THE GOLD STANDARD:
Project Design Document for Gold Standard Voluntary Offset projects

(GS-VER-PDD)

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Explanatory information on how to complete the PDD and how to obtain Gold Standard registration can be found in the project developer's manual available on the Gold Standard website.

This template of the PDD is applicable for micro-, small- and large-scale projects. Note that the shaded boxes present information on the Gold Standard VER project development procedures. Project developers should delete these shaded boxes when preparing their PDD.

VOLUNTARY OFFSET PROJECTS

PROJECT DESIGN DOCUMENT FORM (GS-VER-PDD)
Version 01 - in effect as of: January 2006)

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Annexes

SECTION A. General description of project activity

A.1 Title of the project activity

Title: Efficient Cooking with Ugastoves
Version: 12-5-08
Date: 12 May 2008

A.2. Description of the project activity

One of the major causes of deforestation in Uganda is the use of wood fuels[1] for domestic and institutional cooking. More than 95% of Ugandans rely on solid fuels for cooking, typically charcoal or wood for urban dwellers, and wood for rural households. A series of focus groups held in 2005 in three Kampala divisions concluded that the most common domestic cooking device in urban areas was the traditional metal charcoal stove, followed by the three-stone wood fire which is in use by an urban minority. Institutional cooking was found to be mostly firewood based.

The project reduces green-house emissions by disseminating fuel-efficient stoves. The project is based on pilot work in 2005 by the Urban Community Development Association of Kampala, Uganda (Ugastoves). A stove manufacturing business with the name Ugastoves was founded on the basis of this pilot work in 2007. Three types of stoves are marketed by Ugastoves:

a. improved fuel-efficient charcoal stoves for domestic and restaurant use
b. improved fuel-efficient residential wood stove
c. improved fuel-efficient institutional wood stoves

The improved charcoal stove reduces fuel consumption by introduction of an insulated combustion chamber which increases combustion efficiency and retains heat. The wood stoves use the well-proven rocket technology, which consists of an insulated elbow-jointed combustion chamber that increases combustion efficiency and retains heat while also raising the cooking pot to the hottest point above the flame. The institutional rocket stoves further increase heat transfer by having the cooking pot rest within a skirt.

Tests were conducted in 2006 to measure the fuel savings introduced by the improved stoves, with the following results:

- the improved charcoal stove reduced charcoal consumption in sampled households by 36% on average, in some cases saving more than 50% of the fuel used previously
- the wood rocket stove promoted by the project saved 58% of the fuel on average in the sampled households
- the improved institutional wood stoves reduced fuel-use by 45% on average in the sampled schools

While these stoves will significantly reduce greenhouse gas emissions, they simultaneously provide co-benefits to users and families in the form of relief from high fuel costs and reduced exposure to health-damaging airborne pollutants.

To date, Ugastoves have concentrated their marketing efforts in Kampala, with some limited extension to the other urban areas of Uganda. The dissemination of improved charcoal stoves is targeted to urban areas where charcoal use is most pervasive. The improved institutional wood stoves are targeted to urban and peri-urban areas to replace traditional wood fires in institutions such as schools which pay high fuel costs. The wood stoves are not yet marketed widely and are intended for rural areas.

[1] The term wood-fuel is used to mean all fuel derived from woody biomass, including charcoal, while “firewood” or “wood” is used to mean the woody biomass in its original unprocessed composition.

From January through August 2005, UCODEA (later to become Ugastoves) sold less than 3,000 stoves. During these months plans were made to secure carbon finance in order that sales could be increased dramatically through a major marketing and promotion effort, combined with technical development and quality assurance to disseminate reliable improved-efficiency models at affordable prices. From September 2005 through 2006 and 2007, using carbon finance advances and monies expected to be recouped from carbon finance, the expansion was implemented; marketing and operational capacity was improved, the company Ugastoves was registered, quality assurance systems were devised, and the technical designs of the stoves were improved to achieve the high levels of efficiency listed above.

Assistance was available in 2005-7 from the Centre for Entrepreneurship in International Health and Development (CEIHD)[2]. Further support on project design and carbon finance was obtained from ClimateCare[3] in 2006-7. Financial support was obtained in the period 2005-2006 from the Partnership for Clean Indoor Air and from carbon finance advances provided by ClimateCare for the period Sept 2005 to date.

Table A.2 shows the expected volume of sales of high efficiency stoves throughout the project period, including the 3 years pre-registration. The table calculates "operational stove years" by assuming an even rate of installation through the year. Operational stove-years are an important concept, since GHG emission reductions are dependent not on the sale of an improved stove for use in a kitchen operating an inefficient stove, but rather they are dependent on the number of months or years the improved stove is in daily use. An improved stove working for six months qualifies as 0.5 operational stove-years.

Table A2 assumes that the charcoal stoves have a 3-year working life while the institutional stoves have a working life of ten years or more. These assumptions not made by the monitoring protocol, which requires that actual usage drop off rates are measured during project operation.

Currently inefficient and polluting cooking regimes are deeply established in the culture. The project aims to break this mould and move large populations away from conditions under which GHG emissions are unacceptably high, and health effects are unacceptably inhumane, for the women and children spending long hours each day in conventional kitchens.

The carbon finance provides a basis for maintaining a professional commercial relationship between the user and the disseminators, while also introducing an affordable price, a quality guarantee and a warranty system. The quality assurance strategy is a major benefit of carbon finance. It has the potential to introduce a new set of quality expectations amongst consumers and so shift the critical mass of prevailing practice away from inefficient cooking with its extreme environmental and health penalties, to a new mass prevailing practice involving significantly reduced GHG emissions and healthier kitchens.

[2] CEIHD is based in Berkeley, California, in the USA.

[3] ClimateCare is part of JPMorgan Environmental Markets and is based in Oxford, UK, with offices in Nairobi Kenya, Santiago Chile, Mumbai India, Ankara Turkey, and several other countries.

