach. For data or parameters available before design certification, use values contained in the table in section B.6.3 above. For data/parameters not available before design certification and monitored during the crediting period, use estimates contained in the table in section B.7.1 below)

The exact number of households in camps are not known. However, in March 2019, there were 20,800 people in Iridimi and 25,831 people in Touloum.

For the ex-ante estimation, and based on the assumption that the average household size is 4.62 persons¹¹:

- Iridimi population: 4,502 households
- Touloum population: 5,591 households

Based on the following:

- The ex-ante estimation for the 1st crediting period was 2.66 tCO₂e per household per year

¹¹ Monitoring survey carried in 2019

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- The 1st monitoring period (4.5 years) presented an average emission reduction of 2.56¹² tCO₂e per household per year
- The 2nd monitoring period (2.5 years) presented an average emission reduction of 1.01¹³ tCO₂e per household per year

The assumption is made that average emission reduction will be around 2¹⁴ tCO₂e per household per year for the second crediting period. Around 5,000 households will be target within this VPA.

Based on the following:

- The 1st monitoring period (4.5 years) presented a usage rate of 99.7%
- The 2nd monitoring period (2.5 years) presented a usage rate of 79.6%

The assumption is made that average usage rate will be around 89.4%¹⁵ for the second crediting period.

SDG 1. No Poverty

The impacts are assessed through the cumulated money saving from all households using the project cookstoves in year y ($S_{p,y}$).

$$S_{p,y} = N_p \times U_{p,y} \times S_{pi,y}$$

Where:

- N_p = number of households who have received / acquired / using a solar cooker
- $U_{p,y}$ = usage rate in project scenario p during year y
- $S_{pi,y}$ = yearly cumulated money saving from an average representative household in year y

The below calculation is presented for illustration:

$$\begin{aligned} N_{p,2021} &= 5,000 \\ U_{p,2021} &= 89,4\% \\ S_{pi,2021} &= 62,612 \text{ XOF (CFA Francs)} \end{aligned}$$

$S_{p,y}$ amounts to around 279,875,586 XOF (419,813 EUR) in total or 84 EUR per household per year.

SDG 3. Good health and well-being

The impacts are assessed through the beneficiaries' perception of health benefits (frequency of respiratory- and eye-related illness).

$$(1) RDR_{p,y} = RD_{p,y}$$

Where:

- $RDR_{p,y}$ = % of beneficiary perceiving an improvement in their respiratory diseases during year y
- $RD_{p,y}$ = number of households experiencing fewer respiratory diseases after adopting solar cooking during year y

$$(2) EDR_{p,y} = ED_{p,y}$$

Where:

- $EDR_{p,y}$ = % of beneficiary perceiving an improvement in their eye infections during year y
- $ED_{p,y}$ = number of households experiencing fewer eye infections after adopting solar cooking during year y

¹² 40,596 tCO₂e avoided over 4.5 years for 3,512 beneficiaries

¹³ 11,676 tCO₂e avoided over 2.5 years for 4,643 beneficiaries

¹⁴ Weighted average of 2.56 tCO₂e over 4.5 years and 1.01 tCO₂e over 2.5 years lead to 2.01 tCO₂e

¹⁵ Weighted average of 99.7% over 4.5 years (1st MP) and 70.8% over 2.5 years (2nd MP) leading to 89.4%

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The below calculation is presented for illustration:

$$RD_{p,y} = 99.7\%$$

RDR_{p,y} would amount to around 99.7% of beneficiaries

$$ED_{p,y} = 99.7\%$$

EDR_{p,y} would amount to around 99.7% of beneficiaries

SDG 7. Affordable and Clean Energy

The impacts will be assessed through the additional number of persons having access to clean technology for cooking compared to the baseline scenario (P_{access}).

$$P_{access} = N_p \times U_{p,y}$$

Where:

P_{access} = number of additional persons having access to clean cooking technology

N_p = number of households who have received / acquired / using a solar cooker

$U_{p,y}$ = usage rate in project scenario p during year y

The below calculation is presented for illustration:

$$N_{p,2021} = 5,000$$

$$U_{p,2021} = 89.4\%$$

$$P_{access,2020} = 4,470$$

P_{access} amounts to 4,470 beneficiary households.

SDG 13 (Climate Action)

Emission from the project are considered to be 0 tCO₂e

B.6.5. Summary of ex ante estimates of each SDG outcome

The tables below list the estimation of SDG impacts over the coming crediting period.

