



GLOBAL ENVIRONMENT FACILITY  
INVESTING IN OUR PLANET

MONIQUE BARBUT  
Chief Executive Officer and Chairperson

1818 H Street, NW  
Washington, DC 20433 USA  
Tel: 202.473.3202  
Fax: 202.522.3240/3245  
E-mail: mbarbut@TheGEF.org

April 02, 2012

Dear Council Member:

I am writing to notify you that we have today posted on the GEF's website at [www.TheGEF.org](http://www.TheGEF.org), a medium-sized project proposal from UNIDO entitled ***Burkina Faso: Promoting Energy Efficiency Technologies in Beer Brewing Sector in Burkina Faso***, to be funded under the GEF Trust Fund (GEFTF).

The objective of this project is to promote fuel efficient cook stoves in the beer brewery sector in Burkina Faso.

The project proposal is being posted for your review. We would welcome any comments you may wish to provide by April 16, 2012, in accordance with the new procedures approved by the Council. You may send your comments to [gcoordination@TheGEF.org](mailto:gcoordination@TheGEF.org).

If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Attachment: Project Document

cc: Country Operational Focal Point  
GEF Agencies  
STAP  
Trustee



# REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project

THE GEF TRUST FUND

Submission Date: 29 November 2011

Re-Submission Date: 17 February 2012

## PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 4285

GEF AGENCY PROJECT ID: XX/BKF/10/X01

COUNTRY(IES): Burkina Faso

PROJECT TITLE: Promoting energy efficiency technologies in beer brewery sector in Burkina Faso

GEF AGENCY(IES): UNIDO, (select), (select)

OTHER EXECUTING PARTNER(S): Institut de Recherche en Sciences Appliquees et Technologies (IRSAT), Ministry of Environment and Sustainable Development

GEF FOCAL AREA(s): Climate Change

GEF-4 STRATEGIC PROGRAM(s): CC-SP-2 Industrial Energy Efficiency (see preparation guidelines section on exactly what to write)

NAME OF PARENT PROGRAM/UMBRELLA PROJECT: GEF STRATEGIC PROGRAM FOR WEST AFRICA- ENERGY COMPONENT

Expected Calendar (mm/dd/yy)	
Milestones	Dates
Work Program (for FSPs only)	N/A
Agency Approval date	11/2011
Implementation Start	04.01.2012
Mid-term Evaluation (if planned)	N/A
Project Closing Date	03.31.2014

### A. PROJECT FRAMEWORK (Expand table as necessary)

Project Objective: To promote fuel efficient cookstoves in the beer brewery sector in Burkina Faso								
Project Components	Indicate whether Investment, TA, or STA <sup>2</sup>	Expected Outcomes	Expected Outputs	GEF Financing <sup>1</sup>		Co-Financing <sup>1</sup>		Total (\$) c=a+ b
				(\$ a)	%	(\$ b)	%	
1. Technology deployment and demonstration	INV	Cook stoves design improved to achieve optimum fuel efficiency	1.1. The technical capacity of 100 stove manufacturers on design and construction of improved cook stoves upgraded 1.2. Financing facility for improved cook stoves set up 1.3. Over 1000 improved energy efficient cook stoves installed 1.4. The potential of biogas production from agro residues produced during beer brewing is assessed	90,000	32	280,000	68	370,000
2. Stimulating the market demand for improved cook stoves	TA	Market demand for improved cook stoves stimulated through private sector development initiatives	2.1. Microenterprise clusters of beer brewers developed 2.2. The distribution and supply chains for improved cook stoves improved to support better	200,000	40	300,000	60	500,000

			production and marketing and increase sales					
3. Scaling up through the voluntary carbon market	INV	Investments in improved cook stoves achieve scale through the carbon financing	3.1. National capacity for developing and implementing cook stove projects within the voluntary carbon market is established	80,000	50	80,000	50	160,000
4. Monitoring and evaluation				15,000	50	15,000	50	30,000
5. Project management				45,000	45	55,000	55	100,000
<b>Total Project Costs</b>				A 430,000	37	B 730,000	63	1,160,000

<sup>1</sup> List the \$ by project components. The percentage is the share of GEF and Co-financing respectively of the total amount for the component.

<sup>2</sup> TA = Technical Assistance; STA = Scientific & Technical Analysis.

**B. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT** (expand the table line items as necessary)

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Project</i>	<i>%*</i>
Ministry of Environment	Nat'l Gov't	In-kind	100,000	14
UNIDO	GEF Agency	Grant	65,000	9
UNIDO	GEF Agency	In-kind	65,000	9
African Export Import Bank (Afreximbank)	Others (specify) (international bank)	Soft-loan	500,000	68
	(select)	(select)		
	(select)	(select)		
	(select)	(select)		
	(select)	(select)		
<b>Total Co-financing</b>			B730,000	100%

\* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

**C. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)**

	<i>Project Preparation a</i>	<i>Project b</i>	<i>Total c = a + b</i>	<i>Agency Fee</i>	<i>For comparison: GEF and Co-financing at PIF</i>
GEF financing	25,000	A430,000	455,000	45,500	430,000
Co-financing	30,000	B730,000	760,000		500,000
<b>Total</b>	55,000	1,160,000	1,215,000	45,500	930,000

**D. GEF RESOURCES REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES)<sup>1</sup>**

<i>GEF Agency</i>	<i>Focal Area</i>	<i>Country Name/ Global</i>	<i>(in \$)</i>		
			<i>Project (a)</i>	<i>Agency Fee (b)<sup>2</sup></i>	<i>Total c=a+b</i>
(select)	(select)				
<b>Total GEF Resources</b>					

<sup>1</sup> No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

<sup>2</sup> Relates to the project and any previous project preparation funding that have been provided and for which no Agency fee has been requested from Trustee.

**E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

<i>Component</i>	<i>Estimated person weeks</i>	<i>GEF amount(\$)</i>	<i>Co-financing (\$)</i>	<i>Project total (\$)</i>
Local consultants*	200	50,000	50,000	100,000
International consultants*	60	60,000	60,000	120,000
<b>Total</b>	260	110,000	110,000	220,000

\* Details to be provided in Annex C.

#### F. PROJECT MANAGEMENT BUDGET/COST

<i>Cost Items</i>	<i>Total Estimated person weeks/months</i>	<i>GEF amount (\$)</i>	<i>Co-financing (\$)</i>	<i>Project total (\$)</i>
Local consultants*	100	<b>45,000</b>	<b>0</b>	<b>45,000</b>
International consultants*	12	<b>15,000</b>	<b>15,000</b>	<b>30,000</b>
Office facilities, equipment, vehicles and communications*		<b>0</b>	<b>25,000</b>	<b>25,000</b>
Travel*		<b>0</b>	<b>26,000</b>	<b>26,000</b>
<b>Total</b>		<b>60,000</b>	<b>66,000</b>	<b>126,000</b>

\* Details to be provided in Annex C. \*\* For others, it has to clearly specify what type of expenses here in a footnote.

#### G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? yes no

(If non-grant instruments are used, provide in Annex E an indicative calendar of expected refloes to your agency and to the GEF Trust Fund).

#### H. DESCRIBE THE BUDGETED M & E PLAN:

The Project monitoring and evaluation (M&E) will be carried out in accordance with established UNIDO and GEF rules and procedures.

The monitoring and evaluation process will ensure proper implementation of the project by: i) tracking the implementation of project activities; ii) reviewing the project progress against the projected targets to allow early corrective actions in cases of deviations of the actual project performance from the initially planned targets; and iii) adjusting the initial project strategy and implementation plan taking into account various issues arising during project implementation.

A detailed monitoring plan for tracking and reporting on the project progress and accomplishments will be prepared by UNIDO in collaboration with the Project Management Unit (PMU) and project partners at the beginning of project implementation. The plan will be regularly updated.

The national project manager will be responsible for the day to day monitoring of the project execution as well as regular reporting on the progress in project implementation. The UNIDO project manager will be responsible for monitoring the overall progress in project implementation and will report to the GEF on the fulfilment of the project set indicators in line with GEF guidelines.