Table A.2.a Charcoal

Calendar Year	Project Year	Sales	Expiries	Number of users by year end	Projected operational stove years
Q4-05 to Q1-06	Installs	3,000	0	3,000	1,500
Q2-06 to Q1-07	Year -2	10,000	0	13,000	8,000
Q2-07 to Q1-08	Year -1	10,000	0	23,000	18,000
Q2-08 to Q1-09	year 1	30,000	-3,000	50,000	36,500
Q2-09 to Q1-10	Year 2	30,000	-10,000	70,000	60,000
Q2-10 to Q1-11	Year 3	30,000	-10,000	90,000	80,000
Q2-11 to Q1-12	year 4	30,000	-30,000	90,000	90,000
Q2-12 to Q1-13	Year 5	30,000	-30,000	90,000	90,000
Totals		**173,000**			**384,000**

Table A.2.b Residential Rocket Wood-Stoves

Calendar Year	Project Year	Sales	Expiries	Number of users by year end	Projected operational stove years
Q4-05 to Q1-06	Installs	0	0	0	0
Q2-06 to Q1-07	Year -2	0	0	0	0
Q2-07 to Q1-08	Year -1	0	0	0	0
Q2-08 to Q1-09	year 1	400	0	400	200
Q2-09 to Q1-10	Year 2	600	0	1,000	700
Q2-10 to Q1-11	Year 3	1,200	0	2,200	1,600
Q2-11 to Q1-12	year 4	2,000	-400	3,800	3,000
Q2-12 to Q1-13	Year 5	2,500	-600	5,700	4,750
Totals		**6,700**			**10,250**

Table A.2.c Institutional Wood-Stoves

Calendar Year	Project Year	Sales	Expiries	Number of users by year end	Projected operational stove years
Q4-05 to Q1-06	Installs	15	0	15	8
Q2-06 to Q1-07	Year -2	30	0	45	30
Q2-07 to Q1-08	Year -1	40	0	85	65
Q2-08 to Q1-09	year 1	50	0	135	110
Q2-09 to Q1-10	Year 2	50	0	185	160
Q2-10 to Q1-11	Year 3	50	0	235	210
Q2-11 to Q1-12	year 4	50	0	285	260
Q2-12 to Q1-13	Year 5	50	0	335	310
Totals		**335**			**1,153**

The sustainability matrix presented below assesses the project in terms of environmental and sustainable development impact. The pertinent indicators are:

1. Air quality: Mothers and children will be exposed to fewer hazardous air pollutants through reduced emissions of carbon monoxide and fine particulate matter. Air pollution from cooking with solid fuel is a key risk factor for childhood pneumonia as well as many other respiratory, cardiovascular, and ocular diseases.

2. Biodiversity will be improved through the stove program reducing pressure on remaining forest reserves.

3. Employment. The improved stoves give rise to employment opportunities for enterprises, manufacturing, distributing, retailing, and maintaining the stoves. Ugastoves itself has 56 employees (13 admin, 7 marketing, 36 production) most of which have created since the project start in the course of 2006 and 2007. A growth in numbers of at least 10% is expected as production grows over the next three years. There are 100 registered retailers currently and this number is expected to double over the next three years. The company's success stimulates competition which indirectly creates more jobs.

4. Livelihood of the poor. The circumstances of poor families will be improved since the stoves reduce fuel costs. With the price of the medium size Ugastove at 5 Euros, and fuel savings conservatively assessed at 240 kg a year, the current price of charcoal in Kampala being about 0.16 Euros/kg, and the stove lifetime expected to be 3 years, the financial saving for charcoal users in Kampala can roughly be expected to be E120 or greater. In the case of wood stoves, the reduction in wood consumption in rural areas implies relief from drudgery and more opportunity for productive activity, arising from less time spent collecting fuel.

5. Access to energy services. The improved stoves require less fuel, which in many areas can be a very scarce resource or expensive to buy; also the stoves are found by users to be more convenient, shortening the cooking time.

6. Human and institutional capacity is raised through the business development component of the project. The challenge of moving into areas such as large-scale promotion and advertising matched by quality control and branding initiatives, together with the introduction of improved production and accounting systems, is already having a positive effect.

7. Technological self-reliance. The introduction of locally manufactured technology with optimized energy efficiency helps to build technological self-reliance. The project has introduced specialist skills in ceramics, involving careful mixing of the ingredients of the stove insulation liners and the associated kiln construction and kiln operation skills.

No negative indicators arise from the project activities and an overall score is achieved as follows:

Sustainable Development Matrix		**Score (-2 to 2)**
Local/Regional/global environment		
	Water quality and quantity	
	Air quality	1
	Other pollutants	
	Soil condition	
	Biodiversity	1
Sub-total		*2*
Social sustainability and development		
	Employment	1

	Livelihood of the poor	1
	Access to energy services	1
	Human and institutional capacity	1
Sub-total		*4*
Economic and technological development		
	Employment (numbers)	
	Balance of Payments (sustainability)	
	Technological self-reliance	1
	Soil condition	
Sub-total		*1*
TOTAL		7

A.3. Project participants:

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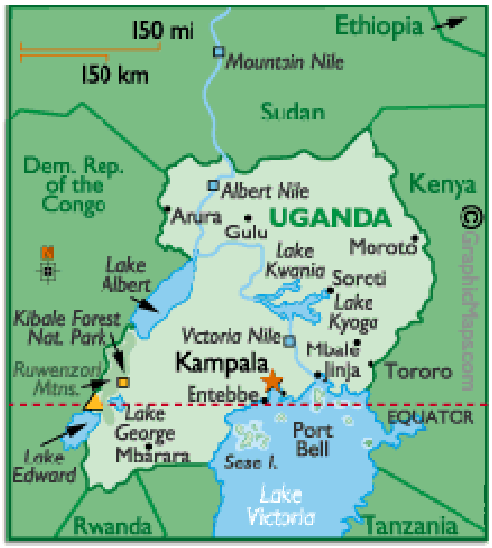
Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
N/A	ClimateCare Centre for Entrepreneurship in International Health and Development (CEIHD)	N/A

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

The project promotes sales of improved wood-fuel stoves primarily in Kampala, the capital of Uganda, with expanding sales throughout the country. Wood-fuels marketed in Kampala are sourced from forest areas hundreds of kilometres from the town, and as these sources become depleted, it can be reasonably expected that more distant areas of the country will be used.



A.4.1.1. Host Party(ies):

The project is voluntary and therefore is not hosted or invested in by a Party to the Kyoto Protocol.