Table 6: ex-ante SDG 1 estimates

Year	Baseline estimate	Project estimate	Net benefit
01/01/2019-31/12/2019	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
01/01/2020-31/12/2020	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
01/01/2021-31/12/2021	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
01/01/2022-31/12/2022	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
01/01/2023-31/12/2023	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
01/01/2024-31/12/2024	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
01/01/2025-31/12/2025	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
Total	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
Total number of crediting years	7 years		

Annual average over the crediting period	0 SDG	279,875,586 XOF or 84 EUR per household	279,875,586 XOF or 84 EUR per household
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Table 7: ex-ante SDG 3 estimates

Year	Baseline estimate	Project estimate	Net benefit
01/01/2019-31/12/2019	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
01/01/2020-31/12/2020	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
01/01/2021-31/12/2021	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
01/01/2022-31/12/2022	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
01/01/2023-31/12/2023	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
01/01/2024-31/12/2024	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
01/01/2025-31/12/2025	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
Total	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%
Total number of crediting years	7 years		
Annual average over the crediting period	RD _{p,y} = 0% ED _{p,y} = 0%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%	RD _{p,y} = 99.7% ED _{p,y} = 99.7%

Table 8: ex-ante SDG 7 estimates

Year	Baseline estimate	Project estimate	Net benefit
01/01/2019-31/12/2019	0	4,470	4,470
01/01/2020-31/12/2020	0	4,470	4,470
01/01/2021-31/12/2021	0	4,470	4,470
01/01/2022-31/12/2022	0	4,470	4,470
01/01/2023-31/12/2023	0	4,470	4,470
01/01/2024-31/12/2024	0	4,470	4,470
01/01/2025-31/12/2025	0	4,470	4,470
Total	0	4,470	4,470
Total number of crediting years	7 years		
Annual average over the crediting period	0	4,470	4,470

Table 9: ex-ante SDG 13 estimates

Year	Baseline estimate	Project estimate	Net benefit
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01/01/2019-31/12/2019	4,547	0	4,547
01/01/2020-31/12/2020	5,968	0	5,968
01/01/2021-31/12/2021	7,525	0	7,525
01/01/2022-31/12/2022	10,000	0	10,000
01/01/2023-31/12/2023	10,000	0	10,000
01/01/2024-31/12/2024	10,000	0	10,000
01/01/2025-31/12/2025	10,000	0	10,000
Total	58,040	0	58,040
Total number of crediting years	7 years		
Annual average over the crediting period	8,291		8,291

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

(Include specific information on how the data and parameters that need to be monitored in the selected methodology(ies) or proposed approaches or as per mitigation measures from safeguarding principles assessment or as per feedback from stakeholder consultations would actually be collected during monitoring. Copy this table for each piece of data and parameter.)

Data and Parameters monitored over the crediting period:

Data/parameter	η_b
Data Unit	Fraction
Description	Efficiency of the cookstove being used in the baseline scenario
Source of data	For the efficiency: methodology default value for three-stone fires & stove tests for Save 80 ¹⁶ . For proportion of each stoves used: usage/monitoring surveys. Portion of stove times in use from Koundji-nan Mouya (2011) ¹⁷ .
Monitoring Frequency	Annual
QA/QC procedures:	Transparent data analysis and reporting.

¹⁶ Source: Comparative Analysis on the Performance of Four Selected Fuel Wood Stoves Using Water Boiling Tests: https://www.researchgate.net/publication/324694858_Comparative_Analysis_on_the_Performance_of_Four_Selected_Fuel_Wood_Stoves_Using_Water_Boiling_Test

¹⁷ Source: 23. Koundji-nan Mouyo (2011) Evaluation des actions du project ENLGISH. Pg 34

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Any comment:	<p>According to a study carried out in two camps in 2011, 28% of households surveyed used the improved Save80 stove as their main stove for cooking. The remaining 72% of households used either a three-stone fire or a 'Banco', which is a raised mud platform lacking a grate or chimney.</p> <p>The usage / monitoring survey carried out in December 2019 revealed that 24.2% of households used their Save80 and 75.8% a 3-stone aside their solar cookers. It is a legitimate assumption to make that without their solar stoves they would simply use their firewood stove. These figures are close the 2011 figures.</p> <p>During procurement of the solar cooker, households are asked what the main cookstove they used before receiving the solar cooker was. This is recorded as part of the Procurement Record and entered into the Project Database. Their biomass stove they use will also be recorded as part of the ongoing monitoring surveys.</p> <p>The weighted average of these results within each VPA will be used to determine the weighted average efficiency of the baseline stove, assuming a 10% efficiency for a 3-stone fire/Banco (methodology default) and a 31.12% efficiency for the Save80¹⁸.</p> <p>Tentative value: $(0.28 \times 0.3112) + (0.72 \times 0.10) = 15.91\%$</p>
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Data / Parameter	$U_{p,y}$
Data Unit	Percentage
Description	Usage rate in project scenario p during year y
Source of data	Annual usage survey/Monitoring survey
Monitoring frequency	Annual
QA/QC procedures	<p>Transparent data analysis and reporting:</p> <p>Gathered data is cross-checked with sales record for user identification and stove installation date. During the ongoing monitoring studies, qualitative checks on the physical condition of stoves are performed to cross-check with information provided by the user and potentially flag premature stove failure. All information gathered and analysed by a local independent consultant and Hamerkop Climate Impacts (carbon consultant).</p>
Any comment	<p>A usage parameter is derived for each age group of project cookstove being credited.</p> <p>Tentative value: 89.4%</p>

