

# COMMUNITY COOKER FOUNDATION

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## A COMMUNITY COOKER FOR PIRATES YOUTH GROUP, NAIROBI

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### 1. BACKGROUND

The Community Cooker Foundation Ltd (CCF) is a charitable trust, founded in 2010 and set up by PLANNING Systems Services Ltd (the architectural firm that designed and developed the Cooker). It was registered under Kenyan Law as a company Limited by Guarantee in August 2017.

Having an African-led Foundation with a Board of Directors, the CCF promotes the use of the Community Cooker, which is a waste to energy technology. Using environmentally safe procedures, Community Cookers incinerate rubbish creating heat energy, which can then be used for cooking, boiling and distilling water, and baking. Community Cookers are considered a vital part of a wider network of solutions to improve waste management practices.

#### Community Cookers

- address sanitation, health and aesthetic issues associated with exposed piles of rubbish;
- provide an ecological alternative to charcoal, firewood and paraffin for cooking meals, heating and boiling water and baking; and
- act as a platform to operate income generating activities.

The Community Cooker (CC) incinerates rubbish at over 800°C; a temperature that achieves 90% combustion and meets World Health Organization (WHO) standards for safe incineration in developing countries. The Community Cooker also meets the American, European and Kenya Dry Gas Emissions Standards for Sulphur Dioxides, Nitrogen Oxides and Carbon Dioxides. It is deliberately designed to be labour intensive in order to create employment and to use locally available materials so that repairs, maintenance and operation can easily be carried out by its beneficiaries.

The Pirates Youth Group in Mathare, Nairobi was started in 2016 with the noble purpose of assisting reformed criminals aged between 10 and 25 years to re-integrate back into a life that has purpose. The group resides in Mlango Kubwa where they have inherited a social hall and farming land from the local government. They are currently engaged in waste management, livestock farming, poultry farming, water supply and library services – all which generate an income. On the weekends they bring together children and youth aged between 10 and 25 years from 500 families to mentor them and discourage them from getting into crime which is a common occurrence in their community.

The idea of supporting a Cooker in Mlango Kubwa for the Pirates Youth Group arose when the group was being evaluated for a local hero award in waste management. Their work in waste management in this informal settlement, has brought them into the forefront of local groups trying to address the rubbish problems currently facing all of Nairobi. The Pirates Youth Group has obtained permission to use the land, created a waste management system, and developed a basic community centre with determination and self-motivation. The youth are currently collecting rubbish for a small fee from neighboring areas,

sorting it for waste that can be recycled, and burning / disposing of the remainder. Unfortunately, open fire burning of the rubbish has reduced the air quality with remaining ashes cluttering the area. A Cooker will make this solid waste management system ecologically sound while providing the youth with the opportunity to bake foods and boil water for sale in the community, providing much needed income to the youth group. The Cooker will be operated and manned by the members of the Pirates Youth Group.

The most successful cookers to date exist where there are a number of important features in place: a management structure with supervision, the need or desire for cooking large quantities of food and a desire to earn income or save costs (*see the Case Study of Mirema School in Appendix 1*). The Pirates Youth Group community center in Mlango Kubwa meets these criteria.

**Objectives**

1. To install a Community Cooker in Mlango Kubwa, Nairobi, Kenya. Installation will include construction of the Cooker, sorting and drying racks for rubbish, and a hot and cold-water supply system.
2. To train the youth who will manage and cook using the Cooker on waste management and entrepreneurial skills in general and specifically on how to successfully manage a Community Cooker.
3. To supervise and monitor the use the Community Cooker for ten months after the initial implementation.

**2. OUTPUTS**

1. There will be an ecologically sound waste management system at Mlango Kubwa.
2. Unkempt piles of rubbish will be reduced around the Community Centre.
3. Breads and cakes will be baked using the Cooker, and sold to the local community.
4. Hot water for washing will be produced for cleanliness of the cooking environment and for selling to the community.
5. Boiled, clean water will be available to the children and youth at the Community Centre and for selling to the community.
6. The ambient air quality within Mlango Kubwa will be improved from no open burning of waste rubbish.

**3. IMPLEMENTATION PLAN**

*See Gantt chart of activities in Appendix 2.*

<b>ACTIVITY 1</b>	<b>Site Investigation and Design Layout</b>	The CCF team The CCF team investigates the site and determines the layout of the structures and recommend any site modifications. Data is provided to the Pirates on the best management practices.
<b>ACTIVITY 2</b>	<b>Sensitization and Business Case Development</b>	The Pirates Youth Group, in collaboration with the CCF, plans and carries out waste management campaigns to ensure enough rubbish is available for the hours the Cooker will be operated. Based on data collected during Activity 1, the CCF shall work hand in hand with Mlango Kubwa to develop a Business Case specific to their intended use of the Community Cooker.