A.4.1.2. Region/State/Province etc.:

Uganda, Africa

A.4.1.3. City/Town/Community etc:

Kampala primarily and other urban, peri-urban, and rural areas of Uganda.

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):

Ugastove is the implementing organization and will conduct the project from its offices in the Makindye District of Kampala

Contact Person(s):	Kawere Muhammad Ugastoves@gmail.com David L. Mukisa david_mukisa@yahoo.com; Ucodea@gmail.com
Address:	Plot 574, Kayemba Road Nkere Zone Kibuye I Parish Makindye Division Kampala, Central Region P.O. BOX 15191 Uganda
Phone:	256-41-578 251, 256-752-640 073, 256-772-314 882

A.4.2. Size of the project:

Large-scale (the CO2e savings greater than 60,000 tonnes/year on average)

A.4.3. Category(ies) of project activity:

A.2. Domestic Energy Efficiency

A.4.4. Brief explanation of how the anthropogenic emissions of anthropogenic greenhouse gas (GHGs) by sources are to be reduced by the proposed project activity, including why the emission reductions would not occur in the absence of the proposed project activity, taking into account national and/or sectoral policies and circumstances:

The project reduces the amount of green house gases (GHGs) emitted through production and use of charcoal and firewood as cooking fuels, by introducing widespread use of efficient charcoal and wood stoves (including those used by institutions such as schools) which replace existing inefficient stoves.

Carbon finance was identified as the only feasible method of up-scaling Ugastove during discussions in the years 2004, 2005, and January 2006.

The UNFCC Additionality Tool (Version 3) requires that 4 steps are taken to investigate whether or not the reduction would be obtained in the absence of project activity. Taking these steps in turn:

Step 1: Identification of alternatives to the project activity consistent with mandatory laws and regulations

Sub Step 1a: Define alternatives to the project activity

- The proposed project activity undertaken without using carbon finance
- Other realistic and credible scenarios that deliver outputs and services with comparable quality
    a) Energy delivered at household level through liquid fossil fuels such as LPG
    b) Energy delivered at household level through electricity
- If applicable, continuation of the current situation

Outcome of Sub Step 1a: Identified realistic and credible alternative scenarios

Proposed project without carbon finance: The project proponents had been making a small number of stoves in Kampala before the project commenced. Studies in 2005 showed that the business model was not sustainable. It was shown that the project proponents needed external finance in order to scale up operations, make physical improvements at the factory, develop institutional capacity, develop quality assurance, improve awareness in the community, run marketing campaigns and provide credit to purchasers.

Ugastoves needs to be professionally run and large scale to be sustainable. Carbon Finance is the only realistic source of the capital available to carry out these changes to the organisation and to run the program.

Other realistic and credible scenarios that deliver out puts and services with similar quality:

a) There is no evidence in Kampala that householders are making a shift towards LPG for cooking (which would be likely to result in lower greenhouse gas emissions than the project scenarios. LPG is too expensive for the type of households who currently cook on charcoal. The annual cost of delivering the same amount of energy from LPG could be up to five times the cost of delivering it from an improved charcoal stove.
b) There is no evidence that people in this socio economic bracket are moving towards cooking with electricity. Firstly it is expensive, secondly the distribution network is limited, thirdly the capital cost of a cooker is too high and fourthly the supplies are highly unreliable due to load shedding by the national utility.

Continuation of the current situation:
Due to the barriers discussed below in Step 3, the continuation of the current situation is the most likely alternative to the project activity.

Sub Step 1b: Consistency with mandatory laws and regulations

The Project Activity and the Alternatives outlined in Sub Step 1a above are all in compliance with and do not contravene national legislation.

Step 2: Investment Analysis
Not Used

Step 3: Barrier Analysis
Sub Step 3a: Identify barriers that would prevent the implementation of the proposed project going ahead without carbon finance

Investment Barriers

- Studies carried out in the initial stages of the Project Activity showed that in order to sell widely, the charcoal stoves would have to retail at less than $8.00, as otherwise they would be unaffordable. In order to develop a market money had to be invested in:
    a) the fabric of the factory

b) skills of junior and senior management
c) skills of artisans
d) marketing
e) awareness creation
f) credit facilities
g) working capital
h) quality assurance system

If the true costs of the above were included in the retail price of the stove, it would become unaffordable. The carbon finance is effectively subsidising the cost of the stove to make it affordable by funding these business development and market creation costs.

- The funds to carry out these market creation activities could not be borrowed from standard financial institutions as the perceived risk would be too high for their lending criteria. Therefore carbon finance is the only credible market based option for the development of this Project Activity
- Customer credit requirement: As customers tend to be cash poor stoves are often sold on a "take now – pay later" basis. They do not have capital available to purchase the stove but can pay once they have saved on charcoal. This approach means that the project proponent ties up valuable working capital that could be put to better use elsewhere.

Technological Barriers

- **Equipment:** Significant research went into designing a stove that could
    1) be manufactured in Kampala
    2) be technologically appropriate for the milieu and
    3) be suitable for the cooking practices in user households.

  Such stoves and such manufacturing equipment was not available in Kampala prior to the Project Activity.

- **Skilled Labour:** Significant time has been spent in training artisans to make the metal and clay parts of the stoves and to assemble them. As these stoves are new in Kampala, this skill base had to be created and maintained. A key issue in many countries has been whether or not improved stove manufacturing skills have been nurtured beyond initial training by establishment over time of a reliable market. A 2000 DFID report notes that stove markets in Kenya and Ethiopia have grown much more rapidly due to extensive technical and business development assistance. Uganda by contrast has not seen widespread uptake of stoves because artisans trained to produce better stoves, have then been left to fend for themselves and have not been able to develop sustainable markets. The project provides the necessary maintenance and growth of the artisanal skill base.

- **Skilled Professionals:** Time had to be spent in improving professional capacity at Ugastoves, in personnel and data management techniques, accounting, marketing and other skills required in making a successful program.

- **Technology risk:** Users have to be convinced that the new stoves will make them financial savings whilst being suitable to use for cooking traditional foods.

Barriers due to Prevailing Practice

- Habitual use of traditional stoves imposes a very strong influence on the baseline scenario, resulting in continuation of use of traditional inefficient charcoal stoves. Inertia requires a significant amount of sensitisation, marketing, demonstration and personal anecdote to overcome. The carbon finance will fund these activities which are required to shift the common practice from inefficient traditional stoves to improved ones under the Project Activity.