Data / Parameter	$N_{p,y}$
Data Unit	Number of project cookstoves credited (units)
Description	Cookstove in the project database for project scenario p through year y
Source of data	Total sales records
Monitoring frequency	Continuous
QA/QC procedures	Transparent data analysis and reporting.
Additional comment	<p>The total sales record is divided based on project scenario to create the project database</p> <p>Tentative value: 5,000</p>

¹⁸ Source: Comparative Analysis on the Performance of Four Selected Fuel Wood Stoves Using Water Boiling Tests: https://www.researchgate.net/publication/324694858_Comparative_Analysis_on_the_Performance_of_Four_Selected_Fuel_Wood_Stoves_Using_Water_Boiling_Test

Relevant SDG Indicator/Safeguarding Principle	SDG 13
Data / Parameter	DF_{η}
Data Unit	Fraction
Description	Discount factor to account for efficiency loss of project cookstoves
Source of data	Default value: 0.99 i.e., 1% efficiency loss per year
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Additional comment	<p>This default can be used if stoves are found in good condition during annual surveys. For each year, the stoves of the age-group x-y should be physically verified. In the case of progressive installations, stove of age- group 0-1 shall also be shall be physically verified each year through random sampling approach. Please follow the survey format B to capture the required information. Minimum number of sample size shall be selected following the guidelines provided in section 4.2, option b.</p> <p>During annual surveys if it is found that the project cookstoves are not in working conditions, proportionate population of project cookstoves should be excluded from the project database, until these cookstoves are not replaced with new cookstoves. A site visit by an Objective Observer with relevant technical background would be required at the time of first internal verification and then subsequently after every 2 years from the previous issuance.</p> <p>Solar cookers' efficiency is considered as 100% with no loss of efficiency</p>

Data/parameter	$DF_{b, stove, y}$
Unit	Fraction
Description	Discount factor to account for the baseline stove use in project scenario p during the year y
Source of data	Monitoring surveys
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Additional comment	<p>“ The discount factor for baseline-stove use may be determined based on number of meals cooked using baseline stove. The required information shall be captured through sample surveys carried out following random sampling approach for each age-group of the project stove. Minimum number of sample size shall be selected following the guidelines provided in section 4.2, option b. Please refer to the survey format B, Annex A for sample questions to capture this information.”</p> <p>Here data is calculated. Average number of daily meals cooked with the baseline stove / Average number of daily meals cooked. Weighted average of 32.1% during the 1st CP (4.5 years) and 61.2% during the 2nd CP (2.5 years) Tentative value: 42.5%</p>

Data / Parameter	$S_{p, y}$
Data Unit	CFA francs / year
Description	Cumulated saving from an average household using the project cookstoves in year y
Source of data	Monitoring surveys
Monitoring frequency	Annual

QA/QC procedures	Transparent data analysis and reporting
Additional comment	Data calculated: $S_{p,y} = N_p \times U_{p,y} \times S_{pi,y}$ Where: N_p = number of households who have received / acquired / using a solar cooker $U_{p,y}$ = usage rate in project scenario p during year y $S_{pi,y}$ = yearly cumulated money saving from an average representative household in year y Tentative value: 279,875,596 XOF in total or 84 EUR per household

Data / Parameter	$RD_{p,y}$
Data Unit	ration
Source of data	Monitoring surveys
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Additional comment	Portion of households experiencing fewer respiratory diseases after adopting solar cooking during year y Tentative value: 99.7%

Data / Parameter	$ED_{p,y}$
Data Unit	ration
Source of data	Monitoring Surveys
Monitoring frequency	Annual
QA/QC procedures	Transparent data analysis and reporting
Additional comment	Portion of households experiencing fewer eye infections after adopting solar cooking during year y Tentative value: 99.7%

B.7.2. Sampling plan

>> (If data and parameters monitored in section B.7.1 above are to be determined by a sampling approach, provide a description of the sampling plan.)

The sampling mostly applies to the Ongoing Monitoring Studies.

The objective of the sampling effort is to meet the monitoring requirements of the Gold Standard methodology 'Simplified Methodology for Efficient Cookstoves' applied to this programme for the calculation of monitored parameters. Following the methodology requirement, a simple random sampling approach is to be carried out and minimum sample size are to be determined as per the guidelines below:

- Project target population < 300: Minimum sample size 30
- Project target population 300 to 1000: Minimum sample size 10% of group size
- Project target population > 1000 Minimum sample size 100

For the OMS, for which a survey is being carried out, a randomly selected interviewees list is to be created for each cookstove's age group. For this purpose, the Sales Records is to be used and stove age is to be calculated to form groups. Year age is to be rounded up and the RANDOM function in excel is to be used for each year (generate random numbers).

Oversampling is to be carried out to ensure the statistical quality of the sample interviewed, but also to cope with surveys featuring a lack of data, outliers and incoherent results. This will also enable to cope for situation where targeted households are not at home when the enumerators come to interview them.

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All sampling efforts will be conducted by qualified personnel who have undergone training as part of the programme. This training will cover information on the project background, as well as the data collection process, including the format in which data should be collected.

