Gold Standard for the Global Goals

TEMPLATE

MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT **- TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

Key Project Information

SECTION A- Description of project

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KEY PROJECT INFORMATION

Programme of Activity Information

GS ID of Programme	GS 1075
Title of Programme	Solar Cooking in Chad
Version of POA-DD applicable to this monitoring report	Version 10.0, 23/09/2020
Name and GS ID of fully Validated CPA/VPAs (i.e. non compliance check)	Solar Cooking in Chad, Iridimi (VPA-01) Solar Cooking in Chad, Touloum (VPA-02)

Key Project Information

GS ID (s) of Project (s)	1. GS 3445 (VPA1 – Iridimi) 2. GS 12011 (VPA2 – Touloum)
Title of the project (s) covered by monitoring report	1. Solar Cooking in Chad, Iridimi (VPA-01) 2. Solar Cooking in Chad, Touloum (VPA-02)
Version number of the PDD/VPA-DD (s) applicable to this monitoring report	1. **Iridimi**: Version 11.0, 23/09/2020 2. **Touloum**: Version 2.0, 22/01/2024
Version number of the monitoring report	1. **Iridimi**: Version 3.0 (as part of joint MR with Touloum) 2. **Touloum**: Version 3.0 (as part of joint MR with Iridimi)
Completion date of the monitoring report	03/09/2025
Date of project design certification	1. **Iridimi**: 08/01/2016 2. **Touloum**: 14/02/2024
Date of Last Annual Report	1. **Iridimi**: 18/12/2024 2. **Touloum**: 18/12/2024
Monitoring period number	6th for Iridimi (VPA-01) 2nd for Touloum (VPA-02)
Duration of this monitoring period	Iridimi (VPA-01): 01/01/2024 to 31/12/2024 (both days included) Touloum (VPA-02): 01/01/2024 to 31/12/2024 (both days included)
Project Representative	FairClimateFund
Host Country	Republic of Chad

Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Methodology (ies) applied and version number	The Gold Standard Simplified Methodology for Efficient Cookstoves v1.1 (April 2020)
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Table 1 - Sustainable Development Contributions Achieved

Sustainable Development Goals Targeted	SDG Impact	Amount Achieved	Units/ Products
SDG 13 Climate Action (mandatory)	Emissions Reductions	**Iridimi (VPA-01)** 6,137 **Touloum (VPA-02)** 10,000 (11,644)	VERs
SDG 1 No Poverty	Average household savings i.e., decrease in expenditure on basic service such as cooking, lighting, drinking	**Iridimi (VPA-01)**: 148€ **Touloum (VPA-02)**: 156€	Euros / household / year
SDG 3 Good health and well-being	Households' perception of health benefits (reduction in the incidence of eye and respiratory diseases) as a fraction	**Iridimi (VPA-01)**: Respiratory –98% Eye – 95% **Touloum (VPA-02):** Respiratory –100% Eye – 95%	Fraction (%) of all respondents declaring that they perceived a significant or partial reduction in the occurrence of eye and respiratory diseases within their respective household, since the adoption of the solar cookers
SDG 7 Affordable and clean energy	Number of beneficiaries: households	**Iridimi (VPA-01)**: 2,724	Number of households who

	Touloum (VPA-02): 4,692	have benefitted from project cookers installed

Table 2 – Product Vintages

			Amount Achieved
Camp/VPA	**Start Dates**	**End Dates**	**VERs**
Iridimi/VPA-01	01/01/2024	31/12/2024	6,137
Touloum/VPA-02	01/01/2024	31/12/2024	10,000 (11,644)

SECTION A. DESCRIPTION OF PROJECT

A.1. General description of project

Since the conflict erupted in Sudan on 15 April 2023, Chad has seen an influx of over 580,000 new refugees, adding to the over 400,000 Sudanese refugees who have been in eastern Chad since 2003[1]. These refugees are divided across 19 camps bordering Sudan. The influx of refugees has 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 scare 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.

To help tackle this problem, the project aimed to meet basic domestic energy needs through the provision of solar cookers for use in the refugee camps. The first VPA for this project includes solar cookers that have been installed in the **Iridimi refugee camp** since 1st January 2012, the date at which the project was 'listed' with the Gold Standard. The second VPA, includes solar cookers that have been installed in the Touloum refugee camp from February 2022 onwards.

As of February 2025, UNHCR reported 1,143,878 forcibly displaced people in Chad arriving from Sudan. In the Wadi Fira region, there were 24,121 in Touloum; 16,173 people in Iridimi; 4,522 in Am Naback; 35,002 in Mile; 9,983 in Koursigue; and 5,035 in Kounoungou[2].

The escalation of violence in Darfur has led to the rapid increase of new refugees into eastern Chad since the beginning of 2023.

Iridimi and Touloum are two camps that were established by the Government of Chad to accommodate refugees from Darfur. These camps are located in a semi-desert area

[1] UNHCR Februari 2025 : https://reporting.unhcr.org/operational/operations/chad?_gl=1%2A117g0ge%2A_gcl_au%2AMTUzMTYxOTI0Mi4xNzMzMzE0Mzgy%2A_rup_ga%2AMjU5NjE4NDQyLjE3MzMzMTQzODM.%2A_rup_ga_EVDQTJ4LMY%2AMTc0MDA0MDMzMC4xMC4wLjE3NDAwNDAzMzAuNjAuMC4w%2A_ga%2AMjU5NjE4NDQyLjE3MzMzMTQzODM.%2A_ga_X2YZPJ1XWR%2AMTc0MDA0MDMzMC40LjAuMTc0MDA0MDMzMC42MC4wLjA.

[2] UNHCR February 2025 report: UNHCR CHAD| Influx of Refugees from Sudan (as of 17 february 2025)

where rainfall and underground water, and thus growth of trees, is scarce. The World Food Programme (WFP) supplies food that can withstand three months of transport over land. However, in this semi-arid area there is virtually no wood for cooking, and the little that was there originally was sufficient for local populations. UNHCR has been trucking in a considerable amount of wood from other regions of Chad at an enormous cost, but this is not a viable long-term solution.

In this project area, there is ample solar energy to enable the usage of 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 leftover materials from the manufacture of cookers. The project has chosen a model that is cheap and easy to make to ensure that the poorest are able to afford this technology and could potentially make replacement cookers themselves with 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.

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
- To equip all households with solar cookers to prepare the main meals with no use of wood fuel.

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 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 one to two years. Thereafter the cookers need to be replaced. Users are instructed to contact members of ADES (local NGO) or to go directly to the manufacturing facility, in each respective camp, if they require a replacement solar cooker. Any maintenance takes only a matter of minutes to complete. If they require 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 is then entered into the project database to replace old solar cooker data.

The cost of the basic materials and labour for manufacturing for each cooker, not counting overheads, is in the order of 4 USD. 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 150 FCFA (or 0.25 USD) 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), to pay compensation for the workshop workers and to pay for overall project management costs.