Sub Step 3b:

Three credible alternatives to the project activity were proposed:

- A move to LPG for cooking
- A move to electricity for cooking

- Continuation of the *status quo*

The first two face similar barriers as the project activity. However, the costs to switching to and continuing to use these fuels are even higher than the with project scenario so are even less likely in the socio economic milieu in which this project operates.

The continuation of the *status quo* does not face any of the above barriers. People have been cooking on such unimproved stoves for many generations and they are the common practice.

Step 4: Common Practice Analysis

Sub Step 4a: Analyze other activities similar to the proposed project activity

There have not been any improved cook stove programs in Kampala that have sought to transform the cooking stove market in the way that the Project Activity does. Cook stove programs that have been run have been small scale and run by donor agencies. Capacity development in the host locations has been limited and their impact predominantly short term.

Sub Step 4b: Discuss any similar options that are occurring

International development agencies have run improved wood-burning stove programs in peri-urban and rural Uganda. These projects have been non commercial in nature and limited in scope. They have had little impact on the overall cooking market, which the Project Activity intends to transform over the coming years.

Conclusion

The distinctions set out here between other activities and the Project Activity are so great that the project is additional.

A.4.4.1. Estimated amount of emission reductions over the crediting period:

Table A.4.4.1 (a)

Project Year	Annual estimation of Emission Reductions in tonnes CO2e
-2	10,616
-1	23,807
1	47,990
2	78,965
3	106,485
4	122,875
5	127,844
Total Emission Reductions (tonnes of CO2e)	**518,581**
Total Number of crediting years	7
Annual average over the crediting period of estimated reductions	**74,083**

Table A.4.4.1 (b)

The table presents the project operational stove years and emission reductions (ERs) from April 06 through to the year 2013. Since at time of writing the record of sales is not complete up to registration date, which is expected to be 1st April 2008, the table does not count actual sales made to date but instead projects an approximate number of

stoves installed in the period 1st Sept 2005 to end March 2008. The emission reductions made in "Year minus 3" are set to zero since this period precedes the start of crediting which is 2 years prior to registration.

Table A.4.4.1 (b)

Calendar Year	Project Year	Projected Sales			Annual estimation of ERs (tCO2e)			
		Charcoal	Domestic Wood	Institutional Wood	Charcoal	Domestic Wood	Institutional Wood	**Totals**
Q4-05 to Q1-06	Installs	3,000	0	15	0	0	0	**0**
Q2-06 to Q1-07	Year -2	10,000	0	30	9,684	0	932	**10,616**
Q2-07 to Q1-08	Year -1	10,000	0	40	21,789	0	2,018	**23,807**
Q2-08 to Q1-09	1	30,000	400	50	44,183	390	3,416	**47,990**
Q2-09 to Q1-10	2	30,000	600	50	72,630	1,366	4,968	**78,965**
Q2-10 to Q1-11	3	30,000	1,200	50	96,840	3,123	6,521	**106,485**
Q2-11 to Q1-12	4	30,000	2,000	50	108,945	5,856	8,073	**122,875**
Q2-12 to Q1-13	5	30,000	2,500	50	108,945	9,272	9,626	**127,844**
Totals		173,000	6,700	335	**463,018**	**20,009**	**35,554**	**518,581**

SECTION B. Application of a baseline methodology

B.1. Title and reference of the approved baseline methodology applied to the project activity:

The project follows the methodology approved in January 2008 by the Gold Standard Foundation entitled “Improved Cook-Stoves and Kitchen Regimes”.

B.1.1. Justification of the choice of the methodology and why it is applicable to the project activity:

The methodology quantifies green house gas emissions from non-renewing biomass, and therefore applies to the project as there is clear evidence that the use of woody biomass and charcoal as cooking fuel is not balanced by the re-growth in the supply area.

The methodology is suitable for a project with a large supply area where very likely other projects may seek to quantify the non-renewing portion of the biomass consumption they save. By assessing non-renewability status in a fractional manner, the methodology assures that all projects in the same area are capped equally and there is no risk of double counting.

The methodology requires that surveys and quantitative measurements are carried out in the kitchens of the stove users. Since the fuel consumption reductions arising from the project will be sensitive to locally determined factors the application of a methodology requiring measurements in samples of households, as opposed to one dependent on lab testing of stove efficiency, is appropriate.

B.2. Description of how the methodology is applied in the context of the project activity:

In the context of this project, the basic assumptions of the methodology are that the green-house gas reductions arising from adoption of the Ugastoves can be determined conservatively as follows:

- Emission factors for charcoal and wood combustion are the same in the case of baseline stoves and project stoves, and the most recent IPCC default values for these stove-fuel combinations are appropriate
- The green-house gas emissions arising from charcoal production are an important component of the baseline assessment and these are associated with credible and published emission factors derived from measurements made of similar techniques in similar localities
- The emission reductions resulting from sales of Ugastoves are conservatively assessed by a combination of two approaches:
  - applying a rigorous statistical analysis to the results of fuel-consumption sampling (Kitchen Tests) in households using a specific model of the Ugastove under a particular set of conditions,
  - making appropriate adjustments for application of these results to sales of other models used in alternative conditions, following the observations and analysis of a survey of 100 varied customers (the Kitchen Survey)

The methodology prescribes a sequence whereby a Kitchen Survey is carried in order that its results can be used to define customer groups (clusters) together with the characteristics required of subsequent Kitchen Tests (KTs) so that the customer groups may be represented by the tests. In the particular case of this project, this sequence was reversed with respect to sales of charcoal Ugastoves, for two reasons:

- the fuel consumption of a set of homes had already been measured in a Kitchen Test (KT) in 2006 prior to survey work (Kitchen Survey KS) undertaken in 2007.
- when the 2007 KS survey was concluded, the analysis of its results showed that the 2006 KT was valid for application, given stringent statistical analysis and appropriate adjustments, to the full range of Ugastoves models and conditions of use.

The KS recommended that the project calculates emission reductions for charcoal Ugastoves according to the following clusters:

a) Sales of charcoal stoves of sizes 2 to 5
b) Sales of charcoal stoves of size 1

Cluster (c) comprises institutional stoves burning wood. A survey was conducted together with a kitchen test in 2007 sampling 9 schools burning wood and using the Ugastove.

