

Case Study of a Voluntary Carbon Project – Presentation Report

Voluntary Carbon Market

The voluntary carbon market (VCM) has developed independently of government target and policies and is a place where anybody, from businesses, to NGOs, to individuals can participate in the business of offsetting. In this market, people invest in emissions reductions for a variety of reasons from meeting their own self-imposed emissions reduction targets, to helping to address climate change, or to help reduce the impact of their carbon footprint.

The voluntary carbon markets are a vibrant and growing sector of the carbon markets and in 2010 were valued at \$424 million.

In the voluntary market there are no overarching or compulsory standards or methodologies for creating credits. There are however, a number of voluntary standards emerging in an attempt to bring greater robustness and harmonization to the voluntary offset marketplace. Two of the most popular standards are the Verified Carbon Standard (VCS) and the Voluntary Gold Standard (VGS).

Verified Carbon Standard

The VCS has been developed by The Climate Group and the International Emissions Trading Association (IETA). The standard aims to ensure that all voluntary emission reductions projects are independently verified to meet specific criteria and that create “real, quantifiable, additional and permanent project-based emission reductions”. The popularity/acceptability and the wide reach of this standard is confirmed from the more than 30% market share VCS enjoyed in 2010.

The price bandwidth for Verified Carbon Units (credits generated under VCS) was <\$1/tCO₂e for early vintage wind credits to more than \$20/tCO₂e for biomass and geothermal activities, giving an overall average price of \$6/tCO₂e.

In 2010, the Verified Carbon Standard (VCS) approved for use its first methodologies for developing REDD projects, which helped to alleviate buyers’ perceptions of forestry’s reputational and investment risks

Gold Standard

The Gold Standard (GS) is gradually increasing in popularity and is expected to continue this trend in future years. Gold Standard accreditation is very much connected to emissions offset projects which it accredits as having a strong element of sustainable development. Established by a group of NGOs, spearheaded by the WWF in 2004 the Gold Standard is an NGO based in Switzerland and works both with the accreditation of CDM projects and VER projects via the Voluntary Gold Standard. Currently the GS is endorsed by 80 NGOs.

The GS is generally accepted as the standard with the most stringent quality criteria. Many buyers turn to GS as the only full-fledged standard endorsed by leading environmental NGOs. Hence the credit generated under GS is sold at a premium. In 2010 GS VER traded at >\$8/tCO₂e, higher than the average price (\$6) of credit under VCS.

Other International Voluntary Standards

The VER+ standard was developed by TÜV SÜD, a Designated Operational Entity (DOE) for the validation and verification of CDM projects. It was designed for project developers who have projects that cannot be implemented under CDM yet, but who want to use very similar procedures as in CDM.

The Climate, Community and Biodiversity Standards (CBB) developed by the Climate, Community and Biodiversity Alliance, is a standard for land-based projects that can simultaneously deliver compelling climate, biodiversity and community benefits. The standard uses the methodologies of the Intergovernmental Panel on Climate Change Good Practice Guidance (IPCC GPG) but can also use approved CDM methodologies for calculating carbon reductions/ savings.

The Plan Vivo System provides a standard for managing the supply of verifiable emission reductions from rural communities in a way that promotes sustainable livelihoods. Plan Vivo is a small standard organization that works closely with rural communities. Because of the grass-roots approach of Plan Vivo, conservation and community benefits are very high, yet standards of this type usually remain small because they are very costly compared to cheap carbon options available on a globally traded carbon market.

Average Price by Standard

Currently there are a number of international and regional level voluntary carbon certification standards serving the voluntary carbon credit demand. The graph reflects the volume-weighted average price, maximum price and minimum price of credits transacted in 2010 from various standards.

As can be seen Gold Standard credits achieved one of the highest average prices. It is important to note that scarcity played a role in high pricing for credits from the Greenhouse Friendly, VER+ and CarbonFix programs.

CASE STUDY – Voluntary Gold Standard Project

Project Brief

The project “Improved Household Charcoal Stoves in Mali” is registered with Gold Standard as a voluntary Gold standard project. The project is located in Mali and is the fruit of a joint-venture between E+Carbon, the carbon finance branch of the New Jersey-based E+Co, and Katene Kadji, a manufacturer of efficient cookstoves in Bamako, Mali. The project was registered with Gold Standard using approved methodology “Indicative Programme, Baseline, and Monitoring Methodology for Improved Cook-Stoves and Kitchen Regimes Version 1”

Project Overview

Charcoal use is primarily a feature of urban life in Mali. Fuel wood and charcoal (together referred to as wood fuel) met between 80 and 90% of Mali’s fuel requirements. Although wood continues to dominate national energy consumption, charcoal use in both rural and urban areas is increasing. Fuel-switching from wood to charcoal in city centers is primarily due to changes in the socioeconomic characteristics of urban households that make charcoal a more attractive fuel. 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.

Inefficient and polluting cooking regimes are deeply established throughout West Africa and in Mali in particular. The project activity aimed at replacing the inefficient cooking stoves with fuel-efficient

charcoal stoves thereby reducing charcoal and non renewable biomass consumption. The emission reductions thus generated qualify for Gold Standard Verified Emission Reductions, or GS VERs.