The VPA contributes to sustainable development in a number of ways:

(i) Environmental

- The programme reduces greenhouse gas (GHG) emissions.
- The programme reduces woodfuel energy demand 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.

(ii) 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.

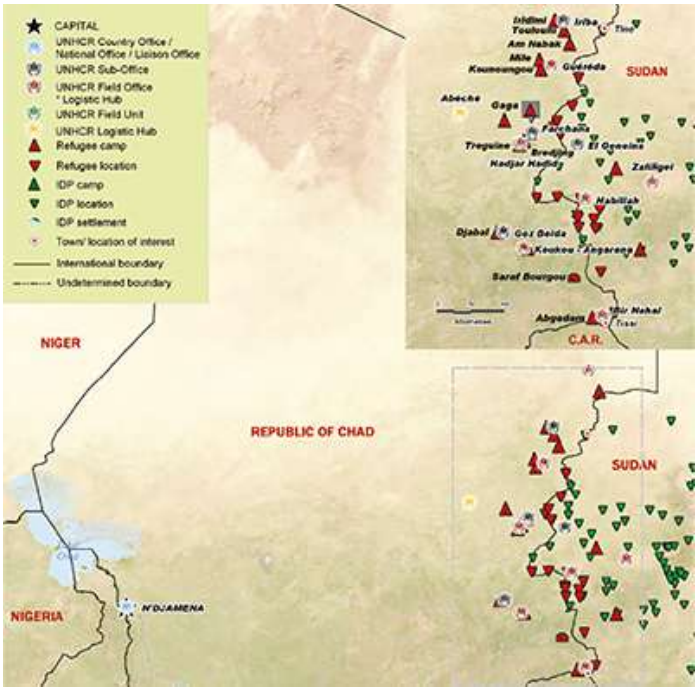
- Increased time to spend on other activities: the project will give women free time to look after their family or to do cash-generating handiwork and allow girls to attend school instead of searching for wood.

(iii) 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.

A.2. Location of project

The project is implemented in the Iridimi and Touloum camps. The approximate location is denoted in the figure below, which also shows the other refugee camps in the region.



The exact location of each camp is shown in the figure below. The coordinates for each camp (WGS1984) are as follows:

- **Iridimi (VPA-01):** 15° 6'59.52"N, 22° 7'41.45"E
- **Touloum (VPA-02):** 14°59'55.75"N, 22°16'4.38"E

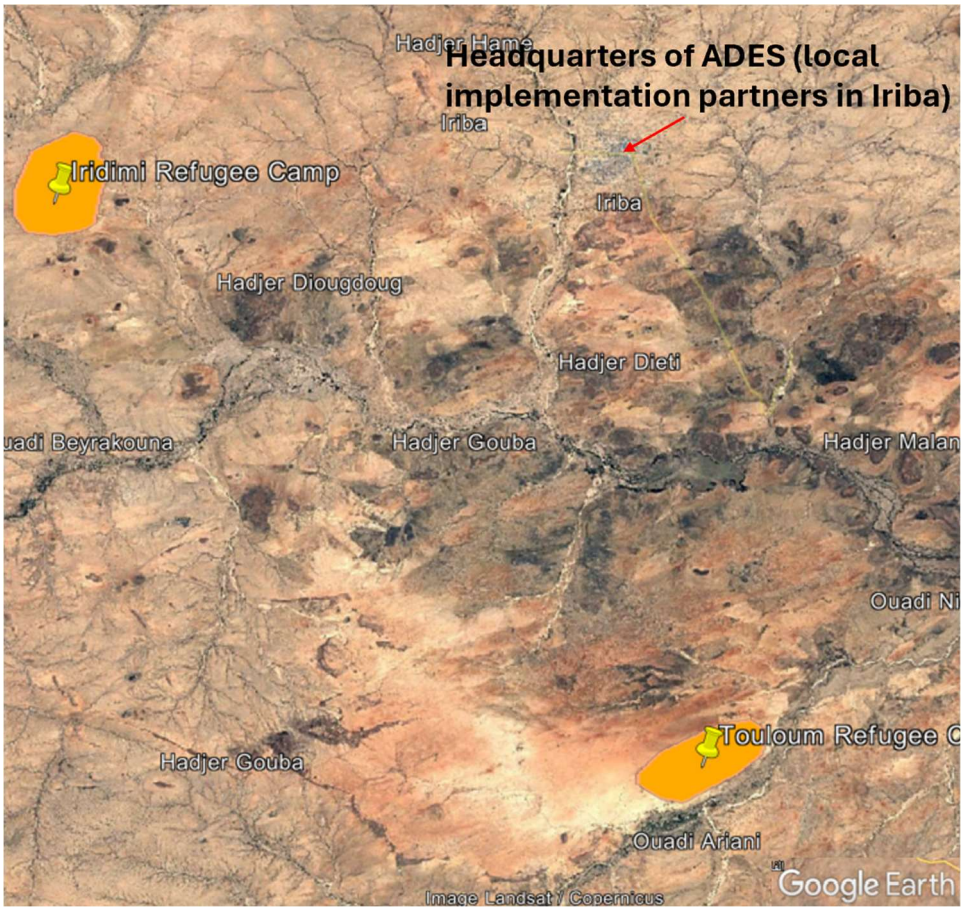


Figure 1 Map of the project intervention zone (yellow) and surroundings

A.3. Reference of applied methodology

The applicable methodology is The Gold Standard "Simplified methodology for efficient cook stoves", version 1.1 released in April 2020.

A.4. Crediting period of project

The 1st crediting period for VPA-01 Iridimi (GS1075) started on 01/01/2012 and ran for a period of 7 years. The present monitoring period for VPA-01 Iridimi is part of the 2nd crediting period which started on 01/01/2019 (and goes until 31/12/2025).

The crediting period for VPA-02 Touloum (GS12011) runs from 21/02/2022 until 20/02/2027 and is based on a 5-year renewable crediting period.

SECTION B. IMPLEMENTATION OF PROJECT

B.1. Description of implemented project

On 1st January 2012, the VPA-01 was listed by the Gold Standard. This date also corresponds to the official project start date. In March 2015, an Objective Observer came to visit the project as part of the validation audit. In January 2016, the PoA and VPA-01 were registered under the Gold Standard. Project activities began at the Touloum refugee camp (VPA-02), in February 2022, and was officially design certified by the Gold Standard (SustainCert) in February 2024. This is the sixth monitoring period for VPA-01 (Iridimi) and the second for VPA-02 (Touloum). It covers the period between 01/01/2024 till 31/12/2024, both days included.

In October 2019, FairClimateFund (FCF) took over the role of coordinating and managing entity (CME) from AAA (Agrometeorological Applications Associates), the former CME. FCF is a social entreprise organisation based in the Netherlands that invests in and supports carbon project development.