Cluster (d) comprises wood-burning domestic stoves. A provisional KT in 2006 was conducted in Kampala alongside the KT which evaluated fuel savings of the charcoal Ugastoves.

The Baseline Study and KS investigated the following risks of leakage:

a) Some users of the efficient stoves might respond to the fuel savings associated with higher-efficiency stoves by increasing consumption of fuels with GHG emission characteristics, to the extent that project emissions are higher than those calculated from the assumption that cooking energy is constant. This is sometimes referred to as the 'rebound' effect.
b) The project activity might stimulate increased use of a high emission fuel either for cooking or for other purposes outside the project boundary (as would be the case for example if efficient cooking stimulated an increase in NRB consumption - possibly because the NRB fuel becomes cheaper due to the project activity).
c) By virtue of promotion and marketing of a new model and type of stove with high efficiency, the project might stimulate substitution of a cooking fuel or stove type with relatively high emissions by households

who commonly using a cooking fuel or stove type with relatively lower emissions, in cases where such a trend is not eligible as an evolving baseline.

d) The project population might compensate for loss of the space heating effect of inefficient cook-stoves by adopting some other form of heating or by retaining some use of inefficient stoves
e) The traditional stoves displaced might be re-used outside the boundary in a manner suggesting more usage than would have occurred in the absence of the project.
f) Significant emissions from transportation or construction involved in the project activity might occur, including emissions associated with production/transport of the efficient stoves themselves, or production/transport of project fuels

Observations made in the course of the Baseline Study indicated no evidence of contingencies (a) or (b) occurring over the extensive period of the pilot program. Equally it was concluded there was no evidence of risk of (d), (e).

In the case of (c), it was clear that both the much lower disposable income levels in rural areas and the continuing practice of self-collection prevent a transition from wood users to charcoal. In any case the KPTs indicated that a switch from a traditional wood stove to an improved charcoal stove would result in reduced GHG emissions, such that there is no risk of leakage in this scenario. On the other hand the indications also were that an efficient charcoal stove has slightly worse GHG emissions than an efficient wood stove. Since this is a very unlikely scenario in view of the investment made by rural people in a new wood stove on the basis of charcoal being unavailable, it can be neglected.

The surveys showed that in urban areas wood users were a very small minority (wood users comprised less than 5% of approximately 50 households that were randomly sampled), so households switching from a lower emissions scenario with new wood stoves to a higher emissions scenario with new (or old) charcoal stoves would be minimal. The risk of leakage by fuel-switching is thus considered negligible.

In the case of (f) it was confirmed that reductions in transport emission would occur as a result of less charcoal needing to be carried long distances. This effect introduces conservativeness. The production and transport emissions associated with the manufacture of the Ugastoves were investigated and found to be negligible and not greater than those arising from the stoves being replaced.

Thus, no leakage factor is applied.

B.3. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered VER project activity:

In the case of conventional charcoal stove users, the baseline study shows the average consumption of families sampled using the traditional stove was 1.13 tonnes per year, in conditions where they are cooking only with charcoal. Families in the sample moving to the improved charcoal stove and using it for the same purpose and thermal load (cooking meals of the same type, number and sizes) were found to reduce their consumption to 0.72 tonnes per year on average. The adoption of the improved stove therefore resulted in a saving of 0.41 tonnes of charcoal on average each year by each user. This figure reduces to 0.30 to take account of the statistical error margin arising from the variation in the sample and adoption of the lower bound of a 90% confidence interval.

A fuel saving of 0.30 tonnes/year corresponds to a greenhouse gas emissions reduction of 1.53 tonnes of CO2e per year per family, given the biomass source for charcoal is 76% non-renewable. In order to adjust for real-world conditions observed by survey, such as use of secondary fuels, the GHG reduction figure adopted for project calculations is 1.27 tonnes of CO2e per year per family using a medium size stove, and 1.15 for a family using a size 1 stove.

In the case of institutional fire-wood stoves, the baseline study shows that average fuel demand per meal amongst a set of sampled institutions was 0.19 kg. Through adoption of the Ugastove, consumption per meal reduced to 0.10

kg on average, giving a fuel saving of 0.09 kg of fire-wood per meal on average in the sampled schools. Extending this result to apply to all schools, a figure of 0.072 kg/meal is conservatively derived from statistical analysis. This translates to a green house gas emission reduction of 45% for the sampled schools or 36% for all schools adopting the Ugastove.

For domestic wood users, the principle GHG reduction is the same. The initial indications from a small sample taken in Kampala in 2006 are a saving 3 kg of wood per day, or 1.95 tCO2/stove-year. Although these initial tests did confirm that a saving of this order was indeed being made, further tests will be needed to evaluate this saving more precisely in actual conditions of use of the Ugastove in rural areas.

B.4. Description of how the definition of the project boundary related to the baseline methodology selected is applied to the project activity:

The project boundary is defined as the kitchens used by the project population (Ugastove purchasers); this is distinct to the Reachable Fuel Collection Area, which is the geographical area of Uganda where fuel-woods can reasonably be expected to be collected throughout the period of the project.

B.5. Details of baseline information, including the date of completion of the baseline study and the name of person (s)/entity (ies) determining the baseline:

The baseline study was completed 03/03/08 and was carried out in several stages:

1. A sample of 68 domestic cooks were issued with size 2 charcoal Ugastoves in June-August 2006 and their charcoal consumption weighed for three days while cooking without the Ugastove, then for three days while cooking with the Ugastove, without use of secondary fuels or stoves. Concurrently a Kitchen Test for a sample of 13 wood-burning stoves was carried out. The results of the above two tests were reported by Evan Haigler of CEIHD, Joseph Arineitwe Ndemere, Dr David Pennise, and Dr Dana Charron in February 2007. The raw data from the two above tests were analyzed by Dr Tim Heaton of Oxford University Statistics Department, in January 2008, to determine emission reductions.
2. The non-renewability fraction of fuel-wood in Uganda, was analyzed by Dr Adam Harvey of ClimateCare in February 2007.
3. A survey and KT was commissioned by CEIHD which investigated the fuel consumptions of 11 schools using the wood-burning Ugastove in comparison with a set of schools which did not have Ugastoves; this was undertaken in mid 2007 and completed by 20 August. The raw data from these tests were analyzed by Dr Tim Heaton of Oxford University Statistics Department, in January 2008, to determine emission reductions.
4. In November 2007 a Kitchen Survey was commissioned by CEIHD and undertaken by Kellen Namusisi and Joseph Arineitwe Ndemere, comprising interviews with the primary cooks in 84 houses. This was extended with a further 20 home interviews in January 2008 under commission from ClimateCare. The second phase was also carried out by Kellen Namusisi who worked with ClimateCare to prepare a Kitchen Survey report completed 3 March 2008.

