

**PROJECT PROPOSAL**

**-FOR-**



**ENERGY-SMART SCHOOLS PROJECT KENYA**

**-REVISED IN-**

**MARCH 2017**

**-SUBMITTED TO-**

**ACTION CONNECTED  
YOUTH CLIMATE ACTION CHALLENGE**

**-SUBMITTED FROM-**

**SUSTAINABLE ENERGY FOUNDATION AFRICA, SUSEFA**

**-BY-**

**JAPHETH OMARI**

## PROJECT TITLE: ENERGY-SMART SCHOOLS PROJECT, KENYA

General information	
<b>Organisation Name:</b>	Sustainable Energy Foundation Africa
Website:	<a href="http://www.susefa.org">www.susefa.org</a>
Email:	<a href="mailto:info@susefa.org">info@susefa.org</a>
<b>Contact Person</b>	Japheth Omari
Email:	<a href="mailto:japheth.omari@susefa.org">japheth.omari@susefa.org</a> / <a href="mailto:japhethomari@gmail.com">japhethomari@gmail.com</a>
Phone Number	254738512190
Project Details	
<b>Project Name:</b>	Energy-Smart Schools Kenya Project
Classification:	1,4,6,7,8 & 21
Project Location:	Kenya
<b>Fund-raising Target:</b>	US\$ 138062.5
Currency:	US Dollars

### Project Description

Energy-Smart Schools Project is about laying the foundation for a sustainable future today. It is all about empowering the young generation to take an active role in Energy Efficiency (EE). The project goal is to promote rational use of energy in schools through encouraging students' participation in Energy Efficiency (EE) activities. Participants will engage in interactive debates and essay competitions on EE issues and enlist in interactive energy audit exercises. Students will compete to win a study visit to the Center for Energy Efficiency and Conservation. Schools will also compete for an Energy Efficiency Improvement project development opportunity with SUSEFA.

### Project Objective

The main objective of this project is to promote energy efficiency in schools through actively engaging students in energy efficiency activities.

### Project outcomes

The expected project outcome is lower energy costs in schools, increased awareness on energy efficiency and reports on policy recommendations to policy-makers.

### Justification

Electrical energy in Kenya is expensive and has been inadequate in the recent past. To make it affordable and ensure energy security, energy efficiency cannot be overemphasized. Studies have shown that up to 30% of energy in the country is wasted (Industrial Energy Efficiency Network (IEEN) 2002). As indicated in the draft energy policy, the Government aims to reduce energy losses to less than 8%. This will be accomplished through promoting Energy Efficiency (EE) and Renewable Energy to enhance sustainability in the use of energy. Currently the cost of electricity is at US\$ 0.20/kWh. This high cost has led to various institutions being disconnected from electrical supply due to unpaid

electricity bills. Schools have been one of the affected institutions as they have limited resources to cater for their monthly expenses including electricity bills. This disruption affects learning and students lose valuable time that could have been spent in studying and extra-curricular activities.

An equally important fact is that 33% of Electricity in Kenya is generated from fossil fuels that contribute to global Green House Gases (GHGs) emissions (worked out from Kenya Power Annual Report 2015 pg 125 & 126). Subsequently, as more energy is wasted, more is generated from diesel power plants to compensate for losses resulting in more GHGs emissions. Therefore, Energy Efficiency (EE) not only saves money, but also reduces global warming. Without doubt, introducing students to EE concepts creates a ripple effect throughout the nation. As they join their families at home after school, they certainly put to practice the knowledge acquired. Thus, they became EE ambassadors in their homes and neighborhoods. The effect grows further later in life when they start their own families or run organizations. By introducing EE in schools, we are certainly creating an efficient future generation. The need to change the current state of affairs has inspired us to initiate this project.