The project targets and related indicators are defined in the logical framework presented in annex I to this document. This framework will form the basis for the project M&E plan. Specifically the M&E plan will monitor the attainment of the following targets:

- Energy savings and GHG emission reductions directly generated by the project
- Energy savings and GHG emission reductions indirectly generated by the project Investments generated by the project  
Gold Standard projects registered
- Technical capacity for constructing and maintaining energy efficient cookstoves
- Technical capacity for preparing projects for financing within the voluntary carbon markets
- Technical capacity for utilizing agro-waste for biogas production.

The M&E plan consists of an inception report following the project inception workshop, quarterly progress reports, annual reviews and a final evaluation. The final evaluation will be carried out by an independent international expert, 6 months after the project completion. The implementation of the M&E plan requires an estimated budget of US\$ 30,000.

SOURCE OF FUNDING	AMOUNT IN US\$
GEF	15,000
UNIDO	15,000
<b>TOTAL</b>	<b>30,000</b>

**PART II: PROJECT JUSTIFICATION:** In addition to the following questions, please ensure that the project design incorporates key GEF operational principles, including sustainability of global environmental benefits, institutional continuity and replicability, keeping in mind that these principles will be monitored rigorously in the annual Project Implementation Review and other Review stages.

**A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:**

### **1. Background**

Burkina Faso is a landlocked country in the middle of West Africa, surrounded by Mali, Côte d' Ivoire, Togo, Benin, Ghana and Niger. Burkina Faso does not have its own fossil fuel resources and relies totally on their import. The majority of the energy supply in Burkina Faso derives from traditional biomass, mainly firewood and charcoal where the national average consumption of firewood is estimated at 0,69 kg per person per day. In order to promote the transition from firewood, the Government adopted a number of measures including subsidizing the price of kerosene and LPG and increasing the forest taxes. Nevertheless, firewood continues to be predominantly the main fuel source in the country representing over 80% of the energy supply.

The high consumption of firewood is creating an imbalance in the supply and demand for firewood, which is accelerating desertification and posing concerns for rural development and energy supply. The Government, supported by international donors, has taken measures to reduce wood cutting and consumption and promote sustainable forest management through combating bushfires and illegal logging, reforestation and close surveillance of the forests.

In Burkina Faso, beer brewing, the so-called dolo is a traditional profession that is passed on from generation to generation. It constitutes an important source of income for rural women who brew in small scale home-based breweries. There are thousands of these breweries around the country and about 4000 in Ouagadougou alone. These breweries employ traditional dolo cookers, mainly the regrouped bookers and line cookers that use firewood as fuel. Breweries are a significant consumer of firewood, utilizing 1/5th of the firewood consumption in Burkina Faso annually.

Traditional stoves have a low combustion efficiency which results in longer cooking times and as such higher consumption of the firewood. The low efficiencies of the cookers can be attributed to incomplete combustion, poor heat transfer from the flame to the jars and massive heat losses to the surroundings. A considerable amount of firewood in the range of 20 to 67 % (Smith, 2007) can be saved through promoting improved stoves.

Other benefits of promoting the improved cookstoves include the reduced concentrations of smoke and greenhouse gas emissions, reduced pressure on forests and related resources, reduced costs of production resulting in a higher income generation and developing skills.

### **2. Barrier Analysis**

Despite the well-known benefits of improved cookstoves, the replacement of the traditional cookstoves is not occurring at the rate that it should. This is due to a number of barriers that are preventing such scale-up:

**a. Economic barriers:** In Burkina Faso there are no financing schemes to support the dolotiers (beer brewers) in financing the purchase of the improved cookers. The improved cookers despite their low cost of US\$ 150 to 200 are not affordable for the dolotiers whose disposable income is in the range of \$ 1 to 2 a day,

**b. Technical barriers:** A number of different technologies for improved cookstoves is available such as LPG cookstoves, cookstoves with earthenware jars or aluminum pots. The barriers related to technology include lack of skill on the construction and maintenance of the improved cookstoves and promoting technologies that are not easily disposable for local communities and require importing expensive components,

**c. Information barriers:** the lack of awareness of the local communities on the economic, environmental and health benefits of improved cookstoves.

### **3. The project**

The project aims at promoting energy efficient industrial cookstoves in the beer brewery sector in Burkina Faso. It will focus on large cook stoves used in beer breweries in the west, center east, boucle de Mouhoun, Centre South, Plateaus Central and Center North regions. The stoves in question are traditionally made. They consists of 4 canaris or pots of 80 to 100 l capacity each that are positioned on four supports and sealed with fresh clay.

The proposed GEF contribution will be used to address the barriers preventing the wider uptake of energy efficient stoves. It will directly contribute to the reduction of 40,654 t CO<sub>2</sub>e of emissions through promoting energy efficient cook stoves in Burkina Faso.

The project consists of four main components

The first component aims at improving the design of cook stoves to achieve the optimum fuel efficiency. It supports building the national capacity in Burkina Faso on the design, construction and maintenance of energy efficient cook stoves, installing 1000 improved cook stoves and exploring the possibility to utilize the agro-waste produced during the beer brewing process for biogas production.

The second component aims at stimulating the market demand for improved cook stoves through carrying out private sector development initiatives. This will be achieved through the creation of microenterprise clusters of beer brewers and carrying out activities to support the development of effective distribution and supply chains for improved cook stoves.

The third component aims at achieving the market scale for improved cook stoves through upgrading the institutional capacity to develop and implement programmes of activities to support the deployment of improved cook stoves through carbon financing and particularly through the voluntary carbon market.

The final component is the project management and monitoring. It includes the establishment of a project management unit to monitor the implementation of the project on the ground. The evaluation of the project results and impacts will be carried out by independent international consultants.

The section below describes in more detail the rationale and the activities planned under the project components (excluding project management).

#### ***Project component 1: Technology Deployment and Demonstration***

In order to overcome technical barriers related to the implementation of more expensive technologies that are not readily available, the project will promote low cost technologies that are available locally and easy to manufacture. It will focus on training the manufacturers of cook stoves (masons) on the design, construction and maintenance of improved stoves. It is estimated that there are around 150 masons in the selected regions west, center east, boucle de Mouhoun, Centre South, Plateaus Central and Center North out of which 100 are targeted through the project.

The project will also facilitate the financing and installation of 1000 stoves to be financed through a project financing line supported by the the African Import Export Bank (Afreximbank). Afreximbank will offer a project financing line to a local financial institution in Burkina Faso, who will in its turn administer the project line and perform lending to the beer brewers. The proposed duration for each loan agreement is 6 to 12 months. The financing should be completed within the lifespan of the project. The component will also collect good practice examples and disseminate them through various means; brochures, websites, etc...

Afreximbank was established in Abuja, Nigeria in October, 1993 by African Governments, African private and institutional investors as well as non-African financial institutions and private investors. the purpose of financing, promoting and expanding intra-African and extra-African trade. The Bank aims at stimulating a consistent expansion, diversification and development of African trade while operating as a first class, profit-oriented, socially and environmentally responsible financial institution and a centre of excellence in African trade matters.

The Bank puts specific emphasis on the environment and performs an environmental risk assessment as part of its project screening.

Through the project, AfreximBank intends to start up an environmental project credit line to a creditworthy local bank, which will in its turn will offer loans to target beneficiaries, who due to their small size, would otherwise not be able to access Afreximbank's resources. The credit line of around US\$ 5 million will be open

to small scale Agri business projects such as the manufacturers of fermented products and bakeries, hospitals and restaurants using similar technologies for cooking as well as other projects focusing on renewable energy and energy efficiency measures. Within that credit line US\$ 500,000 will be utilized for financing energy efficient cook stoves used in the small scale beer brewers. Detailed information about the eligible projects, financing thresholds, requirements for financing, etc... will be elaborated with the local bank to be identified during the inception phase of the project. General information on credit lines offered by Afreximbank is provided in Annex H to this document.

The beer brewers will be selected in line with the selection criteria listed below. As the beer brewers are of a micro-scale, they will be grouped together and apply for project financing through the associations of beer brewers, which will be established through the clusters development component, with the support of the equivalent association in Ouagadougou. The Association of Beer brewers will act as the guarantor of the breweries and provide the local bank annual and quarterly business plans for projects proposed for implementation.