The parties mentioned may be contacted through the project participants listed in Annex 1.

SECTION C. Duration of the project activity / Crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:
1st January 2006 (crediting start expected 1st April 2008)

C.1.2. Expected operational lifetime of the project activity:
7 years 0 months

C.2 Choice of the crediting period and related information:

Renewable

C.2.1. Renewable crediting period

C.2.1.1. Starting date of the first crediting period:
1st April 2008

C.2.1.2. Length of the first crediting period:
7 years 0 months

C.2.2. Fixed crediting period:

C.2.2.1. Starting date: N/A
C.2.2.2. Length: N/A

SECTION D. Application of a monitoring methodology and plan

D.1. Name and reference of approved monitoring methodology applied to the project activity:

The monitoring protocol is included within the methodology "Improved Cook-Stoves and Kitchen Regimes", approved by the Gold Standard Foundation.

D.2. Justification of the choice of the methodology and why it is applicable to the project activity:

The methodology is specifically designed to match the project conditions.

D.2. 1. OPTION 1: Monitoring of the emissions in the project scenario and the baseline scenario

D.2.1.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:

ID #	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e),	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment
1	*Stove Sales*	*Sales Records*	*Number of stoves by type and size*	*M*	*Daily*	*All sales*	*Electronic and paper*	
2	*Project Fuel Consumption*	*KTs*	*Mass fuel per year*	*M*	*Biannually*	*Sample*	*Electronic and paper*	*Fuel consumption of improved stove*
3	*Clustering definitions*	*Monitoring KS*	*As specified above*	*E*	*Quarterly*	*Sample*	*Biannual monitoring reports*	*To ensure representative KTs*
4	*Usage factor*	*Usage KT or KS*	*% operational*	*M, E*	*Biannually*	*Sample*	*Electronic and paper*	
5	*Age Factor*	*Stove-age KT*	*Mass fuel per year*	*M*	*Biannually*	*Sample*	*Electronic and paper*	
6	*New Stove performance*	*New Stove KT*	*Mass fuel per year*	*M*	*Biannually*	*Sample*	*Electronic and paper*	*Fuel consumption of new improved stove*

D.2.1.2. Data to be collected in order to monitor project performance on the most sensitive sustainable development indicators:

Sustainable Development Indicator	Data type	Data variable	Data unit	Measured (m), calculated (c) or estimated (e)
Air quality	*Survey*	*Air pollutants (CO, particulates)*	*Survey observations*	*Estimated through home interviews and observations as to inside/outside cooking*
Lively-hood of the poor	*Survey*	*Financial impact*	*Ug Sh*	*Estimated through home interviews during quarterly Kitchen Survey visits to randomly selected Ugastove buyers*
Employment	*Survey*	*Numbers*	*Employees*	*Direct employees and retailers of Ugastoves are measured and spin-off employment (competitors) is estimated*
Access to Energy Services	*Survey*	*Fuel cost, consumption, ease of collection*	*Tonnes/year, prices, walking distances*	*Measured through kitchen tests and surveys*
Human and institutional capacity	*Survey*	*Skill levels*		*Estimated through records of Ugastove and spin-off achievements in business, marketing, and technology areas*
Technological self-reliance	*Survey*	*Achievement*		*Estimated though observation and record of Ugastove and spin-off technical innovations and developments*

D.2.1.3. Description of formulae used to estimate project emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

Annex 2.3

D.2.1.3. Relevant data necessary for determining the baseline of anthropogenic emissions by sources of GHGs within the project boundary and how such data will be collected and archived :

ID number	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e),	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment
7	*Non-Renewable Biomass fraction*	*FAO, FOSA, Uganda Forestry Policy, Rural KS surveys*	*Xnrb: % non-renewable biomass*	*M, C, E*	*Biannually*	*Sufficient depth and conservative approach*	*National Data are electronic. Survey results are paper and electronic*	*Following approach of baseline assessment*
8	*Baseline Fuel Consumption*	*If need indicated by Monitoring KS, Baseline KT or New Stove KT*	*Mass fuel per year*	*M*	*Biannually*	*Sample*	*Electronic and paper*	

D.2.1.4. Description of formulae used to estimate baseline emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)
Annex 2.3

D. 2.2. OPTION 2: Direct monitoring of emission reductions from the project activity (values should be consistent with those in section E).

D.2.2.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:
N/A

D.2.2.2. Description of formulae used to calculate project emissions (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.):
N/A

D.2.3. Treatment of leakage in the monitoring plan

D.2.3.1. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project activity

ID number *(Please use numbers to ease cross-referencing to table D.3)*	Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment
Al leakage risks		*KS*		*e*	*quarterly*		*Electronic and paper*	

D.2.3.2. Description of formulae used to estimate leakage (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

Qualitative assessment through quarterly Kitchen survey home visits throughout the project period

D.2.4. Description of formulae used to estimate emission reductions for the project activity (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

Annex 2.3

D.3. Quality control (QC) and quality assurance (QA) procedures are being undertaken for data monitored

The project operator will employ a 3rd party expert with independent status and suitable credentials to ensure quality control in several of the monitoring activities. This consultant will be responsible for the periodic KS's, Usage Surveys, Leakage investigation, and spot-checks (including field observations of retailer activity) to confirm the validity of Sales Records and to confirm the absence of double-counting in any form. He or she will ensure that the Detailed Customer Database and the Project Database are up to date and that the latter is representative of the most recent definitions of clusters. He or she will cross-check the Sales Record with the sales records of retailers, and with production records (materials

purchases, staff numbers), and with Ugastoves's internal accounting records. The 3rd party expert's reports on the methods used for such cross-checks and their findings will be included in quarterly monitoring reports available to the verifier. The project operator is responsible to fill this role to standard in any instances where a 3rd party is unavailable or has been unable to do so.