In 2022, the issuance of VERs for the previous monitoring periods for Iridimi VPA-01 has allowed the project to have the necessary resources to keep funding the project in Iridimi camp and to expand to one of the nearby camps, Touloum. The project remains fully funded through the sale of VERs.

The activities that took place during the 6th monitoring period for Iridimi and 2nd monitoring period for Touloum were:

- Awareness raising and training of refugees on the usage of solar cookers
- Workshops on maintenance and repair of solar cookers
- Cooking demonstrations to show how to prepare food with the solar cookers to (both male and female heads of households)
- Manufacturing of solar cookers
- Distribution of solar cookers
- Replacement of solar cookers
- Maintenance of the project database and monitoring surveys

The entities involved in the project activities in the 6th monitoring period for Iridimi and 2nd monitoring period for Touloum were:

1. 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
- VER commercialization
- Requesting the Gold Standard Secretariat to issue VERs into their registry

- Overseeing the monitoring surveys
- Quality control of annual monitoring reports
- Organisation of monitoring efforts
- Communicating with the validator/verifier and the Gold Standard Secretariat
- Overviewing project implementation and performance

2. ADES: responsible for implementing the project on the ground (VPA-01 and VPA-02), including:
   - Marketing the programme locally
   - Capacity building for users and solar cooker artisans
   - Quality control of the solar cookers
   - Organising annual monitoring efforts and writing monitoring reports
   - Overseeing the collection of user information and distribution of solar cookers by the technology suppliers
   - Keeping a record of local financial transactions throughout the project
   - Maintain the PoA/VPA-01/VPA-02 Database

3. End-users purchase a pair of solar cookers and pots, complete training on how to use and care for them correctly and are responsible for informing the VPA Implementer when their solar cooker is no longer functioning. They are also responsible for sharing their correct personal details (WFP distribution number) with the VPA Implementer upon purchase of a solar cooker.

4. Technology suppliers (artisans contracted by ADES): Suppliers are responsible for distributing reliable solar cookers, constructed to the specifications detailed during the training artisans receive. They are also providing after-sale services to users, including maintenance, repairs and are responsible to offer replacement solar cookers at a reduced price to end-users when their existing devices no longer function. Finally, they are responsible for collecting user information.

In Iridimi, by the end of the 6th monitoring period (December 2024), the Project had distributed solar cookers to 2,904 beneficiaries registered under the project[3]. In Touloum, by the end of the 2nd monitoring period (also December 2024), the project had distributed solar cookers to 4,278 beneficiaries registered under the project.

B.1.1 Forward Action Requests

From the previous Performance Review (vintage 2023: VPA-01 MP5, VPA-02 MP1), the following FAR was issued:

FAR #1:

In accordance with the GS4GG micro scale requirements, the annual emission reductions achieved are capped at a maximum of 10,000 tonnes of CO2 equivalent (CO2eq) for each year of the crediting period. The VVB is responsible for verifying whether this micro scale limit has been adhered to in the upcoming monitoring period. If the VPAs have consistently generated more than 10,000 tonnes of CO2eq in any 12-month period, the VVB must provide a verification opinion on whether the VPAs continue to qualify as micro scale projects.

The previous monitoring period (VPA-01 (MP5): 01/06/2022-31/12/2023; VPA-02 (MP1): 21/02/2022–31/12/2023) spanned two calendar years, raising the possibility of overlap in annual emission reductions and requiring careful assessment against the micro-scale threshold.

For the current verification, the monitoring period (01/01/2024–31/12/2024 for both VPAs) is fully contained within a single calendar year. Therefore, there is no risk of overlap between vintages. The calculated emission reductions for VPA-02 (Touloum) in this period total 11,644 tCO_2eq, but in line with the micro-scale requirements, the issuance has been appropriately capped at 10,000 VERs. The issuance of VPA-01 is 6,137, i.e. below the microscale limit.

This demonstrates continued compliance with the micro-scale eligibility threshold, and no further action is required.

[3] The totals only accounts for households with a solar cooker of less than two years.

B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

- Temporary deviation from mandatory site visit for solar cooking project in Eastern Chad due to security concerns:

Due to the ongoing security situation in Eastern Chad, particularly in the Wadi Fira region where the Iridimi and Touloum refugee camps are located, it is not feasible to conduct a physical site visit by the VVB or an appointed Objective Observer during this monitoring period.

As an alternative, the project developer requested approval to conduct a remote site visit, in accordance with the Gold Standard Site Visit and Remote Audit Requirements and Procedures v2.0. A formal Deviation Request (reference DVRQ-88) was submitted and subsequently approved by Gold Standard under the following terms:

Due to current issues of significant security risks and travel restrictions in Iridimi and Touloum regions of the Republic of Chad, exemption has been granted to conduct remote site visit. Project developer/CME to note that this approval for conducting remote audit has been provided for:

1. Verification of VPAs (GS3445 and GS12011) for the monitoring period 01/01/2024 to 31/12/2024, and

2. Renewal of Crediting period of the PoA (GS1075)

(...)The remote audit shall be conducted as prescribed and/or suggested by section 4,5 and 6 of the Site visit and remote audit requirements and procedures. The project developer shall comply with all other applicable standard requirements unless specifically mentioned in the deviation decision.

Additional information and documentation are available in the supporting document: 'DEVRQ-88'.

B.2.2. Corrections

N.A. The annual monitoring & usage survey took place in February and March 2025 and on time for the verification.

B.2.3. Changes to start date of crediting period

N.A. No changes to the start date of crediting period have been requested.

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline.

N.A. No permanent changes to the design certified monitoring plan have been put in place.

B.2.5. Changes to project design of approved project

N.A. There were no other changes to project design in either VPA.

SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

The following tasks have been undertaken at different frequencies as stated below.

Maintenance of the Sales Record

Information on the beneficiary households is collected by two supervisors who are assisted by an assistant coordinator in the field. In the camps, the two supervisors are accompanied by ADES (artisans and trainers) who fill out the procurement record with the beneficiary households. A member of the Project team then enters the data in the Sales Record, carrying out the initial checks.

The same sales record was used to complete the ongoing monitoring survey in February-March 2025. Furthermore, the workshop workers in charge of repairing broken cookers kept a record of the replacements and new distributions made throughout the monitoring period (year 2024). This list was collected, recorded, and verified for quality assurance by ADES periodically.

In the form of an Excel datasheet, the main goal of the Sales Records (i.e., list of beneficiaries or user database) 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 contain the information listed below:

- VPA number,
- Date of the procurement (of stove) record,
- Name, company, and contact details of the officer (trainer) completing the procurement record,
- Name of the end-user,
- Gender,
- Address of the end-user (in as much detail as possible),

- Mobile phone number/landline of the user (if available),
- Household size,
- 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 cookers,
- and the date of initial stove procured and any subsequent replacements.