## **Methodology**

In this project 20 secondary schools selected from Central, Eastern, Rift Valley and Western Kenya regions will take part. The selection criteria will be based on energy consumption levels. Five schools with the highest average energy consumption will be chosen per region. The project will entail Energy Efficiency awareness through trainings, essay competitions, interactive debates, a study visit, energy audits and Energy Efficiency Improvement project development opportunities (free consultancy to develop capital intensive Energy Efficiency Projects that may include efficient cook-stoves, solar water heating systems or biogas digesters for cooking that can attract funding).

## **Project Activities/Schedule**

- 1. Selection of participating Schools and Promotion Campaigns: Aug-Sept 2017**  
Measurement/reporting criteria: A list of participating schools/promotion report
- 2. Introductory interactive training and essay competition: Oct- Dec 2017**  
Measurement/ reporting criteria: Training progress report and Essay Competition results.
- 3. Interactive training and Inter- School Energy Efficiency debating competitions: Jan-Mar 2018**  
Measurement/reporting criteria: Training progress report and Debate Contest Results
- 4. Interactive energy audits involving Energy Efficiency student ambassadors: Apr-Jun 2018**  
**Measurement/reporting criteria:** Audit schedules, and preliminary reports
- 5. Audit Reports presentation and Launch of Youth Energy-Smart-Movement (YESM): Jul-Aug 2018**  
Measurement/reporting criteria: Final Audit report and YESM launch report.
- 6. Winners declaration and study visit-Centre for Energy Efficiency and Conservation: Sep 2018**  
Measurement/reporting criteria: Study visit report
- 7. Energy Efficiency Improvement Projects Data Collection and Evaluation: Oct 2018**  
Measurement/reporting criteria: Collected data
- 8. Energy Efficiency Improvement Project development: Oct-Nov 2018**  
Measurement/reporting criteria: Preliminary EE Improvements project reports
- 9. Presentation of final Energy Efficiency Improvement proposals and reports: Dec 2018**

Measurement/reporting criteria: Final EE Improvements projects report and proposals.

#### 10. Final project evaluation: Jan 2019

Measurement/reporting criteria: Final project report/returns/policy recommendation reports

**N/B:** Essay competitions and Debating contests will be the basis of selecting 40 students to take part in the study visit to the Centre for Energy Efficiency and Conservation (CEEC). CEEC is a body run by the Ministry of Energy in conjunction with the Kenya Association of Manufacturers that is mandated to promote Energy Efficiency activities in Kenya.

SUSEFA has made contacts with CEEC, Ministry of Energy and the Energy Regulatory Commission (ERC). The Director, Energy Efficiency at ERC has assured us that our findings/policy recommendations will be presented to Parliamentary Energy Committee initiate policy formulation for Energy Efficiency in Households and possible Energy Efficiency curriculum introduction in secondary schools. Therefore, data collected in this project will be present as reports with policy suggestions to policy-makers.

Youth Energy Smart Movement (YESM) launched in this project will champion society behavioral change through the example set by student members, at school, home and society at large. Continuous youth engagement in Energy Efficiency activities will ensure progressive transfer of knowledge and overall continuity of responsible practices.

### Budget Breakdown

The **estimated budget** for this project is **US\$ 138,062.50**. The budget breakdown is as summarized in the table below.

Project Cost Summary	
Description	Cost(US\$)
Equipment Costs	14500
Personnel costs	75500
Transportation Costs	19562.5
Office & Administrative Expenses	9500
Accomodation/Hotels Expenses	4500
Study Visit	2500
Adverts, Marketing & Media Campaigns	12000
<b>Total Project Cost (US\$)</b>	<b>138062.50</b>

Table 3a; Project Cost Summary

The following tables list cost breakdown for project personnel, equipment, and transportation costs.

