

Clean Development Mechanism South Africa
Designated National Authority



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

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Project Design Document (PDD)

Project reference number (office)	
Date received (office use only)	

NOTES ON COMPLETING THIS PROJECT DESIGN DOCUMENT

1. Please provide this PDD in both hard-copy (one copy) and electronic formats (MSWord)
2. The information submitted to the DNA in this PIN will remain confidential.
3. Please ensure that all fields are filled in as far as possible to allow for proper consideration of the proposed project. Please indicate if information is not available for any particular item and reasons for the unavailability of information.

Part A: Project Proponent Details

Project Name	Improved Cooking Stoves Programme of Activities in Africa
Date of Submission of PDD	19 APRIL 2012

Project Developer	
Name	Envirofit International Ltd
Organizational Category	<i>Select most applicable:</i> Non-Governmental Organisation
Legal Status	U.S. 501c3 Tax Exempt Charity
Street Address	109 N College Ave. Suite 200 Fort Collins, CO 80524, USA
Postal Address (if different from above)	
Website Address	www.envirofit.org
Main Activities	Envirofit International was established to develop well-engineered

	<p>technology solutions to improve the human condition on a global scale, with a primary emphasis on applications in the developing world.</p> <p>Envirofit's enterprise-based model represents a new, more sustainable approach to tackling the global IAP/cookstoves problem - relying on market mechanisms to guide product development and drive consumer demand.</p> <p>Envirofit manufactures and markets clean burning efficient cookstoves across the world with a focus in Sub Saharan Africa and India.</p>
Summary of Financial Performance in last fiscal year	<p>Envirofit International Ltd is a USA based charitable not for profit organization. As such it is has been successful in raising funds to meet its operational needs over the last decade.</p> <p>As a technology company with outsourced manufacturing, Envirofit does not require an extensive asset base, but prefers to use available funds to accomplish its mission: creating and disseminating technological solutions targeting environmental issues that affect base of pyramid populations in the developing world.</p> <p>As of 12/31/2011, Envirofit had unaudited net assets of approximately \$2.7M. During the year ended 12/31/2011, Envirofit received \$2.8M in support in addition to sales revenue of \$1.5M. Envirofit earned a nominal profit in 2011.</p>
Contact Person(s)	Nathan Lorenz
Telephone	Work: +1-970-372-2874 Cell: +1-970-214-3331
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Email Address	Nathan.lorenz@envirofit.org
Project Partners	
Provide the following Information for all project partners (copy and paste relevant sections of the table if information is to be provided on more than one partner organisation)	
Name	To be determined - Envirofit is currently in discussions with multiple organizations within South Africa to partner with.
Nature of partner	
Organizational Category	
Legal Status (if private company)	
Street Address	
Postal Address (if different to Street Address)	

Website Address	
Main Activities	
Contact Person(s)	Name
Telephone	Work: Cell:
Fax	
Email Address	
Contractual Arrangements	
Contractual arrangements between various entities involved	<i>To be determined</i>

Part B: Project Overview (Technical Summary, Location and Schedule)

Technical Summary of the project	
Objective of the Project	The goal of the PoA is to enable the large-scale distribution of high efficiency biomass cook stoves in several Sub-Saharan African countries. The PoA will have multiple benefits of reducing global GHG emissions, reducing pressure on forests and woody biomass resources, reducing indoor air pollution associated with use of traditional stoves and freeing up income that can be used for other purposes by reducing the expenditures for households on fuel for cooking.
<p>Project Description <i>Present a brief description of the project (approximately ½ page A4)</i></p> <p>The purpose of this Programme of Activities (PoA) is the dissemination of improved cooking stoves (ICS). The Programme will promote stove categories that replace existing less efficient cooking stoves using woody-biomass (wood-fuel and/or charcoal).</p> <p>The ICS to be distributed are more efficient in transferring heat from the fuel to the pot when compared to the traditional stoves currently used. By replacing such traditional (conventional) or improved stoves, the PoA will save on consumption of woody biomass (either wood or charcoal made of wood) which is the dominant fuel used for cooking in SSA countries. The ICSs applied in this PoA have been designed to match the traditional utensils and cooking habits of the people in SSA.</p> <p>It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil</p>	

Technical Summary of the project

fuels for meeting similar thermal energy needs. Therefore, by reducing the total amount of fuel required for cooking, the replacement of less efficient stoves with more efficient ICS reduces the amount of Green House Gases (GHG) emitted into the atmosphere. Certified Emission Reductions (CERs) are calculated following version 3.0 of methodology AMS.II.G on the basis of the mass of non-renewable woody biomass saved by the ICSs.