The selection criteria for the 1000 cook stoves to be improved include: a) energy performance of the old stove, b) usage rates, c) quantity of wood consumed, d) efficiency of the new stove, e) economic feasibility of the investment and f) ability to comply with the requirement of the financial agreement with the local bank.

Beer breweries produce solid and liquid agro residues with a high energy value. While part of the solid residues produced during beer processing are utilized as fodder for swines, the liquid waste was disposed. Both types of residues hold a potential for biogas production which can then be used as a fuel in the beer breweries reducing the wood consumption even further. Hence, the project will assess the actual potential of solid and liquid waste residues produced during the beer processing, determine the most cost effective means technologies to utilize it as a fuel source and make recommendations on how it can be used in the future to further optimize the fuel efficiency and reduce fuel wood consumption.

***Project component 2:*** Stimulating the market demand for improved cookstoves

#### **The UNIDO Cluster development approach (incl. benefits)**

Clusters, i.e. territorial agglomerations of firms engaged in related production activities, can play a leading role in the development of a dynamic private sector. Enterprises that are located in a cluster enjoy a range of benefits that are out of reach for isolated firms, particularly micro, small and medium enterprises.

These advantages consist, partly, of a class of external economies that derive to individual firms from the pooling of common factors and resources, such as skilled workforce, specialized suppliers and market linkages. Yet, the main benefit accruing to firms in a well performing cluster rests in the gains produced by joint actions like information sharing, vertical specialization, subcontracting, shared purchase of inputs or raw material, to name a few examples.

Also the concentration of enterprises in a territory induces the emergence of a number of “related and support institutions”, business associations, specialized schools, government industrial extension programs, network brokers etc. that provide firms with specialized services and assistance. The closer the interaction between firms and institutions, the better will be the matching between demand and offer of services in the cluster.

Overall, joint actions, among firms and between them and support institutions, help the cluster achieve levels of collective efficiency and capabilities that boost entrepreneurial dynamism and allow small-scale firms to overcome size constraints to growth.

The mere concentration of firms in a cluster is no guarantee for success. While external economies occur naturally, joint actions do not emerge automatically. On the contrary, there are plenty of examples of clusters where inter-firm cooperation is accidental or inexistent, while support institutions are weak or dormant. Such clusters are characterized by cutthroat competition and poverty.

Evidence from successful clusters shows that collective efficiency can be fostered through a mix of networking, collaboration and competition. Yet, the transition from a stage of stagnation to one of dynamism is not easy. The achievement of collective efficiency is a long-lasting process that requires the development of trust and constructive dialogue among entrepreneurs and the identification of a shared vision for the cluster to orient firms’ endeavours towards the achievement of common goals.

Some clusters are able to spontaneously accomplish this transition. In many other cases, external assistance is needed to help cluster stakeholders coordinate their efforts and commit to common goals.

The UNIDO Cluster Development Programme assists firms and institutions in underperforming clusters to achieve and enhance advantage of collective efficiency.

The main features of the UNIDO strategy are:

- **Participatory approach to vision building.** Underperforming clusters are characterized by internal conflict and very poor levels of trust. Overcoming conflicts and developing mutual trust requires a shift in the vision and expectations of all cluster stakeholders. Building upon the findings of a participatory diagnostic study, UNIDO helps cluster stakeholders appreciate their mutual interdependence and the challenges they jointly face. It promotes interaction and dialogue on identification of a shared vision and action plan for the cluster. In so doing, cluster stakeholders develop trust-based relations that allow them to collaborate on the achievement of the cluster vision.
- **Business linkages.** Key to the UNIDO approach is the promotion of business linkages (e.g. horizontal and vertical networks and export consortia), which allow firms to pool resources and efforts towards the achievement of the shared goals identified in the cluster vision. This is achieved by supporting firms in accomplishing a gradual shift from low risk, quick win activities to higher risk, strategic initiatives that require a longer term commitment.
- **Capacity building.** This range of activities aims to strengthen the capacities of cluster stakeholders, both firms and institutions. Keeping the goal of sustainability in mind, UNIDO focuses on fostering enterprise development by connecting firms to local support institutions that can provide training opportunities, credit or other relevant BDS. At the same time, the approach sensitizes institutions on the needs of the cluster and helps them improve their service offer as a complementary asset to support the achievement of the cluster vision
- **Governance and sustainability.** A key public good underpinning cluster development is governance. This refers to the mechanisms that allow cluster stakeholders to sustain the locale development process beyond UNIDO assistance. Local actors (firms and institutions) are thus supported in the establishment of institutional mechanisms that promote and sustain collaboration. This entails strengthening bodies representative of the private sector as well as forging public-private platforms for coordination. At the same time, a participatory and empowering methodology of implementation allows the cluster stakeholders to develop full ownership of the approach and contributes to enhancing the participation of the poor and marginalized segments in the economic life of the cluster.

### **The UNIDO Cluster development competitive advantage**

UNIDO's competence in the promotion of clusters and business linkages (CBL) is well established and it owes to the implementation of a number of technical assistance projects for cluster, networks and export consortia development that has been underway since the mid-1990s in Africa, Latin America, Asia and Eastern Europe. UNIDO technical assistance on CBL entails a portfolio of interrelated services including:

- Design and implementation of projects in beneficiary countries via the training and mentoring of locally based professionals. Support is provided at all stages of a project, from the selection of the project site through diagnostic and action planning to monitoring and evaluation.
- Policy advice for institutionalization, i.e. support to the formulation and operationalization of cluster development policies and programmes at regional or national scale.
- Global forum activities, i.e. development and dissemination UNIDO publications and methodologies (manuals, guidelines, training materials and toolkits), and conducting expert group meetings, action-oriented research, international training courses and conferences,

### **Application within the project**

During the project preparation phase, many of the beer brewers interviewed reported diminishing returns and low profitability, which makes investing in improved cook stoves less likely. Hence this component will focus on supporting the beer brewers to increase their business performance through promoting microenterprise clusters. This approach will optimize productivity, support improved employment conditions, raise wages and increase the strength of the created clusters thus empowering women who are the exclusive operators of beer breweries. This will be done through the identification and selection of clusters with high concentrations of microenterprises. At a minimum the



project aims at establishing one cluster of around 30 to 40 micro-enterprises in each of the project geographic regions. A cluster broker will be appointed for each cluster who will be provided with relevant training on the cluster development approach. Each cluster will develop an action plan identifying the business opportunities through looking into aspects such as the availability of raw material, purchasing skills, common facilities and skills upgrading. The actions identified in the action plan will be implemented and closely monitored.

This component will also support the development of efficient supply and distribution chains for improved cook stoves. That includes evaluating the existing sales, distribution and supply chain to identify inadequacies and potential operational improvements and marketing strategies. Moreover an action plan for promoting efficient commercial chains will be developed and implemented.

A wider scale deployment of improved cook stoves would also require the active engagement of the cook stove manufacturers. Therefore the project also targets creating more efficient supply and distribution chains for the improved cook stoves through employing effective marketing strategies and better understanding end user requirements.

### ***Project component 3: Scaling up through the carbon market***

The carbon market holds significant potential to support the deployment of improved cook stoves in the future either through subsidizing the production of the stoves or by ensuring income to support the continuation of technical assistance activities to support this sector. There are approved methodologies for the development of projects to support the deployment of improved cook stoves through the carbon markets. Therefore the key interventions foreseen in these projects are creating the national capacity to develop and administer cook stove projects as programmes of activities (POAs) within the voluntary market using the Gold Standard or equivalent.

This component aims at securing the replicability of this initiative through maintaining the in-flow of funding from voluntary carbon markets to provide the indirect subsidies required to develop a larger scale dissemination of the cook stoves. It can also offer multiple benefits to the sector as it can change the funding dynamics for cook stove projects to one that attracts investments from the private sector.