B.7.3. Other elements of monitoring plan

>>

In line with the methodology, the monitoring activities involve data collection during distribution as well as post-implementation usage information. These consist mostly in keeping track of sales, maintaining the project database and running annual monitoring surveys.

Maintenance of the Sales Record

Information on the households is provided by the solar cooker trainers (a member of CoBFoCuS or a non-affiliated trained trainer) who fill out the procurement record with the beneficiary households. A member of the Project team then enters the data in an Excel datasheet, carrying out checks.

The main goal of the Sale Records (aka list of beneficiaries) is to keep track of the equipment distributed and assess the use of equipment and the benefits associated with them.

The 'list of beneficiaries' or Sales Records contains the information listed in table below:

- VPA number
- Date of the procurement record
- Name, company, contact details of the officer (trainer) completing the procurement record.
- Name of the end-user
- Address of the end-user (in as much detail as possible)
- Mobile phone number/landline of the user (if available)
- WFP Food distribution number
- Type of solar cookers distributed
- Primary baseline cookstove used (3-stone/Banco/Save 80/other)
- Confirmation that the user has received training on how to use the solar cooker

The sales records are compiled in the Project database.

The sales records are to be updated monthly or more often, when a solar cooker get distributed or replaced.

Project database

The project database is derived from the total sales record with project cookstoves differentiated by different project scenarios. The project database is updated before each verification to provide a calculation of emission reductions generated by the Project during the monitoring period.

The Project Database will be backed up once a month to reduce the risk of losing user details. A cross-check of data will also be carried out once per month, including a check for any double entries and a check for any errors in transfer of data from the hard copies of Procurement Records into the database. The person responsible for entering the data will be different from the person responsible for carrying out checks on the project database. Hard copies of all Procurement Records will be kept for a period of two years after the end of the crediting period and will be stored in chronological order by date and VPA number.

Ongoing Monitoring Studies

The main goal of the Ongoing Monitoring Studies (OMS) is to capture the use and benefits associated with the purchase of fuel-efficient stoves by the households and assesses the number of stoves that are still under use over the time.

Households are selected from the Project Database / Sales Records according to the age of their solar cookers (the last year when their solar cookers were repaired or replaced).

They are then regrouped on this basis. A random selection is then done for each age group using the RANDOM function in excel. Prior to this step, the Project Database is audited to remove duplicates and beneficiaries who left the camp since the previous monitoring survey. The RANDOM function is used to return random numbers for each household in each age group. These numbers are then ordered from the lowest to the highest number. The sample for each age group is then selected based on this order.

Questionnaires are updated, if necessary, on the basis of the previous OMS and submitted by local enumerators, helped by a team of local assistants, translators and drivers. 100% of the surveys are carried out face-to-face by them.

As per the methodology, *“Monitoring shall consist of checking of a representative sample, once every year (annually) to ensure that project cookstoves are still operating by carrying out the usage survey as per the guidelines below: A usage survey must be conducted to estimate the drop off rates as project cookstove may not be adopted or may be disposed of and potentially replaced by a baseline stove again. Prior to the verification, a usage survey for each cookstove age-group is required. For example, if only cookstoves in the first year of use (age0-1) are being credited, a usage parameter must be established for age- group 0-1, through a usage survey for cookstove age 0-1. If cookstoves of age 0-1 and age 1-2 are being credited (as part of first request for issuance), usage parameter must be established for age-group 0-1 and 1-2, respectively through usage survey. If cookstoves of age-group 0-1 and age-group 1-2 are being credited (as part of second request for issuance), usage parameter must be established for age- group 1-2 only through usage survey as the usage rate for cookstoves of age group 0-1 can be applied from the previous issuance.”*

The OMS is to be carried out on an annual basis.

DATA PROCESSING AND ARCHIVING

The data is to be collected through paper questionnaires. The relevant information required in the monitoring and computation of emission reduction contained in these forms is then transcribed into an electronic format (i.e. Excel). Then, data is analysed.

The CME reserves the right to change the data collection method to electronic, whenever this will be deemed feasible and appropriate.

All the paper questionnaires are to be kept in Chad and scanned upon request by the Gold Standard.

SECTION C. Duration and crediting period

C.1. Duration of project

C.1.1. Start date of project

>> *(Specify start date of the project, in the format of DD/MM/YYYY. Describe how this date has been determined as per the definition of start date provided in section 3.4.3 of GS4GG Principles & Requirements document and provide evidence to support this date.)*

01/01/2012. The date that the project was listed with the Gold Standard under Project ID GS 3445.

C.1.2. Expected operational lifetime of project

>> *(Specify in years)*

21 years

C.2. Crediting period of project

C.2.1. Start date of crediting period

>> (Specify in dd/mm/yyyy. This can be start of project operation or two years prior to the date of Project Design Certification, whichever is later.)

1st CP: 01/01/2012

2nd CP: 01/01/2019

C.2.2. Total length of crediting period

>> (Specify the total length of crediting period sought in line with GS4GG Principles & Requirements or relevant activity requirements.)

