

TEMPLATE FOR CONCEPT NOTES FOR SUSTAINABLE ENERGY FOR ALL (SE4ALL) FOR THE GAMBIA

Instructions:

- Please fill out this template for each project/programme you may have.
- All completed templates are to be sent as soft copy to se4allgambia@gmail.com on or before 15th July, 2014. Hard copies can be sent to Ministry of Energy, Futurelec Building, Bertil Harding Highway, Kotu
- For any information or clarification please contact Mr. Babucarr Bittaye, Energy Officer, Ministry of Energy, Bertil Harding Highway, Kotu. on 7365654

1) Project Title: Establishing biomass briquetting and fuel efficient domestic stoves enterprises for enhanced access to energy for all.

2) Introduction:

Inceased limitation of availability and the resulting high cost of traditional domestic fuel for cooking (wood and charcoal) are the result of population pressure and continuing desertification. Over 80 % of the national energy need is met by using these biofuels, mainly for domestic and institutional cooking.

A pilot project has been running for 2 years, field testing in 24 family compounds in 3 peri-urban communities (Abuko, Banjulinding, Sukuta) a new type of gasifying cooking stove (Furno EES), with consistent positive results. Biomass briquetting SME's using affordable appropriate technology, recycling waste biomass (paper, sawdust, agri- and garden residues for example) are also at a pilot phase.

Both technologies need urgent deliberate capital investment to develop and establish a manufacturing base for the stove for mass production and a training programme to roll-out the briquetting SME's on a national level to take advantage of the large quantities of biomass "waste" freely available.

3) Lessons learnt from previous or on-going projects/programmes:

The World Bank's BEIA initiative funded an 18 month pilot project through Concern Universal (CU) with PRSP as the main implementing partner during 2011/12. After an extensive baseline research a stove from South Africa was adapted to local conditions and 24 fuel efficient stoves were distributed in 3 communities for field trials.

Monitoring these 24 families (with 6 to 9 members) in their daily cooking activities showed that the stoves reduced cooking times for the main meal from ca. 2 hrs to 1 hr and reduced fuel use (wood or charcoal) to about 1/3 compared to traditional methods (3 stone fire or basic local stoves). The saving achieved for an average family of 7 amounted to over 500 Dalasi / month.

PRSP carried out research producing biomass briquettes from waste materials using a simple and affordable hand operated press. The briquettes were designed to be used with the fuel efficient stoves for best results but field trials have shown that they also can be used on 3 stone fires and in existing local wood burning stoves to great effect. PRSP has been carrying out small scale production mainly for research and marketing purposes and is currently training and equipping 2 community teams and 1 Lower Basic School as a pilot project.

4) Objectives:

Overall Objectives:

To generate investment in development and use local fuel sources and appropriate technology to create an affordable, sustainable and efficient supply chain for domestic energy efficient stoves and biofuel.

Specific Objectives:

- a) Establish a manufacturing base to build fuel efficient domestic stoves at a self sustaining and affordable market price.
- b) Establish biomass waste briquetting community based SME's on a national level to utilise the country's natural resources more sustainably.

5) Expected results:

Statistically, each person in The Gambia uses 1 kg of wood (or it's charcoal equivalent) for cooking / day. An average family of 7 uses 2,520 kg / year at a cost of ca. Dalasi 10,000 (D 4 / kg as of June 2014). The Furno EES can achieve a fuel saving of approximately 2/3. The average family could save approx. D 6,600 / year (D 550 / month) and ca 1.7 tons of fire wood (equivalent to approx. 2.5 tons of CO2 emissions). The Greater Banjul area has a population of approx. 700,000 people of 100,000 statistical average families. If the project aims for a market penetration of 75 % after 5 years of operation (75,000 Furno EES stoves) this would mean a combined annual saving of nearly Dalasi 500 million and over 125,000 tonnes of fire wood, reducing CO2 emissions by ca. 200,000 tonnes.