According to the *Carbon Finance Working Group within the Clean cook stove initiative* “carbon financing provides a commercial pathway that generates revenues to scale clean cook stove deployment while incentivizing monitoring, increased usage and adoption and increased fuel efficiency and durability”. An estimation of the cash flow that can result from implementing a project to promote energy efficient cook stoves as a small scale activity within the voluntary carbon markets is included in annex G to this document.

Afreximbank also has a carbon financing programme that supports environmentally friendly projects in Africa by promoting project based trading of emission reductions. It pre-finances receivables from carbon credits earned and traded by African businesses and governments thereby contributing to reductions in carbon emissions and abating consequential climate change. Therefore the involvement of Afreximbank in the initial deployment of the improved cook stoves through the project will offer good experiences and practices to support the carbon financing in the future.

## **4. Global environmental benefits**

The global environmental benefits associated with the implementation of improved cook stoves projects are:

- Reduced concentrations of smoke and air pollution
- Reduced forest degradation and conserve biodiversity
- Reduced greenhouse gas emissions

The estimation of the emission reductions resulting from the adoption of energy efficient cook stoves is calculated based on the small scale methodology AMS-II.G. version 3, which is applicable for Gold Standard Projects. Preliminary estimations based on the information collected during the PPG phase and applying some general assumptions as outlines in annex f to this document are 40,654 tCO<sub>2</sub> eq per annum for 1,000 cook stoves with an energy efficiency of 35%. The estimated reductions per stove for a duration of 1 years is 406.54 tCO<sub>2</sub> eq .

### **Direct reductions**

Considering the base calculation made above on the emission reductions achieved per stove per year, the direct reductions that can be attributed to the project due to the implementation of 1000 new improved cook stoves during a 2 year period are in the range of 406,540 tCO<sub>2e</sub> with a lifetime estimate of 10 years.

## **Indirect reductions**

Using the GEF bottom up methodology and assuming a market replication factor of 3, the indirect reductions attributable to the project are 1,219,620 t CO<sub>2</sub>e. Using the GEF top down methodology and assuming a significance level 3 considering that GEF contribution is substantial but modest indirect emission reductions can be attributed to the baseline, with a GEF, the indirect reductions are estimated at 325,230 t CO<sub>2</sub>e.

### **B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL AND/OR REGIONAL PRIORITIES/PLANS:**

There are no policies or strategy directions on the utilization of renewable energy and energy efficiency technologies in Burkina Faso. The Government is currently elaborating a national strategy for the regulation of wood fuel trade that is supported by the recently launched Forest Investment Program (FIP) by the World Bank. FIP will support the harmonization and consistency in the implementation of laws and regulations in the forest sector and that would act as an incentive for people to implement energy efficient cook stoves projects in the future. Thus the project is consistent with the country's national priorities to reduce the reliance on fire wood.

On the regional level, the White Paper, adopted in January 2006, confirms the commitment of the 15 West African Member States to coordinate their efforts on improving energy access in the countries. It sets the targets for energy access in the region up until 2015 and prioritizes the access to modern cooking fuel. It proposes 4 lines of actions to achieve those targets mainly through capacity building, support to funds mobilization, promotion and experience dissemination and promotion of local equipment production, all of which are addressed through the proposed project.

The Economic Commission for West African States (ECOWAS) Center for Renewable Energy and Energy Efficiency (ECREEE) organized a workshop on 24, 25 and 26 October 2011 in Accra Ghana which aimed among others to review the energy access situation in the region and the potential of renewable energy and energy efficiency technologies towards the attainment of the White Paper targets. The Workshop defined and adopted a regional road map for the application of renewable energy and energy efficiency technologies to increase access to energy services towards the attainment of the White Paper targets. The road map identifies six key focus areas to be addressed during the next five years: (a) policy frameworks (policy, legal and regulatory frameworks) including standards, (b) establishment of the ECOWAS observatory for renewable energy and energy efficiency for networking, knowledge sharing and data collection, (c) appropriate renewable energy solutions and potential for increasing universal energy access through these networking, (d) capacity building and training, (e) financing mechanisms, fund mobilization and business models and (f) effective monitoring and evaluation mechanisms.

The project contributes to the attainment of the objectives set in the White Paper and the related road map. UNIDO will liaise with ECREEE to ensure dissemination of project results within the regional context.

### **C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS:**

The project promotes the dissemination of energy efficient industrial cook stoves in beer breweries. It directly contributes to the GEF Strategic Programme # 2 (SP#2) - Promoting energy efficiency in Industrial Sector. The project will contribute to the market transformation process for the use of energy efficient stoves, which will help the Government in its efforts to mitigate climate change through the replication effects of the project.

### **D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES.**

The analysis and consultations that took place during the preparation of the present document reveal the major barriers to the wider dissemination of energy efficient cook stoves in the beer brewery sector are the lack of technical expertise particularly in rural areas on energy efficient designs of the stoves, the lack of institutional capacity to prepare and monitor stoves projects under CDM, low profitability and thus limited funds available to invest in improved cook stoves and the absence of a policy framework that would support such investments.

The GEF resources requested for this project will be utilized to support the development of the market for energy efficient cook stoves in rural areas. It will contribute to the (a) developing microenterprise clusters for beer brewers taking into account profitability and gender related aspects of the project, (b) building the technical capacity of masons to construct energy efficient cook stoves, (c) upgrading the competence of local entities to develop and implement voluntary carbon market projects as a means to ensure replication of the project (d) establishing a national funding initiative based on cash advances against carbon credits and (e) raising the awareness of the local population on the benefits of improved cook stoves. The GEF contribution will cover the incremental costs of the project for technical

assistance and investment activities. In addition co-financing is committed by UNIDO and the Ministry of Environment in relation to the technical assistance activities whereas co-financing is committed by Afreximbank to support the creation of a fund to promote a wide dissemination of the cook stoves in rural areas.

#### **E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:**

The German Development Agency, GIZ, is implementing a project Foyers Améliorés au Burkina Faso (FAFASO). The project targets four geographical regions: Ouagadougou, Bobodioulasso, South West and the East. The project targets the dissemination of energy efficient stoves utilized for domestic and commercial operation. It caters for 3 types of stoves: (a) metal stoves, (b) ceramic stoves and (c) large stoves for beer brewers. Only the last type is of direct relevance to the proposed GEF project.

FAFASO ensures the sustainability of the project through engaging and extensively training the producers of the cookstoves on energy efficient designs to ensure that they are capable of working independently after the completion of the project. For that purpose around 130 masons have been trained on the production of energy efficient clay stoves for the miller beer producers. 890 dolos were furnished with the improved cook stoves between 2008 and 2010. The GIZ project does not use the subsidy approach to reduce the selling price of the stoves. The project focuses on training on the construction and maintenance of the cook stoves and raising awareness on the benefits of improved cook stoves.

To ensure consistency with the ongoing initiative by GIZ and avoid distracting the business model employed through the FAFASO project, the proposed GEF project will also opt to implement a non-subsidy approach. Instead it will promote indirect subsidies to help establish the market for energy efficient cook stoves through product promotion, training of masons and creating public awareness on the benefits of improved cook stoves. In order to clearly identify impacts of each project and avoid duplication, the proposed project will focus on areas not covered through the GIZ project including center west, center east, boucle de Mouhoun, Centre South, Plateau Central and Center North. These regions have been prioritized by the Ministry of Environment for the intensity of millet beer production and the quality of the stoves that are traditionally used.

The proposed UNIDO project is well aligned with the GIZ project in terms of the subsidy business model it follows and the technology it promotes. However the UNIDO project touches on other dimensions such as the cluster development approach and the use of carbon financing for ensuring future technical assistance through cash flows from the carbon market. The UNIDO approach therefore establishes private sector linkages to sustain the project impacts and seeks funding through the carbon markets to ensure replicability of the project. At the onset of the project a protocol for monitoring, control and communication between the two agencies will be established to support meeting the projected milestones and share information on best practices, lessons learned and other relevant factors to better align the two initiatives. .