Project database / Emission Reduction worksheet

The project database is derived from the total sales record with project cookstoves. As noted above, the project database has been updated with most recent sales record data for 2024 and the Emissions Reduction worksheet contains the results of the ongoing monitoring studies to provide a calculation of emission reductions generated by the Project during the present monitoring period.

Monitoring and usage survey

The main goal of the Monitoring and Usage Survey (MUS) is to determine the use and benefits associated with the purchase of fuel-efficient stoves by the households and to assess the number of stoves that are still under use over the time.

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

They were then regrouped on this basis. A random selection was then done for each age group using the random sequence generator online tool[4]. Prior to this step, the sales records database was crosschecked to remove duplicates, users having received a cookstoves more than 2 years ago, and beneficiaries who left the camp since the last monitoring survey. The generated random sequence was used to return random numbers for each household in each age group. The sample was done across both VPAs

[4] Random sequence generator online too: https://www.randomizer.org/

for each age group was then selected based on this order. More details are found in file 'VPA-1_Iridimi and VPA-2_Touloum DB and Sampling 20250207', Tab 'Summary'.

Questionnaires were updated based on the previous MUS and submitted by ADES' 3 local enumerators:, helped by educators in charge of raising awareness among refugees about the project's benefits and liaising with them on behalf of ADES (recruited among refugees in the Iridimi and Touloum refugee camps, respectively). One hundred percent (100%) of the surveys were carried out face-to-face by the local ADES teams. In turn, ADES was supported by technical consultants at FairClimateFund who assisted in ensuring that the requirements of the Gold Standard and applied methodology were adhered to throughout this process. The team collaborated in determining the sample size, selecting the beneficiaries to be surveyed, and developing the survey questionnaire. The local consultants carried out the surveys and ensured quality of the data, after which point FairClimateFund carried out a second qualitative check as well as the analysis of data for input into the emission reductions calculation spreadsheet and monitoring report.

The methodology specifies that: "*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 (age 0-1) 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 MUS included the usage surveys carried out between February-March 2025. The table below presents the list of MUS undertaken during the 6th monitoring period for Iridimi (VPA-01) and 2nd monitoring period for Touloum (VPA-02). A single sample was selected across the two VPAs ensuring the minimum sample size requirements per age-group (AG) highlighted in the methodology. More details regarding the sampling

approach and final sample are found in document 'VPA-1_Iridimi and VPA-2_Touloum DB and Sampling 20250207' and the survey results are found in document 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2'. The total sample size by stove age is shown in Section D4 below.

Age group	Data Collection Period	Target Population	Sample size
AG 0-1	17/02/2025 - 21/02/2025	2,336	124
AG 1-2	24/02/2025 - 03/03/2025	4,846	136

Table 2 Details Monitoring/Usage Survey 2025

Key findings from the Monitoring and Usage Survey (MUS) in Iridimi and Touloum camps:

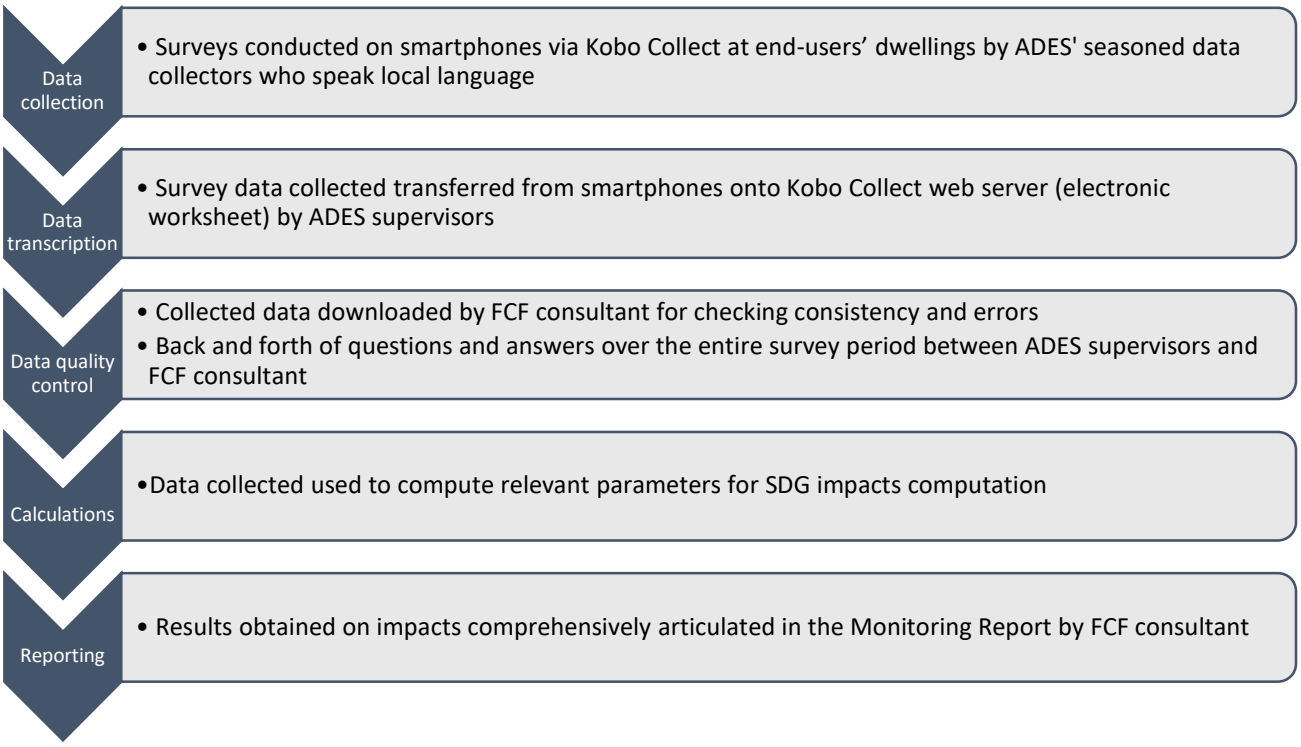
- Household size: The average household size was 4.61 people in Iridimi and 5.18 in Touloum.
- Solar cooker usage: Nearly 100% of beneficiaries had used their solar cookers recently (at least within the survey week). Among the 260 households interviewed, only 3 had solar cookers in a very damaged or unusable state. This was further verified through photographic evidence, with cookers' unique serial numbers matched to household IDs. The usage rates were confirmed at 98.6% for AG 0-1 and 99.2% for AG 1-2.
- Training & maintenance awareness: All respondents confirmed they had received proper training on how to use the solar cookers, and 100% knew who to contact for repairs and maintenance (ADES representatives or directly to workshops).
- Continued use of traditional Stoves: Many households still rely on traditional stoves (three-stoves open fires or basic banco stoves. On average, traditional alternatives to solar cookers were used for 48.8% of meals in AG 0-1 and 50.9% in AG 1-2. The main reasons for not using solar cookers continuously were:
    - Lack of sunlight (64%)
    - Unsuitability for certain meals (24%)
    - Longer cooking time (9%)

Factors behind the high success rate:

1. Frequent and high-quality cooking demonstrations and workshops led by the ADES team.

2. Rapid response and efficiency in replacing damaged solar cookers, particularly those with aluminium deterioration.
3. Dedicated project staff stationed in each camp, ensuring consistent field presence and ongoing support.
4. Socio-economic challenges and the rising cost of fuelwood, which have made solar cooking an essential and cost-saving solution for households.

