

Case Study of a Voluntary Carbon Project

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Project Brief

- Project name : Improved Household Charcoal Stoves in Mali
- Gold Standard Registry Identification number: GS 414
- Project location: Mali
- Methodology: Indicative Programme, Baseline, and Monitoring Methodology for Improved Cook-Stoves and Kitchen Regimes Version 1
- Voluntary Gold Standard
- Project type: VER
- Project developers: Katene Kadji and E+ Carbon

Project Overview

- Over-dependence by most of the population on charcoal and fuel wood as energy sources has heightened the threat of deforestation and desertification in many parts of Mali.
- Fuel wood and charcoal (together referred to as wood fuel) meet between 80% and 90% of Mali's fuel requirements.
- Before the project, inefficient and polluting cooking regimes were deeply established throughout West Africa and in Mali in particular.
- The project aims to reduce GHG emissions by dissemination of fuel-efficient charcoal stoves, thereby reducing charcoal and non renewable biomass consumption.

Project Overview

Stove reduces fuel consumption by introduction of a ceramic liner that increases combustion efficiency and retains heat.

Depending on household size, stoves with same design but different size are disseminated

- 1) Extra Large
- 2) Large
- 3) Medium
- 4) Small
- 5) Tea



Project Overview

- Before this VER project , Katene, the stove manufacturer, sold stoves (SEWA stoves) with the help of various subsidies and aid organizations.
- The project developer aimed at utilizing carbon finance to sell the stoves at affordable prices to poor customers.
- It would also help transit towards a more professional commercial relationship between the user and the disseminators.
- The project aims to disseminate more than 300,000 stoves in 10 years

Summary of Project benefits

- Mothers and children will be exposed to fewer hazardous air pollutants through reduced emissions of carbon monoxide and fine particulate matter.
- Improved livelihood - On average, a household using a medium sized stove saves about US\$25 per year for an initial investment of \$5.33.
- Improvement in biodiversity due to reduced pressure on remaining forest reserves

Summary of Project benefits

- Increased employment opportunities in stove manufacturing, distributing, retailing and maintenance.
- Technology self reliance by introduction of a locally manufactured stove technology
- Greater access to energy for householders

Project Timeline

Activity	Date
Letter of Agreement between Katene (stove manufacturer) and E+Carbon	27/11/2007
ERPA signing between Katene and E+Carbon	03/12/2007
Local Stakeholder Consultation	27/06/2008
First PDD version	23/09/2008
Validation start	30/09/2008
Validation complete	24/08/2009
GS Project Registration	09/09/2009
Dissemination of Stoves	01/12/2009

Project Additionality

- Evidence gathered confirmed that at unsubsidized prices Katene stoves were unaffordable to the majority of Malians.
- There is a lack of awareness among potential users regarding the benefits (health & environment) associated with SEWA stove use.
- The addition of carbon finance makes the efficient charcoal stoves cheap enough for lower income households in Mali to afford them.

(Notes from previous slide)

- Based on the evidence gathered from end users, independent artisans, retailers, Katene's staff, government officials and experts it was confirmed that at unsubsidized prices Katene stoves are unaffordable to the majority of Malians whose average GDP per capita (PPP) is \$1,000

Project Additionality

- The medium stoves priced at 2,500 CFA francs (5.33 USD) as opposed to the original retail price of 3,500 CFA (7.47 USD). This is a significant reduction when compared to the household incomes
- Carbon finance also helps cover the funding cost for raising awareness and promotional activities in new regions.
- To realize the project, E+Carbon provided funds to Katene to keep the stoves affordable while carbon revenues are realized.

Sustainable Development Assessment and Monitoring

Sustainable Development Matrix		Score (-2 to 2)
Local/Regional/global environment		
	Water quality and quantity	0
	Air quality*	2
	Other pollutants*	0
	Soil condition	0
	Biodiversity	1
Sub-total		3
Social sustainability and development		
	Employment quality*	1
	Livelihood of the poor*	2
	Access to energy services*	1
	Human and institutional capacity	1
Sub-total		5
Economic and technological development		
	Employment (numbers)*	1
	Balance of Payments (sustainability)	0
	Technological self-reliance	1
Sub-total		2
TOTAL		10

(Notes from previous slide)

- The sustainability analysis assesses the project in terms of environmental and sustainable development impact. An overall score, according to the Sustainable Development Matrix, is achieved. This is one of the key aspects of a Gold Standard project
- The scoring is done depending on the impact of the project – greatest positive (+2), additional positive (+1), no impact (0) and negative impacts (-1 and -2)

Sustainable Development Assessment and Monitoring

Example : Livelihood of the poor

PDD claims

Livelihood circumstances will be improved since the improved stoves reduce fuel costs. On average, a household using a medium sized stove saves about US\$25 per year for an initial investment of \$5.33. The SEWA stove contributes to reduction in energy budgets on charcoal by about 25%.