In order to ensure optimum coordination with the ongoing GIZ project, the project proposes to establish a coordination committee entitled "The Cook stoves project coordination committee". The committee will serve as a platform to ensure regular communication between all relevant parties. The committee will consist of representatives of UNIDO, GIZ, IRSAT and the Ministry of Environment and Sustainable Development who will be the main members of the committee while other stakeholders including NGOs and CSO such as Entrepreneurs du Monde and regional partners such as ECREEE can participate in the committee as observers. The mandate of the committee will be to (a) establish communication channels among agencies and institutions working on promoting improved cook stoves, (b) coordinate the project implementation at the programmatic level to foster synergies and avoid duplication, (c) propose needed changes in policies, strategies and financing programmes. The Committee will also serve as the platform to discuss issues relating to the project implementation and will also overlook and review the progress of the project implementation.

The regional harmonization with the GEF Strategic Program for West Africa will be undertaken through ECREEE, which in its turn coordinates with ECOWAS. As indicated in section B above, the project will liaise with ECREEE its activities in promoting energy efficiency and ECREEE will be a member of the project coordination committee as an observer.

As indicated in the Part I. B., the FIP by the World Bank will assist the Government in elaborating a national strategy for the regulation of wood fuel trade through supporting the harmonization and consistency in the implementation of laws and regulations in the forest sector. The proposed project will contribute as required to devise policies controlling the fuel wood consumption.

**DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING :**

**Baseline**

The baseline project is the FAFASO project under implementation by GIZ since the year 2008. The GIZ project focuses on the geographical regions of Ouagadougou, Bobodioulasso, South West and the East.

It is assumed that the fire wood would continue to be used as the preferred fuel for cook stoves. Without the proposed GEF project, beer brewers in rural areas, outside the scope of the GIZ project, will not have an incentive to invest in energy efficient cook stoves, masons will not have the technical capacity to construct energy efficient designs of the cookstoves and the project developers and operators will not have the institutional capacity to prepare and monitor project activities according to the requirements of the voluntary carbon market.

**F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES:**

<b>Risk</b>	<b>Potential Impact</b>	<b>Probability</b>	<b>Management/Mitigation</b>
<u>Political</u> The Government might demonstrate a low commitment to sustainable energy	Medium	Low	This risk will be mitigated through involving national counterparts in project implementation and assigning clear roles and responsibilities.
<u>Technical</u> The equipment installed might not perform as foreseen making payback periods more lengthy and project participants unsatisfied with the implemented designs.	Medium	Low	This risk will be mitigated through training masons on design, construction and maintenance of improved cook stoves.
<u>Market</u> The project participants may not be interested to engage in the project due to lack of information on the benefits of improved cook stoves.	Medium	Medium	This risk will be mitigated through disseminating information on the project objectives and benefits regularly and actively engage project participants and other stakeholders.
<u>Financial</u> 1) Financial Institution will not provide loans 2) The companies might not be able to meet the requirements of financial institutions to disburse funding and the requirements of the carbon market for monitoring and verification.	High	Medium	1) The risk is mitigated by allowing the financial institution to be involved in the project since preparatory stages, preparation of the feasibility study in-lie with the bank requirements and assisting the bank in identifying a local financial institution that is capable of administering the financial scheme. 2) This risk will be mitigated through supporting beneficiaries in preparing required documentation through building the national capacity of project developers.
<u>Implementation</u> UNIDO has long-standing experience in the design and implementation of this type of	High	Low	This risk will be mitigated through preparing detailed activity plans in close collaboration with the national counterparts.

projects including first-hand knowledge of the key success and failure factors to be taken into account.			
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**G. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:**

The project is expected to generate cumulative direct GHG emission savings of around 40,654 tones CO<sub>2</sub> eq and indirect GHG emission savings in the range of 1,219,620 tones CO<sub>2</sub> eq. The cost effectiveness of the GEF resources in relation to the direct GHG emission savings is 10.57 US\$/tones CO<sub>2</sub> eq and in the range of 0.35 US\$/tones CO<sub>2</sub> eq for the indirect GHG emission reductions.

**PART III: INSTITUTIONAL COORDINATION AND SUPPORT**

**A. INSTITUTIONAL ARRANGEMENT:**

UNIDO is the only GEF implementing agency involved in the project design and implementation therefore no arrangements with other agencies are required.

**B. PROJECT IMPLEMENTATION ARRANGEMENT:**

UNIDO will be responsible for the implementation of the project and the fulfilment of the project targets and objectives. In doing so, close coordination with the Ministry of Environment and Sustainable Development. GIZ and other project partners will be ensured. A project manager at UNIDO headquarters will be responsible for the oversight and monitoring of the project and will report to the GEF on the project progress according to the GEF reporting schedule. The project manager will also be responsible to initiate procurement and recruitment actions and to manage the teams of international/national experts working on the project. This will be done in agreement and collaboration with the Ministry of Enviroment. Terms of reference for the recruitment of consultants or procurement of goods or services will be agreed upon with the Ministry.

The Ministry of Environment will lead the implementation of the project nationally while the execution will be assured by regional Directions of the Ministry in close cooperation with the other project partners.

A coordination committee will be formed. The mandate of the committee is to oversee the implementation and ensure execution of the project, ensure coordination with other initiatives and to provide feedback to UNIDO on aspects related to project implementation. The committee will consist of representatives of:

- Ministry of Environment and Sustainable Development
- GIZ
- IRSAT
- NDGO's and CSOs
- ECREEE
- UNIDO

The project management unit will be resonsible for the day to day operation of the project on the ground. It will consist of the national project coordinator. Further expertise required will be hired through the technical assistance components to ensure that the technical aspects of the project are addressed.

**PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:**

The basic concept of the project has not changed from the project design as presented in the PIF. The main change to the original project design is the inclusion of project outputs and activities that could better contribute to the creation of a sustainable market for improved cook stoves and achieving market scale through private sector support initiatives and supporting the development of such projects through the voluntary carbon market.

#### Need for private sector development initiatives

The breweries in question are micro scale home-based industries operated by women, located in proximate geographical areas all around the country. The production of one batch of beer in the range of 300 to 800 l takes 2 to 3 days and is consumed instantly. The beer remaining for longer periods of time is no longer suited for consumption and is disposed of. This decreases the profit margin for the brewers making income available to invest in energy efficient equipment more scarce. The sector suffers from dispersed and unorganized production and a low scale of production. This necessitates the employment of a systematic cluster approach to optimize capacities, facilitate information exchange and adopt coordinated and concrete actions addressing the needs of the breweries. Such an approach will greatly benefit women, the main operators of the breweries.

A wider scale deployment of improved cook stoves would also require the active engagement of the cook stove manufacturers. Therefore the project also targets creating more efficient supply and distribution chains for the improved cook stoves through employing effective marketing strategies and better understanding end user requirements.

#### Need for Carbon Financing

Carbon finance will ensure the sustainability of this initiative through maintaining the in-flow of funding to provide the indirect subsidies required to develop a larger scale dissemination of the cook stoves. According to the *Carbon Finance Working Group within the Clean cook stove initiative* “carbon financing provides a commercial pathway that generates revenues to scale clean cook stove deployment while incentivizing monitoring, increased usage and adoption and increased fuel efficiency and durability”. It offers multiple benefits to the sector as it can change the funding dynamics for cook stove projects from to one that attracts investments from the private sector.