Estimated Project Costs for Hired Transportation					
Project component	Av distance/sch(KM)	Trips/Sch	Total Trips	Fuel Cost/KM (\$)	Total(\$)
Selection and promotion campaign	550	1	25	0.05	687.5
Essay Competitions/Training	550	2	50	0.05	2750
Debate Contests/Training	550	2	50	0.05	2750
Interactive Energy Audits	550	3	50	0.05	4125
Audit Reports/YESM launch	550	1	25	0.05	687.5
Winners/ Study Visit	550	1	25	0.05	687.5
Data Analysis/ EE Project Dev	550	1	25	0.05	687.5
Present EE Project Proposals	550	1	25	0.05	687.5
Final Evaluation	550	2	50	0.05	2750
<b>Total Fuel Costs(\$)</b>					<b>15812.5</b>
<b>Project Motor Vehicle Lease</b>					
Annual Motor Vehicle Lease cost year 1					<b>2500</b>
Annual Motor Vehicle Lease cost year2					<b>1250</b>
<b>Total Transportation Cost (US \$)</b>					<b>19562.5</b>

Table 3b: Transportation costs

Project Personnel Costs				
Staff	No. Required	Period Engaged(Months)	Salary (\$)	Total Pay
Project Director	1	15	1200	18000
Project Coordinator	1	15	900	13500
Field Officers	4	15	600	36000
Energy Aditor(Consultant)	1	2	4000	8000
<b>Total Cost(\$)</b>				<b>75500</b>

Table 3c: Personnel costs

Project Equipment Costs			
Description	Quantity	Unit Cost	Cost
Projectors	2	950	1900
Laptop Computers	4	800	3200
White Board	2	450	900
PA system	2	850	1700
Back-up Diesel Generator	2	700	1400
EE demonstration equipment sets)	2	1200	2400
Energy measuring Equipment (sets)	2	1500	3000
<b>Total Cost(USD)</b>			<b>14500</b>

Table 3d: Equipment costs

## **Funding Sources**

SUSEFA has identified KR Foundation and Ashden Trust as potential financiers. Grant application for KR Foundation is in progress. As of now, we have not raised any finances.

In case of **partial funding**, the project can be implemented in four phases, that is, two regions per phase. The first phase will cover the cost of equipment and a better part of project promotion and will cost **US\$ 50,000**. Each additional phase will cost **US\$ 29,355**

## **Project resources**

### **a) Management**

SUSEFA's top management has vast experience and skills to successfully carry out this project. The top management organ in SUSEFA is the Executive of Directors consisting of 3 Directors. The current board executive members are listed below:

#### **Japheth Omari – Chairman**

Japheth holds a Bsc (Electrical Engineering Degree- UoN), MEng( Energy and Environmental Management in Developing Countries- European University Flensburg) and has trained on Sustainable Energy Regulation and Policy Making for Africa-UNIDO, Efficient Energy Use and Planning-Life Academy, Climate Change-UNITAR and Renewable Energy Regulation-IRENA courses.

#### **Evans Onchonga – Secretary**

Evans holds a Bsc (Civil and Structural Engineering- UoN) and has great experience in the construction industry, green buildings, sustainable urban development, project management and Wind/Solar Energy application in irrigation systems, industry including hydro-power civil works and construction, wind masts structures and other massive infrastructure projects.

#### **Larvinia Onduko – Treasurer**

Larvinia holds a MSc (Mobile Telecommunications and Innovation- Strathmore) and Bsc (Information Technology-MMU). She has experience in use ICT in agriculture to enhance crop productivity, curbing wastage in storage and transportation to markets. She is the Team Leader and Lead Developer Mkulima App an award-winning application targeting farmers in Kenya.

In addition to these, SUSEFA has a Projects Committee Comprising of the following;

1. Japheth Omari-Chairman
2. Phyllis Ogowora -Secretary
3. Douglas Makori-Member

The chairperson of this committee also serves as the Projects Director. He is responsible for managing the project team hired by the Project Committee and approved by the board.

### **(b) Personnel**

For this project, SUSEFA will hire a project coordinator with four field officers.

The project coordinator will lead this team to carry out the project activities listed above.

The project director will oversee the overall project planning and implementation progress and report to the board. In addition to these, an Energy Auditor Consultant will be hired during the Audit exercises.