Identify the main processes and activities involved in the project. A flow diagram showing the processes/materials and/or products involved may be used to complement the description (over and above the ½ page A4).

Envirofit International is the coordinating/managing entity (CME) for this PoA. As such, it will coordinate the efforts of different Distribution Organizations (DOs) which will be contracted to distribute ICS in the boundary of the PoA and comply with the requirements of this PoA. DOs will act as CPA developers. The inclusion of new CPAs to the PoA will be requested by the CME to the Designated Operational Entity (DOE) during the lifetime of the PoA.

Each DO will sell ICSs on a commercial basis either directly or through technicians, entrepreneurs or other agents sub-contracted by the DO. If any such 3rd parties are engaged by the DO, the DO will be responsible for providing training and development of ICS technicians/entrepreneurs and ensuring that correct procedures are followed during distribution of ICS, including the correct recording of data required for monitoring activities. The CME will provide training and guidance documents on the correct distribution and monitoring procedures to each DO. Each DO will act individually, implementing the CPA(s) in accordance with local circumstances.

When purchasing an ICS, the customer will provide certain information that will be recorded along with the unique stove serial number to enable tracking of the stove during monitoring. This information will form part of the CPA Distribution Record. The customer will also sign over the legal rights of the carbon credits generated by the ICS to the CME. Accordingly, the CME will use the CER proceeds to reduce the costs of ICSs supplied to DOs and subsequently sold to end users. The CER proceeds will also be used to recoup the associated costs incurred in the development and implementation of the PoA, such as for the training of DOs and for marketing of the benefits of ICS to overcome prevailing attitudes, as well as covering the costs of after sales services.

Technical Summary of the project

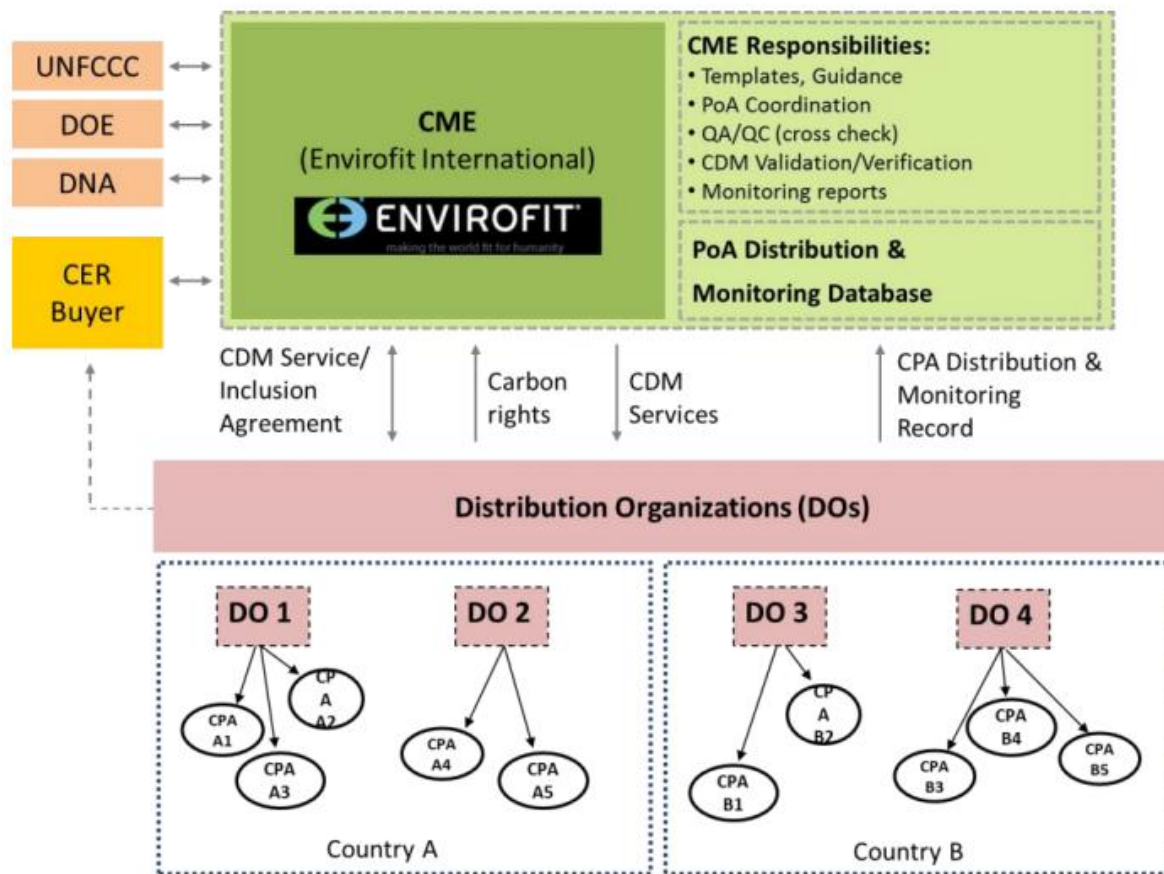


Figure 1: Business Model

Project Constraints

Are there any constraints affecting project operations or commissioning? (Brief description: 1 paragraph or less) *Note: these may be due to energy supply, infrastructure, other resources etc.*