Data *(All from Table 2.2.1)*	Data Variable	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.
1	*Stove Sales*	*Low*	*Third party review (cross-checks as defined)*
2	*Project Fuel Consumption*	*Low*	*Third party review*
3	*Clustering definitions*	*Low*	*Conducted by third party*
4	*Usage factor*	*Low*	*Conducted by third party*
5	*Age Factor*	*Low*	*Conducted by third party*
6	*New Stove performance*	*Low*	*Conducted by third party*
7	*Non-Renewable Biomass fraction*	*Low*	*Conducted by third party*
8	*Baseline Fuel Consumption*	*Low*	*Conducted with third party assistance*

Data items in tables contained in sections D.2.1 or D.2.2, as applicable.

D.4. Please describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects, generated by the project activity

The Project Operator and will schedule and implement the monitoring activities described and tabulated above, and summarize results in the form of quarterly monitoring reports (QMRs), due for submission within one month of end of each quarter. These QMRS will annex the prior reports of the 3rd party expert which will be due for submission within two weeks of the end of each quarter.

D.5 Name of person/entity determining the monitoring methodology:

The monitoring methodology is as prescribed in the methodology "Improved Cook-stoves and Kitchen Regimes" under the Gold Standard Foundation prepared by ClimateCare with contributions from CEIHD.

SECTION E. Estimation of GHG emissions by sources

E.1. Estimate of GHG emissions by sources:

See E6.

E.2. Estimated leakage:

See E6.

E.3. The sum of E.1 and E.2 representing the project activity emissions:

See E6

E.4. Estimated anthropogenic emissions by sources of greenhouse gases of the baseline;

See E6

E.5. Difference between E.4 and E.3 representing the emission reductions of the project activity:

See E6

E.6. Table providing values obtained when applying formulae above:

Calendar Year	Project Year	Estimation of emission reductions (tonnes CO2 e)	Estimation of leakage (tonnes CO_2 e)	Estimation of emission reductions (tonnes CO_2 e)
Q4-05 to Q1-06	Installs	0	0	0
Q2-06 to Q1-07	Year -2	10,616	0	10,616
Q2-07 to Q1-08	Year -1	23,807	0	23,807
Q2-08 to Q1-09	1	47,990	0	47,990
Q2-09 to Q1-10	2	78,965	0	78,965
Q2-10 to Q1-11	3	106,485	0	106,485
Q2-11 to Q1-12	4	122,875	0	122,875
Q2-12 to Q1-13	5	127,844	0	127,844
Total		**518,581**	**0**	**518,581**

SECTION F. Environmental impacts

F.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

No adverse environmental impacts will take place as a result of the project activity. Questions in this regard were answered to the satisfaction of authorities attending the stake-holder consultations in March 2007 and January 2008. Project approval of the PDD has been granted by the National Environmental Management Authority (NEMA) of Uganda.

F.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

N/A

SECTION G. Stakeholders' comments

G.1. Brief description how comments by local stakeholders have been invited and compiled:

Two stakeholder consultations have been carried out. An initial meeting took place in on 16 March 2007, and a follow-up meeting took place on 14 January 2008, both in Kampala.

The meetings were attended by representatives from government, environmental and civil society organizations, academia and the private sector. There were 30 participants in the first meeting, and 27 in the follow-up meeting.

In general, the assembled stakeholders expressed support for the project, and expressed appreciation that the project would deliver co-benefits beyond greenhouse gas reduction, as follows:

- Improvement in indoor air quality, leading to reduced risk of ill-health in women and children;
- Defence against environmental degradation by virtue of lessened demand for wood-fuels
- Poverty alleviation arising from reduced fuel consumption and costs.

G.2. Summary of the comments received:

The primary recommendations made by the stakeholders were:

1. That the carbon funding is linked to poverty alleviation and millennium development goals (through ensuring that the stoves are priced to be affordable to as many households as possible)
2. That the project expands its marketing and distribution efforts to give families outside of Kampala access to the stoves;
3. That the quality and durability of the stove will be maintained so that it continues to deliver the promised co-benefits;
4. That this project platform is used to improve upstream fuel wood harvesting and charcoal production practices.
5. That the carbon rights of individual purchasers of the stoves be respected and the position in this regard clarified
6. That the fuel savings and green-house gas emission saving tests conducted by the project are fully rigorous so that the results can be used as precedents for further work in Uganda

G.3. Report on how due account was taken of any comments received:

The project has accommodated the recommendations in the following ways::

1. *That the carbon funding is linked to poverty alleviation and millennium development goals (through ensuring that the stoves are priced to be affordable to as many households as possible).* In July 2007 Ugastoves introduced a smaller stove (Size 1) which is less expensive than the size previously sold for standard domestic use (now referred to as the medium size or Size 2). This has increased sales made efficient cooking more affordable to the wider population. Other strategies under consideration are payment plans or micro-credit, and special subsidies targeted at particular areas or at particularly vulnerable or needy population groups, to be realized as sufficient carbon financing revenues are collected. Further, the business development strategy for Ugastoves includes investigation of methods of reducing production costs and stoves prices, including consideration of methods of extending current levels of control of retail prices.

2. *That the project expands its marketing and distribution efforts to give families outside of Kampala access to the stoves.* In the short term distribution is starting now in areas outside Kampala as

and when opportunities present themselves. In the longer term, Ugastoves is planning to franchise their manufacturing and distribution systems to other regions of Uganda.

3. *That the quality and durability of the stove will be maintained so that it continues to deliver the promised co-benefits.* Firstly, Ugastoves retailers now issue a warranty card which allows customers to claim a free pan-rest replacement. This is results in longer stove life-times, and has the advantage of facilitating follow-up monitoring services which will be used to detect quality issues and correct them in good time. Secondly, it is intended to monitor not only GHG reductions but also IAP impacts of the stoves, through the course of the project, so that the co-benefits will be visible. Furthermore, the non-renewability fraction of the wood-fuels will continue to be monitored. And finally, part of the business development strategy is to build define the Ugastove brand so that quality control and branding together can build a durable product with a large market appeal.