One community based briquetting team of 6 to 7 members can produce ca. 120 to 150 kg / day of briquettes made from biomass waste, providing employment and generating income of ca. D480 to D600 /day (at D4 /kg). Biomass used would be from free renewable sources (paper, sawdust, agri- and garden residues for example), making this production of an alternative fuel source a sustainable commercial proposition and beneficial for the environment.

6) Activities to be implemented:

Stove "Furno EES"

- a) Baseline research to determine best local manufacturing options (full manufacturing, parts import and local assembly for example) 1 year
- b) Set up factory, training of staff, establish local partner framework, create financing tools, design and implement marketing initiatives, build awareness 1 year

- c) Roll out stoves to reach 75 % market penetration target
(Greater Banjul Area)

5 years

Biomass briquetting

- | | |
|---|---------|
| a) Conduct national baseline research | 1 year |
| b) Establish regional training teams and training centres | 1 year |
| c) Roll out equipment manufacture and community enterprises | 3 years |

7) Beneficiaries and additional benefits:

a) Stoves:

Target groups are families in urban / peri-urban areas but mainly woman and children which are tasked with buying / collecting firewood and cooking. The stove is very save to use and reduces indoor air pollution creating additional health benefits for the users. With 75,000 stoves in operation over ½ million people would benefit directly at household level (average 7 / family).

b) Briquettes:

The project would taget community groups in peri-urban and rural areas. Up to 3,500 team members would directly benefit from generating income with up to 30,000 family members benefitting from wealth creation at family level.

8) What is the focus of your project? (tick what applies)

Access to Energy		Renewable Energy	X	Energy Efficiency	X
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9) Indicate level of community involvement (tick only one)

High	X	Medium		Low	
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10) Indicator(s)

a) Stoves:

At the end of the 7 year period 75,000 fuel efficient stoves will be in operation.

b) Biomass briquettes:

Up to 500 community based briquetting teams could be producing between 15,000 to 19,000 tonnes of biomass briquettes / year

11) Geographical Location of project:

National	X
Region	X
Provinces	X
Town/Area	X

12) The project is mainly concentrated in

Urban		Peri Urban	X	Rural	
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13) Roughly estimated budget :

	Amount (GMD)
Investment cost	
Stoves:	80 million
Briquettes: (training centres and all equipment for 500 enterprises)	30 million
Annual cost	
Stoves: first 5 years average	3 million
Briquettes: 5 years average	6 million

14) Is your project new or does your project build upon earlier/similar projects?

Please tick the response that applies.

Yes	It is totally new	
No	It builds upon earlier projects and makes some adjustments	X
	It will replicate earlier projects to other regions	
	It will upscale earlier projects in the same regions	

If "No", please give name, location and some details of earlier project

Please refer to **No 3) Lessons learned**

15) Can you roughly estimate, which share of the additional energy of this project will contribute to... (Roughly indicate the percentage share)

Options	Percentage(%)
Household use (e.g. for cooking, lighting, refrigeration,)	60 %
Productive use (by household, in agriculture, SME, bigger company,...)	20 %
Social/community use (e.g. in hospital, school, street lights,)	20 %
TOTAL	100

16) Do you have any funding for the proposed project

Please tick the appropriate responses and roughly estimate the %

Options	Possible Responses	Tick	%
Yes	some own funds		_____ % of total investment cost
	some own funds		_____ % of total annual cost
	some access to loans		_____ % of total investment cost
None of the above		X	

17) Does your organization have access to an annual budget or regular income

No	
Yes	X

If "Yes", please state (i) Amount in GMD and US Dollar equivalent (ii) source(s)

- a) Approximately D 120,000 (US\$ 3,000 @ 40/1)
- b) Generating value added products from recycled materials (such as biomass briquettes) and running training programmes in recycling techniques.

18) Details of project proposer

a. Name of organization	Paper Recycling Skills Project (PRSP) Biomass
b. and/or proposer	Recycling Research and Training Centre
c. Email address	icecool@qanet.gm
d. Phone number(s)	+220 770 7090
e. Date of Submission	15.07.2014