7 years

SECTION D. Safeguarding principles assessment

D.1. Analysis of social, economic and environmental impacts

>> (Refer the GS4GG Safeguarding Principles and Requirements document for detailed guidance on carrying out this assessment.)

The safeguard principles assessment is done at PoA level

The safeguard principles assessment is done at VPA level

There are three reasons that explain the safeguarding principles assessment is performed at the PoA level instead of the project activity level:

- *Identical geographical boundary:* each VPA under the programme will include solar cookers which are implemented anywhere within the national boundaries of the Republic of Chad.
- *Identical technology:* all of the project activities implemented under the programme will distribution solar cookers.
- *Similar socio-economic situation:* the programme targets users that rely upon firewood for cooking and are in situation where solar cooking, saves them time and money. Most of the users and beneficiary live in difficult situations of livelihood.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from stakeholders

>> (Describe how stakeholder consultation was conducted in accordance with GS4GG Stakeholder Procedure Requirements and Guidelines.)

Local stakeholder consultations are done at VPA level, with the first consultation considered to be applicable to a group of VPAs. The consultation are applicable to all future VPAs located in refugee camps in the Republic of Chad.

An extensive group of Gold Standard Local Stakeholder Consultations (LSC) were carried out in late June 2011 in four refugee camps and the surrounding areas (Oure Cassoni, Iridimi, Touloum, Am Nabak refugee camps and Am Nabak village). Attendance by 1,077 people (979 women and 98 men) was recorded This was far and above the requirements of the Gold Standard and ensured that the views of a very wide range of stakeholders were taken into account. While the stakeholder consultations focused on the views of the refugees, one consultation took place in a Chadian Village (Am Nabak).

In addition, the interests of government officials and NGOs working in the field were taken into account, ensuring further that the interests of all parties were represented in the design of the PoA.

The agenda of the stakeholder consultation meetings is outlined below:

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- Opening of the meeting
- Explanation of the programme
- Invitation for questions or clarification
- Replies to questions
- Discussion on the role and requested participation of the stakeholders
- Invitation to express degree of support for the project
- Questions for clarification about the programme
- Blind SD exercise
- Discussion on monitoring SD
- Any other questions
- Closure of the meeting

Non-technical summary of the Programme

A non-technical summary of the Programme was shared with those stakeholders that could read. The text of the non-technical summary provided as 'Text of individual invitations' is available below. Given the fact that the authorities are fully aware of the project, which they follow closely, and were briefed verbally in good time about the proposed changes in the management of the solar cooking activities, and the fact that all communications with the real stakeholders are in Zaghawa or Arabic, there was no reason to distribute a written non-technical summary of the project. In addition, very few refugees are literate.

Invitation tracking table

Category code	Organisation (if relevant)	Name of invitee	Way of invitation	Date of invitation	Confirmation received? Y/N
B	La Ministre de l'Action Sociale	Mme Ngarmbatina Odjimbeye Soukate	Visit and letter	20.06.2011	Y: verbal
E	Gold Standard	Heba Rabie	email	16.06. 2011	N
F	WWF	Bella Roscher	email	17.06.2011	N
F	Mercy Corps	J.Ralston	email	17.06.2011	N
F	Greenpeace	Jan Beranek	email	17.06.2011	N
F	Panda	info	email	17.06.2011	N
F	Helio-Int	Laura Williamson	email	16.06.2011	N
F	Reeep.org	General info emial	email	16.06.2011	N
F	UNHCR	ResRep	visit	17.06.2011	verbal
F	All partners of UNHCR in the camps concerned	Chiefs	Verbal	various	verbal
A	Refugees in all camps	Various	Verbal	Various	Verbal
A	Residents of surrounding villages	Various	Verbal	Various	Verbal

All instances and persons involved or known to be interested in the solar cooker programme were invited.

The then minister for social action was informed not only by letter but also during an official visit. Invitations were sent to the International NGO supporters of Gold Standard (GS) and the GS Cairo Office with copy to the GS Main Office.

Local invitations were sent to those that could read French: the Prefet or Sous-Préfet (chiefs of local administration) of the region, in addition to a visit with a verbal invitation, and the representative of the Comite Nationale pour l'Accueil and Reinsertion of Refugees (CNARR), the government organisation that manages the refugee camps. Invitations are not answered in general in Chad. The written invitation for the Préfet is an act of courtesy. The Chief of CNARR or his representatives (who are also in charge of the government inputs to the camps) did attend the meetings however. In the case of Am Nabak village, a

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courtesy visit was made to the Chef de Canton. He did not require a letter. His representatives attended the meetings.

Text of individual invitations

Below, as an example, is the text of the letter to the Préfet (original letter was in French). The other letters were similar.