The diagram below shows the data flow taking place for the usage/monitoring surveys.



The table below shows the project data management and key responsibilities:

STEP	DESCRIPTION	FREQUENCY	LOCATION	RESPONSIBILITY
1	Procurement record maintenance	Continuous	ADES Iriba Field Office	*-ADES Chief of Delegation: Iriba office* *-ADES project coordinator* *-Head of Evaluation and monitoring*
2	Populating the project's database (*Updates made via Kobo Collect are reported onto the master Excel spreadsheet*)	Once a week	ADES Iriba Field Office	*-ADES Chief of Delegation: Iriba office* *- ADES project coordinator* *- Touloum Camp Supervisor* *- Iridimi Camp Supervisor*

3	Consolidating and back-up of the project database	Once a week	ADES Iriba / FCF The Netherlands	- *ADES Chief of Delegation: Iriba office* - *ADES project coordinator* - FCF*, Project manager*
4	Data analysis	As needed or requested	FCF The Netherlands	FCF*, Project manager*

Data collection, processing and archiving

The data for the usage/monitoring surveys was collected through smartphones using Kobo Collect. A similar questionnaire as the one used in the previous monitoring period was installed on Kobo Collect. After an online refresher training, ADES' enumerators then used this application and the questions installed in it, to conduct the surveys. Responses were entered directly into the application and then uploaded to the Kobo Humanitarian project server. The FCF project coordinator then compiled these responses together and downloaded them in an MS Excel spreadsheet.

The relevant information required in the monitoring and computation of emission reduction contained in the original responses and compiled in the Excel spreadsheet (see document 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2') were then extracted for analysis. Then, FCF analysed this data and drafted the Monitoring Report. All the original responses to the questionnaires, including photographic evidence, are kept on the Kobo server and can be provided upon request by the reviewer.

SECTION D. DATA AND PARAMETERS

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter:	$EF_{b,fuel,CO2}$
Unit	tCO_2/tonne of firewood
Description	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	1.747 tCO_2/tonne of firewood
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 comments	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter:	$EF_{b,fuel,non\text{-}CO2}$
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	0.58 tCO_2/tonne of firewood
Choice of data or measurement methods and procedures	From rule update: Applicability of Global Warming Potential for Gold Standard For The Global Goals Projects (06/03/2021).
Purpose of data	Deriving the greenhouse gas emissions released by non-renewable biomass saved.
Additional comments	-

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter:	$\eta_{p,y}$
Unit	Fraction

Description	Efficiency of the cookstove being used in the project scenario
Source of data	The cookers do not use fuel *per se* and so there is 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 comments	It is acknowledged that 100% thermal efficiency is not possible as the laws of thermodynamics preclude any stove from operating without any energy loss during the transfer of thermal energy from the sun to the solar cooker. However, this justification is based purely on the fact that the solar cookers operate on 100% solar energy and do not require any woodfuel or other fuel to operate. This efficiency is being used for the purposes of calculating the difference in the thermal efficiency in the project scenario (solar cookers) vs the baseline scenario (firewood; as per methodology requirements) and use the equation provided by the methodology.

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter:	fNRB
Unit	Fraction
Description	Fraction of non-renewable biomass
Source of data	A new value was submitted by the project developer on 25/09/2020 to the GS. This value was accepted by the GS on 08/10/2020.
Value(s) applied)	96%

Choice of data or measurement methods and procedures	Data was calculated.
Purpose of data	Considering only the non-renewable portion of biomass as subject to emission reductions.
Additional comments	-

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 tonne 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. Household size value for this monitoring period is almost the same as the household size value for the previous monitoring period. It was thus assumed that the 0.5 t/capita value could also be used.
Purpose of data	Feeding the calculation for quantity of firewood that is saved in year y.
Additional comments	-

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 comments	-

D.2 Data and parameters monitored

Relevant SDG Indicator	SDG 13 (emission reductions from all beneficiaries)
Data/parameter:	η_b
Unit	Fraction
Description	Efficiency of the cookstove being used in the baseline scenario.
Source of data	Monitored parameter. Furthermore, methodology default value for 3-stone fires/banco stoves and stove tests for Save 80 (CDM PDD, pg 51[5]). Portion of stove times in use from Koundji-nan Mouya (2011)[6].
Value(s) applied	**Iridimi (VPA-01):** (100% x 0.10) + (0% x 0.31) = 10.00% **Touloum (VPA-02):** (100% x 0.10) + (0% x 0.31) = 10.00%
Choice of data or measurement methods and procedures	The February–March 2025 monitoring survey conducted in Iridimi and Touloum found that 0% of respondents were still using Save80 stoves, while 100% relied on either 3-stone or banco stoves for cooking. More detail are found in MUS results in document: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2'. The complete discontinuation of Save80 stove usage is attributed to the fact that these stoves were introduced around 2012 and have not been replaced or renewed since. The weighted average of the results from the usage surveys within each VPA is used to determine the weighted average efficiency of the baseline stove,

[5] Source: CDM PDD, Efficient Fuel Wood Stoves for Nigeria, pg 51 (link: https://cdm.unfccc.int/filestorage/l/z/23VFX68ADZ9LMN1RU4WPEIOSYGB5H7.pdf/130218_Nigeria_PDD_form02_v03_PRC_clean.pdf?t=aHh8cTRnMWR1fDD_dEsYZC4CZyC03CgsBjEx) ; Koundji-nan Mouyo (2011) Evaluation des actions du projet « cuisine solaire » de l'ONG « TchadSolaire » "2. Memoire redaction FINALE 08.11.2012b", pg 34

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

	assuming a 10% efficiency for a 3-stone fire/Banco (methodology default) and a 31% efficiency for the Save80[7].
Purpose of data	Calculation for quantity of firewood saved in year y.
Additional comments	-

Relevant SDG Indicator	SDG 1, SDG 7 & SDG 13
Data/parameter:	$U_{p,y}$
Unit	Fraction
Description	Usage rate in project scenario p during year y
Source of data	Monitoring/Usage Survey (MUS) results in document: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2', Tab 'Results'.
Value(s) of monitored parameter	$U_{p,AG0-1}$ = 98.6% $U_{p,AG1-2}$ = 99.2%
Measurement methods and procedures	Estimated on the basis of the monitoring survey results. All respondents surveyed answered that they were using their solar cooker.
Monitoring frequency	Annual