Monitoring Indicator

Cost savings will be self reported by end users as well as calculated based on quantitative fuel savings and average local fuel prices at that time

Sustainable Development Assessment and Monitoring

As reported during Monitoring Report 1

Sustainable Development Variables (Gold Standard Requirement)

Sustainable Development Indicator	Data type	Data variable	Data unit	Value
Air Quality	Self-reported IAP reduction, and/or ambient CO & PM concentrations	Reduced indoor air pollution (IAP)	Ambient IAP concentration	"Reduced smoke", "reduced eye irritation and coughing were reported by users" as one of the reasons they use a Sewa stove
Livelihood of the Poor	Survey results	Household fuel cost savings	\$ saved/year	59,860 CFA/year
Employment	New employment	Job creation	Jobs/Year	No new job created since project start date. Current number of employees is 16
Employment quality	Periodic assessment of conditions	Employment quality	Qualitative assessment	Katene provides wages and benefits that exceed Malian labor law requirements

(Notes for previous slide)

- The survey results shows that the SEWA cookstove actually lead to household savings

Emission Reductions

- Emission reduction claimed for reduced usage of non renewable woody biomass and non biomass fuel in a project cluster from the use of the improved cooking device.

Emission Reductions

Year	Estimation of project activity emissions (tons CO ₂ e)	Estimation of baseline emissions (tons CO ₂ e)	Estimation of leakage (tonnes CO ₂ e)	Estimation of emission reductions (tons CO ₂ e)
2008	28,254	37,579	0	9,325
2009	82,778	110,100	0	27,321
2010	132,401	176,100	0	43,699
2011	175,163	232,976	0	57,813
2012	210,998	280,639	0	69,641
2013	238,847	317,680	0	78,833
2014	264,193	351,390	0	87,198
2015	290,612	386,529	0	95,918
2016	320,593	426,405	0	105,813
2017	351,732	467,823	0	116,091
Total	2,095,570	2,787,221	0	691,651

Monitoring Parameters

Key Monitoring parameters include

- Maintenance of total sales record of the stove.
- Maintenance of detailed customer record (including date of sale, cooking stove model, etc).
- Usage Survey for sales made in the first year of the project, to establish the fraction of end-users no longer using the stove purchased.
- Wider social and economic impact as outlined in the Gold Standard sustainable development assessment

Project Monitoring

- Monitoring Period: November 27, 2007 – September 8, 2009.
- Project Activity disseminated 34,817 stoves during the monitoring period.
- Emission reductions – 42,284 tCO_{2e}

Project Impact - GS Sustainability Indicators

Sustainable Development Indicator	Data type	Data variable	Data unit	Value	Source
Air Quality	Self-reported IAP reduction, and/or ambient CO & PM concentrations	Reduced indoor air pollution (IAP)	Ambient IAP concentration	"Reduced smoke", "reduced eye irritation and coughing were reported by users" as one of the reasons they use a Sewa stove	Berkeley Air's 2008 Baseline Kitchen Survey (raw data) Conducted March-April 2008
Livelihood of the Poor	Survey results	Household fuel cost savings	\$ saved/year	59,860 CFA/year	Berkeley Air's 2008 Annual Carbon Monitoring Report: Sewa improved charcoal stoves, Katene Kadji, Mali Issued May 12, 2009
Employment	New employment	Job creation	Jobs/Year	No new job created since project start date. Current number of employees is 16	E+Co Monitoring and Evaluation Baseline Report January 3, 2008
Employment quality	Periodic assessment of conditions	Employment quality	Qualitative assessment	Katene provides wages and benefits that exceed Malian labor law requirements	Interview with entrepreneur
Access to energy services	Extrapolated based on total sales and average household size	Improved energy access	People/year	222,572people/ye ar ^s	Berkeley Air reporting Sales records from 12/1/07-9/8/09
Other Pollutants	Periodic assessment of conditions	Proper disposal	Qualitative assessment	Scrap metal is sold to peddlers who resell them to smelting companies. Empty paint cans are collected in bags to avoid excess release of fumes	Site visit by project proponent

Thank You