<b>ACTIVITY 3</b>	<b>Approvals</b>	The CCF assists in obtaining County Government and National Environmental Management Authority (NEMA) approvals for the installation of the Community Cooker.
<b>ACTIVITY 4</b>	<b>Procurement and Construction</b>	The CCF spearheads the procurement of materials and construction of the Community Cooker. Selected youth will participate in the construction process as a form of training and employment.
<b>ACTIVITY 5</b>	<b>Technical Training</b>	The CCF conducts technical training on Operation and Process Safety Management (PSM). The CCF re-engages the operators and managers during Monitoring and Evaluation visits to ensure all the matters covered during training were understood.
<b>ACTIVITY 6</b>	<b>Monitoring and Evaluation</b>	CCF will conduct routine supervision visits collecting monitoring data, which will include testing the Cooker's air quality/heat levels as well as problems and challenges encountered. The CCF will work with the Pirates in problem solving. Pirates Youth Group shall submit a monthly pre-formatted Project Progress Report regarding the operation of the Cooker that month, including the quantity of rubbish burnt, the amount of food cooked, water boiled, and income (net and gross).
<b>ACTIVITY 7</b>	<b>Reporting to our donors</b>	A short report is produced containing background information about the site (week 2). When approvals and materials are in hand and construction is due to start another report will be submitted. Weekly updates on construction progress are done during the 6 weeks of construction. After training and implementation start-up, a training report is done. Monthly updates starting at week 16 are produced. A final Project Report will be completed at the end of the year.

#### **4. SHARING RESULTS**

The CCF has social media platforms and a website under construction. It also produces brochures and other promotional material on a routine basis to share with donors, beneficiaries and the general public. Whenever information about the Pirates Youth Group Cooker is included reference will be made to Global Giving.

#### **5. BUDGET**

The budget for this project is USD 25,000 (shown in *Appendix 3*). The costs shown for the building, supervision, monitoring and reporting do not include the basic overheads of the CCF which are funded by PLANNING Systems Services. Pirates Youth Group will contribute about USD 3,000 either in cash or in kind. A contingency is added to cover unexpected exchange rate fluctuations and commodity prices.

## APPENDIX 1:

### Cooking Fuel Cost Savings for Mirema School



*Mirema School Community Cooker in operation*

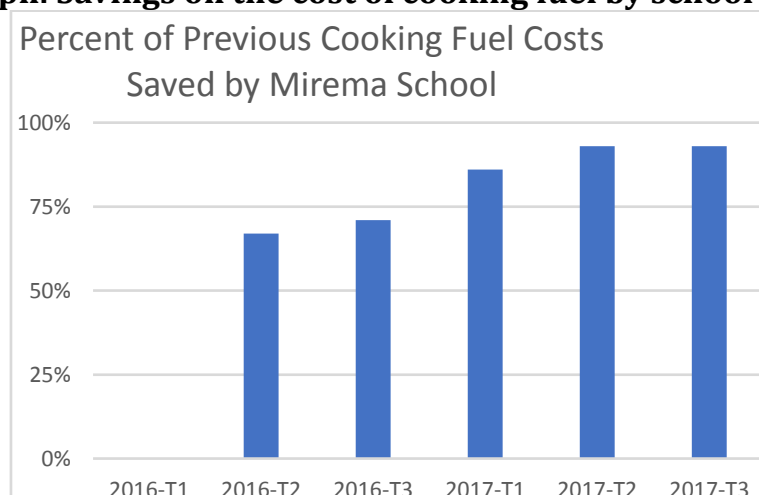
Mirema School, located along Thika Road in Nairobi, is a mixed day and boarding primary school with 800 students. The school offers the Kenya 8-4-4 system, British Curriculum and a differently-abled programme.

The school prepares three meals a day, including a tea and porridge breakfast for all staff and students. Before April 2016, cooking was done on firewood jikos (local open stoves) that consumed approximately 500 kg of firewood per week or 7000 kg of firewood per term of 14 weeks.

The Community Cooker was built and operationalized in April 2016. Since then, the school has significantly cut down on its wood fuel consumption. By the end of 2017, the school was saving 93% on their cooking fuel costs (see graph and Table 2 on the next page).