Agrometeorological Applications Associates
BP 102
F-01213 Ferney-Voltaire
France
Monsieur le Préfet,
Département de Ouara
Iriba

Ornex, 17 June 2011

Monsieur le Préfet,
Agrometeorological Applications Associates in France, began a training program for a number of people in your prefecture, including Chadian citizens and refugees on the manufacture, use and maintenance of solar cookers.
We approached the Gold Standard, a carbon credit organization, for this work to be recognized as eligible to receive 'carbon credits', an award which could benefit the manufacture of solar cookers and training of people.
To obtain this recognition the Gold Standard has asked us to discuss in detail this activity with people who use solar cookers. We propose to do so during the period 22-25 June 2011. The exact dates will be communicated as soon as possible.
I have the honor to inform you that you are invited to be represented at these meetings by a person of your choice.
We will visit you soon to give you more information about it.
Please accept, Monsieur le Préfet, the assurance of my highest consideration.

Derk Rijks

Text of public invitations

As explained above, there is neither a manner nor an interest to issue anything other than verbal public invitations in the semi-desert and illiterate environment where we work. This has clearly worked well due to the large turnout of refugees at all the consultations carried out.

Description of other consultation methods used

The stakeholders that will form the target group for the project were amply represented during the meetings and some of the humanitarian organisations did participate. Reactions on the substance of the proposals from persons other than the refugees, especially the government authorities, UNHCR and NGO's were solicited during personal face-to-face contacts after the meetings, after they had ample time to consider the information that they received or required.

From the latter three, there were no substantial questions on the matter, just the desire to be kept informed of the next events.

STAKEHOLDER FEEDBACK ROUND (SFR)

The SFR was initiated on 19 February 2015. The PoA-DD and VPA-DD were uploaded onto the GS Registry. All stakeholders originally invited to the local stakeholder consultation, and all NGO supporters, were invited to provide feedback in both English and French.

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Figure 6 below show the invitations letters sent to all stakeholders.

Figure 6: Stakeholder Feedback Round invitation letter (English & french)

**GOLD STANDARD STAKEHOLDER FEEDBACK ROUND
FOR THE SOLAR COOKING IN CHAD PROGRAMME OF ACTIVITIES**

Dear Sir, Madame,

Agrometeorological Applications Associates (AAA) and TchadSolaire would like to take this opportunity to invite you to participate in the Stakeholder Feedback Round of the Solar Cooking in Chad Programme. The Programme distributes solar cookers to beneficiaries, initially in and around a number of refugee camps located in Eastern Chad. It is currently being developed as a micro-scale emission reduction programme, also known as a 'Programme of Activities' to be certified under The Gold Standard¹. The first project activity to be included under this Programme of Activities is located in the Iridimi refugee camp in Eastern Chad.

As part of the carbon certification process overseen by the Gold Standard Foundation, relevant stakeholders are presented with the opportunity to provide feedback on the general programme design through two separate rounds of stakeholder consultations. The first round was a series of physical meetings, termed the Local Stakeholder Consultation. These were carried out during late June 2011 in four refugee camps (Iridimi, Touloum, Oure Cassoni, and Am Nabak Refugee Camps), in the Am Nabak village and the areas surrounding the other camps.

The second consultation is this Stakeholder Feedback Round, which happens through outreach by email or phone. The purpose of this Stakeholder Feedback Round is to share with you, a stakeholder or associated party, the final documentation and project design of the Solar Cooking in Chad Programme, present how your comments have been incorporated, and allow you to further express any outstanding concerns or suggestions that you may have about the programme.

AAA and TchadSolaire would hereby like to share with you the following documentation for your perusal:

- The revised Project Design Documentation for the Programme overall (termed the PoA-DD)
- The revised Project Design Document for the first Project Activity (termed the VPA-DD);
- The Programme of Activities Design Consultation Report, which reports on the outcomes of the design consultation.

The documents can be accessed online here: <http://bit.ly/19rZeoF>

You are especially encouraged to take a look at VPA-DD, Sections C 'Stakeholders Comments', Section C.2 'Assessment of the comments received' and Section C.4 'Report on the Continuous input mechanism', which describes how future comments about the programme will be handled.

If you prefer to receive electronic copies of these files through email as an attachment, please do let us know. This consultation round is open for a period of two months, meaning that we will await your feedback until 20 April 2015.

We appreciate your valued feedback. Please do call or email us in case you have any further questions on this Feedback Round (see details below). As we continue to work in the camp areas, replies may not always be immediate, owing to a lack of internet access.

Sincerely,

Derk Rijks
Email: riks_agrometeo@wanadoo.fr
Phone: 00 33 6 85 70 61 88

¹ For more information about The Gold Standard, please visit <http://www.goldstandard.org/>

**GOLD STANDARD RONDE DE RETROACTIONS DES INTERVENANTS
POUR LE PROGRAMME DES ACTIVITÉS - CUISSON SOLAIRE AU TCHAD**

Chère Madame, Cher Monsieur,

Agrometeorological Applications Associates (AAA) et TchadSolaire aimeraient vous inviter à participer à la Ronde des Rétroactions des Intervenants du programme « La cuisine solaire au Tchad ». Le programme distribue des cuisers solaires aux bénéficiaires dans et autour d'un certain nombre de camps de réfugiés situés dans l'est du Tchad. En ce moment le programme est en phase de développement comme d'un programme de réduction des émissions de gaz carbonique à micro-échelle, également connu comme « Programme des Activités », et en cours de certification par la Fondation Gold Standard¹. La première activité de projet à être inclus dans ce Programme des Activités, est située dans le camp de réfugiés d'Iridimi dans l'est du Tchad.