7 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

QA/QC procedures	Gathered data is cross-checked with sales record for user identification and stove installation date. During the monitoring/usage surveys, 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 local ADES' staff and FCF.
Purpose of data:	Calculating NRB saved and calculating SDG 1, 7 & 13 impacts.
Additional comments	-

Relevant SDG Indicator	SDG 1, SDG 7 & SDG 13
Data/parameter:	$N_{p,y}$
Unit	Number (household equivalent)
Description	Number of active project solar cookers
Source of data	Distributio records Document: 'VPA-1_Iridimi and VPA-2_Touloum DB and Sampling 20250207': • Iridimi (VPA-01): Tab 'Master Database Iridimi VPA-1' Cell AB4963 • Touloum (VPA-02): Tab 'Master Database Touloum VPA-2' Cell CD6070
Value(s) of monitored parameter	**Iridimi (VPA-01):** $N_{p,AG0-1}$ = 1,035 $N_{p,AG1-2}$ = 1,757 $N_{p,Total}$ = 2,792 **Touloum (VPA-02):** $N_{p,AG0-1}$ = 2,372 $N_{p,AG1-2}$ = 2,320 $N_{p,Total}$ = 4,692

Measurement methods and procedures	Measured. The data was collected and updated by ADES and subsequently verified by FCF, based on the number of stoves distributed and recorded in sales logs. For emission reduction (ER) calculations, only solar cookers that are less than two years old are considered. The household equivalent is calculated by dividing the number of days spent during the monitoring period (MP) in each age group by the total number of days in the MP. During data verification, some duplicate records were identified. These may be due to different family members using the same WFP number. To ensure a conservative approach, it was decided to remove these potential duplications from the dataset.
Monitoring frequency	Continuous
QA/QC procedures	Checks that contracts contains all information required, once information is entered into the spreadsheet, checks that information match over a 10% sample.
Purpose of data	Calculating NRB saved.
Additional comments	-

Relevant SDG Indicator	SDG 13
Data/parameter:	DF_{η}
Unit	Fraction
Description	Discount factor to account for efficiency loss of project cookstoves
Source of data	N/A
Value(s) of monitored parameter	0
Measurement methods and procedures	N/A
Monitoring frequency	N/A

QA/QC procedures	N/A
Purpose of data	Calculating NRB saved.
Additional comments	Solar cookers' efficiency is considered as 100% with no loss of efficiency. It is acknowledged that 100% thermal efficiency is not possible as the laws of thermodynamics preclude any stove from operating without any energy loss during the transfer of thermal energy from the sun to the solar cooker. However, this justification is based purely on the fact that the solar cookers operate on 100% solar energy and do not require any woodfuel or other fuel to operate. This efficiency is being used for the purposes of calculating the difference in the thermal efficiency in the project scenario (solar cookers) vs the baseline scenario (firewood; as per methodology requirements) and use the equation provided by the methodology.

Relevant SDG Indicator	SDG 13
Data/parameter:	$DF_{b,stove,y}$
Unit	Fraction
Description	Discount factor to account for usage of baseline cookstove during the year y in project scenario
Source of data	Monitoring/Usage Survey (MUS) results in document: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2', Tab 'Results'.
Value(s) of monitored parameter	$DF_{b,stove,AG0-1}$ = 48.8% $DF_{b,stove,AG1-2}$ = 50.9%

Measurement methods and procedures	Calculated on the basis of the monitoring survey results. Calculation method: average number of meals cooked with the baseline stove / Average number of meals cooked over a period of 7 days considering seasonal variation (dry/wet seasons).
Monitoring frequency	Annual
QA/QC procedures	Gathered data is cross-checked with sales record for user identification and stove installation date. All information gathered is analysed by FCF.
Purpose of data	Calculating NRB saved.
Additional comments	-

Relevant SDG Indicator	SDG 1
Data/parameter:	$S_{p,y}$
Unit	CFA francs / year
Description	Cumulated saving from an average household using the project cookstoves in year y
Source of data	Monitoring/Usage Survey (MUS) results in document: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2', Tab 'SDGs indicators'.
Value(s) of monitored parameter	Iridimi (VPA-01): 148 EUR per household per year Touloum (VPA-02): 156 EUR per household per year
Measurement methods and procedures	Calculated based on the monitoring survey results. Calculation method: $S_{p,y} = N_p \times U_{p,y} \times S_{pi,y}$ 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*
Monitoring frequency	Annual

QA/QC procedures	Gathered data is cross-checked with sales record for user identification and stove installation date. All information gathered by local enumerator and analysed by FCF.
Purpose of data	Calculating SDG 1 impacts
Additional comments	-

Relevant SDG Indicator	SDG 3
Data/parameter:	$RD_{p,y}$
Unit	fraction
Description	Portion of households experiencing fewer respiratory diseases after adopting solar cooking during year y
Source of data	Monitoring/Usage Survey (MUS) results in document: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2', Tab 'Results' Q35.a..
Value(s) of monitored parameter	Iridimi (VPA-01): 98% Touloum (VPA-02): 100%
Measurement methods and procedures	Estimated based on the monitoring survey results. • Iridimi (VPA-01): 98% respondents reported improvement; 60% reporting significant improvement , 37% reporting partial improvement and 2% reporting no difference. • Touloum (VPA-02): 100% of respondents reported improvement; 64% reporting significant improvement , 36% reporting partial improvement and 0% reporting no difference.
Monitoring frequency	Annual
QA/QC procedures	Gathered data is cross-checked with sales record for user identification and stove installation date. All information gathered by local enumerator and analysed by FCF.
Purpose of data	Calculating SDG 3 impacts in project scenario

Additional comments	-

Relevant SDG Indicator	SDG 3
Data/parameter:	$ED_{p,y}$
Unit	fraction
Description	Portion of households experiencing fewer eye infections after adopting solar cooking during year *y*
Source of data	Monitoring/Usage Survey (MUS) results in document: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2', Tab 'Results' Q35.b.
Value(s) of monitored parameter	Iridimi: 95% Touloum:95%
Measurement methods and procedures	Estimated based on the monitoring survey results. • Iridimi (VPA-01): 95% respondents reported improvement; 55% reporting significant improvement , 40% reporting partial improvement and 5% reporting no difference. • Touloum (VPA-02): 95% of respondents reported improvement; 57% reporting significant improvement , 38% reporting partial improvement and 5% reporting no difference.
Monitoring frequency	Annual
QA/QC procedures	Gathered data is cross-checked with sales record for user identification and stove installation date. All information gathered by local enumerator and analysed by FCF.
Purpose of data	Calculating SDG 3 impacts in project scenario
Additional comments	-

D.3. Comparison of monitored parameters with last monitoring period

The table below provides a comparison between the current monitoring period and the 4th monitoring period for Iridimi (VPA-01). As this is the 1st monitoring period for Touloum (VPA-02), there are no data values to compare for this camp, therefore, the comparison between values and the explanation in the final column is only for Iridimi.