Table 1 illustrates the types of foods prepared at Mirema School on the Community Cooker, with the usual quantity cooked and the cooking time required.

#### **Graph: Savings on the cost of cooking fuel by school term**



**Table1: Quantity and Cooking time for Usual Foods**

<b>FOOD COOKED</b>	<b>QUANTITY OF FOOD (Kgs)</b>	<b>DURATION USING CC (Hrs)</b>
Rice	62	5
Githeri	9	4
Chapati	23 (pkts)	1
Sukuma	30	1.5

**Table 2: Data on Fuel Wood Consumption and Savings per Term**

<b>Year</b>	<b>Term</b>	<b>Quantity of Firewood purchased (Kg)</b>	<b>Cost of Firewood Purchased (KES)</b>	<b>Quantity of Firewood consumed (Kg)</b>	<b>Cost of Firewood consumed (KES)</b>	<b>Savings from using the Cooker (KES)</b>	<b>% Savings in Fuel Costs (%)</b>	<b>% Savings per Year in Fuel Costs (%)</b>
<b>2015</b>	Term 1 (Jan - March)	7,000	70,000	7,000	70,000	na	na	<b>na</b>
	Term 2 (May-July)	7,000	70,000	7,000	70,000	na	na	
	Term 3 (Sept - Nov)	7,000	70,000	7,000	70,000	na	na	
<b>2016</b>	Term 1 (Jan - March)	7,000	70,000	7,000	70,000	na	na	<b>46%</b>
	Term 2 (a) (May-July)	5,000	50,000	2,300	23,000	47,000	67%	
	Term 3 (Sept - Nov)	0	0	2,000	20,000	50,000	71%	
<b>2017</b>	Term 1 (Jan - March)	7,000	70,000	1,000	10,000	60,000	86%	<b>90%</b>
	Term 2 (May-July)	0	0	500	5,000	65,000	93%	
	Term 3 (Sept - Nov)	0	0	500	5,000	65,000	93%	

(a) Community cooker installed April 2016



## APPENDIX 2: Gantt Chart of Activities

**Gantt Chart of Activities**

ACTIVITY	DESCRIPTION	DURATION	WEEK																											
			1	2	3	4	5	6	7	8	9	10	11	12	13	16	20	24	28	32	36	40	44	48	52					
1	Site Investigation And Design Layout	2 Weeks																												
2	Sensitization And Business Case Development	12 Weeks																												
3	Approvals	3 Weeks																												
4	Procurement And Construction	6 Weeks																												
5	Technical Training	2 Weeks																												
6	Monitoring And Evaluation	52 Weeks																												
7	Reporting																													
	- Site finalization																													
	- Weekly construction updates																													
	- Training and operationalization report																													
	- Monthly operation updates																													
	- Final report																													



*Community Cooker under construction*



*Community Cooker ready for action!*

### APPENDIX 3: Budget for One Community Cooker at Pirates Youth Group

Description	Cost (KES)	Cost (rounded USD)
<b>Pre- construction</b>	<b>706,500</b>	<b>7,065</b>
Site Investigation and Design Layout	157,500	1,575
Sensitization and Business Case Development	200,000	2,000
Statuary Approvals	190,500	1,905
Procurement and Appointment	158,500	1,585
<b>Construction Materials, Labour and Approvals</b>	<b>1,461,185</b>	<b>14,612</b>
Community Cooker Unit with Hot and Cold-Water System Materials	649,060	6,491
Walling, Flooring and Roofing Materials	401,125	4,011
Rubbish Rack Materials	67,000	670
Labour	294,000	2,940
Transportation of Materials	50,000	500
<b>Post Construction</b>	<b>400,000</b>	<b>2,817</b>
Technical Training	100,000	1,000
Monitoring and Evaluation	300,000	3,000
<b>Total Cost</b>	<b>2,567,685</b>	<b>24,494</b>
<b>Glad's House Contribution*</b>	<b>300,000</b>	<b>3,000</b>
Rubbish Rack	67,000	670
Licenses and Approvals	30,000	300
Labour	50,000	500
Materials	153,000	1,530
<b>Net Cost</b>	<b>2,267,685</b>	<b>22,677</b>
Contingency	32,000	320
<b>Requested Funds</b>	<b>2,299,685</b>	<b>22,997</b>

Not included in the budget are the basic overhead costs of the CCF, including cost of office space, utilities, communication, staff, and equipment which are all met by PLANNING Systems Services Ltd.

\* Glad's House will provide accommodation for CCF staff during construction and Monitoring and Evaluation Visits

Exchange rate used \$1 = KES 100