4. *That this project platform is used to improve upstream fuel wood harvesting and charcoal production practices.* The project has already stimulated the preparation of projects to increase the efficiency of charcoal production and to establish field trials of sustainable charcoal production systems. Through further networking and through the non-renewable biomass monitoring activities of this project, it is expected that further stimulus will be given to these initiatives. It should be recognised nevertheless that this very important task is outside the scope of the project.

5. *That the carbon rights of individual purchasers of the stoves be respected and the position in this regard clarified.* The current expansion of Ugastoves sales, the pricing of the stove, and its quality assurance initiatives (such as the free pan-rest), are already dependent on carbon finance. Consequently, in July 2007 the decision was taken that in order to respect customer carbon rights it was important to inform customers of this. Since then, customers of a Ugastove have routinely received a warranty card on which is printed the message that the carbon finance associated with use of the stove has been used.

6. *That the fuel savings and green-house gas emission saving tests conducted by the project are fully rigorous so that the results can be used as precedents for further work in Uganda.* The project proponents are very aware of the importance of this request and have responded by ensuring that survey work and the analysis applied to fuel consumption tests is fully professional, so that the results are conservative and can safely be used by Ugandans as precedents. The methodology for monitoring requires that further surveys and tests are carried out at intervals throughout the project period (including not only fuel consumption but also non-renewability of the biomass), so that it will be possible for all parties to revisit the fuel-saving and emission-reduction figures in coming years.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

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Annex 2

BASELINE INFORMATION

The parameters table below summarizes the results of the KS and KT findings as to clustering and the emission reductions per unit of each cluster, following adjustments as recommended by the KS and resulting from statistical analysis.

The KS recommended that the project calculates emission reductions for charcoal Ugastoves according to the following clusters:

c) Sales of charcoal stoves of sizes 2 to 5
d) Sales of charcoal stoves of size 1

With respect to both cluster (a) and cluster (b) the KS suggested that a single Kitchen Test focused on charcoal-only users of stove size 2 is appropriate if the following adjustments are made to its outcome:

a) Sales of charcoal stoves of sizes 2 to 5: Adjust downwards the fuel saving figure derived from the KT by a factor of 0.83. This factor takes into account the conditions observed by the KS (secondary fuel use, retained use of old stove alongside new). In addition, since the sales of stove sizes 3-5 represent higher savings than measured in the KT, the application of a KT with this profile is conservative.
b) Sales of charcoal stoves of size 1: Adjust downwards the fuel saving figure derived from the KT by a factor of 0.75. This factor takes into account the conditions observed by the KS (secondary fuel use, retained use of old stove alongside new), and in addition accommodates the relative fuel consumption of small stoves compared to no 2 size stoves, within a conservative margin.

The final result of the KS, KT and the adjustments recommended, were as follows:

a) Sales of charcoal stoves of sizes 2 to 5: emission reduction of 1.27 tCO2e per operational stove year (lower bound of 90% confidence interval and adjusted as described above).
b) Sales of charcoal stoves of size 1: emission reduction of 1.15 tCO2e per operational stove year (lower bound of 90% confidence interval and adjusted as described above).

Sales of size 1 and sizes 2-5 are expected to remain approximately equal through the project period, and therefore the average of the two emission reduction figures above is applied to a single sales projection for all charcoal stoves.

Cluster (c) comprises institutional stoves burning wood. A survey was conducted together with a kitchen test in 2007 sampling 9 schools burning wood and using the Ugastove. A statistical analysis of the results found at 90% confidence level that the average saving of the institutional stoves were 0.072 kg of wood per adjusted person-meal, where the adjustment in this case normalises primary children's meals and light meals. For the purposes of projecting future emission reduction savings this figure is multiplied by the average number of adjusted person-meals per day observed in the sample of school investigated, together with the number of days of school attendance typical for Kampala.

Cluster (d) comprises wood-burning domestic stoves. A provisional KT in 2007 in Kampala indicated an emission saving of 1.95 tCO2e/stove-year. This is considered an indicative figure only due to limitations in

the sampling size and the necessity to carry out the KT in specific rural areas as and when the marketing operations of Ugastove develop in those areas.

Table A.2.4 Parameters Table

	Parameter	Value	Units
Fractional Non-Renewability (constant for baseline and project conditions)	Xnrb,y	0.76	fraction
Leakage (all clusters)	LE,y	0.00	fraction
Cluster (a) Charcoal stoves size 2-5			
Emission reduction	ER,y (cl a)	1.27	tCO2e / stove-year
Cluster (b) Charcoal stoves size 1			
Emission reduction	ER,y (cl b)	1.15	tCO2e / stove-year
Clusters (a) and (b) Charcoal stoves all sizes - Projected Sales ratio			
Assumed ratio of cluster a and cluster b sales for emission reduction projections		Equal sales	
Averaged emission reduction for clusters a and b	ER,y (cl a + b)	1.21	tCO2e / stove-year
Cluster (c) Institutional wood burning stoves			
Average adjusted meals per day per institution		896.000	meals/day
Average days per year of school attendance		270	days/year
Average adjusted meals per year per institution		241,920	meals/year
Emission reduction	ER,y (cl c)	31.05	tCO2e/ instit-year
Cluster (d) Domestic wood burning stoves			
Emission reduction	ER,y (cl d)	1.95	tCO2e/stove-year

Annex 3

MONITORING PLAN

The project will follow a Monitoring Plan as set out in the methodology "Improved Cook-stoves and Kitchen Regimes".

Of particular importance is the requirement that a survey is undertaken of 25 Ugastove customers each three months, and that the data collected is held in a Detailed Customer Database. This data will function as a guide to sustainable development indicators, and as a guide to evolving baseline conditions and to factors such as usage drop-off and age performance of Ugastoves.

The Monitoring Plan also will include bi-annual KS and KTs, which will include investigation of the performance of ageing Ugastoves, so that such adjustments can be made to the emission reduction values used in monitoring reports. Equally Usage will be investigated, and appropriate adjustments made to emissions reductions claims based on measured usage drop-off rates.

Verification will take place annually, and the Verification report will follow the methodology in the above respects. Updated assessments of sustainable development indicators will be included as a component of monitoring report submitted for Verification.