Data / Parameter	Value obtained in this monitoring period	Value obtained in last monitoring period	Explanation
$U_{p,y}$	$U_{p,AG0-1}$ = 98.6% $U_{p,AG1-2}$ = 99.2%	$U_{p,AG0-1}$ = 100% $U_{p,AG1-2}$ = 100%	Stayed consistent, with the majority of beneficiaries in both camps using the stoves.
$N_{p,y}$	Iridimi: 2,792 Touloum: 4,692	Iridimi: 4,583 Touloum: 5,702	The difference is due to the overall aging of the solar cookers and the lower replacement rate in 2024, which was caused by material shortages in the camps.
DF_{η}	0	0	This parameter value has not changed
$DF_{b,stove,y}$	$DF_{b,stove,AG0-1}$ = 48.8% $DF_{b,stove,AG1-2}$ = 50.9%	$DF_{b,stove,AG0-1}$ = 50.7% $DF_{b,stove,AG1-2}$ = 50.7%	The small difference compared to previous monitoring period is most likely is a minor variation that can be explained by the natural variability in the responses of sampled beneficiaries.
$S_{p,y}$	Iridimi: 148 € Touloum: 156 €	Iridimi: 125 € Touloum: 121€	The slight difference may be attributed to the higher cost of living in the camps, which has led to an increase in the cost of woodfuel procurement compared to the previous monitoring period.
$RD_{p,y}$	Iridimi: 98% Touloum: 100%	Iridimi: 99% Touloum: 99%	This minor variation is consistent with the project's strong impact on SDG 3. As a clean alternative that does not consume biomass, solar cookers play a significant role in improving health and well-being.
$ED_{p,y}$	Iridimi: 95% Touloum:95%	Iridimi: 90% Touloum:83%	This minor variation is consistent with the project's strong impact on SDG 3. As a clean alternative that does not consume biomass, solar cookers play a significant role in improving health and well-being.

D.4. Implementation of sampling plan

The objective of the sampling effort was to meet the monitoring requirements of the Gold Standard methodology '*Simplified Methodology for Efficient Cookstoves v.1.1*' applied to this project for the calculation of monitored parameters. Following the methodology requirement, a simple random sampling approach was carried out and minimum sample size was determined as per the guidelines below:

- Project target population < 300: Minimum sample size 30
- Project target population 300 to 1,000: Minimum sample size 10% of group size
- Project target population > 1,000 Minimum sample size 100
- Furthermore, when target population was below 30, the PD sought to survey the entire group

The only monitoring task requiring sampling was the Monitoring and Usage Survey (MUS). This study was carried out through a survey conducted among a representative sample of households included in the project intervention zone. In accordance with the requirements set forth in the methodology, a randomly selected survey list was created for each of the age groups. For this purpose, the Distribution Records in both camps were used, and stove age was calculated to form groups. A random selection was then done for each age group using the random sequence generator online tool[8]. Prior to this step, the sales records database was crosschecked to remove duplicates, users having received a cookstoves more than 2 years ago, and beneficiaries who left the camp since the last monitoring survey. The generated random sequence was used to return random numbers for each household in each age group (AG). The sample was done across both VPAs for each age group was then selected based on this order. More details are found in file 'VPA-1_Iridimi and VPA-2_Touloum DB and Sampling 20250207', Tab 'Summary'.

As described previously, each beneficiary included in the usage survey was randomly selected by the FCF team, and a list provided to the ADES team in advance. Before the commencement of the survey, the FCF team instructed the project enumerators and educators to inform the beneficiaries of the formal survey to explain why their participation was requested. The ADES team made every effort to interview the

[8] Random sequence generator online too: https://www.randomizer.org/

beneficiaries in the primary list sent by FCF. However, if the beneficiary was not home or not available, ADES could satisfy the survey quota by selecting another name from the secondary list (buffer).

Target Population

The target population for the application of the monitoring procedure was the households in which solar cookers have been distributed in the last two years, as identified through the centralised record-keeping database managed by the CME, and updated with the records made by the ADES team[9]. For this sixth monitoring period in Iridimi (VPA-01) camp and second monitoring period in Touloum (VPA-02), this equals 2,904 and 4,278 households respectively at the time the sampling breakdown was undertaken.

Following the applied methodology, the usage survey was performed per age group, i.e. the age category in which solar cookers belong. The table below provides an overview of the different age groups involved as part of the usage survey, their sizes, minimum sample sizes and actual number of sampled households as part of this monitoring effort. As with the monitoring survey, oversampling was applied to ensure meeting the minimum thresholds for each age categories.

The table below provides sampling numbers randomly selected across both camps:

Age group of use of solar cookers	Camp/VPA	Total beneficiaries at sampling date	Min. sample size as per meth.	Sample size for MUS (including buffer)
Age group 0-1	Iridimi (VPA-01)	1,657	100	130
	Touloum (VPA-02)	679		
Age group 1-2	Iridimi (VPA-01)	1,247	100	130
	Touloum (VPA-02)	3,599		
TOTAL		**7,182**	**200**	**260**

Table 3 Population and sample size per AG for MUS 2025

[9] Source: 'VPA-1_Iridimi and VPA-2_Touloum DB and Sampling 20250207' Tab 'Pivot'.

SECTION E. CALCULATION OF SDG IMPACTS

E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

All calculations are detailed in ER calculation spreadsheet document: 'PoA GS1075 VPA-01 MP6_VPA-02 MP2_ER Vintage 2024' and MUS results: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2'.

SDG 1. No Poverty

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

Money saving from not cooking with the project cooker is 0 CFA francs.

SDG 3. Good health and well-being

The heath situation improvement from not cooking with the project cooker is 0%.

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}).

Households benefiting from clean technology for cooking in the baseline is 0.

SDG 13 (Climate Action)

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

$$ER_y = \sum_{0tol}^{xtoy} N_{P,y} * P_y * U_{P,y} * (f_{NRB,y} * EF_{b,fuel,CO2} + EF_{b,fuel,non\_CO2}) * (1 - DF_{b,Stove,y})$$

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.

$EF_{b,fuel,CO2}$ = CO_2 emission factor of firewood that is substituted or reduced.

$EF_{b,fuel,non\_CO2}$ = Non-CO_2 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

E.2. Calculation of project value or estimation of project situation of each SDG Impact

All calculations are detailed in ER calculation spreadsheet document: 'PoA GS1075 VPA-01 MP6_VPA-02 MP2_ER Vintage 2024' and MUS results: 'PoA GS1075_MS2025 results_VPA-01 MP6_VPA-02 MP2'.

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, using figures from Iridimi (VPA-01):

N_p = 2,792

$U_{p,Iridimi}$ = 97.6%

$S_{pi,Iridimi}$ = 99,671 (FCFA)

$S_{p,y}$ amounts to around 271,602,678 FCFA (414,028 EUR) in total or 148 EUR per household per year as of December 2024.