Those who mainly use biomass as a source of energy is those in the low income levels, hence affordability become an issue of concern. Without the carbon credits, the programme cannot afford the subsidy to the end users.

Technology to be employed

Describe in less than 5 lines.

Both charcoal and wood stoves will be promoted under this programme of activities. This category comprises appliances involving the efficiency improvements in the thermal applications of non-renewable biomass. Examples of these technologies and measures include the introduction of the improved cooking stoves produced by Envirofit. Furthermore, ICSs will be designed not only to increase heat transfer, but also to match the traditional utensils and cooking habits with the people in Africa. Below are pictures of Envirofit's current line of applied charcoal and wood stoves.

Technical Summary of the project



Figure 1: CH2200 (left) and CH4400 (right) Charcoal Stoves



Figure 2: G3300 (Left) and M5000 (Right) Portable Wood Stoves



Figure 3: Z3000 Built in Stove

Is the technology one that has been previously tried and tested in South Africa or internationally? If yes, provide details (1 paragraph)

Envirofit's technology has been rigorously tested for performance and emissions by Colorado State university and the US EPA. In addition it has been widely distributed across the world including Kenya, Tanzania, Uganda, Zambia, Ghana, Liberia, Nigeria, India, Sri Lanka, Nepal, Peru, and many other countries.

Have the project operators had any previous experience or expertise with operating the technology? If yes - provide brief details (1-2 lines)

Training is planned for all those involved in the cookstove programme.

Greenhouse Gases Targeted

Identify which greenhouse gas(es) this project will target.

CO2. The PoA reduces the use and demand for fossil fuels and non-renewable biomass that would have been to provide the fuel in the absence of the Programme of Activities. This directly leads to reduced greenhouse gas emissions.

Emission reductions

Indicate the expected emission reductions that will occur due to the project.

Each CPA to generate about 13,500t CO2/year, a total of 135,000t CO2 for the crediting period.

Technical Summary of the project	
Baseline & Additionality Assessment	<p>Baseline: CPAs under the programme will apply AMS-II.G, version 3: Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass. According to the applied methodology, 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.</p> <p>Additionality: In accordance with EB60 Annex 26, paragraph 4, CPAs do not require a full additionality assessment. The confirmation of CPA additionality would be by means of meeting the eligibility criteria for inclusion in the PoA as stated in Section E.5.2. If the proposed CPA meets the key criteria and data stipulated in section E.5.2, the CPA shall be deemed additional.</p> <p>The PoA could include either small-scale or micro-scale CPAs. In the case of micro-scale CPAs these will be considered additional provided they satisfy the micro-scale additionality requirements specified in Section A.4.2.2 (Eligibility Criteria 6, test 1). In the case of small-scale CPAs, one of the barriers demonstrated in Section A.4.3 must be demonstrated to apply (Eligibility Criteria 6, test 2).</p>
Monitoring	<p>η_{new} - Efficiency of the system being deployed as part of the project activity; N_{all} - Total number of stoves installed SOF- Stove Operation Fraction - used to determine only stoves that are still operating, measured ex-post through survey/ user feedback; μ_{old} - Amount of woody biomass for the continued use of old stoves</p>
Type of project/activities	<i>Identify which type of activity is involved in this project - and for each, provide brief details</i>
a. Energy Supply	n/a
b. Energy Demand	Improvement of energy efficiency of equipment - The PoA reduces the use and demand for fossil fuels and non-renewable biomass that would have been used to provide energy in the absence of the Programme of Activities. This directly leads to reduced greenhouse gas emissions.
c. Industrial Process	n/a
d. Transport	n/a
e. Waste Management	n/a
f. Forestry/ land use	n/a
g. Other	n/a
Project Boundary	<p>The boundary of the PoA is defined as the geographical area within which all the small-scale CDM Program Activities included in this PoA will be implemented. The geographical boundary of the PoA will be the national boundaries of all the host country states.</p> <p>The boundary for each SSC CPA confines to the physical, geographical sites of the low greenhouse gas emitting technologies for water purification installed by the project activity.</p> <p>The physical boundary of each SSC CPA will be defined in the CPA-DD.</p>