**PART V: AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.

Agency Coordinator, Agency name	Signature	Date <i>(Month, day, year)</i>	Project Contact Person	Telephone	Email Address
Dmitri PISKOUNOV Managing Director Programme Development and Technical Cooperation Division UNIDO GEF FOCAL POINT			Ms. Rana Ghoneim  Industrial Development Officer	+ 431 26026 4356	R.Ghoneim@unido.org

## ANNEX A: PROJECT RESULTS FRAMEWORK

Goal						
To ensure environmental sustainability through reducing GHG emissions related to the Beer Brewing Industry in Burkina Faso						
Objective						
To stimulate the market demand for improved cook stoves in the Beer Brewing Industry						
Outcome 1		Indicators	Baseline	Targets	Means of verification	Risks and Assumption
1. Beer brewers adopt improved cook stoves		Tonnes of CO <sub>2</sub> e reduced	No direct or indirect emission reductions	Cumulative direct & indirect emission reduction of 406,540 tCO <sub>2</sub> e & 1,219,620 tCO <sub>2</sub> e	Verification reports  Bank loan agreements	Promoting energy efficient cook stoves & saving firewood is a priority for the Burkinabe Government
		MJ of biomass energy saved	No savings achieved	49,800 MJ of biomass energy saved per year		
		US\$ disbursed through loans	No loans disbursed	At least US\$ 250,000 disbursed per year		
Outputs	Activities	Indicators	Baseline	Targets	Means of verification	Risks and Assumption
1.1. The technical capacity of stove manufacturers on design and construction of improved cook stoves & optimize fuel consumption upgraded	1.1.1. Train 100 cookstove manufacturers on improved cook stove construction and maintenance 1.1.2. Analyze the energy potential of agro-wastes (solid and liquid) generated during beer brewing 1.1.3. Identify appropriate RE technologies 1.1.4. Evaluate the economic viability of the various options 1.1.5. Compile recommendations on future use of agro-waste to optimize fuel efficiency	# of trained masons  Study on the use of agro residues	No trained masons  No information on the potential and uses for agro residues generated during beer brewing	100 trained masons (out of which 10% women)  1 study on the potential and use of agro residues available	Training reports  Study report	Producers of improved cook stoves are willing to engage in training and development of improved cook stoves.
1.2. Financing facility for improved industrial cook stoves set up	1.2.1. Signature of an agreement with a local bank for administering the loan 1.2.2. Implement 1000 projects in rural areas 1.2.3. Compile the results and lessons learned from the implementation of these projects 1.2.4. Disseminate the lessons learned through different media	\$ of investment mobilized  # of cook stoves replaced  # of good practice	No investments in EE cookstoves Old stoves continue in operation  No best practice	At least US@ 250,000 mobilized per year 1000 replaced cook stoves  50 good practice	Bank financing agreements  Brochures and websites	Reduction of the life cycle energy costs becomes a priority for beer brewers.



		examples available	examples available	examples available		
Outcome 2		Indicators	Baseline	Targets	Means of verification	Risks and Assumption
Market demand for improved cook stoves stimulated through strengthening beer breweries (using UNIDO cluster development methodology) in terms of improved production methods and skill sets and increased market access.		- types and number of improved production methods and skill sets applied by beer breweries - 20% increase (in terms of sales, production volume) for final product <u>Note:</u> Indicators will be validated following the diagnostic study	No clusters available	- Market access (in terms of sales, production volume) for final product increased by 20 percent. - New methods of production applied across the firms in the assisted clusters	Monitoring and evaluation reports	Cook stoves replaced are occurring due to improved market conditions
Outputs	Activities	Indicators	Baseline	Targets	Means of verification	Risks and Assumption
2.1. Microenterprise cluster association for beer brewers is developed and formalized	2.1.1. Identify and select clusters with high concentrations of Microenterprises 2.1.2. Create awareness on benefits of greater linkage and cluster strategies 2.1.3. Appoint cluster brokers and provide training on cluster development approach 2.1.4. Prepare an action plan on enhancing business opportunities for beer brewers 2.1.5. Implement the action plan 2.1.6. Monitor and evaluate the activities in the cluster	# of clusters associations formalized	No clusters association available	One cluster association formalized (100 % women)	Monitoring and evaluation reports	Beer breweries endorse the cluster concept
2.2. Marketing strategy for improved cook stoves developed	2.2.1. Evaluate the existing sales, distribution and supply chains for improved cookstoves 2.2.2. Develop an action plan promoting efficient commercial chains for improved cookstoves 2.2.3. Implement the action plan 2.2.4. Monitor and evaluate implementation	Availability of the marketing strategy	No marketing strategy available	Marketing strategy available	Monitoring and evaluation reports	

	of the action plan					
Outcome		Indicators	Baseline	Targets	Means of verification	Risks and Assumption
3. Human capacity to prepare carbon financing projects is developed.		# of GS projects developed	No GS projects registered	At least one GS project on improved cook stoves registered	GS project registry	Voluntary Carbon markets continue project financing
Outputs	Activities	Indicators	Baseline	Targets	Means of verification	Risks and Assumption
3.1. A national cadre of project developers, project operators and monitoring entities are trained.	3.1.1. Training 20 master project developers on GS project identification and development 3.1.2. Establish a monitoring methodology 3.1.3. Train 50 project operators on registration and monitoring requirements 3.1.4. Establish a platform for interaction between project developers, project operators, DOE, CME, DNA and other relevant stakeholders	# of project developers trained  # of project operators trained  Platform established	No project developers available locally  Project operators not aware of monitoring requirements  No platform available	20 project developers trained (out of which 50% women)  50 project operators trained (Out of which 50% women)  1 platform established	Project reports	Qualified entities are identified to act as the DOE and CME

**ANNEX B: RESPONSES TO PROJECT REVIEWS** (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF)

**ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES**

<i>Position Titles</i>	<i>\$/ person week*</i>	<i>Estimated person weeks**</i>	<i>Tasks to be performed</i>
<b>For Project Management</b>			
<i>Local</i>			
National project coordinator	450	100	Day to day operation of the project and on the ground coordination with GIZ and the Ministry of Environment
International expert	2500	6	An independent expert to perform the annual monitoring and end of project evaluation.
<b>For Technical Assistance</b>			
<i>Local</i>			
Expert on designs of energy efficient cook stoves	500	20	Assist in training masons on the improved designs for energy efficient cook stoves
Expert on use of agro-waste as biomass	500	20	Assess the potential of biogas production from agro waste produced during the beer brewing process
Expert on cluster development	500	20	Initiate the local survey to identify potential clusters and mobilize private and public support towards the cluster concept
Expert on marketing	500	20	Support the improvement of commercial supply chains for the deployment of improved cook stoves
Expert on financing	500	20	Assist the project operators in preparing financial business plans to obtain financing
<i>International</i>			
Expert on private sector development	2000	10	Prepare the actions plans for the development of clusters beer brewers and effective supply chains for improved cook stoves
Expert on voluntary carbon markets project development	2000	10	Prepare and deliver training to project developers on the best means to identify and prepare projects for improved cook stoves using the Gold Standards Methodology V.02 or equivalent
Expert on voluntary carbon markets project monitoring	2000	10	Devise a monitoring plan and methodology and deliver training to project operators on monitoring requirements of the Gold Standard or equivalent
Justification for Travel, if any:			

\* Provide dollar rate per person week. \*\* Total person weeks needed to carry out the tasks.

**ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS**

**A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN.**

The CEO approval request document was prepared based on results of surveys, assessments and consultations carried out during the PPG phase.

The PPG objectives were fully achieved:

- i) The project document was formulated on the basis of the capacity building needs assessment and the stakeholder consultation at the national level as well as the bi-lateral level
- ii) Co-financing resources envisaged at the PIF stage were exceeded
- iii) Direct and indirect energy savings and GHG emission reductions were estimated on the basis of methodologies applied in the carbon markets and consumption figures collected through the national survey.
- iv) The project baseline was defined through additional information and data collection; energy performance and the project impact indicators have been identified and values for the baseline were determined.
- v) Contacts with all the relevant stakeholders were established to facilitate the project implementation

**B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY: None**

**C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:**

<i>Project Preparation Activities Approved</i>	<i>Implementation Status</i>	<i>GEF Amount (\$)</i>				<i>Co-financing (\$)</i>
		<i>Amount Approved</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>	<i>Uncommitted Amount*</i>	
Collection of supplemental data	(Select)	7,000	7,000	0	0	6,000
Stakeholder consultation	(Select)	5,000	5,000	0	0	10,000
Assessment of demonstration projects	(Select)	5,000	2,000	3,000	0	6,000
Project strategy and implementation detailing	(Select)	8,000	3,000	5,000	0	8,000
Travel	(Select)					
Miscellaneous	(Select)					
	(Select)					
<b>Total</b>		25,000	17,000	8,000		30,000

\* Any uncommitted amounts should be returned to the GEF Trust Fund. This is not a physical transfer of money, but achieved through reporting and netting out from disbursement request to Trustee. Please indicate expected date of refund transaction to Trustee.