Dans le cadre du processus de certification de réduction d'émission de gaz carbonique, supervisé par la Fondation Gold Standard, les parties prenantes ont la possibilité de fournir une rétroaction sur la conception du programme général en deux tours distincts de consultations des parties prenantes. Le premier tour est une réunion physique, appelé la consultation des intervenants locales. Celles-ci ont été réalisées en Juin 2011 dans quatre camps de réfugiés et dans les zones environnantes (OureCassoni, Iridimi, Touloum, Am Nabak Camp des Réfugiés et village Am Nabak).

La deuxième consultation est cette ronde de rétroactions des intervenants, qui passe par un échange des informations par e-mail ou téléphone. Le but de cette ronde de rétroaction des intervenants est de partager avec vous, intervenant ou parti associé, la documentation finale et la conception du projet de la Programme de « La cuisine solaire au Tchad ». En outre, la documentation présente comment vos commentaires ont été intégrés, et vous permet d'exprimer des commentaires ou suggestions en suspens que vous pourriez avoir sur le programme.

AAA et TchadSolaire vous présentent les documents suivants pour votre lecture:

- La version révisée de la documentation de conception du projet pour le programme complet (appelée PoA-DD)
- La version révisée de la documentation de conception du projet pour la première activité du projet (appelé le VPA-DD);
- Le Programme des Activités – le Rapport de la Consultation de la Conception du PoA -, qui fait rapport sur les résultats de la consultation de la conception.

Les documents sont disponible en ligne sur: <http://bit.ly/19rZeoF>

Vous êtes en particulier invité à examiner les sections C « Commentaires d'intervenants », section C.2 « Evaluation des commentaires reçus » et section C.4 « Rapport sur le mécanisme continués » du VPA-DD que décrivent comment des commentaires futurs concernant le programme seront traités.

Si vous préférez recevoir des copies électroniques de ces fichiers par e-mail en pièce jointe, prière le nous indiquer. Cette ronde de consultation est ouverte pour une période de deux mois, ce qui signifie que nous attendons vos commentaires jusqu'au 20 Avril 2015.

Nous apprécions vos commentaires précieux. N'hésitez pas à nous contacter (par email ou téléphone) si vous avez des questions sur cette ronde de rétroaction (voir détails ci-dessous). Etant donné que nous continuons à travailler dans la région des camps, il pourrait que nos réponses ne seraient, à notre regret, peut-être pas toujours immédiates, étant la non-disponibilité d'Internet.

Avec nos sentiments les plus sincères,

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¹Pour plus d'informations sur The Gold Standard, se il vous plaît visitez <http://www.goldstandard.org/>

Documents were made available to the public for comments for at least 60 days. No feedback was received after reaching out to stakeholders, or any others in the field when letters were delivered by hand.

In addition, since many of the stakeholders consulted did not have access to the internet and did not read or write, a series of live stakeholder feedback sessions were conducted in all six camps, including in Iridimi. Stakeholder feedback meetings were organized with staff, artisans and CoBFoCus at least six times a year. These meetings sought to gain input from all stakeholders on how the programme is running, where it could be improved and how any changes made have been perceived. No major design issues were brought up. The policy of the CME and the VPA Implementing Entity is that success requires an open ear and regular discussion and feedback from users and all those involved in the programme.

The main point that came out during the first stakeholder consultations was the supply of extra pots to make even greater use of the solar cookers. Since then, additional pots had been provided to users, and solar cookers were not given to users if they could not prove they already have a pot with which to use the cooker. In addition, stakeholders were updated on the new procedures in place, progress with Gold Standard registration and any other relevant project updates.

E.2. Summary of comments received

>> (Provide a summary of key comments received during the consultation process.)

Almost all stakeholders present at the meetings were illiterate. There was therefore no sense in distributing evaluation forms. Instead, at the end of each meeting the following three questions were put to the audience:

- What is your impression of the meeting?
- What do you like about the programme?
- What do you not like about the programme?

There was remarkable consistency in the responses, which are summarised below.

Stakeholder Meeting 1a: Oure Cassoni

During the first meeting there were speech by the three leaders (the Chiefs of each zone). They explained that they were grateful to have been informed about the proposal, especially as UNHCR had announced stopping the distribution of petrol, and that they did fully agree with it and with giving AAA full authority to be their representatives for the discussions and the later implementation. They did not have any point that they did not like about the project, even when later again asked specifically so. The other men, the deputy chiefs, expressed their agreement but did not speak to add items of substance. The most senior person of the women leaders spoke after the men had finished. She said she was speaking on behalf of all other women and they were happy to have been informed about the new development. She mentioned that the women liked the project, and especially the fact that there were always new solutions proposed, which were implemented after discussion of any potential problems that had to be solved. She wished to mention that there was one point that she suggested to be addressed in the project, namely the supply of extra pots, so that the women could make even greater use of the cookers they had already received. The other women expressed agreement but did not speak.