Technical Summary of the project

Indicate Emissions outside the Project Boundary	<i>Nil</i>
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Location of the Project

Province	The geographical area within which all CPAs included in this PoA will be implemented in the territorial boundary of the host countries included in the PoA boundary. Each CPA will be limited by the territorial boundary of the host country in which it is located, and the physical location of the stoves distributed in that CPA will form the actual CPA boundary.
Municipality	n/a
Nearest city/large town	n/a
Brief description of the location of the project site	Each stove will be distributed to a household within the CPA boundary. The CPA boundary will be the territorial boundaries of the Republic of South Africa as it is envisaged that people are not limited to movement within the country but with unique identification, a stove will be tied to a specific CPA.

Project Schedule/Timetable

Earliest Project Start Date	After registration
When is the expected first year of CER delivery	2014
Project Lifetime	21 Years
Project End Date	Month of registration/2033
Crediting Period	10 Years
Current Status or phase of the project	Undergoing Validation
DNA Approval	The project submitted a PIN to the DNA on the 9 th February 2012.
Approval by other bodies	<i>n/a - No EIA required</i>

Part C: Performance Against the DNA's Sustainable Development Criteria

South Africa has identified the following sustainable development criteria and indicators against which each CDM project will be assessed. Please provide your interpretation of how this project will address each of these **criteria and indicators** where they are relevant to the project. If the space provided is not sufficient please append additional information as required.

NOTE: For all indicators which are of relevance to the project show how the performance of the project against these indicators can be objectively monitored and measured on an ongoing basis.

1. Economic: Does the project contribute to national economic development?

Please give details (1 paragraph)

From an economic perspective the fuel savings from the stove have a positive local impact. Fuel is often one of the largest home expenditures for families at the bottom of the pyramid. Even if fuel is not bought, the time spent collecting it (often completed by children), is time not available for study or other activities that could improve their chances of success later in life. The 50% reduction in fuel use seen with Envirofit stoves provides a substantial economic benefit to the end customer.

<p>2. Social: Does the project contribute to social development in South Africa? Please give details (1 paragraph)</p> <p>From a social perspective the fact that 2 million people each year are killed by indoor air pollution has a huge social impact on affected countries. The fact that 80% of those affected are women and children under five further worsens the problem. The reductions in indoor air pollution provided by Envirofit's stoves have a positive social impact to the countries in which they are distributed.</p>	
<p>3. Environmental: Does the project conform to the National Environmental Management Act principles of sustainable development? Please provide brief comment for each of these below.</p> <p>From an environmental impact the CO2 reduction benefits are very large for such a small low cost device. In addition the stove provides substantial reductions in black carbon, which although not currently included under the CDM protocols is a large climate change forcer.</p>	
<p>i) That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be avoided, are minimised and remedied</p>	<p>The cookstoves programme improves the fuel efficiency, hence reducing pressure on the forest resources.</p>
<p>ii) That pollution and degradation of the environment are avoided, or where they cannot be altogether avoided, are minimised and remedied</p>	<p>n/a - the activity reduces on carbon emissions</p>
<p>iii) That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied</p>	<p>n/a</p>
<p>iv) That waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner</p>	<p>n/a</p>
<p>v) That the use and exploitation of non-renewable resources is responsible and equitable, and takes into account the consequences of the depletion of the resource</p>	<p>The programme seeks to reduce on the exploitation of the non-renewable forest resources</p>
<p>vii) That a risk averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions</p>	<p>The CME will work with local players in each country included in the PoA and ensure that a cautious approach is taken by these players in a country they are based in.</p>
<p>vii) That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied</p>	<p>No negative impacts are envisaged. Uptake of the technology by households reduces their exposure to indoor air pollution; reduce the exposure of women and other involved to risks as they collect the biomass fuel.</p>
<p>Other comments n/a</p>	