**ANNEX E: CALENDAR OF EXPECTED REFLOWS**

Provide a calendar of expected reflows to the GEF Trust Fund or to your Agency (and/or revolving fund that will be set up)

Not applicable

## Annex F– Calculation of GHG emission reductions

The estimation of future emission reductions is based on Small Scale Methodology AMSII.G., Version 3 (which can also be used for Gold Standard Projects):

It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs.

**Emission reductions** would be calculated as:

$$ER_y = B_{y,savings} * f_{NRBy} * NCV_{biomass} * EF_{projected\ fossilfuel} \quad (1)$$

Where:

$ER_y$	Emission reductions during the year $y$ in tCO <sub>2</sub> e
$B_{y,savings}$	Quantity of woody biomass that is saved in tonnes
$f_{NRBy}$	Fraction of woody biomass saved by the project activity in year $y$ that can be established as non-renewable biomass
$NCV_{biomass}$	Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, <b>0.015 TJ/tonne</b> )
$EF_{projected\ fossilfuel}$	Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of <b>81.6 tCO<sub>2</sub>/TJ<sup>1</sup></b>

$B_{y,savings}$  is estimated by applying relevant Option 2, paragraph 6 of AMS-II.G Ver. 3:

$$B_{y,savings} = B_{old} * (1 - \eta_{old} / \eta_{new}) \quad (2)$$

Where:

$B_{old}$	Quantity of woody biomass used in the absence of the project activity in tonnes
$\eta_{old}$	1. Efficiency of the system being replaced, measured using representative sampling methods or based on referenced literature values (fraction), use weighted average values if more than one type of system is being replaced; 2. A default value of 0.10 may be optionally used if the replaced system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney; for other types of systems a default value of 0.2 may be optionally used
$\eta_{new}$	Efficiency of the system being deployed as part of the project activity (fraction), as determined using the Water Boiling Test (WBT) protocol. Use weighted average values if more than one type of system is being introduced by the project activity

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<sup>1</sup> This value represents the emission factor of the substitution fuels likely to be used by similar users, on a weighted average basis. It is assumed that the mix of present and future fuels used would consist of a solid fossil fuel (lowest in the ladder of fuel choices), a liquid fossil fuel (represents a progression over solid fuel in the ladder of fuel use choices) and a gaseous fuel (represents a progression over liquid fuel in the ladder of fuel use choices). Thus a 50% weight is assigned to coal as the alternative solid fossil fuel (96 tCO<sub>2</sub>/TJ) and a 25% weight is assigned to both liquid and gaseous fuels (71.5 tCO<sub>2</sub>/TJ for Kerosene and 63.0 tCO<sub>2</sub>/TJ for Liquefied Petroleum Gas (LPG)).

### Assumptions:

$B_{old}$  is determined by calculating the product of the number of systems (stoves) multiplied by the estimated average annual consumption of woody biomass per appliance (tons/year) (as per Option (a), paragraph 7). This can be derived from historical data or a survey of local usage,

$$B_{old} = 1,000 \text{ stoves} \times 46.5 \text{ tons wood}^2/\text{stove per year} \rightarrow$$

$$\eta_{old} = 10\% \text{ (default value)}$$

$$\eta_{new} = 35\%$$

$$B_{y,savings} = 46,500 \times (1-0.29) = 33,214 \text{ tons}$$

$$f_{NRB,y} = NRB / (NRB + DRB) \tag{3}^3$$

which is the ratio of Non Renewable Biomass (NRB) used in the project activity and the total biomass used which is the sum of Non Renewable Biomass (NRB) and Demonstrably Renewable Biomass (DRB).

### Assumptions:

In this estimation it is assumed that Demonstrably Renewable Biomass is 0.

(Currently used evidence: *A WHO review of fuel-collection time and biomass energy use among 14 countries in Sub-Saharan Africa found a wide range of estimates for the number of hours spent collecting biomass energy, from a low of 0.33 hours up to 4 hours per day (Dutta 2005; WHO 2006). Niger, Burkina Faso, and Ethiopia—countries with the highest levels of biomass scarcity—had the higher levels of biomass collection time.*) Source World Bank: Household Cookstoves, Environment, Health, and Climate Change 2011

$$NRB = 46.5 \text{ tons/year}$$

$$DRB = 0$$

$$f_{NRB,y} = 33,214 / (33,214 + 0) = 1$$

Therefore applying above mentioned assumptions this would result in yearly emission reductions of

$$ER_y = 33,214 \text{ t} \times 1 \times 0.015 \text{ TJ/t} \times 81.6 \text{ tCO}_2/\text{TJ} = \mathbf{40,654 \text{ tCO}_2}$$

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<sup>2</sup> Average Annual consumption of woody biomass

<sup>3</sup> Woody biomass is “renewable” if one of the following two conditions is satisfied: (I) The woody biomass is originating from land areas that are forests where: (a) The land area remains a forest; **and** (b) sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); **and** (c) any national or regional forestry and nature conservation regulations are complied with. (II) The biomass is woody biomass and originates from non-forest areas (e.g., croplands, grasslands) where: (a) the land area remains as non-forest or is reverted to forest; and (b) sustainable management practices are undertaken on these land areas to ensure in particular that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and any national or regional forestry, agriculture and nature conservation regulations are complied with.



**Annex G-** Estimation of Cash flows from Voluntary Carbon Markets

Prices in the carbon compliance **market experienced a sharp drop in 2011** and are currently at:

EU Allowances Dec. 2012                      EUR 7.19  
CERs Dec. 2012                                  EUR 3.77

(Source Pointb Carbon [www.pointcarbon.com](http://www.pointcarbon.com) accessed on Jan 23rd 2012)

Price forecasts towards 2020 for EUAs and secondary CERs with different eligibility characteristics:

Year	2012	2013	2016	2020
EUA (€/t)	<i>12</i>	<i>10</i>	<i>11</i>	<i>16</i>
CERs (€/t)	<i>7.8</i>	<i>7</i>	<i>7</i>	<i>10</i>

*Source: Point Carbon Dec. 19th 2011*

These forecasts are made under existing political conditions and may change rather quickly.

Opposed to the compliance market, the market for Gold Standard (GS) VERs has been more stable and the price of GS VERs **may at the moment be around EUR 4-9** depending on volume traded and project category;

# CARBON RELATED CASH FLOW ANALYSIS

VER relates cash flows EUR																										
Year		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Sum	
	1	2																								
Income																										
Estimated CERs Generation			40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	40,654	406,540	
Deduction Gold Standard Insurance Fee	0.02		39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	39,841	
Price/VER	6																									
Income (0,5 year lag to Generation)			0	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	239,046	5,019,956
Costs																										
PIN	0																									0
PDD/MP/Validation Support/Registration	0	-50,000																								-50,000
Negotiation/Brokerage	0.045		0	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-10,757	-225,898
Validation		-50,000																								-100,000
Monitoring Reports / Verification Support			0	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-525,000
Verification				-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-25,000	-525,000
GS Account Annual Fee (500 USD)				-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393	-393
Issuance Registry Fee (0.05 USD/t GSVÉR))	0.05			-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	-1,565	
Total Costs		0	-100,000	0	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-62,714	-1,425,898
Earnings before taxes		0	-100,000	0	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	176,331	3,594,058

## Annex H –

### **1. Line of Credit Programme**

This is a programme through which the Bank provides funded and unfunded credit lines to creditworthy African and non-African banks designated the Bank's Trade Finance Intermediaries (TFIs). The Bank uses the programme to work in partnership with African and non-African banks in reaching the target beneficiaries of its resources, who due to their small size, would otherwise not be able to access the Bank's resources directly.

Beneficiaries:

- central banks;
- commercial banks;
- finance companies;
- export houses;
- institutions active in trade finance in Africa; and
- similar institutions in non-Participating states of the Bank (for financing of imports from participating states).

Tenor:

720 days but extendable.

Pricing:

Linked to the Libor and related to country risk, transaction risk and market Conditions

Documentation:

This may include a Facility Agreement, Security Assignment Deed, Legal Opinions, etc.

Available facilities under the Programme:

The facilities provided under the Line of Credit Programme include:

1.1 Pre- and Post-export Financing Facility through which the Bank provides export financing to Eligible Entities. The Bank may finance up to 75% and 80% of the underlying sales contract for pre-export and post-export transactions respectively.