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*

The below calculation is presented for illustration, using figures from Iridimi:

$RD_{p,y}$ = 98%

$RDR_{p,y}$ amounts to around 98% of beneficiaries

$ED_{p,y}$ = 95%

$EDR_{p,y}$ amounts to around 95% 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 for Iridimi is presented for illustration:

N_p	= 2,792
$U_{p,Iridimi}$	= 97.6%
P_{access}	= 2,724

P_{access} amounts to 2,724 beneficiary households in Iridimi as of December 2024.

SDG 13 (Climate Action)

Emissions from the project are considered to be 0 tCO_2e

E.3. Calculation of leakage

As per methodology, for micro-scale PoA net ER_y shall be discounted by 0.95 to account for leakages related to NRB saved by the project.

E.4. Calculation of net benefits or direct calculation for each SDG Impact

The table below provides data for the **Iridimi camp (VPA-01)**:

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Emissions reductions	0 tCO_2e	2024: 6,137 tCO2e	2024: 6,137 tCO2e
1	Average annual household savings i.e., decrease in expenditure on basic service such as cooking, lighting, drinking	$S_{p,y}$ = 0	$S_{p,y}$ = 148 €	$S_{p,y}$ = 148 €
3	Households' perception of health benefits (reduction in the incidence of eye and respiratory diseases) as a fraction	$RD_{p,y}$ = 0% $ED_{p,y}$ = 0%	$RD_{p,y}$ = 98% $ED_{p,y}$ =95%	$RD_{p,y}$ = 98% $ED_{p,y}$ =95%

7	Number of beneficiaries: households	P_{access} = 0	P_{access} = 2,724	P_{access} = 2,724

The table below provides data for the **Touloum camp (VPA-02)**:

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
13	Emissions reductions	0 tCO_2e	2024: 10,000 tCO2e (11,644 tCO2e capped)	2024: 10,000 tCO2e (11,644 tCO2e capped)
1	Average annual household savings i.e., decrease in expenditure on basic service such as cooking, lighting, drinking	$S_{p,y}$ = 0	$S_{p,y}$ = 156 €	$S_{p,y}$ = 156 €
3	Households' perception of health benefits (reduction in the incidence of eye and respiratory diseases) as a fraction	$RD_{p,y}$ = 0% $ED_{p,y}$ = 0%	$RD_{p,y}$ = 100% $ED_{p,y}$ =95%	$RD_{p,y}$ = 100% $ED_{p,y}$ =95%
7	Number of beneficiaries: households	P_{access} = 0	P_{access} = 4,692	P_{access} = 4,692

E.5. Comparison of actual SDG Impacts with estimates in approved PDD

The following table provides data for the **Iridimi camp (VPA-01):**

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period
13	2024: 10,000 tCO2e	2024: 6,137 tCO_2e
1	2024: 84€ per household	2024: 148€ per household
3	2024: RDp,y = 99.7% EDp,y = 99.7%	2024: RDp,y = 98% EDp,y = 95%
7	2024: 4,470	2024: 2,724

The following table provides data for the **Touloum camp (VPA-02)**:

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period
13	2024: 9,283 tCO2e	2024: 10,000 tCO_2e
1	2024: 130€ per household	2024: 156€ per household
3	2024: RDp,y = 100% EDp,y = 100%	2024: RDp,y = 100% EDp,y = 95%
7	2024: 4,500	2024: 4,692

E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

Iridimi (VPA-01)

Values used for ex-ante calculations for the Iridimi camp were provided during transition to GS4GG (in 2020 for Iridimi) and were updated based on estimates assessed through the monitoring and usage surveys conducted in the 2nd MP at Iridimi.

Touloum (VPA-02)

Values used for ex-ante calculations for the Touloum camp were based on previous experience and data collected in the usage surveys at the Iridimi camp.

E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

Iridimi (VPA-01)

Due to material shortages for solar cooker construction in Iridimi, the replacement rate of older and damaged cookers dropped in 2024. This affected the SDG 7 parameter and, consequently, the associated emission reductions under SDG 13. In response, the project developer is working on a solution to secure new raw materials, such as cardboard and aluminum, and accelerate distribution to achieve the expected impacts. Other SDG indicator values recorded during this monitoring period remain similar or very close to the ex-ante estimates. However, household savings have increased from the initial estimate of €83 to an actual €148. This rise is likely due to the increasing reliance on solar cookers over time (as confirmed by the usage rate) and the corresponding reduction in firewood consumption. The same is exacerbated by the

ongoing war in Sudan since early 2023, which has led to a new wave of refugees and higher demand for already scarce biomass resources.

Touloum (VPA-02)

All values obtained during this monitoring period are similar or very close to the ex-ante estimates. The increase in SDG 13 (emission reductions) compared to the estimated values is likely due to the rapid distribution of stoves by the ADES team in 2022 and 2023, as well as the relatively fast adoption by the local population. Since the camp was already familiar with the project from the nearby Iridimi camp, adoption occurred more quickly than initially expected, surpassing the conservative estimates. For SDG 3, the discrepancy is likely due to random variability in the usage survey results and the individual experiences of respondents. SDG 7 reflects the rapid adoption of stoves, as described above. Finally, the difference in SDG 1 results is likely due to increased reliance of the solar cookers, as previously noted for Iridimi VPA-01.

SECTION F. SAFEGUARDS REPORTING

There were no safeguarding principles deemed to be triggered by the project activities. Furthermore, no mitigation measures were implemented during this monitoring period.

SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.

A clear mechanism is in place:

- The local project implementation partner, ADES, has nominated focal points for each composing blocks within the refugee camps of Iridimi (VPA-01) and Touloum (VPA-02). These focal points are chosen from among the refugees themselves.
- The focal points communicate feedback given to them by the refugees to ADES' officers when they visit the camp.
- These feedback, if and when there were any, were then reported onto a centralised grievance book, which could then be accessed by the project developer and addressed as necessary.

- Examples of some of the common grievances (as detailed in the grievance books for each camp in document: 'Grievance book VPA-01 and VPA-02_202503') are the following:
  a) Need for additional/proper cooking pots for cooking.
  b) Need for including the new refugees in the project
  c) Need for solar cookers that are more resistant and provide faster cooking time.

G.2. Report on any stakeholder mitigations that were agreed to be monitored.

No stakeholder mitigations were agreed to be monitored for either of the camps, as specified in the individual VPA-DDs.

G.3. Provide details of any legal contest that has arisen with the project during the monitoring period

No legal contest has arisen with the project during the monitoring period.

Revision History

Version	Date	Remarks
1.1	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Section for POA monitoring Forward action request section Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on safeguard reporting Clarity on design changes Leakage section added for VER/CER projects Addition of Comparison of monitored parameters with last monitoring period Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.0	10 July 2017	Initial adoption