Indicators in Support of the Project Approval Criteria

	Category	Indicator	Comment
Environmental	Impact on local environmental quality	<ul style="list-style-type: none"> • Impact of the project on air quality • Impact of the project on water pollution • Impact of the project on the generation or disposal of solid waste • Any other positive or negative environmental impacts of the project (such as impacts on noise, safety, visual impacts, or traffic) 	<ul style="list-style-type: none"> • <i>Impact of the project on air quality</i> - Polluted indoor air due to open and uncontrolled combustion is a huge health concern in many developing countries. Improved cookstoves technologies tackle this problem by reducing the combustion of biomass fuels.
	Change in usage of natural resources	<ul style="list-style-type: none"> • Impact of the project on community access to natural resources • Impact of the project on the sustainability of use of water, minerals or other non renewable natural resources • Impact of the project on the efficiency of resource utilisation 	<p>ICS are designed to be fuel efficient using less woodfuel compared to the conventional cookstoves. By reducing the units of wood energy needed for cooking, improved cookstoves consequently contribute to reducing the impact of such energy consumption on wood depletion</p>
	Impacts on biodiversity and ecosystems	<ul style="list-style-type: none"> • Changes in local or regional biodiversity arising from the project 	<p>The project will impact positively on the destruction of forest spaces sheltering exceptional biodiversity</p>

Indicators in Support of the Project Approval Criteria		
Category	Indicator	Comment
Economic	Economic impacts	<p>Please comment on the economic impacts of the project. Comment specifically on the indicators of relevance which are given here. (1 paragraph)</p> <p><i>Impact of the project on the cost of energy – The circumstances of poor families will be improved since the project stoves reduce the amount of spending on fuel, providing financial savings over the medium-long term. Reduction in wood consumption implies relief from drudgery and more opportunity for productive activity, education and family life arising from less time spent collecting fuel.</i></p>
	Appropriate technology transfer	<ul style="list-style-type: none"> • Positive or negative implications for the transfer of technology to South Africa arising from the project • Impacts of the project on local skills development • Demonstration and replication potential of the project <ul style="list-style-type: none"> • The programme will give rise to employment opportunities for new ICS distributors (sales people), assistants, office staff and other related jobs • The programme will facilitate capacity development among the staff employed by EAE and the many contractors that are to be engaged for distribution of ICS through the provision of trainings and workshops. • The programme can be replicated not only in South Africa but throughout Africa and the rest of the world.

Indicators in Support of the Project Approval Criteria		
Category	Indicator	Comment

Indicators in Support of the Project Approval Criteria

Category	Indicator	Comment
Social	<p style="text-align: center;">Alignment with national provincial and local development priorities</p> <ul style="list-style-type: none"> How the project is aligned with provincial and national government objectives How the project is aligned with local developmental objectives Impact of the project on the provision of, or access to, basic services to the area Impact of the project on the relocation of communities if applicable Contribution of the project to a any specific sectoral objectives (for example, renewable energy targets) 	<ul style="list-style-type: none"> Helps towards achieving environmental sustainability in the use of natural resources Improves social equity by specifically addressing energy requirements of the poor
	<p style="text-align: center;">Social equity and poverty alleviation</p> <ul style="list-style-type: none"> Impact of the project on employment levels? (specify the number of jobs created/lost; the duration of time employed, distribution of employment opportunities, types of employment, categories of employment changes in terms of skill levels and gender and racial equity) Impact of the project on community social structures Impact of the project on social heritage Impact of the project on the provision of social amenities to the community in which the project is situated Contribution of the project to the development of previously underdeveloped areas or specially designated development nodes 	<p style="color: green;">Please comment on the impact of the project on social equity and poverty alleviation. Comment specifically on the indicators of relevance which are given here. (1 paragraph)</p> <ul style="list-style-type: none"> Purchasing or collecting woodfuel or fossil fuels to boil constitute a significant expense for the very poorest households and communities. The PoA will provide improved cooking stoves, which will reduce cost for families and thereby reduce child and adult morbidity and mortality, improve attendance at school, increase productivity, and more generally give a sense of hope and opportunity. ICS distribution chains offer scope for micro-entrepreneurs, thereby creating jobs and supporting families. There is a direct incentive to ensure that the projects have a successful long term operation as the carbon revenues will flow ex-post and condition to a successful monitoring phase. Polluted indoor air due to open and uncontrolled combustion is a huge health concern internationally. ICS tackle this problem by reducing the combustion of wood/fossil fuels. The PoA will alleviate the work burden of women and children as they have to spend less time to collect woodfuel

Indicators in Support of the Project Approval Criteria

Category		Indicator	Comment
General	General Project Acceptability	<ul style="list-style-type: none"> • Are the distribution of project benefits deemed to be reasonable and fair? 	<p style="color: #28a745;">Please comment on whether the benefits occurring from the project due to the contribution of the CDM are reasonable and fair. (1 paragraph)</p> <ul style="list-style-type: none"> • The PoA will provide access to improved cooking stoves, which will reduce cost for families and thereby reduce child and adult morbidity and mortality, improve attendance at school, increase productivity, and more generally give a sense of hope and opportunity.