1.2 Letter of Credit Confirmation and Refinancing Facility through which the Bank confirms and/or refinances sight and usance Letters of Credit covering Eligible Items.

1.3 Export Credit Guarantee Facility through which the Bank provides credit guarantee in support of exporting corporates to enable them obtain competitively priced export finance facilities. Under the Facility, the Bank may also provide guarantees in support of African banks seeking export finance Lines of Credit from international banks. The Bank may guarantee up to 100% of credit exposure to the guaranteed entity.

1.4 Reimbursement Guarantee Facility which is used by the Bank to enable African and non-African banks take the credit risk of Eligible Banks, being banks that satisfy Afreximbank's Risk Acceptance Criteria and granted unadvised Lines of Credit by the Bank under its Universal Lines of Credit (Unlocs) Initiative. In this regard, the Bank issues a guarantee covering the payment risk of African and non-African banks under Letters of Credit or other acceptable trade debt instruments. Under the Facility, banks confirming Letters of Credit issued by Eligible Banks may approach the Bank to provide reimbursement guarantee to be called in the event of non-payment by the Letter of Credit issuing bank. This Facility is to help African banks to issue Letters of Credit without the need for cash collateral and at reasonable cost. It also helps African banks to accept Letters of Credit issued by banks they are not familiar with, without requesting the confirmation of such Letters of Credit. It therefore facilitates intra-African trade and trade with the growing new markets of the BRICs (Brazil, Russia, India and China).

1.5 Correspondent Banking/ African Letter of Credit Facility under which the Bank (a) offers correspondent banking services to African banks assisting them to make payments and collections around the world, with particular emphasis on Africa; and (b) offers dedicated Letter of Credit Confirmation Facility for promotion of intra-African trade. This Facility is hinged on the extensive experience the Bank has gained across Africa through the use of African banks as TFIs.

## **2. Project-Related Financing Programme**

Through this programme, the Bank provides limited recourse financing in support of export projects, including mining, manufacturing, and related projects; and infrastructure projects that facilitate exports or that generate traded infrastructure services, such as power, ports, telecoms, etc.

Beneficiaries:

- Eligible Entities Promoting Projects in Africa; and
- Eligible Entities Promoting Projects outside Africa provided that African content in the procurement for such a Project is at least 60%. African content is defined as the sum of rent, interest, wages, salary and profits retained inside Africa.

Tenor:

Maximum tenor of advances under this facility is 7 years.

Pricing:

Linked to the Libor. Spread is determined by obligor, transaction and country risks as well as the tenor of the loan.

Eligibility requirements:

The Bank also operates certain procurement rules, key aspects of which include:

- The procurement of Second Hand or Used Equipment is not encouraged;
- Procurement procedure must be conducted in a manner that involves competitive bids and multiple quotes;
- Cash disbursements are not made to parties other than suppliers;
- Additional funding requirements are to be warehoused with Afreximbank or participating banks. Alternatively, project promoters should show evidence that arrangements to meet additional funding requirements are in place;
- Down-payments must be supported with acceptable performance bonds from suppliers;
- Raw material and critical input plan must be provided;
- Promoters or their Managers to show evidence of considerable previous experience in developing and managing project type;
- All corporate and Governmental approvals are to be in place; and
- Suitable suppliers' warranty must protect Bank and promoter against deviations of equipment from order.

Eligible projects under the Programme include:

1. large manufacturing projects;
2. infrastructure projects, such as pipelines, power, telecoms, ports, etc.;
3. mining projects; and
4. tourism projects, such as hotels, resorts, airports, etc.

The distinguishing feature is that the promoters must be experienced entities with good market knowledge and ability to successfully run the projects or where the promoters are not experienced, they will be required to enter into operating arrangements with reputable entities. Under this Programme, the Bank also provides Bridge Loans to projects in cases where delays occur in disbursement of funds from credible multilateral lenders or commercial banks but where all lending conditions had been met and security in place. This is intended to reduce the cost a delay in loan disbursement may add to the beneficiary project.

### **3. Carbon Financing Programme**

The Bank's "Carbon Financing Programme (CFP)" supports environmentally-friendly projects in Africa by promoting project-based trading of Certified Emission Reductions (CERs) under the Kyoto Protocol's Clean Development Mechanism (CDM) as well as by pre-financing receivables from carbon credits earned and traded by African businesses and governments thereby contributing to reductions in carbon emissions and abating consequential climate change.

Beneficiaries:

- a. African corporates and governments implementing projects that have earned or are likely to earn carbon credits;
- b. African banks and financial institutions financing trade in carbon credits and/ or projects that have earned or can earn carbon credits; and
- c. NGOs and environmental groups seeking finance to promote projects that have earned or can earn carbon credits.

Financing Instruments:

- a. Direct Advances;
- b. Guarantees; and
- c. Advisory/Brokerage services to assist eligible projects earn carbon credit and trade same in the international market.

Direct Advances goes in support of projects under the CDM; Guarantees may be in form of performance guarantees to entities pre-paying African projects for future carbon credit deliveries. Country Risk Guarantee and Investment Guarantee could also be provided.

**Annex I**- Co-financing letters



**AFRICAN EXPORT-IMPORT BANK**  
**BANQUE AFRICAINE D'IMPORT-EXPORT**

72 (B) El Maahad El Eshteraky Street – Heliopolis, Cairo 11341, Egypt  
Postal Address: P.O. Box 613 Heliopolis, Cairo 11757, Egypt  
Tel.: (202) 24564100/1/2/3; (202) 24515201/2 - Fax: (202) 24564110; (202) 24515008  
<http://www.afreximbank.com>

November 25, 2011

Mr. Dmitri Piskounov  
Managing Director  
Programme and Technical Cooperation Division  
United National Industrial Development Organization  
Vienna International Centre  
PO Box 300  
A-1400 Vienna  
Austria

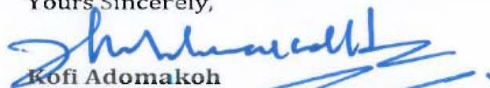
Dear Mr. Piskoumov,

**Subject: Expression of Interest: Promoting Energy Efficiency Technologies in Beer  
Brewery Sector in Burkina Faso**

Following correspondences between Ms. Rana Ghoneim and ourselves regarding the above subject matter, we are pleased to consider cooperating with UNIDO in implementing the Project to improve energy efficiency resulting in economic and social development in one of our member countries (Burkina Faso).

Please note that this is an **expression of interest** and the Bank does not make any firm commitment in this regard. In the meantime and as discussed, we await the relevant information including a feasibility study or the business plan to enable us further engage you in developing this Project.

Yours Sincerely,

  
Kofi Adomakoh  
Director  
Project and Export Development Finance



Ouagadougou, le 1 DEC 2011

11.973  
N° / /MEDD/CAB

*Le Ministre  
de l'Environnement  
et du Développement Durable*

*A*

**Mr. Dmitri Piskunov  
Managing Director  
Program and Technical Cooperation  
Division  
United National Industrial Development  
Organization  
Vienna International Centre  
PO Box 300-A-1400 Vienna  
-AUSTRIA-**

**subject :** PIF n° 4285-Promoting Energy  
Efficiency Technologies in Beer  
Brewery Sector in Burkina Faso

**Dear Mr. Piskunov,**

The Ministry of Environment and Sustainable Development of Burkina Faso is supportive of the United Nations Industrial Development Organization (UNIDO) in initiating the project for promoting energy efficient cook stoves in beer breweries.

The project implementation will contribute to saving fuel wood and thus conserving resources and mitigating climate change. Further the project will allow the beer brewers to raise their competitiveness and offer wide opportunities for future cooperation and partnership.

The Ministry will be happy to cooperate with UNIDO on implementation of the project and is ready to contribute to the co-financing required for the project implementation in-kind contribution (facilities, and support to the project team) 50,000 USD per year, for the whole project period amounting to 100,000 USD.

Sincerely,



**Pr Jean KOULIDIATI**  
*Chevalier de l'Ordre National*