Project Personnel Summary	No. Required
Projects Director	1
Project Coordinator	1
Project Officers	4
Energy Audit Consultant (during Energy Audit exercise)	1

Table 2.3.1; Project personnel summary

**c) Project Communication and Dissemination**

Project communication will be through regular reports and the end of each activity to stakeholders. At the end of the project, audit reports and feasible Energy Efficiency Improvement Projects proposals will be presented to schools. Also, a baseline report will be published and availed to policy makers and other stake-holders.

**Project Social Economic Benefits**

Improving energy efficiency in Kenyan schools can produce substantial energy, environmental, and economic benefits, including:

1. **Reduced energy costs;** By implementing energy efficiency measures, schools will be able to significantly reduce energy costs
2. **Reduce greenhouse gas (GHG) emissions and other environmental impacts;** Improving energy efficiency in school helps to reduce GHGs emissions and since there is decreased consumption of fossil fuels and biomass.
3. **Increase economic benefits through job creation and market development;** Investing in energy efficiency can stimulate the local economy and encourage development of Energy Efficiency service markets like the Improved Cook-Stoves , Energy Efficient equipment and energy auditing services.
4. **Develop energy efficient future leaders;** Schools shape a nation. Thus, improving energy efficiency can provide an opportunity to introduce children to important energy and environmental issues.
5. **Improved student performance;** Engaging students in EE activities will increase their interest in energy related studies hence have better grades
6. **Enhance educational opportunities;** schools can use energy efficiency improvements as opportunities to adapt academic curricula to promote awareness of energy and environmental issues.
7. **Increase security and safety;** energy-efficient exterior lighting can enhance security while reducing energy costs by providing effective and even light distribution. Also, there will be reduced disconnection due to unpaid bills.
8. **Energy Efficiency policy;** data collected in this project will be analyzed to identity policy gaps and presented as reports and policy recommendations to policy makers to assist in formulating regulations to promote Energy Efficiency in Kenyan institutions/house

## **Sustainability**

SUSEFA will continually engage with the schools even after the project is completed to assist in implementing EE Improvement projects. Youth-Energy-Smart-Movement (YESM), a would-be product of this project, will be very important in ensuring sustainability of this project. Therefore, SUSEFA will dedicate a lot of time in providing guidance to YESM as students engage in EE activities in their schools or regions. We aim to make YESM be present in every school in the country thus promote Energy Efficiency in Kenya through youth action. These students will transfer knowledge to the society from their homes and thus promote overall behavioral change in their respective communities. Later in life, they will transfer the knowledge in their families and places of work. At the end of the project data collected, will be analyzed to identify barriers and policy gaps to be later presented as reports with policy recommendations to policy makers to lobby for formulation of regulations to promote Energy Efficiency in households and institutions and its possible introduction to school curriculum.

## **Summary**

Energy-Smart Schools Kenya Project presents a very interesting opportunity to invest in the future. Schools shape a nation. School children are our future leaders. Giving them an opportunity to engage in Energy Efficiency equals to securing the future of our planet. SUSEFA is seeking to fundraise **US\$ 138,062.50** for this worthy cause. SUSEFA believes in the power of youth leaders in Schools. This Project will unleash the power of the Youth in Energy Efficiency in Kenya therefore build an efficient country and continent at large. **Youth Action for Climate Change challenge** is an opportunity to place this project on global scale so that the lessons and experiences learnt can be replicated all over the world. Indeed, Energy Efficiency is the most important single future source of energy. None other single energy source has the potential of reducing global GHGs at a low cost as does Energy Efficiency. Hence, promoting Energy Efficiency equals saving the planet Earth for the future generations.

## **Sources**

1. Republic of Kenya '*Kenya National Energy Policy Final Draft 2014*'
2. Kenya Power and Lighting Company '*Kenya Power Annual Report 2015*'
3. UNDP Kenya Country Office '*Market Transformation for Highly Efficient Biomass Stoves for Institutions in Kenya*'
4. Republic of Kenya '*Energy Management Regulations 2012*'