Improved charcoal stoves (called Sewa stoves) used in project use ceramic liners that make the use of charcoal more efficient and less smoky. The stoves are 50% more fuel-efficient compared to traditional methods. Depending on household size, stoves with same design but different size are disseminated

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

Several years before, KateneKadji had worked with Malian women's groups and technology companies to adapt the stoves to community conditions and was benefiting from the support of AMADER, the national agency for household energy, which provided end-user subsidy to customers. But, all that came to an end when AMADER decided to stop the subsidy leaving Katene at the brinks of collapse. To fill this void Katene collaborated with E+ carbon, the latter provided funds to Katene to keep the stoves affordable while carbon revenues are realized.

Carbon finance provides a means for maintaining a professional commercial relationship between the user and the disseminators, while also introducing a quality guarantee and an ongoing monitoring and evaluation component. The quality assurance strategy is a major benefit of carbon finance. The project aims to disseminate more than 300,000 stoves in 10 years.

Summary of Project benefits

The project activity has positive impacts on sustainable development.

1. **Better Air Quality:** Air pollution from cooking with solid fuel is a key risk factor for childhood acute lower respiratory infections (for example, pneumonia) as well as many other respiratory, cardiovascular, and ocular diseases. Due to the project activity mothers and children are exposed to fewer hazardous air pollutants through reduced emissions of carbon monoxide and fine particulate matter.
2. **Improved livelihood for the poor:** On average, a household using a medium sized stove saves about US\$25 per year for an initial investment of \$5.33 (resulting in a payback period of 2.66 months per stove). The SEWA stove contributes to reduction in energy budgets on charcoal by about 25%. Thus the livelihood circumstances are improved since the improved stoves reduce fuel costs.
3. **Biodiversity is improved** through the stove program as there is reduced pressure on remaining forest reserves.
4. **The improved stoves can give rise to employment opportunities** for enterprises manufacturing, distributing, retailing, and maintaining the stoves.
5. **The introduction of locally manufactured technology with optimized energy efficiency helps to build technological self-reliance.**
6. **Urban householders have improved access to energy** (estimated at 30-60% more effect from the same fuel). With increased sales of efficient stoves, households enjoy greater access to energy services for cooking.

Project Timeline

The time taken from project initiation to actual dissemination of stoves was approximately 2 years.

Project Additionality

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. At unsubsidized prices, purchasing a SEWA stove accounts for several percent of annual incomes and the ability for users to save this amount of money to purchase the stove is extremely limited.

Also there exists a lack of awareness among potential users regarding the benefits associated with SEWA stove use.

With the addition of carbon finance, efficient charcoal stoves become cheap enough for lower income households in Mali to afford them. That is, carbon revenues act as a direct subsidy so that efficient stoves are cost competitive with their business-as-usual counterparts. Further carbon finance also helps cover the funding cost for raising awareness and promotional activities in new regions and thereby helps increasing the dissemination of efficient cookstoves.

To realize this project Katene tied up with E+Carbon. E+Carbon provided funds to Katene to keep the stoves affordable while carbon revenues are realized.

Sustainable Development Assessment and Monitoring

Sustainability development assessment and monitoring is one of the key aspects of a GS project. 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. 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).

Example of SD assessment and scoring - Because the project activity leads to mothers and children being exposed to fewer hazardous air pollutants through reduced emissions of carbon monoxide and fine particulate matter, it is considered that the project results in a positive impact on air quality. Hence the project scores +2 on the SD matrix for air quality.

Sustainable Development Assessment and Monitoring

Under GS, apart from monitoring emission reduction the PP is also required to develop a Sustainability Monitoring Plan to assist in monitoring the impact of project activity on sustainable development and in verifying that the project has indeed contributed to sustainable development.

Example: Livelihood of the poor

At the time of validation and registration of the project activity, the PP claimed the following potential sustainable development due to the project–

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%.

To verify that the project indeed improved the livelihood of the poor the following monitoring parameter was defined in the PDD in accordance with GS requirements on sustainable development monitoring –

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

During the first monitoring period to assess the impact of the project on this SD criterion, a survey was carried out to verify whether the project benefited the households on fuel savings. The survey results confirmed that the SEWA cookstove actually lead to household savings.

Emission Reductions

The project activity helps reducing GHG emissions by reducing the usage of non renewable woody biomass and non biomass fuel in a project cluster from the use of the improved cooking device. The estimated emission reductions due to the project activity (dissemination of more than 300,000 stoves in 10 years) is shown on slide 22.

Monitoring Parameters

Some of the key parameters that need to be monitored for calculating the emission reductions from this project are:

- Maintenance of total sales record of the stove (including date of sale, mode of use: resale, direct residential use, direct institutional use, model/type of stoves purchased and number of stoves purchased)
- 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.

Along with the above the project also needs to monitor the wider social and economic impact as outlined in the Gold Standard sustainable development assessment like impact on – air quality, livelihood of poor, employment, employment quality and access to energy services.

Project Monitoring

During the first monitoring period of the project activity (November 27, 2007 – September 8, 2009) 34,817 stoves were disseminated which resulted in 42,284 tCO_{2e} reduction.

Apart from the GHG reduction the impact on sustainable development due to the project was also monitored. It was verified that the project indeed resulted in - household fuel savings of 59,860 CFA and the stove manufacturer provided wages and benefits better than the local regulations leading to improved employment quality.