Stakeholder Meeting 1b: Oure Cassoni

During the second meeting, only the women spoke. Several women mentioned that they had felt that they could always and at any time raise any point they wanted, thus they were happy with the meeting. This was applauded and no objection was seen (all votes were by show of hands). For the same reason they liked the project, and they felt confident that, as always before, any other point could be discussed and a solution found. As for what they did not like, there were only some points on the work of some refugee-employees that they would like to see added. They felt the project should start and, like in the past, any further point could be solved as it came up and in so far as funds were necessary for its implementation.

Stakeholder Meeting 2: Iridimi

The discussions on this point were rather short. The meeting's chairman said that the meeting had shown clearly what was expected from the refugees and that the proposed system was fully agreeable. The women said that they liked the new system of management and did not see that there were points that would prevent it from being workable. The stakeholders showed clearly that they agreed with all remarks. Iridimi was the first camp where solar cooking was introduced. They did not think that any comment other than approval was needed.

Stakeholder Meeting 3: Touloum

The meeting's chairman said that the proposed system was fully agreeable. In addition, she said that she liked the new system of management because it would continue to create work, which was necessary, especially for the women that needed it most because they had no other means of receiving income. The participants in the meeting agreed with these remarks.

Stakeholder Meeting 4: Am Nabak Camp

The session's chairman said that she had liked the meeting, and the proposals for the continuation of the project on this new base, and that she did not see any problems with the proposal. The audience agreed with applause.

Figure 7: Stakeholder consultation 6th July 2011, Am Nabak Camp



Stakeholder Meeting 5: Am Nabak Village

The financial prospects for 2012 and the announcements of the reduction in donor money for solar cooker projects were communicated. The working of the carbon credit scheme was explained and the fact that its implementation could be a very significant alternative source of funds for the continuation of the solar cooking activities, and especially for the consumable material required, was explained.

They offered not only to implement it in the village itself, but also to train the women in all the surrounding villages of the county, up to 25 km away, without asking a salary, if the project could only supply the transport and the cookers.

They envisaged making their county the first county in the whole of Chad where all women use solar cooking. As in the other camps, the point of provisioning additional cooking pots, to use the cookers more fully, was raised.

E.3. Report on consideration of comments received

>> (Describe how the comments have been addressed by providing a clarification to the stakeholder or by altering the design of the project or by proposing to monitor any anticipated negative impacts etc.)

Table 10 below gathers the stakeholder consultations comments from all the stakeholder consultations are summarised.

Table 10: stakeholder consultations comments

Stakeholder comment	Was comment taken into account?	Explanation (Why? How?)
The use of solar cookers could be greatly expanded if all women would have a second pot and could make use of the second solar cooker (the first one for the main dish of maize-meal {distributed by the World Food Program} and the second for the sauce) both in the morning and in the afternoon.	Yes	This point is considered totally valid. It can, and is, implemented in this carbon project. The project has since had all participants receive at least two solar cookers and two pots.
It was said that, as the distribution of petrol was being discontinued, the use of the thermos baskets was now much more important because they would not be able to re-heat the evening meal, as they did when there was petrol.	Yes	The project aims to issue thermos baskets to each household with a solar cooker. Since this time, the project has incorporated construction of the thermos basket

		into its design.
It was asked whether a third cooker and pot could be distributed for the big families.	Yes	It was replied that if the new carbon credit project becomes operational, large families can receive a third cooker.
One woman said that the work underway to extend usage time of solar cookers should be continued and that ways should be found to further extend it, such as by waxing the back of the cardboard.	Yes	Since this time, the lifetime of the solar cookers have been extended to 24 months through spraying with a waterproof covering.
It was mentioned by one woman that the cooking of “la boule”, the staple food issued by the World Food Program (WFP), in quantities sufficient for a big family was not possible with the cookers. Many other women intervened immediately to say that she should use two smaller cookers, which the project can provide.	Clarification	It was explained that trials with bigger cookers had shown the inefficiency of bigger cookers and that the solution of using two cookers was indeed the best. A third cooker will be provided to larger families that need it.

Summary of alterations based on comments

Following the stakeholder consultations, no change was required to the sustainability assessment. However, the design of the project was modified to reflect the concerns of stakeholders, namely:

- The provision of two solar cookers and two pots for each family to cook the two types of food (a grain and a sauce) distributed by the World Food Programme.
- The distribution of thermal baskets with each solar cooker
- The provision of a third cooker for large families
- Extending the lifetime of the solar cookers to 24 months following the use of a water retardant on the cardboard of the cooker.

Appendix 1. Contact information of project participants

Organization name	FairClimateFund B.V.
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Appendix 2. Summary of post registration design changes